PORTFOLIO MANAGEMENT

M.Com., (Banking)

Semester – IV, Paper-II

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FOREWORD

Since its establishment in 1976, Acharya Nagarjuna University has been forging ahead in the path of progress and dynamism, offering a variety of courses and research contributions. I am extremely happy that by gaining 'A' grade from the NAAC in the year 2016, Acharya Nagarjuna University is offering educational opportunities at the UG, PG levels apart from research degrees to students from over 443 affiliated colleges spread over the two districts of Guntur and Prakasam.

The University has also started the Centre for Distance Education in 2003-04 with the aim of taking higher education to the door step of all the sectors of the society. The centre will be a great help to those who cannot join in colleges, those who cannot afford the exorbitant fees as regular students, and even to housewives desirous of pursuing higher studies. Acharya Nagarjuna University has started offering B.A., and B.Com courses at the Degree level and M.A., M.Com., M.Sc., M.B.A., and L.L.M., courses at the PG level from the academic year 2003-2004 onwards.

To facilitate easier understanding by students studying through the distance mode, these self-instruction materials have been prepared by eminent and experienced teachers. The lessons have been drafted with great care and expertise in the stipulated time by these teachers. Constructive ideas and scholarly suggestions are welcome from students and teachers involved respectively. Such ideas will be incorporated for the greater efficacy of this distance mode of education. For clarification of doubts and feedback, weekly classes and contact classes will be arranged at the UG and PG levels respectively.

It is my aim that students getting higher education through the Centre for Distance Education should improve their qualification, have better employment opportunities and in turn be part of country's progress. It is my fond desire that in the years to come, the Centre for Distance Education will go from strength to strength in the form of new courses and by catering to larger number of people. My Congratulations to all the Directors, Academic Coordinators, Editors and Lesson-writers of the Centre who have helped in these endeavours.

Prof. Raja Sekhar Patteti
Vice-Chancellor
***Acharya Nagarjuna* University**

M.Com.,(Banking)

Semester – IV, Paper-II

412CO21: PORTFOLIO MANAGEMENT

SYLLABUS

Unit: 1

The Investment Process- Milestones Portfolio Management – Investment Objectives and Constraints of the different groups of investors: Private Investors, Pension funds, Insurance companies – Foundations and endowments, Banks.

Unit: II

Assessment of market expectations: The analytical Process, Limitations of economic data and analysis methods, Psychological Traps, Basic model group, Economic analysis and market forecasts.

Unit: III

Portfolio Analysis and Selection: Portfolio Return and Portfolio Risk – Modern Portfolio Theory: Markowitz Theory – Williams Sharpe's Single Index Model – Capital Asset Pricing Model(CAPM) – Arbitrage Pricing Theory(APT) – Efficient Market Hypothesis(EMH)

Unit: IV

Portfolio Evaluation and Revision: Methods of Portfolio Evaluation – Sharpe's, Treynor's and Jensen's measures of portfolio performance evaluation – Fama's decomposition of portfolio – Return –portfolio Revision: Need , Constraints, Strategies.

Unit: V

Managing a portfolio of stocks: Active and passive Management of a portfolio of stocks, Equity Indices, Tools passive investing, Investment styles, Analysis of investment styles based on portfolio and income, A market-neutral investment.

FURTHER READINGS:

1. S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
2. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
3. J.C.Francis: Investments analysis and management
4. R.J Fuller and J.L.Farrel: Modern Investments and Security Analysis
5. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
6. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance

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LESSON-1
PORTFOLIO MANAGEMENT: MILESTONES INVESTMENT PROCESS & INVESTMENT OBJECTIVES

OBJECTIVES

After studying this lesson student should be able to:

- Know the concept of Key Elements & Types of Portfolio Management
- Understand the Common Portfolio Management Strategies
- Importance of Practices for Effective Portfolio Management

STRUCTURE

1.1. INTRODUCTION

Portfolio Management: Portfolio management is the art and science of selecting and overseeing a group of investments that meet the long-term financial objectives and risk tolerance of a client, a company, or an institution. Some individuals do their own investment portfolio management. That requires a basic understanding of the key elements of portfolio building and maintenance that make for success, including asset allocation, diversification, and rebalancing. Broadly speaking, there are only two types of portfolio management strategies: passive investing and active investing. Passive management is a set-it-and-forget-it long-term strategy. Often referred to as indexing or index investing, it aims to duplicate the return of a particular market index or benchmark and may involve investing in one or more exchange-traded (ETF) index funds. Active management involves attempting to beat the performance of an index by actively buying and selling individual stocks and other assets. Closed-end funds are generally actively managed. A portfolio's meaning can be defined as a collection of financial assets and investment tools that are held by an individual, a financial institution or an investment firm.

Asset allocation involves spreading the investor's money among different asset classes so that risks are reduced and opportunities are maximized. Stocks, bonds, and cash are the three most common asset classes, but others include real estate, commodities, currencies, and crypto. Within each of these are sub-classes that play into a portfolios allocation. For instance, how much weight should be given to domestic vs. foreign stocks or bonds? How much to growth stocks vs. value stocks? And so on. Diversification involves owning assets and asset classes that have been shown over time to move in opposite directions. When one asset class performs poorly, other asset classes usually prosper. This provides a cushion to your portfolio, offsetting losses. Moreover, financial mathematics shows that proper diversification can increase a portfolio's overall expected return while reducing its riskiness.

1.2. OBJECTIVE OF PORTFOLIO MANAGEMENT:

The objective of portfolio management is to create and maintain a personalized plan for investing over the long term in order to meet an individual's key financial goals. This means selecting a mix of investments that matches the person's responsibilities, objectives, and appetite for risk. Further, it means reevaluating the actual performance of the portfolio over time to make sure it is on track and to revise it as needed.\ An investment portfolio manager meets with a client one-on-one to get a detailed picture of the person's current financial situation, long-term goals, and tolerance for risk. From there, the portfolio manager can draw up a proposal for how the client can meet their goals. If the client accepts the plan, the portfolio can be created by buying the selected assets. The client may start out by contributing a lump sum, or add to the portfolio's balance periodically, or both. The portfolio manager takes responsibility for monitoring the assets and making changes to the portfolio as needed, with the approval of the client. Portfolio managers generally charge a fee for their service that is based on the client's assets under management.

1.3. UNDERSTANDING PORTFOLIO MANAGEMENT

Regardless of the strategy chosen, portfolio management always faces several hurdles that often cannot be eliminated entirely. Even if an investor has a foolproof portfolio management strategy, investment portfolios are subject to market fluctuations and volatility which can be unpredictable. even the best management approach can lead to significant losses.

Though diversification is an important aspect of portfolio management, it can also be challenging to achieve. Finding the right mix of asset classes and investment products to balance risk and return requires a deep understanding of the market and the individual investor's risk tolerance. It may also be expensive to buy a wide range of securities to meet the desired diversification.

To devise the best portfolio management strategy, an investor must first know their risk tolerance, investment horizon, and return expectations. This requires a clear short-term and long-term goal. Because life circumstances can quickly and rapidly change, investors must be mindful of how some strategies limit investment liquidity or flexibility. In addition, the IRS may implement changes to tax legislation that may force changes to your ultimate strategy.

Last, should an investor turn to a portfolio manager to manage their investments, this will incur a management fee. The portfolio manager must often meet specific regulatory reporting requirements, and the manager may not have the same opinions or concerns about the market as you do.

Professional licensed portfolio manager's work on behalf of clients, while individuals may choose to build and manage their own portfolios. In either case, the portfolio manager's ultimate goal is to maximize the investments' expected return within an appropriate level of risk exposure. Portfolio management requires the ability to weigh strengths and weaknesses, opportunities and threats across the full spectrum of investments. The choices involve trade-offs, from debt versus equity to domestic versus international, and growth versus safety.

Practice trading with virtual money: Find out what a hypothetical investment would be worth today. Anyone who wants to grow their money has choices to make. You can be your own investment portfolio manager or you can hire a professional to do it for you. You can choose a passive management strategy by putting your money in index funds. Or, you can try to beat the markets by moving your money more frequently from one asset to another. In any case, you'll want to pay attention to the basics of portfolio management: pick a mix of assets to lower your overall risk, diversify your holdings to maximize your potential returns, and rebalance your portfolio regularly to keep the mix right.

Investment portfolio management involves building and overseeing a selection of assets such as stocks, bonds, and cash that meet the long-term financial goals and risk tolerance of an investor. Active portfolio management requires strategically buying and selling stocks and other assets in an effort to beat the performance of the broader market.

Passive portfolio management seeks to match the returns of the market by mimicking the makeup of an index or indexes. Investors can implement strategies to aggressively pursue profits, conservatively attempt to preserve capital, or a blend of both. Portfolio management requires clear long-term goals, clarity from the IRS on tax legislation changes, understanding of investor risk tolerance, and a willingness to study investment options.

1.4. KEY ELEMENTS OF PORTFOLIO MANAGEMENT

a) Asset Allocation: The key to effective portfolio management is the long-term mix of assets. Generally, that means stocks, bonds, and cash equivalents such as certificates of deposit. There are others, often referred to as alternative investments, such as real estate, commodities, derivatives, and crypto currency. Asset allocation is based on the understanding that different types of assets do not move in concert, and some are more volatile than others. A mix of assets provides balance and protects against risk. Investors with a more aggressive profile weight their portfolios toward more volatile investments such as growth stocks. Investors with a conservative profile weight their portfolios toward stabler investments such as bonds and blue-chip stocks. Rebalancing captures recent gains and opens new opportunities while keeping the portfolio in line with its original risk/return profile.

b) Diversification: The only certainty in investing is that it is impossible to consistently predict winners and losers. The prudent approach is to create a basket of investments that provides broad exposure within an asset class. Diversification involves spreading the risk

and reward of individual securities within an asset class, or between asset classes. Because it is difficult to know which subset of an asset class or sector is likely to outperform another, diversification seeks to capture the returns of all of the sectors over time while reducing volatility at any given time. Real diversification is made across various classes of securities, sectors of the economy, and geographical regions.

c) Rebalancing: Rebalancing is used to return a portfolio to its original target allocation at regular intervals, usually annually. This is done to reinstate the original asset mix when the movements of the markets force it out of kilter. For example, a portfolio that starts out with a 70% equity and 30% fixed-income allocation could, after an extended market rally, shift to an 80/20 allocation. The investor has made a good profit, but the portfolio now has more risk than the investor can tolerate. Rebalancing generally involves selling high-priced securities and putting that money to work in lower-priced and out-of-favor securities. The annual exercise of rebalancing allows the investor to capture gains and expand the opportunity for growth in high-potential sectors while keeping the portfolio aligned with the original risk/return profile.

d) Tax-Efficiency: A potentially material aspect of portfolio management relates to how your portfolio is shaped to minimize taxes in the long-term. This pertains to how different retirement accounts are used, how long securities are held on for, and which securities are held. For example, consider how certain bonds may be tax-exempt. This means that any dividends earned are not subject to taxes. On the other hand, consider how the IRS had different rules relating to short-term or long-term capital gains taxes. For individuals earning less than $41,675 in 2023, their capital gains rate may be $0. On the other hand, a short-term capital gains tax of 15% may apply if your income is above this IRS limit.1 *Portfolio management encompasses investments across all vehicles such as cash accounts, 401(k)s, IRAs, and other retirement accounts.*

1.5. TYPES OF PORTFOLIO MANAGEMENT

Portfolio managers engaged in active investing pay close attention to market trends, shifts in the economy, changes to the political landscape, and news that affects companies.

This data is used to time the purchase or sale of investments in an effort to take advantage of irregularities. Active managers claim that these processes will boost the potential for returns higher than those achieved by simply mimicking the holdings on a particular index. Trying to beat the market inevitably involves additional market risk. Indexing eliminates this particular risk, as there is no possibility of human error in terms of stock selection. Index funds are also traded less frequently, which means that they incur lower expense ratios and are more tax-efficient than actively managed funds.

a) **Active Portfolio Management:** Active management involves attempting to beat the performance of an index by actively buying and selling individual stocks and other assets. Closed-end funds are generally actively managed. Active managers may use any of a wide range of quantitative or qualitative models to aid in their evaluations of potential investments. Investors who implement an active management approach use fund managers or brokers to buy and sell stocks in an attempt to outperform a specific index, such as the Standard & Poor's 500 Index or the Russell 1000 Index.

An actively managed investment fund has an individual portfolio manager, co-managers, or a team of managers actively making investment decisions for the fund. The success of an actively managed fund depends on a combination of in-depth research, market forecasting, and the expertise of the portfolio manager or management team.

b) Passive Portfolio Management: Passive management is the set-it-and-forget-it long-term strategy. It may involve investing in one or more exchange-traded (ETF) index funds.

This is commonly referred to as indexing or index investing. Those who build indexed portfolios may use modern portfolio theory (MPT) to help them optimize the mix.

Passive portfolio management, also referred to as index fund management, aims to duplicate the return of a particular market index or benchmark. Managers buy the same stocks that are listed on the index, using the same weighting that they represent in the index.

A passive strategy portfolio can be structured as an exchange-traded fund (ETF), a mutual fund, or a unit investment trust. Index funds are branded as passively managed because each has a portfolio manager whose job is to replicate the index rather than select the assets purchased or sold.

The management fees assessed on passive portfolios or funds are typically far lower than active management strategies.

c) Discretionary Portfolio Management vs. Non-Discretionary Portfolio Management

Another critical element of portfolio management is the concept of discretionary and non-discretionary management. This portfolio management approach dictates what a third-party may be allowed to do relating to your portfolio.

A discretionary or non-discretionary management style only pertains to if you have an independent broker managing your portfolio. If you only want the broker to execute trades that you have explicitly approved, you must opt for a non-discretionary investment account. The broker may advise on strategy and suggest investment moves. However, without your approval, the broker is simply an adviser that must follow your discretion.

On the other hand, some investors would prefer placing all of the decision-making in the hands of their broker or financial manager. In these situations, the financial adviser can buy or sell securities without the approval of the investor. The adviser still has a fiduciary responsibility to act in their client's best interest when managing their portfolio.

1.6. COMMON PORTFOLIO MANAGEMENT STRATEGIES

Every investor's specific situation is unique. Therefore, while some investors may be risk-averse, others may be inclined to pursue the greatest returns (while also incurring the greatest risk). Very broadly speaking, there are several common portfolio management strategies an investor can consider:

I. **Aggressive:** An aggressive portfolio prioritizes maximizing the potential earnings of the portfolio. Often invested in riskier industries or unproven alternative assets, an

investor may not care about losses. Instead, the investor is looking for the "home run" investment by striking it big with a single investment.

II. **Conservative:** On the other hand, a conservative portfolio relates to capital preservation. Extremely risk-adverse investors may adopt a portfolio management strategy that minimizes growth but also minimizes the risk of losses.

III. **Moderate:** A moderate portfolio management strategy would simply blend an aggressive and conservative approach. In an attempt to get the best of both worlds, a moderate portfolio still invests heavily in equities but also diversifies and may be more selective in what those equities are.

IV. **Income-Orientated:** Often a consideration for older investors, some folks who do not have income may rely on their portfolio to generate income that can be used to live off of. Consider how a retiree no longer has a stable paycheck. However, that retiree may no longer be interested in generating wealth but instead of using their existing wealth to live. This strategy priorities fixed-income securities or equities that issue dividends.

V. **Tax-Efficient:** As discussed above, investors may be inclined to focus primarily on minimizing taxes, even at the expense of higher returns. This may be especially important for high-earners who are in the highest capital gains tax bracket. This may also be a priority for young investors who have a very long way until retirement. By getting started with a Roth IRA, these investors may be able to grow their portfolio over their entire life and face no federal taxes on withdrawal when they retire.

Difference between Portfolio Management, Project Management, And Program Management:

The relationship and hierarchy between portfolio, program, and project management can be described as the following:

i) Project management typically involves managing temporary or unique endeavors focused on a specific product or service

ii) Program management entails a coordinated approach to managing related projects in a manner that aligns their connected objectives

i) Portfolio management takes a group of projects and/or programs and manages these collectively as a group, ensuring they’re consistently aligned with the overall strategy

ii) Simply put, projects are the building blocks that make up a program, while programs and individual projects combined form a portfolio.

Why is project portfolio management important?

Like most project management processes, thoughtful portfolio management has more than one positive ripple effect on business value. Here are a few of the most important:

a) **Strategic alignment:** Portfolio management helps organizational and operations leaders see if other large projects are contributing and in line with high-level organizational goals and KPIs.

b) **Reduced inefficiency:** When all projects are mapped out in one place, it's easier to see what is of the highest priority, what can be tabled, and so on. It also creates a track record for seeing how similar projects went in the past, so they can be better implemented in the future.

c) **Risk management**: Clarity into a project portfolio aids risk management by consolidating the most important components of projects in one place for evaluation.

d) **Diversification:** Having an easily accessible portfolio can also help someone like a PMO assess if the projects being prioritized for the organization have health diversity. Conversely, it can help them see if a project isn't relevant.

1.7. ACTION PLAN (OR) PRACTICES FOR EFFECTIVE PORTFOLIO MANAGEMENT

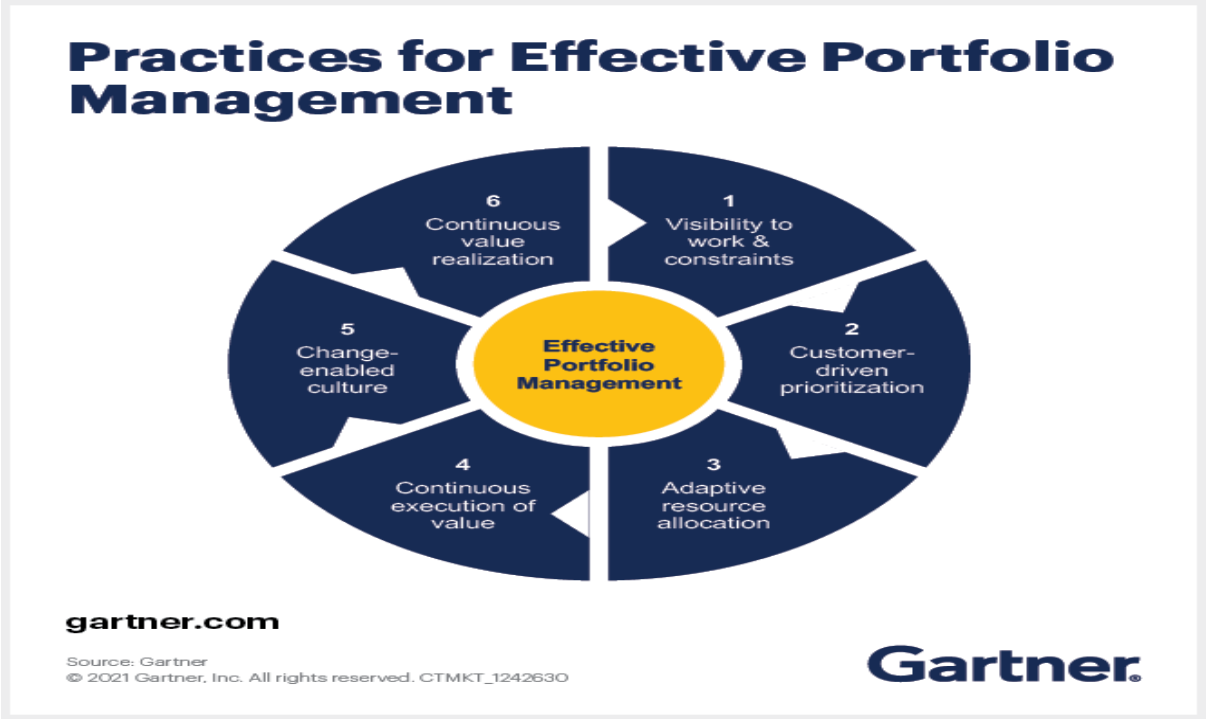
When a portfolio is managed effectively, it delivers the right initiatives at the right time to achieve the expected outcomes. Project and portfolio (PPM) leaders can keep up with digital business demands by choosing the right portfolio management style and having a crisp action plan in place. Streamline your tech purchase from start to finish**:** "The push to digital business means that the traditional style of portfolio management may now be inadequate," says Anthony Henderson, Senior Director Analyst, Gartner. "Siloed portfolios can't work in isolation to provide the organization with a true picture of performance. It helps to optimize the value of all major initiatives in the organization — and that requires integrated portfolio management."

Here are the six practices for effective portfolio management:

No 1: Ensure visibility into work and constraints: For improving a portfolio's performance, it's essential to proactively identify and remove constraints. It can happen if there are no silos and the product teams operate in an environment that provides clear visibility into who is doing what, and what is getting delivered when. With that insight, PPM leaders can easily determine the interdependencies and risks. They can transparently prioritize and allocate the work so that there are no negative impacts to the portfolio.

No 2: Prioritize around customers' expectations : Digitalization has led to ever-growing customer expectations. The increased dynamics encourage organizations to implement new ideas and initiatives. Given the budgetary constraints, **prioritization becomes all the more**

important. Without a well-thought-out portfolio prioritization approach focused on customer objectives, organizations may end up investing in less-promising initiatives. Defining internal and external customers is paramount. They may have mutually exclusive or overlapping goals or demands across various lines of business. From this mix, it is important to identify the initiatives that matter most to them. Stakeholders from different functions can form an investment committee to zero in on the most valuable ideas. Having a cross-functional understanding can help them make unbiased investment decisions that align with strategic goals and optimize limited resources.



No. 3: Adaptive management, also known as adaptive resource management or adaptive environmental assessment and management, is a structured, iterative process of robust decision making in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring**.** The concept of adaptive management is not a new one, nor did it begin in international development. Adaptive project management is the future-facing answer for businesses looking to maximize success. Features of adaptive management Learn by doing. Learning is one of the guiding principles of adaptive management.

Apply adaptive resource management: The increasing use of agile methodologies in conjunction with other waterfall and hybrid approaches presents a significant challenge for resource management. Digital business runs on flexibility, not rigid planning practices. An adaptive approach focuses on allocating resources as per market shifts and changing customer needs. It's about creating an environment where resources can seamlessly switch between initiatives to deliver optimum value. For this to happen, it is essential to: Recognize and manage the interdependent risks. Negotiate the competing priorities. Identify impediments to strategic coordination across groups

No. 4: Deliver value continuously: Every portfolio promises value, and therefore, engaging sponsors consistently and effectively becomes critical to assess whether that promise is being delivered or the portfolio is becoming irrelevant. For a dynamic digital business, it's a good practice to have weekly meetings at which product managers and sponsors can discuss the

previous week's deliverables, ongoing tasks, resource availability, and existing risks or roadblocks. This way, the involved parties can keep track of the portfolio's health and realign it with value, if required.

No. 5: Create a change-enabled culture: Digital transformation leads to increased changes in business and technology processes, which can have unintended consequences and affect the experience of customers and employees. It's essential, then, to know how to handle change productively and how much change is too much change. The key components of a change-enabled culture are: Feedback and communication channels involving business leaders, managers and end users. Engagement with change champions at multiple levels. Executive confirmed roadmap for change

No. 6: Realize benefits continuously: As digital business evolves, effective portfolio management and measuring results are more crucial than ever. Organizations expect faster results and benefits must be viewed as incremental units of value delivered in a continuous stream. A dedicated owner should be in place to track the actual benefits realized.

Organizations will get better at portfolio management by making informed future decisions based on prior mistakes. If they fail to realize the expected benefits, then they can revisit business assumptions and ask these questions: Did they understand customer needs? Did the market conditions change? Did they overestimate value? Did they know the risks and complexities involved?

1.8. INVESTMENT OBJECTIVES

JeFreda R. Brown Reviewed by JeFreda R. Brown: When it comes to investing, there are four main investment objectives that cover how you accomplish most financial goals. While certain products and methods may work for one objective, they may produce poor results for the others.

Most people have long- and short-term financial planning needs, and they will likely use more than one of these methods at the same time. You want to find the right combination of the four objectives that makes the most sense for you and your goals.

1. Capital Appreciation:

Capital appreciation is concerned with long-term growth. This is most common in retirement plans where investments work for many years inside a qualified plan, such as a 401(k) or IRA. But investing for capital appreciation is not limited to retirement accounts.

This goal involves holding stocks for many years and letting them grow within your portfolio. At the same time, you may be reinvesting dividends to purchase more shares.

Compound returns are the greatest force for those focused on capital appreciation. Suppose you were to make a $1,000 investment upfront, and then add $100 per month for the next 20 years. The total amount you contributed would be $25,000. But if your investments were to produce an 8% return each year, compound returns would place your total savings at $59,575.31.

If you use the capital appreciation strategy, you are not too concerned with day-to-day fluctuations. However, keep a close eye on the fundamentals of the company for changes that could affect long-term growth. Your approach may involve making regular purchases.

2. Current Income

Current income involves investing in stocks that pay a consistent and high dividend, as well as some top-quality real estate investment trusts (REITs) and highly-rated bonds.

These products produce regular, current income. If you are focused on making current income, consider investing in blue-chip stocks, which are shares in large, prominent corporations that have shown a long history of growth and consistent dividend payouts. Tip- These companies have proven they can withstand economic dips and still prosper, so they're often safe choices. Many people who focus on current income are retired, and they use the income for living expenses. In contrast, others prefer to use a lump sum of capital to create an income stream that never touches the principal but can still provide cash for certain current needs, such as college tuition.

3. Capital Preservation

Capital preservation is often thought of as being for retired or nearly retired people who want to make sure they don't outlive their money. For those people, safety is critical, even if it involves giving up return potential for security. The logic for this desire is clear: A retired person who loses money through unwise investments may not get a chance to replace it.

Younger investors can have a stock-dominated portfolio. That's because they have many years to recover from any losses that may occur due to market changes or downturns. That isn't the case for older people. Investors who want capital preservation tend to invest in bank CDs, U.S. Treasury issues, and savings accounts. These vehicles offer modest returns but pose much less risk than stocks.

4. Speculation

The speculator may not be a true investor, but a trader who enjoys jumping in and out of stocks for capital gain. These people want quick profits, and they may use advanced trading methods like shorting stocks, trading on the margin, options, and other special methods.

Note- Speculators have no real attachment to the companies they trade. They may not know much about a particular business except that the stock is volatile and ripe for a quick profit. Many people try speculating in the stock market with the goal of getting rich, and the vast majority fail at doing so. If you want to try your hand, make sure you are using money you can afford to lose, without putting your livelihood or retirement funds at risk. It's easy to get a false sense of confidence after initial success, so thoroughly understand the real possibilities of losing your investment.

1.9. INVESTMENT PROCESS

(The Step by Step Portfolio Planning Process) By Richard Best- Reviewed By Pamela Rodriguez- Fact Checked By Vikki Velasquez: There are few things more important and more daunting than creating a long-term investment strategy that can enable an individual to invest with confidence and with clarity about their future. Constructing an investment portfolio requires a deliberate and precise portfolio-planning process that follows five essential steps.

In order to plan for the future, first take a cold, hard look at the present, sifting through all current assets, investments, and any debt; then, define your financial goals for the short- and long-term. Figure out how much risk and volatility you're willing to take on, and what returns you want to generate; with a risk-return profile established, benchmarks can be set in place to track portfolio performance. With a risk-return profile in place, next create an asset allocation strategy that is both diversified and structured for maximum returns; adjust the strategy to account for big life changes, like buying a home or retiring. Choose whether you want active management, which might include professionally managed mutual funds, or passive management, which might include ETFs that track specific indexes. Once a portfolio is in place, it's important to monitor the investment and ideally reassess goals annually, making changes as needed.

Step 1: Assess the Current Situation

Planning for the future requires having a clear understanding of an investor's current situation in relation to where they want to be. That requires a thorough assessment of current assets, liabilities, cash flow, and investments in light of the investor's most important goals.

Goals need to be clearly defined and quantified so that the assessment can identify any gaps between the current investment strategy and the stated goals. This step needs to include a frank discussion about the investor's values, beliefs, and priorities, all of which set the course for developing an investment strategy. Portfolio planning is not a one-and-done deal it requires ongoing assessments and adjustments as you go through different stages of life.

Step 2: Establish Investment Objectives

Establishing investment objectives centers on identifying the investor's risk-return profile. Determining how much risk an investor is willing and able to assume, and how much volatility the investor can withstand, is key to formulating a portfolio strategy that can deliver the required returns with an acceptable level of risk. Once an acceptable risk-return profile is developed, benchmarks can be established for tracking the portfolio's performance. Tracking the portfolio's performance against benchmarks allows smaller adjustments to be made along the way.

Step 3: Determine Asset Allocation

Using the risk-return profile, an investor can develop an asset allocation strategy. Selecting from various asset classes and investment options, the investor can allocate assets in a way that achieves optimum diversification while targeting the expected returns. The investor can also assign percentages to various asset classes, including stocks, bonds, cash, and alternative investments, based on an acceptable range of volatility for the portfolio. The asset allocation strategy is based on a snapshot of the investor's current situation and goals

and is usually adjusted as life changes occur. For example, the closer an investor gets to their retirement target date, the more the allocation may change to reflect less tolerance for volatility and risk.
Your risk-reward profile will change over the years, tilting further away from risk the closer you get to retirement.

Step 4: Select Investment Options

Individual investments are selected based on the parameters of the asset allocation strategy. The specific investment type selected depends in large part on the investor's preference for active or passive management. An actively managed portfolio might include individual stocks and bonds if there are sufficient assets to achieve optimum diversification, which is typically over $1 million in assets. Smaller portfolios can achieve the proper diversification through professionally managed funds, such as mutual funds or exchange-traded funds. An investor might construct a passively managed portfolio with index funds selected from the various asset classes and economic sectors.

Step 5: Monitor, Measure, and Rebalance

After implementing a portfolio plan, the management process begins. This includes monitoring the investments and measuring the portfolio's performance relative to the benchmarks. It is necessary to report investment performance at regular intervals, typically quarterly, and to review the portfolio plan annually. Once a year, the investor's situation and goals get a review to determine if there have been any significant changes. The portfolio review then determines if the allocation is still on target to track the investor's risk-reward profile. If it is not, then the portfolio can be rebalanced, selling investments that have reached their targets, and buying investments that offer greater upside potential. When investing for lifelong goals, the portfolio planning process never stops. As investors move through their life stages, changes may occur, such as job changes, births, divorce, deaths, or shrinking time horizons, which may require adjustments to their goals, risk-reward profiles or asset allocations. As changes occur, or as market or economic conditions dictate, the portfolio planning process begins anew, following each of the five steps to ensure that the right investment strategy is in place.

1.10. PORTFOLIO MANAGEMENT: MILESTONES:

Milestones typically mark critical decision points, the completion of major project tasks and the ends of various project phases. Senior stakeholders who are not involved in the project on a daily basis become more engaged and attentive as milestones approach. In some cases, milestones even determine when payments are sent to vendors and contractors. With so much attention being paid to your **project management milestones**, it's important that you plan for them appropriately. In fact, many PMs insist that milestones (rather than tasks) should be the primary focus of your project planning process. In addition to choosing the right milestones based on your project plan and deliverables, project managers also need to ensure that their team members understand the importance of each milestone and stay focused on their goals. The strategies listed here will help you define the right milestones for your projects and guide your team successfully toward each one.

1.10.1 TIPS FOR BETTER MILESTONE PLANNING

a) Identify the proper milestones: Your project plan will set the tone and pace for your entire project, and the milestones you include in the plan will serve as indicators that work is proceeding on schedule. Choosing the right milestones is critically important, because your team members and other stakeholders can only get an accurate view of the project's long-term health if they are looking at the right signs. Along with obvious milestones like the official beginning and end of a project, you'll most likely need to include at least some of the following events in your milestone planning:

1. Completion of major project tasks, 2. Go/no go decisions and other key decision points, 3. Initial delivery of a product or service, 4. Completion of testing and final sign-off

b) Communicate milestone information with your team: Once you've defined your milestones, the next step is to determine how you'll share milestone information with your team members and other stakeholders. Cloud-based project management solutions like Plan view Adaptive Work can dramatically simplify this process by giving you the ability to add and edit milestones in documents that your team members can view in real-time. Clarizen's unique collaboration tools also allow you to add documents and meeting notes to milestones, creating a single, easy-to-manage source for up-to-date information.

c) Track and manage milestones throughout the project: As a project manager, you'll spend a part of each day reviewing your list of project milestones and measuring your team's progress toward each one. Here again, Plan view Adaptive Work accelerates the milestone planning process by giving you full visibility into task progress and other factors that might affect milestone completion. You can also convert existing project tasks into new milestones, which can be particularly helpful when you need to manage several sub-projects within your larger project. Want to explore how Plan view Adaptive Work can help you plan and execute on key milestones? Contact us today. Milestone planning is one of the most important aspects of project planning, because project milestones are the most visible indicators of project progress.

1.11. MILESTONE PLANNING IS ONE OF THE MOST IMPORTANT ASPECTS OF PROJECT PLANNING:

Milestone planning is one of the most important aspects of project planning, because project milestones are the most visible indicators of project progress. What are milestones and why are they important? Milestones typically mark critical decision points, the completion of major project tasks and the ends of various project phases.

a) Project portfolio: A portfolio describes a grouping of projects, programs, or in some cases, both. Project portfolios are created to house and manage important information across these activities to provide collective oversight. Think of a project portfolio as a single source of truth to make decisions about resource allocation, forecast performance, and risks, and as a north star for progress and alignment — especially as they relate to goals and strategy.

b) Process of portfolio management: The process of portfolio management is the selection, prioritization, and control of an organization's projects and programs. Such centralized management and oversight help establish a standard of governance across the organization.

Put plainly, project portfolio management assigns responsibility, so the organization always has a individual or a group of people closely monitoring the performance of the company's project investments. If a project is aligned with the company's strategies, values, and long-term goals and it's performing well, then it's more likely to get funded and prioritized. If it's risky, underperforming, or misaligned to the company's greater strategy, then it's probably going under the microscope to either pivot or get scrapped altogether.

Building portfolio management into your organization puts you back in the driver's seat, where you can make more educated decisions about how to effectively deliver against your strategy and take charge of your asset allocation.

c) Some everyday use cases for PPM are:

1. Identifying potential project returns,
2. Forecasting risks,
3. Facilitating communication,
4. Obtaining stakeholder buy-in

1.12. SUMMARY

After studying this lesson student should be able to: Know the concept of Key Elements & Types of Portfolio Management-Understand the Common Portfolio Management Strategies- Iimportance of Practices for Effective Portfolio Management. In addition to that the following aspects are covered in this lesson such as: Objective of Portfolio Management, Understanding Portfolio Management , Key Elements of Portfolio Management, Types of Portfolio Management,. Common Portfolio Management Strategies, Action Plan (Or) Practices for Effective Portfolio Management, Investment Objectives, Investment Process**,** Portfolio Management: Milestones.

1.13. TECHNICAL TERMS

Portfolio Management: Portfolio management is the art and science of selecting and overseeing a group of investments that meet the long-term financial objectives and risk tolerance of a client, a company, or an institution. Some individuals do their own investment portfolio management. That requires a basic understanding of the key elements of portfolio building and maintenance that make for success, including asset allocation, diversification, and rebalancing.

Investment Process: An investment process is a set of guidelines that govern the behaviour of investors in a way which allows them to remain faithful to the tenets of their investment philosophy, that is the key principles which they hope to facilitate outperformance

Milestone: Milestone literally refers to a roadside marker that lists the distance to a particular location. These days, the word is more often used figuratively to refer to significant events in life, like graduating from college or getting married. It acts sort of like the road sign: it's often a moment when you reflect on where you stand in life. A milestone can also be a nonpersonal event that results in a big change, such as a milestone victory or a company's sales milestone.

1.14. SELF ASSESSMENT QUESTIONS

1. Discuss about the Key Elements of Portfolio Management.
2. Types of Portfolio Management-Explain
3. What are the Common Portfolio Management Strategies?
4. Importance of Practices for Effective Portfolio Management-discuss
5. What is the Objective of Portfolio Management?
6. What are the Investment Objectives?
7. Explain the Investment Process.
8. Discuss about the Portfolio Management: Milestones.

1.15. SUGGESTED READINGS

1. S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
2. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
3. J.C.Francis: Investments analysis and management
4. R.J Fuller and J.L.Farrel: Modern Investments and Security Analysis
5. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
6. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance

Dr. Krishna banana

LESSON 2
CONSTRAINTS OF THE DIFFERENT GROUPS OF INVESTORS

OBJECTIVES

After studying this lesson student should be able to:

- Know the concept of Various Avenues and Investments Alternative
- Understand the Steps (Process) of Selecting Investment Alternatives
- Importance of Key Factors that Affecting Investment Decisions of Investors

STRUCTURE

2.1. INTRODUCTION

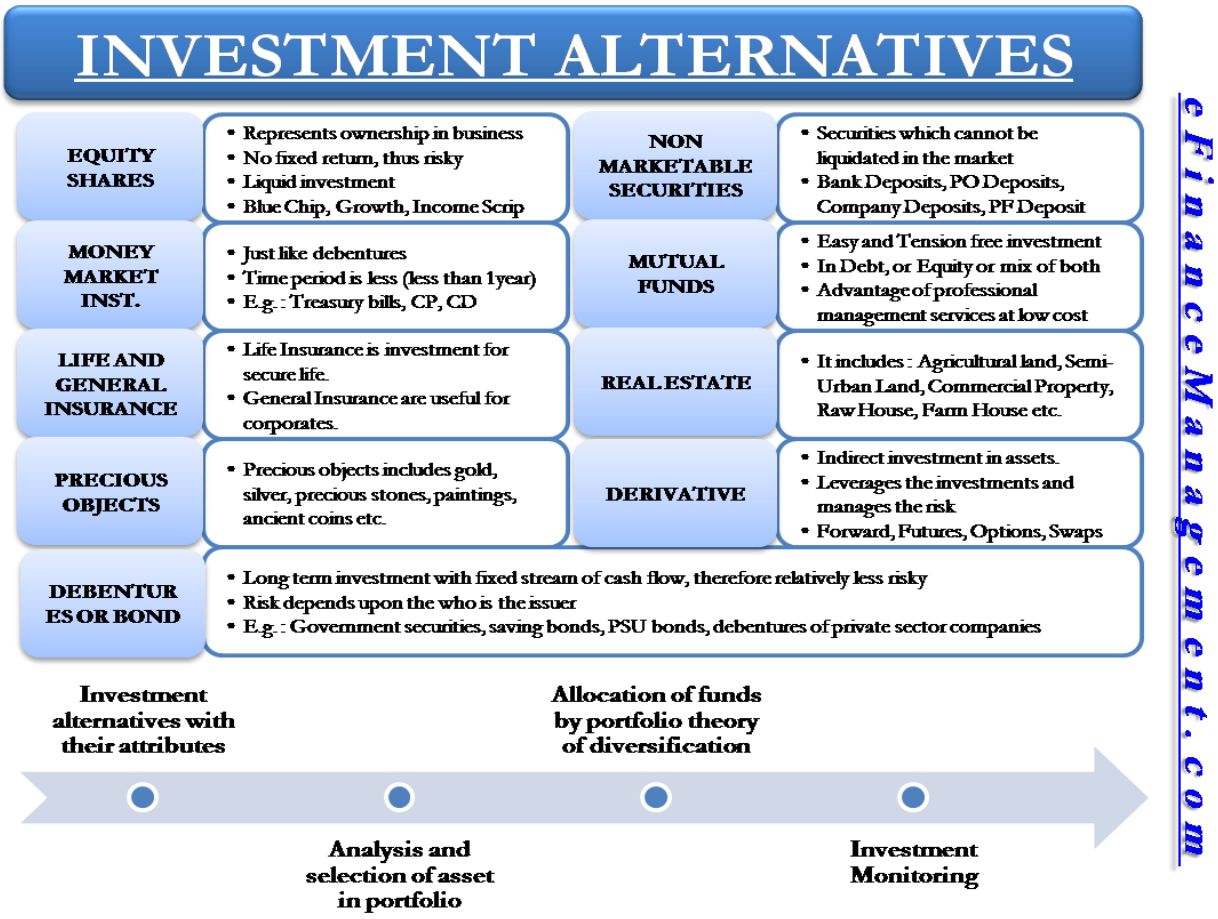
The two investment objectives are return and risk. Return objective defines what you want your investments to achieve – the outcome. Risk objective defines what risk level you should and can bear – the journey's volatility. However, you may have other considerations and constraints influencing your portfolio. Beyond the two investment objectives, consider five groups of investment constraints:1.Time horizon. 2. Liquidity. 3. Taxes. 4. Legal and regulatory. 5. Special circumstances. Regulatory Constraints Investors are subject to standard financial market regulations, as well as further specified regulation for certain types of investors. Certain investors are restricted in terms of allowable investments. For example, a few of the investors-facing restrictions are: These constraints usually specify which asset classes are not permitted for investments or dictate any limitations on asset allocations to certain investment classes. A trust portfolio for individual investors may have to follow substantial regulatory and legal constraints. For example, those who plan to buy a house would put their money into less risky investments. Yes, age is also one of the key factors influencing investor preferences. In the investment world, if you are young, you are at an advantage. This is because you can give your investment more time.

Results of the study reveal that accounting information,self-image/firm-image coincidence, and neutral information as the top-ranked factors in influencing investment decisions, whereas advocate recommendation and personal financial needs emerged as less important factors in influencing investment decisions.

2.2. INVESTMENTS ALTERNATIVE

Different avenues and investment alternatives include share market, debentures or bonds, money market instruments, mutual funds, life insurance, real estate, precious objects, derivatives, non-marketable securities. All are differentiated based on their different features in terms of risk, return, term, etc. Let us see more about the investment avenues.

Investment in any of the options depends on the investment objectives, needs, and requirements of the investor. Corporates and individuals have different needs. Before investing, these alternatives of investments need to be analyzed in terms of their risk, return, term, convenience, liquidity, etc.



a) Equity Shares: Equity investments represent ownership in a running company. By ownership, we mean to share in the profits and assets of the company, but generally, there are no fixed returns. It is considered a risky investment, but at the same time, depending upon the situation, it is a liquid investment due to the presence of stock markets. There are equity shares for which there is regular trading; for those investments, liquidity is more otherwise; liquidity is not highly attractive for stocks with less movement. Equity shares of companies can be classified as follows:

1. Blue-chip scrip, 2. Growth scrip, 3. Income scrip, 4. Cyclical scrip, 5. Speculative scrip

b) Debentures or Bonds: Debentures or bonds are long-term investment options with a fixed stream of cash flows depending on the quoted interest rate. They are considered relatively less risky. The amount of risk involved in debentures or bonds depends on who the issuer is.

For example, if a government makes the issue, the risk is assumed to be zero. However, investment in long-term debentures or bonds has risks in terms of interest rate risk and price risk. Suppose a person requires an amount to fund his child's education after five years. He is investing in a debenture, with a maturity period of 8 years, annually with coupon payment. In that case, there is a risk of reinvesting coupons at a lower interest rate from the end of year 1 to the end of year five, and there is a price risk for an increase in the rate of interest at the end of the fifth year, in which price of a security falls. In order to immunize risk, investment can be made as per the duration concept. The following alternatives are available under debentures or bonds: 1. Government securities, 2. Savings bonds, 3. Public Sector Units bonds, 4. Debentures of private sector companies, 5. Preference shares

c) Money Market Instruments: Money market instruments are like debentures, but the time period is less. It is generally less than one year. Corporate entities can utilize their idle working capital by investing in money market instruments. Some of the money market instruments are: 1. Treasury Bills, 2. Commercial Paper, 3. Certificate of Deposits

d) Mutual Funds: Mutual funds are an easy and tension-free investment, and they automatically diversify the investments. A mutual fund is an investment only in debt or equity or a mix of debts and equity and ratio depending on the scheme. They provide benefits such as a professional approach, benefits of scale, and convenience. Further investing in a mutual fund will get the advantage of professional portfolio management services at a lower cost, which otherwise was impossible. In the case of an open-ended mutual fund scheme, a mutual fund gives investors assurance that a mutual fund will provide support to the secondary market. There is absolute transparency about investment performance to investors.

On a real-time basis, investors are informed about the performance of the investment. In mutual funds also, we can select among the following types of portfolios: 1. Equity Schemes, 2. Debt Schemes, 3.Balanced Schemes, 4. Sector Specific Schemes etc.

e) Life Insurance and General Insurance: They are one of the crucial parts of good investment portfolios. Life insurance is an investment for the security of life. The main objective of other investment avenues is to earn a return, but the primary goal of life insurance is to secure our families against the unfortunate events of our death. It is popular among individuals. Other kinds of general insurance are helpful for corporates. There are different types of insurance which are as follows: 1. Endowment Insurance Policy, 2. Money

Back Policy, 3.Whole Life Policy, 4. Term Insurance Policy, 4.. General Insurance for any kind of assets.

f) Real Estate: Every investor has some part of their portfolio invested in real assets. Almost every individual and corporate investor invest in residential and office buildings. Apart from these, others include: 1. Agricultural Land, 2. Semi-Urban Land, 3. Commercial Property, 4. Raw House, 5. Farm House etc

g) Precious Objects: Precious objects include gold, silver, and other precious stones like diamonds. Some artistic people invest in art objects like paintings, ancient coins, etc.

h) Derivatives: Derivatives mean indirect investments in the assets. The derivatives market is growing at a tremendous speed. The significant benefit of investing in derivatives is that it leverages the investment, manages the risk, and helps in doing speculation. Derivatives include: 1. Forwards, 2. Futures, 3. Options, 4. Swaps etc

i) Non-Marketable Securities: Non-marketable securities are those securities that cannot be liquidated in the financial markets. Such securities include: 1. Bank Deposits, 2. Post Office Deposits, 3. Company Deposits, 4. Provident Fund Deposits

2.3. STEPS (PROCESS) OF SELECTING INVESTMENT ALTERNATIVES

Investment Alternatives with their Attributes

Investment alternatives for any person are divided into real and financial assets. Real assets deal with property, precious objects, etc. Though real asset takes a large portion of money when it comes to investment, significant efforts for making investment decision are dedicated to financial assets. Any investment has two aspects – time and risk. An investment in an asset is a sacrifice of current consumption to get some return in the future. Assets are expected to generate cash flows, and the probabilities of variation in the expected cash flow in the future give rise to risk. So, all the alternatives are analyzed for their time and risk factor before selecting a particular asset for investment.

a) Analysis and Selection of Assets in a Portfolio: Broadly, the investment in the financial asset can be divided into equity, debt, and cash or cash equivalent. These alternatives play an important role in building a portfolio. One asset helps in offsetting the weakness of the other.

But, even within these broad financial assets, there are many alternatives available. So, the question arises, “where to invest?” or “which asset to select?” Just building a portfolio will not ensure a better return. So, a proper analysis should be carried on before deciding the specific securities among different asset classes. In the case of stocks, generally, fundamental or technical analysis is adopted. Whereas, in the case of debt, factors like yields, rating, tax shelter, and liquidity are considered. A part of the portfolio is also allocated to cash and cash equivalent for liquidity and contingencies or any sudden opportunity.

b) Allocation of Funds by Portfolio Theory of Diversification: The riskiness of an asset can be measured alone and also in a portfolio. The magic of diversification can be seen when assets are assessed in a portfolio. So, portfolio theory emphasizes that instead of investing your money into one asset, spread it between different investment alternatives. However, what amount should be allocated to what asset class or alternative depends on an individual’s

investment objective and constraint? Within the parameter of one's objectives, a better return can be achieved with the help of proper investment management.

As soon the money is divided into different assets, the attributes of all these assets form a base for assessing the portfolio, e.g., risk & return of individual investment avenues.

The expected return of a portfolio is the weighted average of the expected returns on the individual asset with weights as the percentage of the portfolio or the amount of investment in the individual asset. Please note that the portfolio risk is not the weighted average of the risks of individual securities. Instead, the risk is measured by considering the covariance of securities. Therefore, mixing asset classes can help moderate the risk.

c) Investment Monitoring: Investment management does not just end with building the portfolio, but the work starts here. Now, one needs to monitor, review and upgrade it regularly. An investor should make sure that at the correct time investment is made and at the proper time investment is sold. Also, performance evaluation of the same is crucial because feedback of results can only ensure you whether you have made the right investment decisions or not. No time is too late to build a portfolio because it can be tailored as per the needs and objectives of the individual. However, a better return can be achieved if one believes in and follows the investment management process

2.4. KEY FACTORS THAT AFFECTING INVESTMENT DECISIONS OF INVESTORS

Investing is parting with one's fund, to be sued by another party, user of a fund, or for productive activity. It means giving an advance or loan or contributing to the equity or debt capital of a corporate or non-corporate business unit. In ordinary everyday language, the term investment means the purchase of any income yielding asset, such as securities (stocks, mutual funds, and bonds) or real estate. The assets themselves are also referred to as investments. There are so many factors influencing an investment decision in portfolio management.

Factors Affecting Investment Decisions of Investors: The various factors that affect investors decision are given below:

i) **Return on Investment:** The main reason for people **investing money** is to earn a high return on investment. An individual has to periodically analyze the rate of return that is being earned from various investments. The portfolio of the investments may have to be readjusted depending on the rate from each of the investments. This will help the investor to earn an increased rate of return from **various investments**.

ii) **Inflation:** Each of the person's investments has to beat the inflation rate present at that time for the return on investment to be positive. If the inflation rate is more than the return on the investment of a person, then the return is negative when inflation is taken into consideration. Any investment has too beat the inflation to be efficient. Key Advantages and Disadvantages of Mutual Funds.

iii) **Liquidity:** The benefits had to understand the need to have money in hand for either an emergency or even a sudden change in investment strategy to earn a high rate of return on the investment. The equity market can have a sudden knee jerk reaction to

any news and may create a buying opportunity. **If this has to be used**, the individual should have enough liquidity to invest in time. Liquidity is a very important factor in any prudent investment. People who invest without liquidity are likely to lose many golden opportunities that present from time to for investment.

iv) **Tax Benefits:** Tax benefits are a very important aspect to be considered when a person is investing. Tax can wipe away the return on investment if the investment is not done wisely. There are various investment options that are taxed highly. There are other investments for which the returns are either not taxed or have a low tax. The individual has to understand the tax laws of the land and invest accordingly to make a high return on investment.

v) **Frequency of Return:** The frequency with which the individual gets a return on his investment is also very important. These have to be very carefully followed for **efficient reinvestment** and also for the use of the return for various needs of the individual. A part of the returns on investment can be reinvested and the rest of the money should be used for any needs that may crop up. Evolution of Capital Structure Alternatives: Explained.

vi) **Risk in Investment:** Risk means, a possibility of meeting danger or suffering harm. It can be defined as the change that the expected or prospective gains or profits may not materialize. Risk is the estimation of the degree of the happening of the loss. It is a measurable element. The difference between the actual outcome of investment and the expected outcome of the investment. **Basically** every investor likes to reduce the risk and maximize his **return on his vii) investment**. Risk can be avoided by selecting some risk-free investment. **However**, some risks can be controllable and others cannot be. The risk may be raised by various factors such as wrong decision, wrong timing of investment, type of instrument, the quantum of amount, method of investment, nature of the industry, national and international factors.

vii) **Safety in Investment:** Safety is the most important factor in **making investment decisions**.

The selected type of financial asset should be available under a regulatory framework. Investment means just parking o one's own life fund in a safe place. If the investment is made in a highly regulated environment, adds a flavor of safety.

Investment in government assured securities provides more safety than with private business concerns. High safety parking places can be ranked as bank deposits, government bonds, UTI units, non-convertible debentures, convertible debentures, equity shares, and deposits with non-banking finance companies. **However**, a highly safe investment will generate relatively low returns.

viii) **Yield:** The yield of an instrument is the return earned from ut by way of interest, dividend, and capital appreciation. Some instrument does not pay interest and its redeemed at face value. The yield of an instrument is measured in post-tax terms.

ix) **Maturity of Investment:** It is the life of a financial instrument. While some instruments have fixed original maturities, others can have tailor-made maturity like a certificate of deposit. Generally, the longer the maturity and the greater the yield.

2.5. INVESTMENT OBJECTIVES AND CONSTRAINTS

Investment objectives and constraints are the cornerstones of any investment policy statement. A financial advisor/portfolio manager needs to formally document these before commencing the portfolio management. Any asset class that is included in the portfolio has to be chosen only after a thorough understanding of the investment objective and constraints.

Following are various types of objectives and constraints to be considered and several steps to correctly determine these objectives.

a) Definition of Investment Objectives: Investment objectives are related to what the client wants to achieve with the portfolio of investments. Objectives define the purpose of setting the portfolio. Generally, the objectives are concerned with return and risk considerations.

These two objectives are interdependent as the risk objective defines how high the client can place the return objective. Investment Objectives: The investment objectives are mainly of two types:

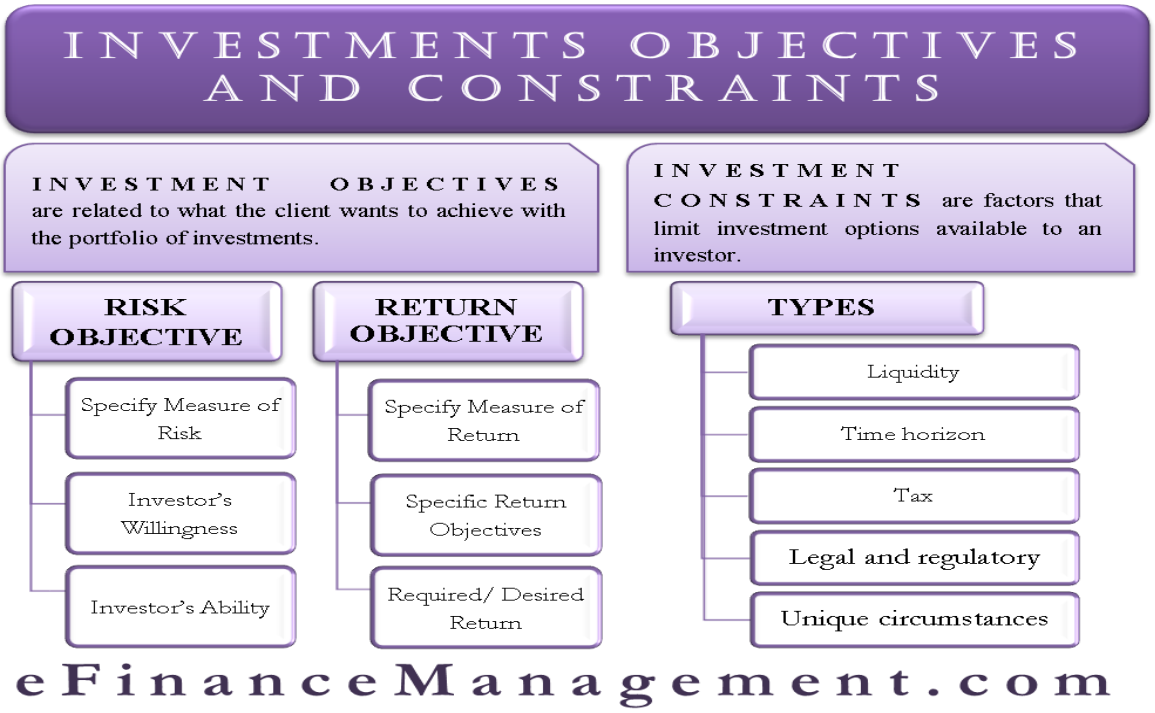
b) Risk Objective: Risk objectives are the factors associated with both the willingness and the ability of the investor to take the risk. When the ability to accept all types of risks and willingness is combined, it is termed risk tolerance. When the investor is unable and unwilling to take the risk, it indicates risk aversion.

The following steps are undertaken to determine the risk objective:

i) **Specify Measure of Risk:** Measurement of risk is the most important issue in portfolio management. Risk is either measured in absolute or relative terms. Absolute risk measurement will include a specific level of variance or standard deviation of total return. Relative risk measurement will include a specific tracking risk.

ii) **Investor's Willingness:** Individual investors' willingness to take risks is different from institutional investors. For individual investors, willingness is determined by psychological or behavioral factors. Spending needs, long-term obligations or wealth targets, financial strength, and liabilities are examples of factors that determine an investor's willingness to take the risk.

iii) **Investor's Ability**: An investor's ability to take risk depends on financial and practical factors that bound the amount of risk taken by the investor. An investor's short-term horizon will negatively affect his ability. Similarly, if the investor's obligation and spending are less than his portfolio, he clearly has more ability.



Return Objective: The following steps are required to determine the return objective of the investor:

i) **Specify Measure of Return:** A measure of return needs to be specified. It can be specified in an absolute term or a relative term. It can also be specified in nominal or real terms. Nominal returns are not adjusted for inflation, whereas real returns are. One may also distinguish pre-tax returns from post-tax returns.

ii) **Desired Return:** A return desired by the investor needs to be determined. The desired return indicates how much return is expected by the investor. E.g., higher or lower than average returns.

iii) **Required Return:** A return required by the investor also needs to be determined. A required return indicates the return which needs to be achieved at the minimum for the investor.

iv) **Specific Return Objectives:** The investor's specific return objectives also need to be determined so that they are consistent with his risk objectives. An investor having a high return objective needs to have a portfolio with a high level of expected risk.

Definition of Investment Constraints: Investment constraints are the factors that restrict or limit the investment options available to an investor. The constraints can be either internal or external constraints. Internal constraints are generated by the investor himself, while external constraints are generated by an outside entity, like a governmental agency.

2.6. MOST IMPORTANT FACTORS INFLUENCING INVESTOR PREFERENCE

Types of Investment Constraints: The following are the types of investment constraints:

a) Liquidity: Such constraints are associated with cash outflows expected and required at a specific time in the future and are generally in excess of the income available. Moreover, prudent investors will want to keep aside some money for unexpected cash requirements. The financial advisor needs to keep liquidity constraints in mind while considering an asset's ability to be converted into cash without impacting the portfolio value significantly.

b) Time Horizon: These constraints are related to the time periods over which returns are expected from the portfolio to meet specific needs in the future. An investor may have to pay for college education for children or needs the money after his retirement. Such constraints are important to determine the proportion of investments in long-term and short-term asset classes.

c) Tax: These constraints depend on when, how, and if returns of different types are taxed. For an individual investor, realized gains and income generated by his portfolio are taxable. The tax environment needs to be kept in mind while drafting the policy statement. Often, capital gains and investment income are subjected to differential tax treatments.

d) Legal and Regulatory: Such constraints are mostly externally generated and may affect only institutional investors. These constraints usually specify which asset classes are not permitted for investments or dictate any limitations on asset allocations to certain investment classes. A trust portfolio for individual investors may have to follow substantial regulatory and legal constraints.

e) Unique Circumstances: Such constraints are mostly internally generated and signify investors' special concerns. Some individuals and philanthropic organizations may not invest in companies selling alcohol, tobacco, or even defense products. While formulating an investment policy statement, such concerns and any special circumstance restricting the investor's investments should be well considered.

A financial advisor/portfolio managers design and manages the portfolio for an investor after formally documenting the investment policy statement. The job starts from the moment the investor articulates his objectives and constraints. It is for the benefit of both the investor and the manager that the objectives and constraints are correctly determined and not just documented for formality. The more diligence is paid while formalizing objectives and constraints, the better is portfolio aligned with the needs of the investor.

2.7. UNDERSTANDING INVESTOR BEHAVIOR

Behavioral Finance combines psychology with financial theory to comprehend the associations between markets, emotions, personality and reason. Nowadays the financial services sector has turn out to be extremely diversified offering the investor with a widespread variety of investment opportunities. Investors have dissimilar outlook when they decide about investing in a specific avenue. With proper investment strategies and financial planning investor can increase personal wealth which will contribute to higher economic growth. Economic growth is among the most vital factors affecting the quality of life that people lead in a country. Three variables that measure the growth of an economy are Income, Saving and Investment.

Mainstream financial theory relies on the assumption that market participants are rational actors, who are self-interested utility maximizers who never make mistakes.

Behavioral finance has emerged to challenge the assumptions of rational actor theory as it applies to markets, investments, and other financial matters. Behavioral finance draws heavily from cognitive psychology to understand investor behavior in the real world. For the most part, no. Behavioral finance and investor psychology reveal that despite the assumption of rational actors in mainstream economic models, human beings systematically deviate

from this assumed behavior. Several reasons have been proposed. Cognitive psychologists point to limitations in the human mind's ability to identify and process information.

Psychology also recognizes the role of human emotion and subjective biases when making decisions. More recently, economic sociologists have identified social and cultural forces at work. By acting more or less "irrationally", behavioral finance suggests that investors fall victim to a series of cognitive, emotional, and social forces that lead them to make sub-optimal decisions and undermine their performance in the markets and elsewhere.

By knowing these limitations of human behavior and decision-making, people can make corrections or adjust for them. It also implies that markets are not as efficient as standard theory predicts, leaving room for savvy traders to take advantage of mispricing and earn a profit.

a) Questioning Rational Actor Theory: Standard economic theory is based on the belief that individuals behave in a rational manner and that all existing information is embedded in the investment process. This assumption, known as rational actor theory (RAT), is the crux of the efficient market hypothesis (EMH). 1 According to RAT, individuals rely completely on rational calculations to make rational choices that result in outcomes aligned with their own best interests, or utility-maximization. RAT supposes that rational actors make these rational choices based on error-free calculations given full and complete information that is always available to them. Rational actors thus try to actively maximize their advantage in any situation and consistently try to minimize their losses in a self-interested manner.

Researchers, however, have been questioning the RAT assumptions and have uncovered evidence that rational behavior is, in fact, not nearly as prevalent as we might be led to believe by mainstream economics. Behavioral finance attempts to understand and explain how human emotions influence financial and investment decision-making processes. You may be surprised by what they have found thus far.

b) The Truth About Investor Behavior: Every year Dalbar, a financial-services research firm, releases a study entitled "Quantitative Analysis of Investor Behavior," and in 2015, the report concluded that average investors consistently fail to achieve returns that beat or even match the broader market indices. It found that "the average equity mutual fund investor underperformed the S&P 500 by a wide margin of 8.19%. The broader market return was more than double the average equity mutual fund investor’s return (13.69% vs. 5.50%)."

Average fixed income mutual fund investors also consistently underperformed—returning 4.81% less than the benchmark bond market index.

In a 2020 follow-up of the same publication, Dalbar again concluded that average investors fail to achieve market-index returns. The study found that the typical equity investor earned 5.35% less than the S&P 500 return in 2019. And even though the fixed-income investor had their 'best annual gain since 2012" of 4.62%, it was still less than the 8.72% benchmark index return. Why does this happen? Behavioral finance provides some possible explanations.

c) Fear of Regret: Fear of regret, or simply regret theory, deals with the emotional reaction people experience after realizing they've made an error in judgment.5 Faced with the prospect of selling a stock, investors become emotionally affected by the price at which they

purchased the stock. So, they avoid selling it as a way to avoid the regret of having made a bad investment, as well as the embarrassment of reporting a loss. We all hate to be wrong, don't we? What investors should really ask themselves when contemplating selling a stock is: "What are the consequences of repeating the same purchase if this security were already liquidated and would I invest in it again?" If the answer is "no," it's time to sell; otherwise, the result is regret in buying a losing stock *and* the regret of not selling when it became clear that a poor investment decision was made—and a vicious cycle ensues where avoiding regret leads to more regret. Regret theory can also hold true for investors when they discover that a stock they had only considered buying has increased in value. Some investors avoid the possibility of feeling this regret by following the conventional wisdom and buying only stocks that everyone else is buying, rationalizing their decision with "everyone else is doing it." Oddly enough, many people feel much less embarrassed about losing money on a popular stock that half the world owns than about losing money on an unknown or unpopular stock.

d) Mental Accounting Behaviors: Humans have a tendency to place particular events into mental compartments, and the difference between these compartments sometimes impacts our behavior more than the events themselves. Say, for example, you aim to catch a show at the local theater and tickets are $20 each. When you get there, you realize you've lost a $20 bill. Do you buy a $20 ticket for the show anyway? Behavior finance has found that roughly 88% of people in this situation would do so. Now, let's say you paid for the $20 ticket in advance. When you arrive at the door, you realize your ticket is at home. Would you pay $20 to purchase another? Only 40% of respondents would buy another. Notice, however, that in both scenarios, you're out $40: different scenarios, the same amount of money, different mental compartments.6 Pretty silly, huh? An investing example of mental accounting is best illustrated by the hesitation to sell an investment that once had monstrous gains and now has a modest gain. During an economic boom and bull market, people get accustomed to healthy, albeit paper, gains. When the market correction deflates investor's net worth, they're more hesitant to sell at the smaller profit margin. They create mental compartments for the gains they once had, causing them to wait for the return of that profitable period.

e) Prospect Theory and Loss-Aversion: It doesn't take a neurosurgeon to know that people prefer a sure investment return to an uncertain one—we want to get paid for taking on any extra risk. That's pretty reasonable. Here's the strange part. Prospect theory suggests people express a different degree of emotion towards gains than towards losses. Individuals are more stressed by prospective losses than they are happy from equal gains. An investment advisor won't necessarily get flooded with calls from her client when she's reported, say, a $500,000 gain in the client's portfolio. But, you can bet that phone will ring when it posts a $500,000 loss! A loss always appears larger than a gain of equal size—when it goes deep into our pockets, the value of money changes. Prospect theory also explains why investors hold onto losing stocks: people often take more risks to avoid losses than to realize gains.8 For this reason, investors willingly remain in a risky stock position, hoping the price will bounce back. Gamblers on a losing streak will behave in a similar fashion, doubling up bets in a bid to recoup what's already been lost. So, despite our rational desire to get a return for the risks we take, we tend to value something we own higher than the price we'd normally be prepared to pay for it. The loss-aversion theory points to another reason why investors might choose to hold their losers and sell their winners: they may believe that today's losers may soon outperform today's winners.9 Investors often make the mistake of chasing market action by investing in stocks or funds which garner the most attention.

Research shows that money flows into high-performance mutual funds more rapidly than money flows out from funds that are underperforming.

f) Anchoring Behaviors: In the absence of better or new information, investors often assume that the market price is the correct price. People tend to place too much credence in recent market views, opinions and events, and mistakenly extrapolate recent trends that differ from historical, long-term averages and probabilities. In bull markets, investment decisions are often influenced by price anchors, which are prices deemed significant because of their closeness to recent prices. This anchoring heuristic makes the more distant returns of the past irrelevant in investors' decisions.

g) Over- and Under-Reacting: Investors get optimistic when the market goes up, assuming it will continue to do so. Conversely, investors become extremely pessimistic during downturns. A consequence of anchoring, or placing too much importance on recent events while ignoring historical data, is an over- or under-reaction to market events, which results in prices falling too much on bad news and rising too much on good news. At the peak of optimism, investor greed moves stocks beyond their intrinsic values. When did it become a rational decision to invest in stock with zero earnings and thus an infinite price-to-earnings (P/E) ratio (think dotcom era, circa the year 2000)? Extreme cases of over- or under-reaction to market events may lead to market panics and crashes.

h) Investor Overconfidence: People generally rate themselves as being above average in their abilities. They also overestimate the precision and veracity of their knowledge as well as the perceived superiority of their own knowledge relative to others. Many investors believe they can consistently time the market, but in reality, there's an overwhelming amount of evidence that proves otherwise. Overconfidence results in excess trades, with trading costs denting profits.

i) Social Factors: While much of behavioral economics has been driven by cognitive psychology, economic sociology indicates that there are also supra-individual forces at work that drive investor behavior. For instance, people are more conservative when making investment decisions on behalf of close others. Moreover, investors became even more conservative with investments made in accounts that had culturally-salient labels such as "retirement" or "college savings." Other research is now looking at how social relations and also larger structures like culture play on financial decisions. This shows that investor behavior is driven not only by psychology but also by social factors.1011

2.8. SUMMARY

After studying this lesson student should be able to: Know the concept of Various Avenues and Investments Alternative-Understand the Steps (Process) of Selecting Investment Alternatives-

Importance of Key Factors that Affecting Investment Decisions of Investors. Further, it is also revealed about Investment Objectives and Constraints. Most Important Factors Influencing Investor Preference, Understanding Investor Behavior.

2.9. TECHNICAL TERMS

Avenues: An avenue is a wide, straight road, especially one with trees on either side. An avenue is a way of getting something done. There is another avenue to pursue–it involves further negotiations.

Investment: An investment involves putting capital to use today in order to increase its value over time. An investment requires putting capital to work, in the form of time, money, effort, etc., in hopes of a greater payoff in the future than what was originally put in.

Factor: one that lends money to producers and dealers (as on the security of accounts receivable) : a good or service (such as land, labor, or capital) used in the process of production Did you know? In Latin factor means simply "doer". So in English a factor is an "actor" or element or ingredient in some situation or quantity.

2.10. SELF-ASSESSMENT QUESTIONS

1. What is Investment? Explain about Various Avenues.
2. What are the Investments Alternative? Briefly discuss about it.
3. What are the Steps including in Selecting Investment Alternatives?
4. Explain the Key Factors that Affecting Investment Decisions of Investors.
5. Explain the Investment Objectives and Constraints.
6. What are the Most Important Factors Influencing Investor Preference? Discuss.
7. How can you Understanding Investor Behavior?

2.11. SUGGESTED READINGS

1. 1.S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
2. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
3. J.C.Francis: Investments analysis and management
4. R.J Fuller and J.L.Farrel: Modern Investments and Security Analysis
5. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
6. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance
7. Cathy Pareto's: Dependable Wealth Managers for Women in the U.S. by Forbes

Dr. Krishna Banana

LESSON 3
PRIVATE INVESTORS, PENSION FUNDS & INSURANCE COMPANIES

OBJECTIVES

After studying this lesson student should be able to:

- Know the concept of private investors for small business and its Constraints
- Understand the Constraints on the Pension System
- Importance of Top 5 Challenges Facing the Insurance Industry

STRUCTURE

3.1. INTRODUCTION

a) Private Investors: A private investor is a person or company that invests their own money into a company, with the goal of helping that company succeed and getting a return on their investment. As your business grows, you need more capital. But, it can be a hassle for small business owners to get funding from large financial institutions. For some small business owners, working with private investors might be a smart move. You need to know how to find private investors for your small business. Securing small business funds from large banks is usually difficult. Even if you walk into the bank with a detailed plan, you are likely to leave empty-handed because small businesses pose a risk to the bank. If you are denied a loan from the bank, don't worry. There are alternative small business funding options, including private investors. Private financing comes from non-bank individuals (e.g., an angel investor) and firms.

b) Benefits of using a private investor: Private investors offer several benefits over other small business funding strategies. Often, private lenders specialize in a particular area of business. Beyond funding, they can give you their expertise and guidance. Private investors are known to take on riskier ventures. They understand the opportunities and hazards of investing in your small business. Having a passion for the industry motivates the right investor to help grow your small business.

3.2. TYPES OF PRIVATE INVESTORS FOR SMALL BUSINESS

There are many types of private investors to consider. Carefully review your options before choosing a small business investor. Each investor has different strengths, terms, and advantages. The following are some common types of private investors and investment options.

i) Private equity firms: Private equity is money invested by private individuals and firms. In return for the funds, private equity investors receive owner's equity in a business. The goal of a private equity investor is to sell their stake in the business after a few years of investing to make a profit. Unlike just about every other type of capital, private equity (PE) isn't really associated with startup capital – it's associated with growth capital. PE is a type of investment typically reserved for companies that have already grown to a larger size and are looking for a particular growth or exit strategy that isn't available through traditional financing. If you're a startup with just an idea, you're likely way too early for private equity investors. Typically private equity firms are looking for later-stage companies that require much larger sums of money — usually at least $5 million — in businesses that already have some sort of assets to leverage as investment opportunities. So if you are seeking initial funding, PE firms probably aren't the right investor type for you yet. Once you are more focused on your company's growth, and not its inception, survival, and initial traction, then PE Firms might become the right investors for your deal.

a) Working with a private equity fund: There are all sorts of private equity funds, from those that do small deals at or below $5 million invested to those that manage multi-billion dollar deals. In each case, they are looking for existing assets that could be better positioned with outside capital. Working with a private equity fund will require a great deal of preparation and diligence, to say the least. At the point in which private equity gets involved, the finances of the business will be the central component, so the founder knowing the numbers inside and out will be critical since private equity is less focused on the vision and more focused on the numbers, that may not necessarily align with the business growth.

b) Advantages and disadvantages of working with private investors

First, it's important to acknowledge that raising capital is a difficult, demoralizing, and long process — that sometimes ends with no payout. So before raising capital, founders should spend a good amount of time and energy asking themselves whether they really need to raise capital. If the answer is yes, they should also explore raising all types of capital, things apart from equity financing, from potential investors with private investments to financial institutions, including financing options like small business administration loans. With that said, here are the advantages and disadvantages of raising the three main financing options of private investment that a startup would likely seek.

ii) Venture Capital Firms: Venture capital is available to high-growth startups. Usually, venture capitalists face a higher risk in their investments. But, the investment often has the potential to make a high return. Venture capital is a longer investment than a traditional bank loan. Investors in venture capital actively monitor the business. They are involved in board decisions, marketing strategies, and the business structure. Contrary to popular mythology, VCs are just regular people who make bets on big opportunities like anyone would in the stock market. One way that they're different from "regular people," however, is the fact that they work for VC firms. Unlike angels, they are private investors that are not investing their own money, but rather the money of their employer. As professional investors, they do everything in their power to

make sure their equity investment bets pay off, but ultimately, even the best ones miss far more often than they hit. A venture capitalist is charged with finding a relatively small number of investments (usually less than a dozen per year) to make over a seven to 10-year period. While VC firms may look at thousands of deals in a given year, they can only pick a handful of deals to pursue, generally targeting high-growth startups.

a) Venture capitalists-Advantages of working with venture capitalists
Similar to angel investors, private investors such as venture capitalists also come to the table with a lot of business and institutional knowledge.

They're also well-connected with other businesses that may help a new startup, professionals that a startup might want to take on, and — obviously — other potential investors.

b) Disadvantages of working with venture capitalists
Also similar to angel investors, part of what venture capitalists want in return for their investment is equity in a startup.

That means that a founder gives up part of their ownership when they bring on venture capital. Depending on the deal, a VC may even end up with a majority share — more than 50 percent ownership — of a startup. That means the founder (or small businesses) essentially lose management control of their company.

iii) Angel investors: Angel investing is another private startup financing option. Angel investors are usually high-net-worth individuals who want large returns on their investments.

Angel investors are like venture capitalists, except they invest smaller amounts. Angel investors take part in your business decisions and operations. Angel investors are private investors that are wealthy individuals who invest in startups, usually at the early stages with their own capital. Sometimes multiple investors pool their money with other investors, forming an investor pool, angel group, or angel capital association. The typical angel investor is someone whose net worth is likely in excess of $1 million or who earns over $200,000 per year.

Incidentally, those look a lot like the credentials of accredited investors. Realize, though, that the angel investor is playing with their own money — not invested capital — so even though they may be a high net worth individual, they are private investors that are still looking at money coming out of their personal bank account.

a) Angel investors- Advantages of working with angel investors
One big advantage of working with angel investors is the fact that they are often more willing to take a bigger risk than traditional financial institutions, like banks. Additionally, while the angel investor is taking a bigger risk than a bank might, the founder is taking a smaller risk, as private funding from angel investments typically doesn't have to be paid back if the startup fails.

As angel investors are typically experienced business people with many years of success already behind them, they bring a lot of knowledge to a startup that can boost the speed of growth. Many startup founders are learning everything from scratch, so having that kind of knowledge on the team is a huge advantage.

b) Disadvantages of working with angel investors

The primary disadvantage of working with angel investors is that founders give up some control of their company when they take on this type of private investment.

Angel investors are purchasing a stake in the startup and will expect a certain amount of involvement and say as the company moves forward.

The exact details of how much say the angel investor gets in exchange for their investment should be outlined in the term sheet.

vi) Friends and family: Family and Friends are often the first private investors that startups and small businesses turn to. They're a great resource for seed funding and startup money for private companies, as family and friends already have that base of trust and involvement that founders usually have to build from scratch with other private investors. Friends and family can be an option for a private investment. Though you know the investors personally, be professional when it comes to money. Make sure your friends and family understand the risks involved before they invest. And, keep them in the loop with business ideas, plans, and forecasts.

a) Friends and family- Advantages of working with friends and family

The biggest advantage of raising money from private investors like friends and family lies in the fact that a founder already has an established, trusting relationship with these people. That means they're easier to get a meeting with, more inclined to say "yes," and are more likely to be flexible with their expectations and timeline.

The structure of the investment will also likely be simpler than the structure of an investment obtained through more formal means. Founders borrowing from friends and family don't have to worry about long, complicated applications like they would with large financial institutions.

b) Disadvantages of working with friends and family

However, despite those advantages, there are many reasons why an entrepreneur may not want to invest with friends and family members and focus more on traditional financing options like equity financing, or even looking into small business administration loans.

The number one reason? Introducing large sums of money into a relationship that was previously entirely personal has the potential to ruin that relationship.

That's a particularly big risk if a startup fails — as most do — and investors lose all of their investment. It's important for founders (and small business owners) to be very clear about the potential for loss when accepting business funding and investment money from friends and family. Friends and family members also may not be able to add value to a company in the same way that more formal, established private investors can.

Venture capitalists, for example, typically invest in startups in fields that they are familiar with. Having that kind of knowledge on board is a huge advantage for any new company looking for private funding.

v) Federal government programs: Federal government programs offer venture capital programs for small businesses. For example, the **Small Business Investment Company**

(SBIC) Program is offered through the SBA. This program involves privately owned investment funds that are regulated by the SBA. SBIC investors use their own capital plus funds borrowed with an SBA guarantee. The SBA does not directly invest in your business.

vi) Crowd funding websites: Crowd funding websites give you access to a wide variety of small business investors. This investment strategy uses collective efforts to fund a business. Each **crowd funding** site is different. Find one that matches your business goals and strategies.

vii) Private investor loans: Private investor loans are lending options offered by non-bank entities. Usually, the lender grants the loan because they believe your business has the potential to grow. The individuals and firms listed above sometimes provide private investor loans, including friends and family, venture capitalists, and angel investors. With a loan, you have to pay the money back plus interest.

3.3. CONSTRAINTS ON MOBILIZING PRIVATE FINANCE

The factors constraining the flow of private finance into urban infrastructure in developing countries are powerful and deep. Across all types of financing avenue, four generic factors determine the potential size and scope of city leveraging activity (World Bank Citation2011):

a) The intergovernmental fiscal and institutional framework. The ability of municipalities to attract private finance will depend, in part, on the revenue sources to which they have access to cover financing costs. This includes both revenues which are assigned to local governments (‘own source revenues’) and fiscal transfers instituted to address fiscal gaps.

Moreover, the scope to use LVC instruments depends substantially on the system of land property rights, including the quality of the land and property registry, valuation systems and ease of transactions. Much of this is typically established at the national or state level, rather than by city government.

b) The quality of city financial data, accounts and management systems. In order to make sensible credit and investment decisions investors need to be able to understand municipal accounts and balance sheets and have confidence in the overall quality of financial management systems, not least those pertaining to the enforcement of revenue collection.

Where project-related revenue streams are used to secure investment obligations (e.g. in revenue-backed bonds or certain types of PPP transaction), the feasibility and quality of the projects in which private funds will be invested is also directly relevant (this is often referred to as ‘project bankability’).

c) The depth and character of the financial sector. The size and sophistication of domestic capital markets will influence the quantum of capital available for investment, the returns required, risk appetite and the scope to deploy more complex financing arrangements. The domestic financial sector is, in turn, affected by the surrounding macro-economic conditions that may influence an expansion or contraction of such credit. International financing sources could also be taken into consideration, but most governments in developing countries do not allow local governments to take on private foreign currency liabilities (including important emerging economies such as South Africa, Brazil and Vietnam). These policies are informed

by historical experiences in which liabilities denominated in foreign currencies have sometimes created severe financial difficulties for sub-nationals when exchange rates plummeted.

d) The regulatory framework pertaining to municipal borrowing, PPP and LVC transactions. This comprises the 'rules of the game', including matters such as whether cities can borrow and how much, what currencies they can borrow in, the type of collateral that they may pledge to secure borrowing, events in cases of default; their rights to enter into long-term PPP contracts and to determine tariff levels; whether cities can sell and trade development rights; the rules governing rights exchanges; and so on.

The basic challenge of leveraging increased private sector finance into urban infrastructure – climate-oriented or not – involves shifting cities to the top right quadrant of the spectrum. Although the specific reforms and activities required will vary across particular countries and cities, this broadly requires two broad areas of work:

i) National authorities (or, in some federal countries, state authorities) may need to reform policies and rules pertaining to the intergovernmental fiscal system, city accounting and financial management systems, and regulatory regimes governing municipal borrowing, PPPs and LVC.

These reforms often raise fundamental political and policy issues (such as the degree of fiscal autonomy of city governments or the tariff- setting/powers of national ministries) that national decision-makers may be reluctant to address. Even if there is the political will to address them, reform generally takes a continuous effort over a lengthy period.

ii) City authorities may need to improve the quality of their financial data, financial management practices, strengthen their balance-sheets and improve the bankability of their projects. This requires substantial fiscal discipline and raises similarly difficult political and policy issues at the local level. Many city authorities may be reluctant to limit public spending if the political benefits will be largely enjoyed by subsequent city administrations.

In short, improving the ability of city governments and utilities to attract and absorb private investment will typically demand sustained political commitment, comprehensive reform of national (or state) policies and strengthening of systems at both the national and local levels.

An additional area of intervention is possible to mobilize private finance in the near-term in imperfect policy and institutional environments. Investment 'de-risking' requires that the risks to private investors generated by suboptimal regulatory regimes and below investment-grade municipalities are transferred to other entities, typically national governments, MDBs or donor agencies. This may be done through various forms of guarantee or credit enhancement. Notable examples include the Local Government Unit Guarantee Corporation in the Philippines, the Development Assistance Committee facility of USAID, and the World Bank Group's guarantee products.

Interventions of this type need to be treated with caution. Because they inherently create moral hazard (Noel Citation2000), they tend to generate perverse incentives and fiscal risks. Over time, they can threaten the sustainability of the very system they are trying to expand. However, if appropriately targeted and designed, credit enhancement facilities may

usefully accelerate private investment while avoiding egregious systemic distortion. For example, it is common among those developing countries which permit city borrowing to prohibit those cities from incurring forex liabilities as they cannot easily hedge currency risk.

In such circumstances, providing a forex-risk credit enhancement to transactions in which cities borrow from foreign investors could address the regulatory hurdle and mitigate city currency risks without generating severe moral hazard impacts.

A long-term, coherent strategy coordinated across different levels of government is essential to improve municipal access to private finance. The next section considers these preconditions in light of the growing threat of climate change.

3.4. PENSION FUNDS

A pension fund, also known as a superannuation fund in some countries, is any plan, fund, or scheme which provides retirement income. Pension funds typically have large amounts of money to invest and are the major investors in listed and private companies.

Pension funds are investment pools that pay for workers' retirements. Funds are paid for by either employees, employers, or both. Corporations and all levels of government provide pensions.

Companies reduce pension fund risk by relying on fixed income strategies. The real returns for pension funds are often lower than projections. Corporations try to balance pension costs with staying competitive. Pension funds invest in a mix of stocks, bonds, real estate, and more. Each fund makes its own investment decisions, but the average public pension fund allocates roughly 47% of its funds to stocks and 24% to fixed-income investments like bonds.

There are two types of pension funds. The first, the defined benefit pension fund, is what most people think of when they say "pensions." The retiree receives the same guaranteed amount. The second, the defined contribution plan, is the familiar 401(k) plan. The payout depends on how well the fund does.

a) Defined Benefit Fund: A defined benefit fund pays a **fixed income** to the beneficiary, regardless of how well the fund does. The employee pays a fixed amount into the fund. The fund managers invest these contributions conservatively. They must beat **inflation** without losing the principal. The fund manager must earn enough of a return on the investment to pay for the benefits. The employer must pay for any shortfall. It's like an annuity provided by an insurance company. In this case, the employer functions as the insurance company and sustains all the risk if the market drops. That risk is why many companies have stopped offering these plans. The multi-employer plans allow small companies to band together to create diversified pensions. Employees benefit from being able to change companies without losing their pension benefits. There are 10 million current and retired workers in multi-employer plans.[1] Many of them will probably run out of funds. The benefits of these plans are guaranteed by the federal government's Pension Benefit Guaranty Corporation.[2] The PBGC guarantees the pension incomes for 35 million workers. The Single-Employer program successfully covers 28 million participants. The Multiemployer program faces insolvency by 2025. That's because 130 multiemployer plans will run out of money by 2040.

b) Defined Contribution Plan: In a defined contribution plan, the employee's benefits depend on how well the fund does. The most common of these are 401(k)s. The employer doesn't have to pay out defined benefits if the fund drops in value. All the risk is transferred to the employee. The shift in risk is the most important difference between the defined benefit and the defined contribution plan.

c) List of Top 10 Largest Public Pension Funds

Here are the top 10 largest public pension funds ranked by total assets.

Name	Where	Assets	Invests In
Social Security Trust Fund	U.S.	$2.9 trillion	U.S. Special Treasurys
Government Pension Investment Fund	Japan	$1.5 trillion	55% Japan bonds
Military Retirement Fund	U.S.	$813 billion	Diversified
Federal Employees' Retirement System	U.S.	$687 billion	Diversified
National Pension Service	S. Korea	$609billion	Korean assets
Federal Retirement Thrift Investment Board	U.S.	$572 billion	
Zenkyoren	Japan	$523 billion	Agricultural co-ops
Stichting Pensioenfonds ABP	Netherlands	$476 billion	Government workers
Canada Pension Plan	Canada	$386 billion	
Calpers	U.S.	$370 billion	State workers

Pension funds invest in a mix of stocks, bonds, real estate, and more. Each fund makes its own investment decisions, but the average public pension fund allocates roughly 47% of its funds to stocks and 24% to fixed-income investments like bonds.[7]

Pensions have fund managers, just like an ETF, mutual fund, or 401(k) plan. Fund managers can buy or sell assets as they see fit to make sound investment decisions and boost returns from investments.

3.5. THE CONSTRAINTS ON THE PENSION SYSTEM

From the discussion on pension design in this module we conclude the following. First, a national pension system will incorporate a number of pension plans. This will be a reflection of the multiple but not mutually exclusive interpretations of rationality in our decision behavior. Second, these individual pension plans will be variations of the individual 'five pillars' typology of global pension systems identified by the World Bank. Third, a country's emphasis on the different pension plans or pillars will be a reflection of the country's location on the individualist versus collectivist spectrum and its interpretation of the three tenets of (bio)social contract – survival; equity; and reciprocity. This interpretation of the social contract is not static but dynamic and will be continuously evolving in response to changes or constraints in our environment that will challenge existing scope and coverage of national pension systems. This dynamic attribute of national pension systems is consistent with ecological rationality. There is no optimal national pension system design. A pension system design has to continuously evolve in response to its environmental attributes or constraints.

a) Constraint 1: Financial Capability

What do we mean by financial capability? Financial capability is the combined outcome of the ability to and the opportunity to take financial decisions . At this point it will

be useful to clarify the distinction between financial capability and other terminologies that have been used to indicate capacity to plan for financing old age or pensions. We often tend to use interchangeably terminologies like financial knowledge; financial literacy; financial inclusion and financial capability. Financial capability is distinct from financial knowledge; financial literacy; or financial inclusion. Financial capability as defined above is the outcome of the interaction between both the ability and the opportunity to take financial decisions.

The terminologies of financial literacy; financial knowledge or financial inclusion are focused on either the ability or opportunity attribute of financial capability and ignore the significance of the process of interaction between ability and opportunity. Our understanding of financial capability has evolved over the years and we can identify three distinct phases.

We will discuss each of these phases to understand how financial capability can impact retirement outcomes in any pension system design. The discussion of the three phases of evolution of financial capability also clarifies the confusion between terminologies like financial knowledge; financial literacy and financial inclusion and their roles in financial capability and pension outcome in any national pension system.

b) Constraint 2: Financial Advice

Financial advising can a have significant role in individual and occupational pension designs. Financial advice can come in the form of the provision of technical expertise helping the consumer navigate through the technical characteristics of a product, or as a transactional agent intermediating in the buying and selling of financial products. Financial advisors can also be counsellors or coaches helping the savers through their cognitive and computational constraints as outlined in the topic on intertemporal choice and the discussion on bounded rationality.

A major concern about financial advice has been its underlying motivation. Given the involvement of the financial advisors or the firms and companies they belong to in both the buy and sell side of the business, it is unclear in whose financial interest the industry works.

This confusion of the financial advisor's allegiance is further exacerbated by the opposition of the industry to be recognized as fiduciaries in their role as advisors. A fiduciary is a professional standard of practice and care that assures the client that the professional, or the financial advisor in our case, is working in their best interest. The alternative standard of care to the fiduciary standard is the suitability standard, which does not require the financial adviser to work solely in the best interest of their client. The suitability standard of care criteria is satisfied if the advisor recommended products and services that are consistent with their client's goals and objectives.

c) Constraint 3: The Labour Market

The labour market attributes: volatility in earnings, uncertainty of hours of work, uncertainty of working lives, and longevity (Statistics Canada, 2017) will have implications for national pension system design. These labour market attributes have to be incorporated into pension design. A literal application of the life cycle income hypothesis will have implications for the sustainability of national pension systems. The data from Statistics Canada (2017) discussed above shows the cumulative impact of financial capability, advice, and the labour market indicates that tax incentivized individual savings plans or occupational

pension plans, like the defined contribution plans, are failing in scope, or in the number of people who can build their pensions using these plans. This increases the prospect of a greater dependence of an increasing share of the current workers becoming dependent on the PAYGO pension plans such as Old Age Security (OAS), Guaranteed Income Supplement (GIS), and Guaranteed Annual Income Supplement (for Ontarians).

Are there design considerations that should guide the expansion of these national super funds? The primary concern that pension subscribers have with such mega funds is governance. The track record of entrusting retirement with public entities or, for that matter, large corporations has not been very good. Pension funds of large corporations are underfunded as their liabilities or benefits accrued to pension plan members is in excess of the funds available to meet these obligations. In addition, current employees as plan members of these corporations are unsure if the organizations they hope to retire from after years of contributing to the pension funds will be around when their work life concludes. The experience with pension funds of public employees is also not reassuring. Funds like the ones for Illinois and Detroit have been severely underfunded and employees have been forced to take cuts in their accrued pension benefits because of budgetary malfeasance and underfunding (Blinch,2018). There are no easy fixes to the problem of underfunded pensions.

The guiding principle for avoiding these dismal long term prospects is intergenerational fairness or equity and complete contracts (Ambachtsheer, 2016).

Intergenerational fairness arises when benefits are promised but not financed out of current earnings, leaving the responsibility of paying for the benefits to the next generation. A major reason for this is the absence of the future generation in the negotiation when these benefits are being allocated. An example of this intergenerational fairness asymmetry is shown in figure 8 below. When plans have a funding surplus, that is the funds are in excess of the cost of accrued benefits, it is not uncommon for current employees or their employers to take contribution reductions, holidays or boost their accrued benefits.

A response at the design level to the multiple challenges faced by privately managed and funded pension plans in the lower left quadrant of Table 8 is to propose design changes in the Defined Benefit (DC) and Defined Contribution (DB) plans. Hybrid plans called Target Benefit or Defined Ambition Plans have been proposed that seek to reduce the uncertainty of pension outcomes associated with defined contribution plans for plan subscribers, as well the risk of unfunded outcomes for plan sponsors. So how is this middle-of-the-road solution of choosing between DC and DB plans devised?

3.6. INSURANCE COMPANY

Insurance Company means a company organized as an insurance company whose primary business is writing insurance or reinsuring risks underwritten by insurance companies and which is subject to supervision by the insurance commissioner or a similar official or agency of a state.

Insurance Companies means the companies with whom the Insurance Policies are held. Insurance Companies means the Life Insurance Companies and the Savings Insurance Companies. Insurance Companies means collectively, the Ceding Company and each party to a Companion Agreement, excluding the Reinsurer. Insurance companies collect the premiums for a certain type of insurance policy and use them to pay the few individuals who

suffer losses that are insured by that type of policy. Most insurance is provided by private corporations, but some is provided by the government. Insurance is a way to manage your financial risks. When you buy insurance, you purchase protection against unexpected financial losses. The insurance company pays you or someone you choose if something bad occurs. If you have no insurance and an accident happens, you may be responsible for all related costs. Insurance helps protect you, your family, and your assets. An insurer will help you cover the costs of unexpected and routine medical bills or hospitalization, accident damage to your car or injury of others, and home damage or theft of your belongings. An insurance policy can even provide your survivors with a lump-sum cash payment if you die.

In short, insurance can offer peace of mind regarding unforeseen financial risks. Depending on the type of life insurance policy and how it is used, permanent or variable life insurance could be considered a financial asset because it can build cash value or be converted into cash. Simply put, most permanent life insurance policies have the ability to build cash value over time.

Insurance helps to protect you and your family against unexpected financial costs and resulting debts or the risk of losing your assets. Insurance helps protect you from expensive lawsuits, injuries and damages, death, and even total losses of your car or home.

Sometimes, your state or lender may require you to carry insurance. Although there are many insurance policy types, some of the most common are life, health, homeowners, and auto. The right type of insurance for you will depend on your goals and financial situation. Insurance is a contract, represented by a policy, in which a policyholder receives financial protection or reimbursement against losses from an insurance company. The company pools clients' risks to make payments more affordable for the insured. Most people have some insurance: for their car, their house, their healthcare, or their life. Insurance policies hedge against financial losses resulting from accidents, injury, or property damage.

Insurance also helps cover costs associated with liability (legal responsibility) for damage or injury caused to a third party. Insurance is a contract (policy) in which an insurer indemnifies another against losses from specific contingencies or perils. There are many types of insurance policies. Life, health, homeowners, and auto are among the most common forms of insurance. The core components that make up most insurance policies are the premium, deductible, and policy limits.

a) How Insurance Works

Many insurance policy types are available, and virtually any individual or business can find an insurance company willing to insure them—for a price. Common personal insurance policy types are auto, health, homeowners, and life insurance. Most individuals in the United States have at least one of these types of insurance, and car insurance is required by state law. Businesses obtain insurance policies for field-specific risks, For example, a fast-food restaurant's policy may cover an employee's injuries from cooking with a deep fryer.

Medical malpractice insurance covers injury- or death-related liability claims resulting from the health care provider's negligence or malpractice. Businesses may be required by state law to buy specific insurance coverages. Most insurance is regulated at the state level.There are also insurance policies available for very specific needs, such as kidnap,

ransom and extortion insurance (K&R), identity theft insurance, and wedding liability and cancellation insurance.

b) Insurance Policy Components

Understanding how insurance works can help you choose a policy. For instance, comprehensive coverage may or may not be the right type of auto insurance for you. Three components of any insurance type are the premium, policy limit, and deductible.

1. Premium: A policy's premium is its price, typically a monthly cost. Often, an insurer takes multiple factors into account to set a premium. Here are a few examples:

i) Auto insurance premiums**: Your history of property and auto claims, age and location, creditworthiness, and many other factors that may vary by state.**
ii) **Home insurance premiums**: The value of your home, personal belongings, location, claims history, and coverage amounts.
iii) **Health insurance premiums**: Age, sex, location, health status, and coverage levels.
iv) **Life insurance premiums**: Age, sex, tobacco use, health, and amount of coverage.

Much depends on the insurer's perception of your risk for a claim. For example, suppose you own several expensive automobiles and have a history of reckless driving. In that case, you will likely pay more for an auto policy than someone with a single midrange sedan and a perfect driving record. However, different insurers may charge different premiums for similar policies. So finding the price that is right for you requires some legwork.

2. Policy Limit: The policy limit is the maximum amount an insurer will pay for **a covered loss** under a policy. Maximums may be set per period (e.g., annual or policy term), per loss or injury, or over the life of the policy, also known as the lifetime maximum. Typically, higher limits carry higher premiums. For a **general life insurance policy**, the maximum amount that the insurer will pay is referred to as the face value. This is the amount paid to your beneficiary upon your death. The federal **Affordable Care Act** (ACA) prevents ACA-compliant plans from instituting a lifetime limit for essential healthcare benefits such as family planning, maternity services, and pediatric care.

3. Deductible: The **deductible** is a specific amount you pay out of pocket before the insurer pays a claim. Deductibles serve as deterrents to large volumes of small and insignificant claims. For example, a $1,000 deductible means you pay the first $1,000 toward any claims.

Suppose your car's damage totals $2,000. You pay the first $1,000, and your insurer pays the remaining $1,000. Deductibles can apply per policy or claim, depending on the insurer and the type of policy. Health plans may have an individual deductible and a family deductible. Policies with high deductibles are typically less expensive because the high **out-of-pocket** expense generally results in fewer small claims**.**

3.7. TYPES OF INSURANCE

There are many different types of insurance. Let's look at the most important.

a) Health Insurance: Health insurance helps covers routine and emergency medical care costs, often with the option to add vision and dental services separately. In addition to an annual deductible, you may also pay **copays and coinsurance**, which are your fixed

payments or percentage of a covered medical benefit after meeting the deductible. However, many preventive services may be covered for free before these are met. Health insurance may be purchased from an insurance company, an insurance agent, the federal Health Insurance Marketplace, provided by an employer, or federal Medicare and Medicaid coverage. The federal government **no longer requires Americans** to have health insurance, but in some states, such as California, you may pay a tax penalty if you don't have insurance.

If you have chronic health issues or need regular medical attention, look for a **health insurance** policy with a lower deductible. Though the annual premium is higher than a comparable policy with a higher deductible, less-expensive medical care year-round may be worth the tradeoff.

b) Home Insurance: Homeowners insurance (also known as home insurance) protects your home, other property structures, and personal possessions against natural disasters, unexpected damage, theft, and vandalism. Renter's insurance is another type of homeowners insurance. Homeowner insurance won't cover floods or earthquakes, which you'll have to protect against separately. Your lender or landlord will likely require you to have homeowners insurance coverage. Where homes are concerned, you don't have coverage or stop paying your insurance bill, your mortgage lender is allowed to buy homeowners insurance for you and charge you for it.

c) Auto Insurance: Auto insurance can help pay claims if you injure or damage someone else's property in a car accident, help pay for accident-related repairs on your vehicle, or repair or replace your vehicle if stolen, vandalized, or damaged by a natural disaster. Instead of paying out of pocket for auto accidents and damage, people pay annual **premiums** to an auto insurance company. The company then pays all or most of the covered costs associated with an auto accident or other vehicle damage. If you have a leased vehicle or borrowed money to buy a car, your lender or leasing dealership will likely require you to carry auto insurance. As with homeowners insurance, the lender may purchase insurance for you if necessary.

d) Life Insurance: A life insurance policy guarantees that the insurer pays a sum of money to your beneficiaries (such as a spouse or children) if you die. In exchange, you pay premiums during your lifetime. There are two main types of life insurance. Term life insurance covers you for a specific period, such as 10 to 20 years. If you die during that period, your beneficiaries receive a payment. Permanent life insurance covers your whole life as long as you continue paying the premiums.

e) Travel Insurance: Travel insurance covers the costs and losses associated with traveling, including trip cancellations or delays, coverage for emergency healthcare, injuries and evacuations, and damaged baggage, rental cars, and rental homes.

3.8. TOP 5 CHALLENGES FACING THE INSURANCE INDUSTRY

The insurance industry has been in a state of flux, with new technologies, data-driven processes and growing customer demands being major drivers behind this time of change.

And while many changes are good — such as the digital transformation of insurance and what that has meant for companies and customers alike — some of these changes have resulted in the industry facing its share of new challenges. Here is a look at some of the

biggest challenges facing the insurance industry, along with ideas and innovations to solve them:

a) Digitizing small commercial: A niche but profitable market within the insurance industry is small business insurance, otherwise known as small commercial. While this section of the market had been relatively insulated from outside pressure to modernize and get on board with digital technologies, that is no longer the case. Larger, more aggressive insurers understand the value of small commercial and are making a push to move into this market and update it. This is forcing carriers who already offer small commercial to significantly invest in new digital technologies to keep up with their competitors.

A report from PricewaterhouseCoopers (PwC) recommended three steps these insurers could take to stay relevant in the small commercial market: i) Improve customer experience with digital interactions, ii) Digitize underwriting and claims, iii) Invest in employees/talent

b) Commoditization: Insurers are constantly trying to one-up their competitors to win over new customers and retain their current ones. And while low rates are an excellent way to do that, another equally important factor for the modern consumer is how they are treated by the companies they work with. Commoditization, the process of treating someone like they are a mere commodity, is a fast way to lose customers. They want to feel valued and important, not like just another number. To achieve this, insurers have been deploying solutions such as artificial intelligence (AI) and automated processes to deliver personalized yet fast, customer experiences. Digital insurance technologies also help insurers create unique products quickly with low-code tools, as well as use complex data sets to improve risk pricing and offer better, more personalized rates.

c) Improving quality of analytical data: Data is constantly being generated and leveraged in the insurance industry. But as we know, quantity doesn't always equate to quality. To get the most out of user, operational and marketing data, insurers need to have robust data management plans in place. With these plans, they can improve the overall quality of analytical data and gain more meaningful insights to improve customer experiences.

Insurance industry experts at PwC make three operational recommendations to maximize data analytics practices:

i) Clearly define a) the customer segments and interactions that are top priorities and b) the insights needed to drive the experiences that result in new business and better customer retention.
ii) Take a holistic approach to data-driven decision making and push it out to the edges of the organization so everyone can make better, faster decisions. To facilitate this process, insurers can develop pilot programs that allow them to test what works and what doesn't. In this environment, insurers can gain practical and practicable insights, as well as help develop a culture that understands the power of data.
iii) Modernize the data analytics foundation to make it agile, flexible and reusable. To do this, determine the type of architecture that will work in the near- and long-term future, as well as a data governance strategy that promotes data quality and usefulness.

d) Using data to improve experiences: While using data to improve offerings and, ultimately, customer experience is not a new phenomenon in the insurance industry, doing it

well and consistently is still a challenge for many. There are outside factors at play here as well, as insurers grapple with market instability and increasing competition.

To meet this challenge and maximize data in pursuit of better customer experiences, companies must leverage the digital insurance solutions at their disposal. With agile cloud systems, data analytics capabilities, and more, insurers can meet the demands of today's consumers with important features such as: i) Chatbots, ii) Mobile applications, iii) Omni channel claims capabilities, iv) AI-generated quotes

e) Cyber security: Because so much of the world has gone digital, there is now an ever-present concern about cyber security threats. This presents a unique opportunity for insurers, as individuals and businesses alike seek out protection for their own data and privacy. For individuals and businesses wary of identity theft or a data breach, insurers can cover the costs associated with cyber security issues, which can include contacting authorities, notifying individuals, settlement costs, fines, costs of discovering the cause, loss of business, loss of customers, loss of reputation and cyber extortion. Providing this coverage can be a cost-effective, low-risk investment that shows insurers are forward-thinking and looking out for the best interests of their customers.

3.9. SUMMARY

Investing in private companies is a more involved process and requires investing in the company directly. That means that instead of purchasing stock on a stock exchange, you deal with the private business itself. Private companies and small businesses each offer unique advantages over public company investments. You get to create a relationship with the business owners, and you have more say in the company's inner workings. For example, you may have some say in who gets elected to the board of directors for that business, and you may even join the board yourself. Regardless of whether you decide to invest in a small business or a larger private company, the process of choosing the right company remains the same. After studying this lesson student should be able to: Know the concept of private investors for small business and its Constraints-Understand the Constraints on the Pension System -Importance of Top 5 Challenges Facing the Insurance Industry. Further, in this lesson revealed about Types of private investors for small business- Constraints on Mobilizing Private Finance- Pension Funds- Insurance Company- Types of Insurance.

3.10. TECHNICAL TERMS

Private companies: Private companies are owned wholly by the founders or employees of the company, and shares of its stock are not traded on public markets. Investing in private companies requires buying private shares of equity directly from the company, and it may have a high minimum investment. You will need to have access to key personnel within the company (such as the owner, or investor relations team), or have access to equity shares through a crowd funding platform.

Private investors: Private Investors are individuals with pockets full of knowledge, experience, expertise & of course money. There are different forms of investors. These private investors have varied interests, preferences, strengths, terms, & distinct work patterns with founders. To find the right investor, every entrepreneur must be aware & have an understanding of different types of private investors, their approaches to investments, and the motivation to invest in startups. Generally, there are four types of private Investors.

Public Companies: Publicly traded companies are, just like they sound, available to the general public. Their stock can be traded on the open market. These companies are also required to report their financial statements to the Securities and Exchange Commission (SEC), which are available for the general public to review. In general, public companies are much easier to invest in, with tradable stocks available at most online brokers, and a quote market price that makes it easy to value the company.

Pension plan: A pension plan is an employee benefit that commits the employer to make regular contributions to a pool of money set aside to fund payments made to eligible employees after they retire. In the United States, traditional pension plans, or defined-benefit plans, have become increasingly rare and replaced by retirement benefits that are less costly to employers, such as the 401(k) retirement savings plan.

Pension Funds: A pension fund, also known as a superannuation fund in some countries, is any plan, fund, or scheme which provides retirement income. Pension funds typically have large amounts of money to invest and are the major investors in listed and private companies.

Insurance Company: Insurance Company means a company organized as an insurance company whose primary business is writing insurance or reinsuring risks underwritten by insurance companies and which is subject to supervision by the insurance commissioner or a similar official or agency of a state.

3.11. SELF-ASSESSMENT QUESTIONS

1. What is private finance?
2. What are the Types of private investors for small business?
3. What are Constraints on Mobilizing Private Finance? Explain
4. What is Pension Fund? Discuss various types of pension funds.
5. What are the Constraints on the Pension System? Explain.
6. What is the Insurance Company?
7. Discuss various Types of Insurance companies.
8. Explain the Top 5 Challenges Facing the Insurance Industry.

3.12. SUGGESTED READINGS

1. S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
2. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
3. J.C.Francis: Investments analysis and management
4. R.J Fuller and J.L.Farrel: Modern Investments and Security Analysis
5. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
6. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance
7. Cathy Pareto's: Dependable Wealth Managers for Women in the U.S. by Forbes

Dr. Krishna Banana

LESSON 4

CONSTRAINTS & CHALLENGES OF FOUNDATIONS, ENDOWMENTS AND BANKS

OBJECTIVES

After studying this lesson student should be able to:

- Know the concept of Different Kinds of Private Foundations & Public Charities
- Understand the Endowments & Challenges Facing Non-Profit Organizations
- Importance of Banks and its Issues and Challenges in the Online Banking Sector

STRUCTURE

4.1. INTRODUCTION

a) Public Charity: Public charities include a wide variety of charitable organizations, including hospitals, schools, churches, and organizations that make grants to others. Charities that primarily make grants are commonly referred to as public foundations. Most of these foundations are publicly supported charities, meaning they receive their funds from multiple sources, which may include private foundations, individuals, government agencies, and fees they charge for charitable services they provide. Some foundations are public charities because they meet at least one of the IRS tests for qualifying as a public charity. One kind of public charity, known as a supporting organization, is recognized by the IRS as charitable simply because of its legal relationship to one or more other public charities. A community foundation is yet another kind of public charity. In some cases, corporate foundations are set up as public, rather than private, foundations. The IRS's "Compliance Guide for Public Charities" provides an overview of the compliance requirements public charities must meet in order to stay tax-exempt. Charities generally do not pay state or federal income tax. They also may be exempt from paying state sales tax on their purchases and from local property tax on property they use to carry out their charitable activities. The extent and nature of exemptions from state taxes will vary from state to state. These generous exemptions recognize the important principle that organizations that act voluntarily to further the public good should be

freed from the obligation to support government through the payment of taxes. Exemptions maximize the ability of charities to help others.

b) Foundation: In the nonprofit sector, the term "foundation" has no precise meaning. The Council on Foundations defines a foundation as an entity that supports charitable activities by making grants to unrelated organizations or institutions or to individuals for scientific, educational, cultural, religious, or other charitable purposes. While foundations are often primarily engaged in grant making activities, some may engage in their own direct charitable activities or programs. When thinking about foundations in the charitable context, it is helpful to see how the IRS describes private foundations and public charities. Visit the Charities and Nonprofits section of the IRS website at www.irs.gov. The IRS classifies all 501(c) (3) organizations into two distinct types: private foundations and public charities.

c) Private foundation: Private foundations are generally financially supported by one or a small handful of sources—an individual, a family, or a corporation. There are a few different kinds of private foundations: independent, family, and corporate. These categories are not legally defined. Rather, they are commonly used in the field of philanthropy to distinguish the different kinds of private foundations. Private foundations must pay out at least 5 percent of their assets each year in the form of grants and operating charitable activities. A private operating foundation is a kind of private foundation and must operate under similar rules.

However, it does not have to pay out 5 percent or more of its assets each year in grants. Instead, it must carry out its own charitable purposes. All private foundations are 501(c)(3) organizations. Under the Internal Revenue Code, a charity is presumed to be a private foundation unless it can prove that it is a public charity.

More about the different kinds of foundations is available in:

d) Are contributions made to foundations tax deductible?

Contributions made to public and private foundations may be deducted from the donor's federal income tax if the donor is an individual or corporation. The amount of the deduction is subject to certain limits under federal tax law. Generally, gifts to public charities receive more favorable tax treatment than gifts to private foundations. For example, charitable cash donations are deductible at up to 50 percent of the taxpayer's adjusted gross income (AGI) when given to public charities, but the same gift to a private foundation is deductible at a rate of only 30 percent of AGI.

4.2. DIFFERENT KINDS OF PRIVATE FOUNDATIONS

Once a foundation has been classified by the IRS as a private foundation, there are ways to describe it based on how the foundation is funded and governed. Most of the following terms are not legal classifications, but rather descriptive terms used within the field of philanthropy to help others understand how the foundation operates. What these foundations have in common is that they are established to aid social, educational, religious, or other charitable needs. Generally, there is a board of directors that makes discretionary giving decisions, often within specific guidelines as to charitable field of interest and/or geographic area.

i) Independent Foundations are distinct from other kinds of private foundations like family or corporate foundations, in that they are not governed by the benefactor, the benefactor's

family, or a corporation. They are usually funded by endowments from a single source such as an individual or group of individuals.

ii) Family Foundations are usually funded by an endowment from a family. With family foundations, the family members of the donor(s) have a substantial role in the foundation's governance.

iii) Corporate Foundations (or Company-Sponsored Foundations) are philanthropic organizations that are created and financially supported by a corporation. The foundation is created as a separate legal entity from the corporation, but with close ties to the corporation.

Companies establish corporate foundations and giving programs to have a positive impact on society. Corporate foundations tend to make grants in fields related to their corporate activities or in communities where the corporation operates, or where their employees reside. Corporate foundations are usually set up as private foundations, but can be created as public foundations, particularly if they will be largely publicly supported. Rather than establish a separate foundation, a company can also make gifts and grants directly to charitable organizations through a program within the company itself. This is called a corporate giving program.

iv) International Foundations typically are foundations based outside the United States that make grants in their own countries and overseas. The term "international foundations" also can refer to foundations in any country that primarily engage in cross-border giving. Not all foundations that engage in cross-border giving are private foundations; many are established as public charities. Under U.S. law, contributions from U.S. donors and corporations are not eligible for a charitable deduction if the organization is not formed in the United States or recognized by the United States as charitable.

v) **Private Operating Foundations** are private foundations that primarily operate their own charitable programs, although some also make grants. Private operating foundation is a legal classification under the Internal Revenue Code, and these foundations must follow many of the private foundation rules. Unlike private foundations that are not operating, a private operating foundation is required to spend a certain portion of its assets each year on charitable activities. By contrast, private non-operating foundations are required to pay out 5 percent or more of their assets each year in grants.

4.3. Different Types of Public Charities

i) Statutory public charities are considered charities as a matter of law and generally perform charitable activities rather than issuing grants. Some examples of statutory public charities are churches, universities, schools, nonprofit hospitals, and medical research institutions. Statutory public charities are classified under Sections 170(b)(1)(A) (i) through (v) of the Internal Revenue Code.

ii) Public charities supported through donations are organizations that can show that a minimum percentage of their financial support comes from a broad cross-section of the public, rather than from just one source. These charities fall under Section 170(b)(1)(A)(vi) of the Internal Revenue Code. The charity or foundation must satisfy one of two tests, both of which measure public support as a fraction of the total support the organization receives. This

test is referred to as the public support test. Examples of charities that are publicly supported are community foundations, the American Red Cross, and the YMCA.

iii) Public charities receiving exempt function income get a substantial portion of their support from program service revenue. These organizations earn revenue from activities like selling tickets, or by charging admission or other fees for the charitable services they provide.

These public charities fall under Section 509(a)(2) of the Internal Revenue Code. Charities in this category must ensure their investment income does not normally exceed one-third of their total support. An example of this kind of charity would be a museum or opera that charges for admission.

iv) Supporting organizations are public charities classified under Section 509(a)(3) of the Internal Revenue Code. A supporting organization is an organization that attaches itself to or supports another public charity (or charities) and—in effect—acquires the public charity status of the organization it supports. An example of a supporting organization is the philanthropic arm of a university or hospital. Certain grants to specific kinds of supporting organizations are prohibited or can only be made within strict guidelines.

4.4. KEY DIFFERENCES BETWEEN A PUBLIC CHARITY AND A PRIVATE FOUNDATION

The distinction between public charities and private foundations is a matter of federal tax law.

Public charities, unlike private foundations, are heavily supported by the public. For this reason, public charities are more subject to public scrutiny, which can help ensure adherence to appropriate standards of conduct in the absence of the more strict rules and regulations governing private foundations.

Since 1969, private foundations have been subject to stricter and more extensive federal rules than public charities, including strict prohibitions on self-dealing, and limits on the amount of stock they can hold in any one company. Examples of the various regulated private foundation activities include:

i) financial transactions between the foundation and its largest contributors, officers, and other insiders
ii) amounts paid out toward operating costs, grants, and charitable programs
iii) reasonableness of the types and amounts of expenses incurred to operate the foundation
iv) compensation of foundation staff and board members
v) business holdings of the foundation
vi) engaging in overly risky investments with charitable assets
vii) grants or other payments to individuals, other private foundations, certain kinds of charities, and organizations that are not charities

These more stringent rules were less applicable in the public charity context, but in recent years have been applied in some degree to charities that administer funds that are considered to be donor-advised. Although public charities were traditionally not as heavily regulated as private foundations, it has been and is still recommended that charities follow the

private foundation rules closely as guidance. Indeed, more and more, the IRS is requiring that public charities adhere to many of the private foundation rules when making certain kinds of grants or payments to individuals, charities, and non-charities. In addition, private foundations, supporting organizations, and organizations that administer donor-advised funds or scholarship funds must also stay in compliance with the charitable grant making provisions of the Pension Protection Act of 2006 www.cof.org/ppa.

Charities are a large and diverse group of nonprofit institutions that play a key role in American society and help to form and strengthen communities. With the help of millions of volunteers and the generosity of countless donors, they provide many services and perform many functions that in some countries are largely performed by government. Organizations that only operate charitable activities are classified under Section 501(c) (3) of the Internal Revenue Code. Many types of organizations are tax-exempt, but not all qualify for 501(c) (3) status. The 501(c) (3) designation is a legal designation reserved for organizations that are exclusively charitable. Other organizations exempt from federal income tax can be found under Section 501(c) of the Tax Code, but they do not qualify as 501(c) (3) organizations because they are permitted to operate programs that are both charitable and non-charitable. A few basic legal characteristics of 501(c) (3) organizations: Contributions to 501(c) (3) organizations are generally tax deductible. Grants and activities may not assist election campaigns that support or oppose candidates for public office. Grants, compensation, and other payments must be made within specific guidelines, and for a charitable purpose, not for personal or private benefit. The IRS classifies all 501(c) (3) organizations into two distinct types: private foundations and public charities. The IRS is a good source of general information on the different types of tax-exempt organizations, all of which are under 501(c) of the Tax Code. IRS listing of all categories of tax-exempt organizations: https://www.irs.gov/charities-non-profits/types-of-tax-exempt-organizations.

4.5. ENDOWMENTS

An endowment is a donation of money or property to a nonprofit organization, which uses the resulting investment income for a specific purpose. An endowment can also refer to the total of a nonprofit institution's investable assets, also known as its "principal" or "corpus," which is meant to be used for operations or programs that are consistent with the wishes of the donor(s). Most endowments are designed to keep the principal amount intact while using the investment income for charitable efforts. Most endowments are designed to keep the principal amount intact while using the investment income for charitable efforts. Endowments tend to be organized as a trust, private foundation, or public charity.

Educational institutions, cultural institutions, and service-oriented organizations typically administer endowments.

a) Understanding Endowments

Endowments are typically organized as a trust, private foundation, or public charity. Many endowments are administered by educational institutions, such as colleges and universities. Others are overseen by cultural institutions, such as art museums, libraries, religious organizations, private secondary schools, and service-oriented organizations, such as retirement homes or hospitals. In some cases, a certain percent of an endowment's assets are allowed to be used each year so the amount withdrawn from the endowment could be a

combination of interest income and principal. The ratio of principal to income would change year to year based on prevailing market rates.

An endowment is a fund that is established to provide ongoing financial support for a specific charitable purpose, while a foundation is an independent legal entity that is established to support charitable causes through grants and other activities. In short, an endowment is a type of fund, while a foundation is a type of organization. They are usually funded by endowments from a single source such as an individual or group of individuals.

Family foundations are usually funded by an endowment from a family. With family foundations, the family members of the donor (s) have a substantial role in the foundation's governance. Most endowments are designed to keep the principal amount intact while using the investment income for charitable efforts. Most endowments are designed to keep the principal amount intact while using the investment income for charitable efforts.

Endowments tend to be organized as a trust, private foundation, or public charity. We understand the challenges that endowments and foundations face, particularly the need to achieve spending targets in today's low-return environment. To help, we offer a full range of investment strategies across public and private markets, as well as a leading outsourced CIO (OCIO) platform.

b) Policies of Endowments

Most endowment funds have the following three components, which govern investments, withdrawals, and use of the funds.

i) Investment Policy

The investment policy lays out which types of investments a manager is permitted to make and dictates how aggressive the manager can be when seeking to meet return targets.

Many endowment funds have specific investment policies built into their legal structure so that the pool of money must be managed for the long term. Endowment funds of larger universities can have hundreds, if not thousands, of smaller funds that invest the pools of money in various securities or asset classes. The funds typically have long-term investment goals, such as a specific rate of return or yield. As a result of the investment goals, the asset allocation (or types of investments within the fund) is designed to meet the long-term returns set forth in the fund's objectives.

ii) Withdrawal Policy

The withdrawal policy establishes the amount the organization or institution is permitted to take out from the fund at each period or installment. The withdrawal policy can be based on the needs of the organization and the amount of money in the fund. However, most endowments have an annual withdrawal limit. For example, an endowment might limit the withdrawals to 5% of the total amount in the fund. The reason the percentage of withdrawal is typically so low is that most university endowments are established to last forever and, therefore, have annual spending limits.

iii) Usage Policy

The usage policy explains the purposes for which the fund can be used and also serves to ensure that all funding is adhering to these purposes and being used appropriately and

effectively. Endowments, whether set up by an institution or given as a gift by donors, can have multiple uses. These include ensuring the financial health of specific departments, awarding scholarships or fellowships on the basis of merit to students, or providing assistance to students from a background of economic hardship. Chair positions or endowed professorships can be paid with the revenue from an endowment and free up capital that institutions can use to hire more faculty, reducing professor-to-student ratios. These chair positions are considered prestigious and are reserved for senior faculty.

Endowments can also be established for specific disciplines, departments, or programs within universities. Smith College, for example, has an endowment for its botanical gardens, and Harvard University has more than 14,000 separate endowment funds.

c) Endowment Types

There are four different types of endowments:

i) **Unrestricted Endowment** – This consists of assets that can be spent, saved, invested, and distributed at the discretion of the institution receiving the gift.
ii) **Term Endowment** – This setup usually stipulates that, only after a period of time or a certain event, can the principal be expended.
iii) **Quasi Endowment** – This is a donation made by an individual or institution and given with the intent of having that fund serve a specific purpose. The principal is typically retained, while the earnings are expended or distributed per specifications of the donor. These endowments are usually started by the institutions that benefit from them via internal transfers or by using unrestricted endowments already given to the institution.
iv) **Restricted Endowment** – This has its principal held in perpetuity, while the earnings from the invested assets are expended per the donor's specifications. Except in a few circumstances, the terms of endowments cannot be violated. If an institution is near bankruptcy or has declared it but still has assets in endowments, a court can issue a cy pres doctrine, allowing the institution to use those assets toward better financial health while still honoring the wishes of the donor as closely as possible. Drawing down the corpus of the endowment to pay debts or operating expenses is known as "invading" or "endowment fund invasion," and sometimes requires court approval.

d) Requirements for Endowments

Managers of endowments have to deal with the push and pull of interests to make use of assets to forward their causes or sustainably grow their respective foundation, institution, or university. The goal of any group given the task of managing a university's endowments, for example, is to sustainably grow the funds by reinvestment of the endowment's earnings while also contributing to the operating cost of the institution and its goals.

Management of an endowment is a discipline unto itself. An outline of considerations compiled by a leading management team includes setting objectives, developing a payout policy, building an asset allocation policy, selecting managers, managing risks systematically, cutting costs, and defining responsibilities.

Philanthropies, or, more specifically, private non-operating foundations, a category that includes the majority of grant-making foundations, are required by federal law to pay out

5% of their investment assets on their endowments every year for charitable purposes in order to keep their tax-exempt status.

Private operating foundations must pay substantially all—85% or more—of their investment income.

e) Community foundations have no requirement.

Under the Tax Cuts and Jobs Act of 2017, substantially large university endowments must pay a tax of 1.4% on net investment income. This tax is levied on endowments held by private colleges and universities with at least 500 students and net assets of $500,000 per student.

4.6. CHALLENGES FACING NON-PROFIT ORGANIZATIONS

What exactly are the challenges facing nonprofits, and how can they tackle them efficiently and within the limited resources they have? Let's take a look look at the eight most significant strategic issues facing nonprofit organizations today:

a) The Challenge of Limited Government Funding for Nonprofit Organizations

Many nonprofit organizations depend on the assistance of the government. This assistance may be in the form of grants or part of a matching scheme, or it may merely serve as a safety net to fill the gap when funds are short.

Shrinking budgets at state, national and municipal levels means there is less to go around. Most nonprofits end up getting less funding than they want or need, while some are left with no funding at all.

b) Nonprofit's Stable Income and Accurate Budgeting Issues

Having a steady income from any source is hard for nonprofits, and that can make budgeting a real challenge. Moreover, income may be unsteady throughout the year, so your focus usually falls on securing enough to cover administrative costs before seeing what is left for projects, and the organization often runs on a shoestring just in case.

c) Pressure on Nonprofits to Show Results and Strategic Solutions

In the past, the nonprofit world's emphasis was on showing that programs were being used and accessed by those they aimed to support. Now, largely because there is less to go around, the pressure has shifted. Your nonprofit must demonstrate that its social impact objectives are being achieved, which can be a much harder calculation.

d) Not Running Nonprofits Like a Business and Ignoring the Bottom Line

With so much emphasis on performance, your nonprofit may struggle with remembering that it is still a business that has to have a bottom line in the black. Nonprofits often put their social impact goals at the forefront and their business objectives second, which is fine until there is not enough coming in to cover what is going out.

Cost and social impact must become aligned to deliver real life-changing results across all activities. To ensure your mission never loses sight of its capability/reach, you should use the right tools. This will make your people and processes more agile and adaptable

and ready to meet changing circumstances within the resources you have. And they will allow you to track the bottom line in real-time.

e) Attracting and Retaining the Right Talent Over Other Sectors

Many nonprofits struggle to win the battle for talent when competing with opportunities in other sectors. This leads to an equally important issue: are they attracting the right people? Looking at what type of person is attracted to the sector, and why others are not. People attracted to nonprofit work are generally very dedicated to the causes they serve and are an asset to the sector. However, the limited resources many nonprofits have also make it tricky to recruit 'top talent'. Those that get hovered up by more lucrative industries with bigger offers and opportunities.

Is there a solution? The solution comes in two parts. First, fight the fear. If these are the people you need, then invest in them. Nonprofits must fight the fear that they may leave or cost too much, and look at the bigger picture. Second, where investing in new talent is not possible, you must believe in your top talent. Provide engaging work experience that allows your people to focus on why they love their work – your mission. And help them flourish and take their undeniable passion further.

f) The Problem of a Significant Increase in Need for Nonprofit Services

Across the board, nonprofits are seeing an increase in the need for their services. Poverty is a real issue, and many people are facing economic hardships. The environment needs saving, and arts programs in many schools are being cut, putting the burden on nonprofits to respond quickly to unpredictable situations and deliver much-needed services.

g) The Problem of a Significant Increase in Need for Nonprofit Services

Successful nonprofits face the possibility that they could work themselves right out of a job. Let's say that your organization's objective is to find employment for local veterans, and it does so, continually growing and evolving its services to meet that goal. Once it does, the demand for its services may decrease, which puts nonprofits under to either scale back or diversify their mission and programs.

h) Nonprofits Challenged to Keep Their Eye on the Bottom Line

People working for nonprofits tend to wear many hats. Being generalists can mean no one in your organization has the dedicated knowledge that detailed business and finance analysis functions require. It's essential to find tools that empower everyone to analyze information and make data-driven decisions.

Nonprofit organizations clearly face a range of specific challenges, some of which are obvious, while others are less so. To future-proof your organization and achieve your mission, you need to be aware of these issues and how they could be affecting your business.

Nonprofits that are serious about being around for the long-term need strategies to mitigate these challenges and use them as a starting point for developing a comprehensive business strategy. Approaching an operational strategy from this perspective is essential to sustaining successful business operations.

4.7. BANKS

The Indian banking sector is broadly classified into scheduled and non-scheduled banks. The scheduled banks are those included under the 2nd Schedule of the Reserve Bank of India Act, 1934. The Indian banking system consists of 12 public sector banks, 22 private sector banks, 46 foreign banks, 56 regional rural banks, 1485 urban cooperative banks and 96,000 rural cooperative banks in addition to cooperative credit institutions. As of March 2023, the total number of ATMs in India reached 14,74,548. Modern banking in India originated in the mid of 18th century. Among the first banks were the Bank of Hindustan, which was established in 1770 and liquidated in 1829–32; and the General Bank of India, established in 1786 but failed in 1791. The largest and the oldest bank which is still in existence is the State Bank of India (SBI). The Reserve bank of India is the primary regulator of banks in India. Total assets of banks in India from financial year 2013 to 2022 (in trillion U.S. dollars)

4.8. TYPES OF BANKS IN THE INDIAN BANKING SECTOR

The Indian banking sector is composed of several types of banks, each with different ownership structures and operational characteristics. The types of banks in the Indian banking sector include:

a) Central banks: The Reserve Bank of India (RBI) is the central bank of India and is responsible for regulating the banking sector, managing monetary policy, and maintaining financial stability. It is also responsible for printing currency notes, managing foreign exchange reserves, and providing banking services to the government.
b) Commercial banks: Commercial banks are the most common type of banks in India and offer a wide range of financial services to individuals, businesses, and other organizations. They include public sector banks, private sector banks, and foreign banks.

i) **Public sector banks:** These are banks in which the government has a majority stake, and they are also referred to as nationalized banks. They were established with the objective of promoting financial inclusion and providing banking services to all sections of society.
ii) **Private sector banks:** These are banks owned by private individuals or corporations. They are divided into two categories: old private sector banks, which were established before liberalization, and new private sector banks, which were established after liberalization.
iii) **Foreign banks:** These are banks that are headquartered outside India but have a presence in India. They are regulated by the Reserve Bank of India and must comply with Indian banking laws and regulations.
iv) **Cooperative banks:** These are banks that are owned and operated by members of a cooperative society, usually with a common interest or purpose. They are further divided into two types: urban cooperative banks and rural cooperative banks.
v) **Regional Rural Banks:** RRBs were established with the objective of providing banking services to the rural areas of India. They are jointly owned by the central government, state government, and sponsor banks (i.e., public sector banks).
vi) **Specialized/Development banks:** There are various types of specialized banks in India that cater to specific sectors or industries. For example, the National Bank for Agriculture and Rural Development (NABARD) provides financial services to the agricultural sector, while the Small Industries Development Bank of India (SIDBI)

provides financial services to small and medium-sized enterprises (SMEs).vii) **Payment banks:** Payment banks are a new category of banks in India that were introduced with the objective of increasing financial inclusion and providing basic banking services to underserved segments of the population. They can accept deposits up to Rs. 2 lakh and offer services such as remittance, mobile payments, and ATM/debit cards.

4.9. SERVICES OFFERED BY THE INDIAN BANKING SECTOR

The Indian banking sector offers a wide range of services to its customers, from individuals to large and small businesses. Following are some of the main services offered by the banking system of India:

i) **Deposits:** Banks offer various types of deposit accounts, such as savings accounts, current accounts, fixed deposit accounts, recurring deposit accounts, and tax-saving deposit accounts. These accounts provide a safe place to deposit money and earn interest on the amount.
ii) **Loans:** Banks provide various types of loans, such as home loans, car loans, personal loans, education loans, and business loans. These loans help individuals and businesses meet their financial needs and goals.
iii) **Credit cards:** Bank-issued credit cards allow individuals to make purchases on credit and pay back the amount over time or on an agreed upon date. Credit cards also offer rewards and cashback on transactions.
iv) **Debit cards:** debit cards allow individuals to withdraw cash from ATMs and make purchases using the card's balance. Debit cards are linked to a savings or current account and are used to access and make payments directly from the funds in the account.
v) **Online and mobile banking:** These are services that allow customers to access their accounts, transfer funds, pay bills, and make other transactions from the convenience of their homes or mobile devices. For example, Real-Time Gross Settlement (RTGS), National electronic Fund Transfers (NEFT) etc.
vi) **Investment products:** Banks offer various investment options, such as mutual funds, insurance products, and fixed deposits, that help individuals grow their wealth and meet their long-term financial goals.
vii) **Forex and remittance services:** the banking sector offers foreign exchange and remittance services that allow individuals and businesses to send and receive money from across borders.
viii) **Trade finance services:** trade finance services, such as letters of credit, bank guarantees, and export financing, help businesses engage in international trade.

4.10. CONSTRAINTS ON BANKS

The effect of bank lending constraints on the usage probability of this financing type increases with firm size and decreases with firm age. Similar to the results for trade credit, more indebted firms are found to have a greater propensity to turn to informal lending or to loans from other companies as do firms whose credit history has worsened. Moreover, the authors find that non-performing loans increase the influence of financial constraints on tax avoidance, while a financial crisis amplifies the impact of financial constraints on bank cash tax savings. Credit

constraint definitions. Firms are defined as constrained if they applied for bank loans, bank overdrafts, credit lines or credit card overdrafts but were refused finance or received less than 75% of the amount sought. Credit constraint definitions. Firms are defined as constrained if they applied for bank loans, bank overdrafts, credit lines or credit card overdrafts but were refused finance or received less than 75% of the amount sought.

a) What Really Constrains Bank Lending

i) The idea that banks are not constrained by reserve levels—because they can always borrow required reserves should they fall short—shouldn't leave anyone with the impression that banks do not face serious constraints on their lending. The biggest constraint on lending is the basic business model of banking. When I was a banking lawyer, we usually referred to this as "cost plus lending." The idea was that the bank's source of profit was charging more for loans than it cost the bank to make the loan. This sounds pretty simple until you start thinking about the source of the costs to make a loan. The first cost, of course, is what's known as "the cost of funding"—the amount the bank must pay to borrow the reserves required making loans. But there are a host of non-funding costs as well. The bank must also somehow acquire the regulatory capital to back the loan, and capital can be expensive. The bank faces administrative costs in making the loan. Bankers must be paid. There may also be various taxes and government fees that apply.

ii) Banks also face interest rate risk that they attempt to hedge by either borrowing funds at durations that match the term of the loan they are making—which raises the bank's cost of funding—or making floating rate loans. But with very large loans, banks will often require floating rate borrowers to hedge against interest rate risk themselves—since you don't want your borrower defaulting just because rates have increased. The price of interest rate hedging also has to be figured into the borrower's ability to pay the loan. These aren't trivial costs. The best estimate is that these add up to almost 300 basis points—the spread between the Fed Funds rate and the Prime Rate.

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This means that even if banks can make loans out of thin air, there are plenty of loans that a bank cannot make. Or, to put it differently, if a bank makes too many of these loans it will lose money and eventually fail. A person or business whose free cash flow is too light to support the costs of the loan, for example, is not credit worthy—that is, not eligible to receive a loan under most circumstances. This is one way that monetary policy works to encourage more lending. When monetary policy brings down the price of banks borrowing reserves—that is, reduces the Feds Funds rate—it brings down the cost of making loans. This means some borrowers will be credit worthy at lower rates that wouldn't make the cut at higher rates.

iii) Banks also must price in the "credit risk" of making a loan—the risk that the borrowers may default, either because the collateral for the loan becomes so undervalued that the borrower "walks away" or because cash flow fall short of what is needed to make the loan. Credit risk depends both on the individual character of each borrower and the general economic prospects. Rising unemployment, fall in consumer demand, the plausibility of management's business plans all feed into credit risk. Evidence indicates that credit risk, interest rate risk and other costs of lending exercise very strong influences over lending. The stuff the Fed tends to influence most directly—the cost of funding—can be overwhelmed by the credit risk and cost of capital. But under current procedures, these restraints do not arise from a hard limit on the amount of reserves in the system. They arise from the costs of lending, which is conditioned by (a) the interest rate targeted by the Fed, (b) regulatory and market capital requirements and the market price for bank capital, (c) by back-office administrative and hedging costs of lending, and (d) the credit-worthiness and credit-hungriness of borrowers.

4.11. ISSUES AND CHALLENGES IN THE ONLINE BANKING SECTOR

Despite the benefits of online banking services, there are issues & challenges users and marketers should be aware of. We explore the five key challenges.
1. Shifting banking habits 2. Security 3. Technical issues 4. Lack of personal relationship 5.The changing banking landscape.

Online banking has many benefits. Two of the most important are *speed* and *convenience*. People who participate in online banking can access their accounts, view their statements, make transactions, pay bills, and much more - from their homes or on the go. It's no surprise then that 76% of UK citizens used online banking in 2020. Despite the benefits, there are also distinct challenges marketers in this sector face. In this blog, we explore the main issues and challenges in the online banking industry. The challenges are highly significant both for banks that offer online banking, but also for their customers, who depend on the banks to operate effectively. Online banking marketers need to know these challenges so that they can efficiently navigate them. Let's dive in.

i) Shifting banking habits: Online banking usage has seen a surge during the pandemic. UK bank TSB, for example, saw a recorded 137% increase in enrolment for internet banking since March 2020. Due to lockdown restrictions, online banking adoption soared and now up to 80% of people prefer online banking to visiting the bank, and banks all over the world have started closing the doors of their physical branches. Further to this increase in digital banking usage has been an increase in contactless solutions amidst social distancing practices. Mastercard reported an increase of 40% globally in contactless transactions in 2020. As consumers have made the shift to digital and businesses have started increasing their ecommerce capabilities, the appetite for fully virtual, contactless banking solutions will continue to increase. Further to this, the adoption of wearable payment devices has seen an increase and experts predict the market value of wearable payment tech to grow at a compound annual rate of 29.8% between 2021 and 2028. With this growing shift in digital banking habits, banks need to keep their product offerings relevant. As they introduce more online banking capabilities, it's up to marketers to ensure that customers are aware of their bank's full product offering, further enhancing the online banking experience for them and exposing them to the numerous benefits that come with doing banking online.

ii) Security: Security is one of the most significant challenges for online banking marketers because of the inherent concerns that are traditionally associated with banking online. Although banking systems are designed to be virtually impenetrable, cyber attacks and fraudulent activity are still a reality. But often users don't realise that their online habits may be putting them at risk. Mobile browsers and apps account for 71% of fraudulent bank transactions. Fraudsters prey on poor privacy habits on the part of the user. Issues like weak passwords and using unsecured networks make people vulnerable to online attacks, like login credential theft and phishing, which could result in fraudulent bank transactions. Marketing professionals in the online banking sector need to focus on demonstrating and explaining the security of their online bank systems, but also educate customers on how to be more conscientious online by improving their privacy and security habits. Practices like multi-factor authentication and using passphrases represent a good starting point.

iii) Technical issues: Whenever we use the internet, we risk experiencing technology and service interruptions. System stability and efficiency can affect your ability to access your accounts if your internet is slowed or stopped entirely. Similarly, no matter how sophisticated the tech, bank servers are still prone to both intentional and accidental downtime. System downtime can be a challenge as not only are users unable to make payments or conduct transactions but concerns about data and fund security also start to emerge. Downtime can cost businesses $1.55 million every year.\ Marketers should prioritise alleviating customer worries by explaining that their funds are not at risk if technical issues occur. However, they should also ensure adequate communication of planned system downtime, like scheduled maintenance, so that customers know to expect service interruptions.

iv) Lack of personal relationship: Although 73% of people worldwide use online banking at least once a month, more complex customer needs can be difficult to meet through digital banking alone. The benefits of having a personal relationship with your bank are often overlooked, as navigating challenging banking scenarios can often be made easier by the involvement of bankers. Having an in-person banking relationship can help customers compare their options and find solutions tailored to their needs, something which isn't as easily achievable through self-service. The ideal scenario would be a blend of online banking for day-to-day transactional needs and personal relationships with bank staff to help customers find the right solutions for their overall banking needs. Marketers can strive for this blend by letting their customers know how to access real people, but also by ensuring that their digital banking experience is streamlined and easy to understand. This will help keep customers as informed as possible in both the digital and physical banking environment.

v) The changing banking landscape: The changing banking landscape has seen a rise in digital-only banks and FinTechs offering streamlined banking solutions. Brazilian neobank Nubank, as of June 2021, had an impressive 25 million customers. And in the UK, there is a thriving challenger bank scene. Chime saw an increase of 8 million customers in 2021, bringing its total customer base to 12 million. Whilst here are just a few of the other UK challenger banks (or neobanks) seeing impressive growth: 1. Revolut with 15 million personal users, 2. Monzo with more than 5.6 million personal users, 3. Starling Bank with more than 2 million customers. Considered nimbler and more transparent than traditional banks, neobanks have fully embraced the power of digital to offer a seamless banking experience with little to no fees. These pose significant competition for traditional banks, as merely having an online banking component is no longer enough. Traditional banks must continue to adopt digital transformation and adapt their services to be as easily available and efficient online as they used to be in-branch. Banks can look to leverage customer data to

provide a personalised banking experience, redefine call centre strategies and up-skill agents to be able to deal with complex customer needs, and identify opportunities for digitisation across the value chain, including process digitisation and intelligent automation.

While banks work on honing their competitive advantage in the changing banking climate, marketers can economise on customer loyalty by reinforcing their banks' wealth of knowledge and well-established presence. Plus, they can continuously emphasise the value they add to customers' banking experiences through user-friendly platforms, increased digital product offerings and transparent and prompt communication - especially as banking behaviours evolve.

vi) Turning Online Banking Challenges into Opportunities: Online banking is one of the most significant developments in the Finance industry. However, despite the many benefits for customers, we also outlined the key challenges in online banking that marketers face. But we hope we've demonstrated how these challenges can be turned into opportunities to improve processes and customer engagement. Changing consumer habits and FinTech innovations, as well as security and technical concerns, are all major challenges of online banking that marketers must reconcile to succeed in this field. Demand is high, and digital banking apps and challenger banks will only grow more advanced and successful as they resolve marketing challenges and meet new consumer needs. Think your FinTech business could benefit from a marketing strategy consultation? Inbound FinTech is a leading growth agency for the Financial Services space. Access our Ultimate Guide to Inbound Marketing today!

4.12. SUMMARY

An endowment accepts donations, and they're usually created for a specific purpose. Unlike many other charitable donations, organizations with endowment funds do not spend the donations themselves. Instead, they use an endowment fund as an investment tool.

Summary Endowment funds are established to fund nonprofit organizations and activities, including universities, hospitals, and charities. They are typically structured with intact principals and investment income available for use. Term endowment, restricted and unrestricted endowment, and quasi-endowment funds are some types of endowment funds. A pension plan is a retirement plan that requires an employer to contribute to a pool of funds set aside for a worker's future benefit. A defined benefit plan guarantees a set monthly. After studying this lesson student should be able to: Know the concept of Different Kinds of Private Foundations & Public Charities- Understand the Endowments & Challenges Facing Non-Profit Organizations- Importance of Banks and its Issues and Challenges in the Online Banking Sector.

4.13. TECHNICAL TERMS

Charitable Donations: A charitable donation is a gift of cash or property made to a nonprofit organization to help it accomplish its goals, for which the donor receives nothing of value in return. In the U.S., donations can be deducted from the federal tax returns of individuals and companies making them.

Endowment: The word endowment means "a gift." In this context, the temple endowment is a gift of sacred blessings from God to each of us. The endowment can only be received in His

way and in His holy temple. Some of the gifts you receive through the temple endowment include: Greater knowledge of the Lord's purposes and teachings.

Private Foundations: A private foundation is a nonprofit charitable entity generally created by a single benefactor, usually an individual or a business. Using this initial seed donation, an endowment, an investment is made to generate income, which is then dispersed as grants to individuals or other charities per the foundation's charitable purpose.

Public Charities: An IRS-qualified public charity is a charitable organization that has successfully filed an exemption application with the IRS for its public charity status, or certain other organizations that the IRS considers to be public charities without filing, such as many religious organizations and educational institutions.

4.14. SELF ASSESSMENT QUESTIONS

1. What is Foundation? Explain about different Kinds of Private Foundations.
2. What is Charity? Discuss about different types of Public Charities.
3. What are the Key differences between a Public Charity and a Private Foundation?
4. What is Endowment? Explain different types of Endowments.
5. Explain about what are the Challenges Facing Non-Profit Organizations?
6. What is the Bank? Reveal about different Types of Banks in the Indian Banking Sector.
7. What is the Services Offered by the Indian Banking Sector? Explain it.
8. What are the Constraints and challenges identified on Banks? Discuss.
9. Explain regarding Issues and Challenges in the Online Banking Sector

4.15. SUGGESTED READINGS

1. S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
2. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
3. J.C.Francis: Investments analysis and management
4. R.J Fuller and J.L.Farrel: Modern Investments and Security Analysis
5. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
6. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance
7. Cathy Pareto's: Dependable Wealth Managers for Women in the U.S. by Forbes

Dr. Krishna Banana

LESSON 5
ASSESSMENT OF MARKET EXPECTATIONS

OBJECTIVES

After studying this lesson student should be able to:

- Know the concept of Market Assessment
- Understand the Custom Market Assessment& Customer Expectations
- Importance of Factors affecting today's Customers Expectations

STRUCTURE

5.1. INTRODUCTION

a) Market Assessment: A market assessment is a comprehensive analysis of your company's competitors, consumers and other industry stakeholders. A critical part of your company documentation, a market assessment enables your company to understand the need and demand for its business offerings in the market. A market assessment is a comprehensive analysis of your company's competitors, consumers and other industry stakeholders. A critical part of your company documentation, a market assessment enables your company to understand the need and demand for its business offerings in the market. It provides details on market opportunities, growth drivers and barriers, industry cost structure, distribution channels, market trends, key success factors, market competitiveness, and consumer preferences. Conducting a market assessment study is critical for your company whether you are looking to launch, expand your business or grow your consumer base. A market assessment is a comprehensive analysis of your company's competitors, consumers and other industry stakeholders. A critical part of your company documentation, a market assessment enables your company to understand the need and demand for its business offerings in the market. Capital market expectations are an essential input to formulating a strategic asset allocation. For example, if an investor's investment policy statement specifies and defines

eight permissible asset classes, the investor will need to have formulated long-term expectations concerning each of those asset classes. Market analysis includes quantitative data such as the actual size of the market you want to serve, prices consumers are willing to pay, revenue projections, and qualitative data such as consumers' values, desires, and buying motives.

b) Why is a Market Assessment important for business today? Market assessment enables your company to:

i) **Identify the market potential of your company:** Identify the market potential of your company by understanding market and consumer dynamics
ii) **Forecast your sales:** Forecast your sales by evaluating the size of existing and potential consumer base
iii) **Access capital:** Access capital by indicating the market potential of your products, or services
iv) **Formulate strategies**: Formulate strategies to achieve both short-term and long-term business objectives
v) **Assess your business performance:** Assess your business performance by benchmarking your offerings against those of competitors

Estimate the price of your offerings: Estimate the price of your offerings by analyzing consumers' need and their willingness to pay

c) Why is a Market Assessment important for an event tomorrow? Market assessment is important for an event tomorrow, as it helps:

i) **Assess the market potential**: Assess the market potential and business opportunities for your company
ii) **Recognize the potential**: Recognize the potential of your company's offerings to address current gaps in the market
iii) **Evaluate the competitive advantage:** Evaluate the competitive advantage of your company vs external market conditions
iv) **Benchmark the offerings**: Benchmark the offerings of your company with its peers
v) **Assess opportunities**: Assess opportunities to expand to adjacent markets and grow business offerings post completion of transaction

d) Pros of addressing Market Assessment

i) **Risk mitigation:** Risk mitigation by understanding market barriers, regulatory scenarios, and competitive threats affecting your business
ii) **Improvement in your market position:** Improvement in your market position with the unique sales proposition of your company's offerings
iii) **Maximum return on investments**: Maximum return on investments through understanding of market dynamics and competitiveness
iv) **Improvement in your company's offerings**: Improvement in your company's offerings and increased revenue
v) **Assessment of consumer's needs:** Assessment of consumer's needs, pain points, and willingness to pay
vi) **Improvement in efficiency**: Improvement in efficiency as it enables your company to restructure based on market conditions

e) Cons of not addressing Market Assessment

i) **Lack of efficiency**: Lack of efficiency, as business strategy is formulated without adequate assessment of the market
ii) **Potential operational inefficiencies**: Potential operational inefficiencies due to not identifying market opportunities and threats
iii) **Increase in risk of financial loss:** Increase in risk of financial loss with product and services that have limited attractiveness in the market
iv) **Restriction on growth potential:** Restriction on growth potential due to failure to expand into adjacent markets and launch new customized offerings

The most common types of market analysis techniques are buyer behavior, surveys, interviews, and focus groups. It can take several weeks to conduct a market assessment, then collate and analyze the data. Larger projects can take several months.

5.2. MAIN COMPONENTS OF A MARKET ASSESSMENT

i) Market Dynamics: Outlines the historical and forecasted market growth rates, market segments, drivers and barriers, regulations and market trends. Understanding the trends and drivers within a market can help businesses anticipate changes in demand and adjust their strategies accordingly. This information can also help businesses identify new market opportunities.

ii) Competitive Landscape: Outlines how competitive the market is overall, market share of key players, capability, opportunity and threat analysis and competitive benchmarking. Assessing the strengths and weaknesses of competitors is crucial for businesses to determine how they can differentiate themselves in the market. This information can also help businesses identify potential threats and opportunities within the competitive landscape.

iii) Consumer Dynamics: Offers insights into consumers' requirements, preferences, purchase behavior, and maximum willingness to pay. Identifying and understanding the different segments within a target market can help businesses tailor their marketing and product strategies to meet the unique needs of each segment. This information can also help businesses identify new market opportunities.

iv) Market size and growth potential: Understanding the size and growth potential of a market is crucial for businesses to determine the overall demand for their product or service. This information can help businesses make informed decisions about the scale of their operation, as well as the potential for growth.

v) Regulatory environment: Understanding the regulatory environment within a market is crucial for businesses to determine any legal barriers to entry or compliance requirements.

5.3. FACTORS AFFECTING MARKET ASSESSMENT

Some of the external factors that can impact market conditions are:

i) State and federal legislation and regulations
ii) International and political conditions
iii) Investor appetite

iv) Product supply and demand
v) Employment levels
vi) Inflation and interest rates
vii) Seasonal fluctuations
viii) Technological disruption
ix) Natural disasters

5.4. DIFFERENT TYPES OF MARKET ANALYSIS TECHNIQUES

The most common types of market analysis techniques are

i) Buyer behavior,
ii) Surveys,
iii) Interviews, and
iv) Focus groups.

How long does a market assessment take? It can take several weeks to conduct a market assessment, then collate and analyze the data. Larger projects can take several months.

5.5. HOW DO YOU CONDUCT A MARKET ASSESSMENT? 7 STEPS

i) Decide why you're doing a market analysis - what business goal do you want to achieve?
ii) ii). Outline the current state of your industry - what's the environment and context you're operating in?
iii) Hone in on your customer/buyer persona - who is your current customer and who is your ideal customer?
iv) Get under the skin of your competition - what are their strengths and weaknesses?
v) Use authoritative statistics to support your assertions.
vi) Analyze the data and understand the narrative of your market assessment.
vii) Turn your market analysis into an actionable strategic plan.

a) Steps for Conducting a Successful Market Assessment

To conduct a successful market assessment, follow these tips:

i) **Define the target market:** Clearly defining the target market is crucial to ensure you're gathering only relevant data. This includes identifying the geographic location, industry sector, and unmet needs of the target audience.
ii) **Gather primary and secondary data:** A comprehensive market assessment should include both primary and secondary data. Primary data is information collected directly from the target audience. Secondary data is information gathered from existing sources, such as industry reports and government statistics.
iii) **Use a variety of research methods:** Implementing an array of research methods, such as surveys, focus groups, and industry expert interviews, can help you gather a wide range of information and perspectives.
iv) **Consider external factors:** External factors, such as economic conditions and cultural trends, can have a significant impact on market demand.
v) **Continuously update the assessment:** Markets are constantly evolving, so you should regularly update your market assessments to ensure you're staying current with changes in the market.

5.6. WHAT IS A *CUSTOM* MARKET ASSESSMENT?

The baseline of any market assessment is market size and growth data. In the absence of standard industry reports that contain reliable industry-level sales and growth data, you can start by collecting internal data (in the case of existing products) as well as any other available quantitative data on the market and competitors, including revenue projections from third-party sources. A custom market assessment can include both interviews with industry experts (to gather first-hand insights) and well-targeted surveys to validate those insights. Surveys can also produce valuable insight into categories such as market size, market shares, and growth drivers.

Qualitative insights gathered through expert interviews or focus groups can also help uncover customer needs, values, desires, and motivations, which in turn can help reveal indications of market growth potential and product requirements. As such, a custom market assessment can give your business an edge over the competition, as it can help you discover new market prospects and provide a basis for your strategic decision making about pricing, distribution channels, and marketing tactics.

a) Applying Market Expertise to a *Custom* Market Assessment

Expertise is essential for successful outcomes. As indicated, many markets require extremely niche insight and multiple perspectives. Without these, the best tools and strategies will not be effective in producing useful insights. In the worst case, they can generate dangerous or misleading insights. A market assessment, especially a custom one, should include perspectives of industry experts (including executives both past and present) as well as a market's customers, ex-customers, and competitors' customers to ensure relevant, actionable insights are generated. Finding suitable industry experts and customers isn't easy.

You need to carefully screen and vet these people so you can trust that the insight they provide accurately reflects the marketplace. If you don't put sufficient focus on vetting and screening, you may gather insights that are not representative or even misleading, potentially leading to poor — and expensive — decisions.

5.7. A STEP-BY-STEP GUIDE TO NEW MARKET ASSESSMENT- MARYNA HRADOVICH- FEB 11, 202211

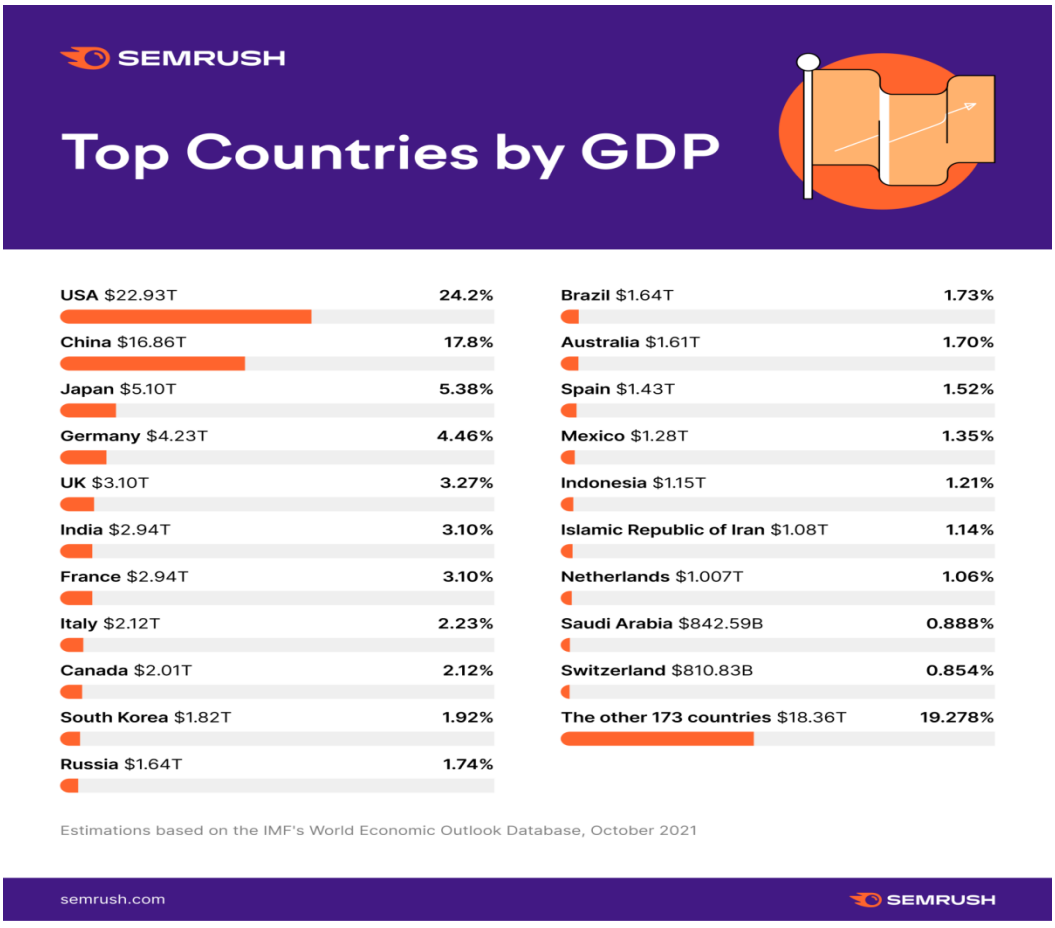
A Look at Existing Market Assessment Research: Top Markets for International Expansion

To begin broadly, let's look at Gross Domestic Product (GDP) across the globe. GDP is the total market value of all products and services produced within a country during a specific period of time. Among other things, GDP can provide a broad snapshot of a specific country's economic health, which is important information when considering an expansion.

The US currently holds the top spot when it comes to global GDP, accounting for almost one-fourth of the total global economy. If you plan to grow your business within the US, this might be encouraging. But if you were looking for additional options beyond your domestic market, you could begin by looking to other leaders.

Those that follow the US — China, Japan, Germany, India, and the UK — might be full of untapped potential. But at this stage, don't write off any key player, and remember, these standings will almost certainly change over time.

The next graph projects some significant movements in GDP by 2030. Experts estimate China will eventually move into first position for economic growth. India is predicted to surpass today's leaders, too, along with several more economies that could also strengthen their positions. The global GDP picture might look quite different in 10 years. If such growth happens, the opportunities could be huge. And if you place the right bets in these locations, you could find yourself with major gains down the line. Many large US companies — including Mattel, ExxonMobil, Apple, and GE — are already tapping into growing markets. Close to two-thirds of their total sales come from outside the US. Netflix now has about 56% of its customers outside the US, with 90% of its growth fueled by international markets. A cursory global market assessment shows that there might be opportunities for certain offerings around the world in years to come. The question is: how do you select a country to begin your expansion efforts?

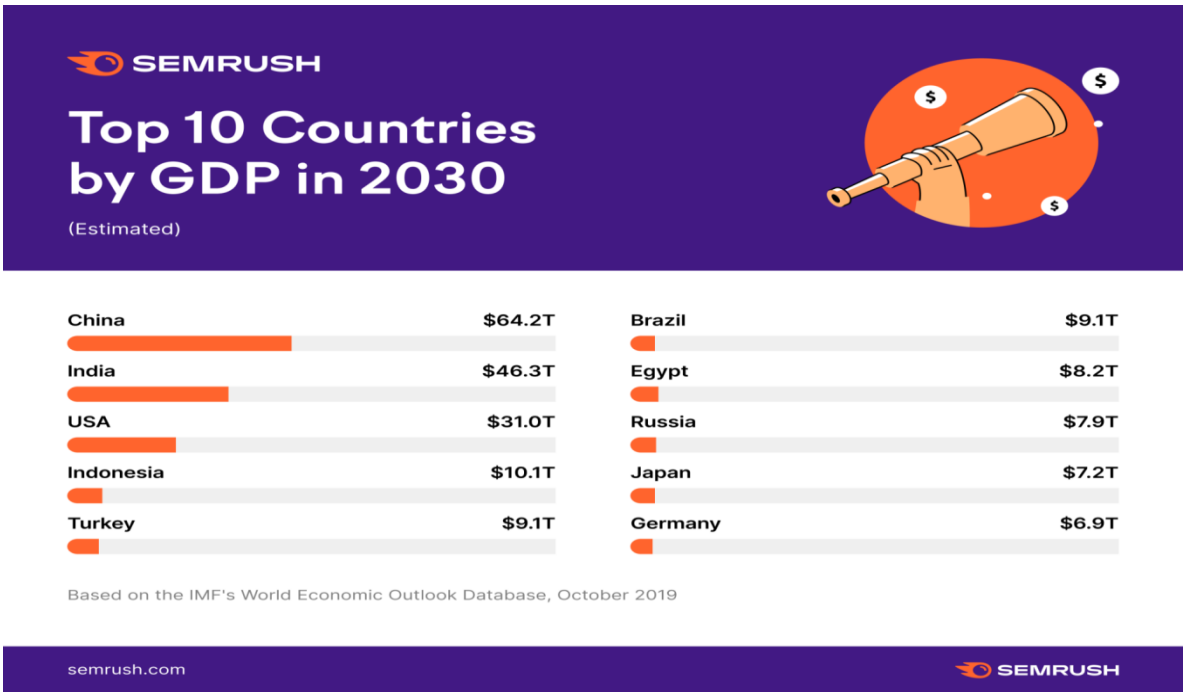


a) How to Assess a New Market with the Goal of Expansion

Conducting a foreign market assessment on a step-by-step basis ensures you leave no stone unturned. You'll want to study a variety of factors, such as:

i) The strengths and weaknesses of the economy ii) The size of the market and levels of competition iii) The competitive landscape iv) Customer behavior and sales funnel data v) Language, cultural barriers, and societal barriers to entry

Before you even start looking into new markets, make sure your product-market fit in your existing market is strong. This is especially true for small businesses with tight budgets. If you don't see growth in your current region, expanding elsewhere might not be the answer. Take time to hone your product, understand your customers, and refine your marketing message at home before following these steps to prepare for a completely new market.



Step 1. Study various markets for existing opportunity and growth potential

Before choosing a location for your expansion, explore various markets and compare them against one another. At this first step, your primary goal is to make sure that the new market is suitable for an expansion. Consider: i) Market size ii) Level of competition iii) Major players and their market share . Gathering data and comparing countries may reveal opportunities you hadn't considered, affirm your initial suspicion about a prospective market's strength, or reveal unforeseen risks. The Market Explorer tool offers a location based Market Summary section. We entered Squareup.com and the tool produced this summary of the payment processing industry in the US market. Though the US market is large, the competition levels are at 75%, meaning it's hard to compete. This is due to the fact that a small number of companies — PayPal in particular — own almost all of the market for payment processing. Changing the location to Brazil, however, the market looks quite different. Still, a small number of companies own the majority of the market, but market shares among these companies are more spread out. The market size is also significantly smaller than that in the US, indicating a smaller amount of market demand. Finally, we looked at Japan, which seems to offer the best potential. Because the market share is spread out more evenly among a larger number of players, it's easier to compete in the Japanese market than the Brazilian or US markets. The market size is also much larger than the Brazilian market with a significantly higher amount of consumer demand.

Step 2. Get a full view of the competitive landscape in your potential markets

Once you discover your top locations for expansion, get familiar with the competitive landscape. An understanding of the layout of the playing field, the strength of the competition, and the strategies they're using allows you to enter the market knowing what to expect. A competitive matrix is a great way to consider the market as a whole. The Growth Quadrant is one example of a matrix that offers a visual layout of the competition based on traffic and traffic growth percentage. In Japan, SMBC-Card and Free are the two established players, meaning they have consistently high traffic, but haven't seen a lot of growth in the past 6 months. We might also consider the four companies in the "Game Changers" category.

They all seem to be on a steady growth trajectory. Once we've identified specific companies of interest, we can examine them more thoroughly. The Domain vs Market Dynamics section of the Overview Report allows you to take a closer look at the companies we've identified and benchmark them against the market as a whole. Here are some traffic metrics for robotpayment.co.jp: These graphs tell a deeper story about Robot payment's success in the market and the strategy helping them grow. The Total Traffic Trends graph depicts their continued growth, despite the slow growth in the market. The second and third graphs reveal the sources of this increased traffic. Their largest increases came from referral and paid traffic, though their biggest overall traffic contributor is search traffic, suggesting they have a winning SEO strategy.

Step 3. Analyze your potential customers' behavior and funnel data in selected markets

While Intel on competitors is a crucial component of new market research, it's only a piece of the picture. Along with the competition, you need to understand consumer behavior and buying patterns within the market to expand successfully. To begin, carefully analyze your in-house data to uncover trends related to the specific markets you're considering. Do you see a surge in leads from a particular market, despite limited investment there?

i) Do you see a shorter sales cycle or a higher win rate in some markets?
ii) Is the average purchase price higher in a given market?

Most internal analytics platforms track traffic distribution by location so you can see where it originates, what happens to that traffic upon arrival, and to what extent it converts.

You can also use Semrush's Market Explorer to view regional traffic trends in your market with the Market Geo Distribution widget. Semrush's Traffic Analytics tool also provides user data from potential competitors in prospective markets. The data below reflects Paypal's activities in Germany, their third largest market in terms of web traffic. When considering market audience behavior, begin with the Traffic Journey graph in the Traffic Journey report.

With this graph, we can see where users come from, and where they go after visiting paypal.com. For the German market, this chart offers a few interesting takeaways. Firstly, 3% of the incoming German traffic to paypal.com comes from Adyen.com, which is another payment processing service. Knowing this, we may decide to do additional research on this company to learn about their strategies and audience. Second, almost 4% of German users who visit paypal.com visit a food related service website after leaving the Paypal site. To

learn more about this trend, we could scroll down to the Traffic Journey Details chart, select 'destination sites,' and filter by 'food and drink.'

In terms of understanding our users, and how we might connect if we were expanding into the German market, this information could add to our strategy. For example, if we were looking for partners to use our payment processing system, we might look to food related service providers. For a better understanding of the products and services that are popular among users in a specific market, begin with the Subfolders Report. Here, you can view what subfolders within the competitors website receive the most traffic among users from a specific region. With the Top Subfolders by Traffic widget, you can view traffic numbers for specific subfolders from a specific location (in this case Germany) based on the traffic type.

The data can reveal what products are most popular and how people reach them. When considering international markets, you should also check subfolders for the version of the website specific to the language spoken in that region. For example, with the German market, we'd check the german version of the site, paypal.com/de/.

Upon clicking on the /cgi-bin/ link, we discover the page promoting the new mobile app. The popularity of this page suggests this feature is important in Paypal's service to their customers. This sort of information can prove useful for your expansion plan. Finally, you can gain insights about customer funnel data with the Top Pages report. Here, you not only discover what pages are most popular, but you can also determine what sources drive traffic to these pages, and develop an understanding of how customers convert. We searched the top pages by the term "welcome" to bring Paypal's signup pages to the forefront. Based on this data, 62.8k unique visitors visited the "signup" page, and 12.1k visitors arrived at the "complete" page. Based on these values, we can estimate the conversion rate for the German market is approximately 19.2%. Taken as a whole, geographical traffic statistics, location based user journeys, top subfolders and pages, and estimated conversions offer a better understanding of the audience and how to reach them after expansion.

Step 4. Consider language, cultural, and societal barriers to doing business

Beyond audience behavior and funnel data, the culture and society of the target region can impact business. When considering these factors, the first step is to check our own assumptions and keep an open mind toward difference. From this perspective, we can begin the work of understanding. To gather market demographics broadly, start the Market Explorer Demographics Report. This data illuminates the age, gender, social media preferences, and interests of the target audience. Here's the Demographics report for Stripe.com in India. This data shows stripe is dominated by a male audience, perhaps due to cultural gender norms as they relate to business and finances. Interestingly, Pinterest is just as popular as Face book in terms of social media preferences in India. And along with retail and business topics, Stripe users are also interested in reality television shows. All of these insights will come in handy, especially for our marketing efforts. Next, consider any cultural barriers that may impact your expansion and targeted marketing efforts. Your go-to-market strategy should take into account features such as:

i) How decisions are made. Is the culture highly individual, or do people make decisions as a group?

ii) What dynamics exist among the distinct cultures in the region. Understand what groups exist within the larger geographic region. What is their history together? How do they interact and coexist?
iii) What cultural norms and taboos exist in the region. Every place has norms and taboos. Norms are behaviors that are common and acceptable within a culture, while taboos are behaviors that are strongly frowned upon.
iv) What languages people speak. Often, more than one language is common in a single location. Likewise, people in that region may speak more than one language. These geographical features may require additional expenses for things like translating communication materials into the local language or hiring bi-lingual sales people. When expanding beyond the English-speaking world, also consider English proficiency in the target region. For example, English proficiency is high in Germany, moderate in France, and low in Japan. This means the costs associated with the localization of your product, and all the communication therein, could differ greatly between these countries.

Finally, consider laws and regulations in the prospective geographic area that may impact your business. Some common legal matters include: i) Tax obligations ii) Local environmental policies iii) Data and intellectual property protection iv) Hiring processes and human resources issues v) Real estate vi) Marketing and advertising limitations vii) Business structure and record keeping While an understanding of relevant laws and regulations is important for business owners, it always makes sense to get legal help with business expansion into new markets. Violating business laws, even accidentally, can be costly and do damage to a business's reputation.

Step 5. Benchmark performance against competitors and track trends

No matter the depth and quality of your preliminary market research, tracking market shifts and emerging trends before, during, and after your market expansion is key. Studying your competition and audience on an ongoing basis is the best course of action. The metrics you choose to track may depend on your specific industry, though Semrush .Trends offers a number of useful options for benchmarking over time. Here are 3 examples:

i) Benchmark your website's performance in your domestic region to make sure your business is keeping pace with the competition at home. While expansion into new markets is exciting, stability at home is crucial.
ii) Compare your performance against competitors in your new target region. These competitors may be similar to the ones from your domestic market, or they may be specific to your new market. This ensures your gaining traction and allows you to identify and implement your competitors' winning tactics.
iii) Compare traffic volumes across regions. Compare the traffic dynamics between countries and analyze the differences in online behaviors in each region. Look for patterns based on the seasons or current events to give you a better indication of how to compete in this market.

Organize Your Data, Generate Insights, and Develop a Plan

Expanding into a new market requires plenty of research. When gathering data for a number of locations, organization is key. For help, try our Market Assessment Decision Matrix. You can copy the spreadsheet to your Google Drive by following the link and then

filling in the table with all the data you've gathered. This matrix is a convenient way to gather all relevant metrics in one place to identify which country receives the highest score and could have the most potential. Use it to inform your strategy when it comes to identifying your target customers, and benchmarking yourself against your core competitors to ensure your readiness for launch.

5.8. WHAT ARE CUSTOMER EXPECTATIONS?

Definition: Customer expectations are defined as a collection of thoughts, desires, and anticipation that a customer might have in mind during and after making a purchase of a product or service from a business or brand. For example, when you buy a product, you want it to satisfy your product requirement efficiently. Thus, even before purchasing any product, a customer has the list of expectations it wants that product to fulfill. Conventionally, buyers have demanded essential services. They want the quality of the product to be excellent. The price of the product should be fair and must match the product. In this modern era, customers require basic services and need some other expectations to get satisfied. They want the companies to understand their demands and requirements, and they do not wish to be looked upon like random figures.

Customers now want the products to be modified, and some even want to change the products entirely. Customers expect data protection services.

a) Why meet Customers' Expectations?

Now, let us talk about why do businesses aim to meet customer expectations. When a company launches a product, what does it expect?

i) It expects the customers to get aware of the product as well as get drawn to it.
ii) And after the customers purchase the product, how can a company make sure that the customer won't trust any other alternative brand for the same product?
iii) Also Read What is Map Pricing and How it helps retailers?
iv) At this point, the company needs to ensure that every demand and expectation of the customer concerning the product is satisfied.
v) The ultimate objective of setting up a business is to meet customer demands. The happier customers you have, the more your business will evolve. A brand needs to keep its customers pleased and satisfied with the product continuously. This will help a brand gain, loyal customers.

b) Some of the key reasons why businesses should try to meet customer expectations are-

1. Getting Repeat customers: Fulfilling customer expectations helps businesses in converting existing customers into loyal customers. As per stats, when businesses try to convert new customers, it costs them 5x more than converting existing customers. Therefore offering personalized services to fulfill customer's expectations help businesses in getting repeat customers.

2. Standing out from the competition: Meeting and exceeding expectations of customers is useful in setting a business apart in the competitive marketplace. Fulfilling service level expectations via excellent support services during a customer journey and ensuring consistent experience even after the purchase is one of the key reasons behind gaining customer loyalty.

When your customers would know that you anticipate, understand, and fulfill their needs, they will prefer to purchase from you instead of any of your competitors.

3. Word of mouth marketing: Businesses that have met customer expectations enjoy optimization via effective word-of-mouth marketing. Research shows that customers with poor experience share their story with 15 people while customers with good experience share their story with 11 people. It also helps in optimizing the brand reputations.

All in all, meeting customer expectations will empower a brand or business with an increase in loyal customers who will further bring other customers. Meeting customer expectations will ultimately lead to an increase in revenue.

c) Why exceeding customer expectations is critical?

One survey found that the businesses that have exceeded customer expectations say that 91% of their customers are more likely to opt for a repeat purchase after having a positive experience during and after a purchase.

71% of such customers also affirm that their purchase decisions are generally based on their quality of experience with a brand.

Hence, businesses that go the extra mile to deliver what their customers expect- even before their customers (verbally or non-verbally) express their desires enjoy better conversions and sales.

5.9. WHAT ARE THE TYPES OF CUSTOMER EXPECTATIONS?

Types of Customer Expectations

The 5 types of customer expectations that businesses need to pay heed to are-

i) **Explicit expectations**: These revolve around some specific targets that your target audiences are looking for when they seek out a type of product or service that you offer.

ii) **Implicit expectations:** These expectations are associated with the table stakes or minimum offering that customers might expect from any business in your niche. Such expectations are generally based on the contemporary market trends and experiences that your competitors are offering.

iii) **Interpersonal expectations**: Such expectations talk about what customers want to receive while interacting with your service or support team. It covers the service experience that your customers expect.

iv) **Digital expectations**: These are the expectations that customers have from the online portals and platforms of the businesses. Such customer expectations revolve around an easy and personalized user experience across multiple channels on the web. Customers also want data privacy and security while going through digital channels. Also Read what is a Marketing Manager? A Complete Guide with Roles, Responsibilities & Job Description

v) **Dynamic performance expectations**: Customers also have dynamic performance expectations from the businesses or brands. Such expectations talk about how a product or service is expected to change and modify with change in time.

5.10. LIST OF CUSTOMER EXPECTATIONS WHICH ENSURES CUSTOMER SATISFACTION

When businesses know what their target customer would expect, they become proactive in offering excellent customer service to meet and exceed customer expectations. Some of the basic expectations of customers are-

i) **Product and Customer service should be fast:** Consumers always expect the service to be fast. When they order a product, they expect the delivery of the product to be quick. If they face any problems with the product, they want it to get resolved by the company as soon as possible. The faster the company provides a solution, the more the customer gets satisfied with the product. A company should take care of the following – Quickly respond to the customers. The official website should be responsive. Allow the customers to have secure payments. Provide a fast and effective solution.

ii) **Detailed Data by Self-Service**: The customer awaits quick answers from the self-service portal. Companies should focus on providing solutions to the frequently asked questions by the customer. It should contain – Accurate data.

iii) **Positive customer experience by customer service agents:** Customers positively review brands and companies based on how their customer experience was. Things customer expects from customer experience – Companies must understand them. Issues commonly faced by them should not repeat- Quick solutions.

iv) **Simple digital channels experience offering exactly what all your customers expect:** Customers want a brand's website to be simple to access. It should have the necessary information needed by customers to decide which product to buy.

Companies must ensure that their applications are way better and effective than other brands. Nowadays, almost every brand has its website and application using which the customer can easily order. Customers prefer using applications that are not that difficult to operate. In their busy schedule, they do not like to waste much of their time and want to get stuff in one go. Therefore, companies need to make sure that their digital websites and applications are not complicated to use. It should boost the customer's experience.

v) **Customers need a Personalized experience**: The customers want the company staff not to treat them like numbers. It can happen when the employees of the company interact with the customers by taking their names. The company should understand the customer's buying patterns and accordingly recommend to them what to buy. It is good to build a healthy bond with the customer. That will make the customer's journey faster. Customers require a brand's representatives to be qualified, specialists in their profession, helpful, and polite.

vi) **Customers demand great customer service:** Customers want to understand whether a company cares about them or not. A company can ensure the customers that they care through providing high-quality customer support. First, you can concentrate on your customer's demands and the issues they are facing. Then, help them accordingly.

Avoid making your customers feel neglected. Keep their demands and concerns at high priority. Companies have boosted their revenue by building a reputed image in the eyes of the customer. Also Read Lifestyle Segmentation - Examples, Benefits, Types. A company becomes more successful by concentrating on its customers as the objective is to attract customers and hold them from choosing any other brand over yours.

vii) **Innovative product or service:** Customers expect their products to get modified in a while. They love to see upgradations. Customer choices change timely. It should be considered that the customers get what they require now and not what they were expecting a year back. Therefore, companies must always strive to look for improving their products. This will attract new customers as well.

5.11. CUSTOMER SERVICE EXPECTATIONS

Businesses today need to fulfill some specific expectations that are strictly related to the customer customers such as-

i) Customers need the company to understand what they require – Ensure that you know what the customer wants and fulfill those needs from the start.
ii) Customers require various alternatives to contact a company – Customers anticipate firms to communicate on the channel they prefer.
iii) Customers want a company to reply instantly- Companies need to quickly respond to their customers.
iv) Customers need a quality client experience – Cultivating rapport with clients will improve the possibility of surpassing their demands, converting them into loyal customers.
v) Customers require a company to resolve their issues – Customers expect companies to come up with effective solutions to their problems.
vi) Customers want the company to hear them – Customers need the companies to read their reviews and work on them.
vii) Companies must be proactive – Customers love to engage with a proactive company. They expect you to enhance the communication plan and provide opportunities for them to give honest feedback.
viii) Customers like personalized experiences and surprises – Companies should strive at providing customers product and services that they wouldn't have imagined and will love it!
ix) Customers want to save their time at any cost – Customers, no matter how much the product values, want their experience to be quick and efficient.
x) Customers need the companies to give them logical solutions – Customers hate it when they are not given effective solutions. They expect companies to be consistent and work on their issues.

5.12. FACTORS AFFECTING TODAY'S CUSTOMERS EXPECTATIONS

i) **Previous Customer Experience**: The experience that the customer has had earlier matters. If the customer is notably satisfied with the service provided by your company, they would expect more. Companies should be able to meet the high expectations of customers.

ii) **Customer Interactions and Customer Engagement**: The way your company interacts and engages with customers is important. If the customer is happy with the service provided by your company, they will come back and recommend it to others as well.

iii) **Customer Feedback:** Customers look forward to their feedbacks being considered. They want the companies to upgrade according to their feedbacks.

a) How do you meet Customer Expectations?

i) **Managing customer study and comparing outcomes**: Customer study reveals critical factors that help fix customer issues. Absolute research can also assist you to see the differences in the goods and services provided. It can cast knowledge on everything your buyers need but are not getting.

ii) **Providing additional mediums for customer reviews:** It is important to collect feedback from your customer and analyze it. Ensure to reply to queries and goods improvement recommendations. Analyzing customer experiences on review sites and resolving their issues in a timely manner will help a brand in meeting customer expectations. Also Read Character Traits - List and Examples

iii) **Focusing more on Customer Experience**: Knowing and providing to customers' requirements is reasonably the most significant trait companies can adopt. Businesses should ensure employee engagement in a way that they can serve customers in the most personalized manner possible

iv) **Social Media Listening**: Since today's world is all about social media. It is vital to move forward and know what your customers think about you via social media. It is one of the key practices when you want to optimize your brand online.

b) How to Exceed Customer Expectations?

When you keep on meeting customer expectations, they start having higher expectations from you, and that is why it is crucial to exceed their expectations. Some of the ways you may try to do this are-

i) **Incorporate a winning culture**: For exceeding customer expectations, businesses should have the right culture and processes in place in their organization. You may do this by writing a customer experience intent statement and letting your leaders or managers get buy-in from the employees or team members. Your employees should understand the importance of exceeding customer expectations, plus they should have access to a knowledge base and practical training to achieve these goals. You should also recognize and reward the employees who succeed in accomplishing this goal.

ii) **Understand the target persona of your business**: It is true that no business in this world can make all the customers happy and satisfied, as the parameters of

satisfaction of every customer are different. Therefore, businesses should hone their skills in exceeding the expectations of a target persona. You may talk to your loyal customers or can ask them to participate in a survey to analyze the kind of features these customers have in common. Accordingly, you may tweak the experience of the customers who have similar feature sets.

iii) **Ensure an omnichannel experience**: Businesses need to ensure consistent customer experience from all the different offline and online channels where customers might contact and interact. More than 45+% of customers stop purchasing from a business after having a negative experience from any of the channels. So, ensuring an omnichannel experience is the key to having an optimized brand reputation. For this, you need to use the right tools like Birdeye to not miss any of the customer queries and stay on top of customer interactions on any of the channels.

iv) **Consistently collect customer feedback**: To be aware of changing customer expectations, businesses have to collect customer feedback via reviews and surveys in a consistent manner.

The use of reviews and surveys collectively is useful in collecting in-depth feedback about the problem. This way, businesses will have enough information to deal with the issue effectively.

On the concluding note, it is clear that behavioral inclinations, purchasing patterns, and interests of customers keep on changing, and accordingly their expectations vary. Therefore, businesses need to comprehend their audience and adapt their strategy to meet and exceed their expectations. Use the aforementioned tips for meeting customer expectations to stand out in the competition in your industry.

5.13. SUMMARY

Market research (or marketing research) is any set of techniques used to gather information and better understand a company's target market. Businesses use this information to design better products, improve user experience, and craft a marketing strategy that attracts quality leads and improves conversion rates. Why is market research so valuable? Market analysis includes quantitative data such as the actual size of the market you want to serve, prices consumers are willing to pay, revenue projections, and qualitative data such as consumers' values, desires, and buying motives. Conducting a market analysis can benefit you in several ways by helping you to: Primary research is the pursuit of first-hand information about your market and the customers within your market. It's useful when segmenting your market and establishing your buyer personas. Primary market research tends to fall into one of two buckets: exploratory and specific research.

After studying this lesson student should be able to: Know the concept of Market Assessment-Understand the Custom Market Assessment& Customer Expectations-Importance of Factors affecting today's Customers Expectations. Further, it is also revealed that Main Components of a Market Assessment, Factors affecting market assessment, Different types of market analysis techniques, How do you conduct a Market Assessment? 7 steps, What is a Custom Market Assessment? A Step-by-Step Guide to New Market Assessment, What are Customer Expectations? What are the types of Customer Expectations? List of Customer Expectations Which Ensures Customer Satisfaction, Customer Service Expectations, Factors affecting today's Customers Expectations

5.14. TECHNICAL TERMS

Market research: Market research is a process where businesses collect and analyze data on specific markets, customers and consumers. With the goal of becoming a customer-focused company, organizations will follow research methods to gain a better understanding of their desired audiences and how to interact with them.

Marketing Strategy: A marketing strategy establishes how you will achieve your company's vision, mission, and business goals. It brings together core building blocks that show a comprehensive understanding of the market and where your product or service fits. Your strategy should be clearly articulated and easily accessible to the team.

Market Assessment: A market assessment is a comprehensive analysis of your company's competitors, consumers and other industry stakeholders. A critical part of your company documentation, a market assessment enables your company to understand the need and demand for its business offerings in the market.

Customer Expectations: It may be obvious, but the first and most important step to managing expectations is to establish a common understanding of the solution that is to be delivered. Normally, this is done by having the customer approve two documents: the project definition and the business requirements.

Customer Satisfaction: Customer satisfaction (often abbreviated as CSAT) is a term frequently used in marketing. It is a measure of how products and services supplied by a company meet or surpass customer expectation.

5.15. SELF ASSESSMENT QUESTIONS

1. What is Market Assessment? Explain the Main Components of a Market Assessment,
2. What are the Factors affecting market assessment,
3. What is market analysis? Discuss about different types of market analysis techniques,
4. How do you conduct a Market Assessment?
5. What is a Custom Market Assessment?
6. Explain about a Step-by-Step Guide to New Market Assessment,
7. What are the types of Customer Expectations?
8. Define Customer Service Expectations?
9. Which Factors affecting today's Customers Expectations?

5.16. SUGGESTED READINGS

1. S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
2. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
3. J.C.Francis: Investments analysis and management
4. R.J Fuller and J.L.Farrel: Modern Investments and Security Analysis
5. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
6. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance
7. Cathy Pareto's: Dependable Wealth Managers for Women in the U.S. by Forbes

Dr. K. Vanitha

LESSON 6
ANALYTICAL PROCESS, ANALYSIS METHODS AND ECONOMIC DATA LIMITATIONS

OBJECTIVES

After studying this lesson student should be able to:

- Know the concept of Data Analysis Process
- Understand the Economic Data (Statistics) & Limitations of Economic Data
- Importance of Data Analysis Methods

STRUCTURE

6.1. INTRODUCTION:

Businesses today need every edge and advantage they can get. Thanks to obstacles like rapidly changing markets, economic uncertainty, shifting political landscapes, finicky consumer attitudes, and even global pandemics, businesses today are working with slimmer margins for error. Companies that want to stay in business and thrive can improve their odds of success by making smart choices while answering the question: “What is data analysis?” And how does an individual or organization make these choices? They collect as much useful, actionable information as possible and then use it to make better-informed decisions! Build a career in data analysis. Watch this video to learn about best data analysis courses in 2023. This strategy is common sense, and it applies to personal life as well as business. No one makes important decisions without first finding out what’s at stake, the pros and cons, and the possible outcomes. Similarly, no company that wants to succeed should make decisions based on bad data. Organizations need information; they need data. This is where data analysis or data analytics enters the picture. The job of understanding data is currently one of the growing industries in today's day and age, where data is considered as the 'new oil' in the market. Now, before getting into the details about the data analysis methods, let us first answer the question, what is data analysis?

a) Data Analysis: Data analysis is a process of finding, collecting, cleaning, examining, and modeling data to derive useful information and insights and understand the derived information for data-driven decision-making. Now that you have a general overview of the data analysis process, it’s time to dig deeper into each step.

Although many groups, organizations, and experts have different ways of approaching data analysis, most of them can be distilled into a one-size-fits-all definition. Data analysis is the process of cleaning, changing, and processing raw data and extracting actionable, relevant information that helps businesses make informed decisions. The procedure helps reduce the risks inherent in decision-making by providing useful insights and statistics, often presented in charts, images, tables, and graphs. A simple example of data analysis can be seen whenever we make a decision in our daily lives by evaluating what has happened in the past or what will happen if we make that decision. Basically, this is the process of analyzing the past or future and making a decision based on that analysis. It's not uncommon to hear the term "big data" brought up in discussions about data analysis. Data analysis plays a crucial role in processing big data into useful information. Neophyte data analysts who want to dig deeper by revisiting big data fundamentals should go back to the basic question, "What is data?" Unlock new career opportunities with Simplilearn's non-coding courses. Gain valuable skills, explore diverse domains, and excel in the digital era.

b) Importance of Data Analysis: Here is a list of reasons why data analysis is crucial to doing business today.

i) **Better Customer Targeting**: You don't want to waste your business's precious time, resources, and money putting together advertising campaigns targeted at demographic groups that have little to no interest in the goods and services you offer. Data analysis helps you see where you should be focusing your advertising and marketing efforts.
ii) **You Will Know Your Target Customers Better**: Data analysis tracks how well your products and campaigns are performing within your target demographic. Through data analysis, your business can get a better idea of your target audience's spending habits, disposable income, and most likely areas of interest. This data helps businesses set prices, determine the length of ad campaigns, and even help project the number of goods needed.
iii) **Reduce Operational Costs**: Data analysis shows you which areas in your business need more resources and money, and which areas are not producing and thus should be scaled back or eliminated outright.
iv) **Better Problem-Solving Methods**: Informed decisions are more likely to be successful decisions. Data provides businesses with information. You can see where this progression is leading. Data analysis helps businesses make the right choices and avoid costly pitfalls.
v) **You Get More Accurate Data:** If you want to make informed decisions, you need data, but there's more to it. The data in question must be accurate. Data analysis helps businesses acquire relevant, accurate information, suitable for developing future marketing strategies, business plans, and realigning the company's vision or mission.

c) Importance of Data Analysis in Research

A huge part of a researcher's job is to sift through data. That is literally the definition of "research." However, today's Information Age routinely produces a tidal wave of data, enough to overwhelm even the most dedicated researcher. From a birds eye view, data analysis:

1. Plays a key role in distilling this information into a more accurate and relevant form, making it easier for researchers to do to their job.
2. Provides researchers with a vast selection of different tools, such as descriptive statistics, inferential analysis, and quantitative analysis.
3. Offers researchers better data and better ways to analyze and study said data.

d) Top Data Analysis Tools: So, here's a list of the top seven data analysis tools in terms of popularity, learning, and performance.

i) Tableau Public- ii) R Programming- iii) Python- iv) Apache Spark- v) AS- vi) Excel vii) Rapid Miner

6.2. TYPES OF DATA ANALYSIS:

Half-dozen popular types of data analysis are available today, commonly employed in the worlds of technology and business. They are:

i) Descriptive Analysis: Descriptive analysis involves summarizing and describing the main features of a dataset. It focuses on organizing and presenting the data in a meaningful way, often using measures such as mean, median, mode, and standard deviation. It provides an overview of the data and helps identify patterns or trends.

ii) Inferential Analysis: Inferential analysis aims to make inferences or predictions about a larger population based on sample data. It involves applying statistical techniques such as hypothesis testing, confidence intervals, and regression analysis. It helps generalize findings from a sample to a larger population.

iii) Exploratory Data Analysis (EDA): EDA focuses on exploring and understanding the data without preconceived hypotheses. It involves visualizations, summary statistics, and data profiling techniques to uncover patterns, relationships, and interesting features. It helps generate hypotheses for further analysis.

iv) Diagnostic Analysis: Diagnostic analysis aims to understand the cause-and-effect relationships within the data. It investigates the factors or variables that contribute to specific outcomes or behaviors. Techniques such as regression analysis, ANOVA (Analysis of Variance), or correlation analysis are commonly used in diagnostic analysis.

v) Predictive Analysis: Predictive analysis involves using historical data to make predictions or forecasts about future outcomes. It utilizes statistical modeling techniques, machine learning algorithms, and time series analysis to identify patterns and build predictive models. It is often used for forecasting sales, predicting customer behavior, or estimating risk.

vi) Prescriptive Analysis: Prescriptive analysis goes beyond predictive analysis by recommending actions or decisions based on the predictions. It combines historical data, optimization algorithms, and business rules to provide actionable insights and optimize outcomes. It helps in decision-making and resource allocation.

6.3. DATA ANALYSIS PROCESS

Answering the question “what is data analysis” is only the first step. Now we will look at how it’s performed. The process of data analysis, or alternately, data analysis steps, involves gathering all the information, processing it, exploring the data, and using it to find patterns and other insights. The process of data analysis consists of:

i) Data Requirement Gathering: Ask yourself why you’re doing this analysis, what type of data you want to use, and what data you plan to analyze.

ii) Data Collection: Guided by your identified requirements, it's time to collect the data from your sources. Sources include case studies, surveys, interviews, questionnaires, direct observation, and focus groups. Make sure to organize the collected data for analysis.

iii) Data Cleaning: Not all of the data you collect will be useful, so it's time to clean it up. This process is where you remove white spaces, duplicate records, and basic errors. Data cleaning is mandatory before sending the information on for analysis.

iv) Data Analysis: Here is where you use data analysis software and other tools to help you interpret and understand the data and arrive at conclusions. Data analysis tools include Excel, Python, R, Looker, Rapid Miner, Chartio, Metabase, Redash, and Microsoft Power BI.

v) Data Interpretation: Now that you have your results, you need to interpret them and come up with the best courses of action based on your findings.

vi) Data Visualization: Data visualization is a fancy way of saying, "graphically show your information in a way that people can read and understand it." You can use charts, graphs, maps, bullet points, or a host of other methods. Visualization helps you derive valuable insights by helping you compare datasets and observe relationships.

Data can hold valuable insights into users, customer bases, and markets. When paired with **analytics software**, data can help businesses discover new product opportunities, marketing segments, industry verticals, and much more. The problem isn't the lack of data available but the ambiguity in determining how exactly the data should be analyzed and used.

To clear up any uncertainties, businesses should understand the entire data analysis process in detail to make data-driven and informed business decisions.

a) What are the 5 steps of the data analysis process

The data analysis process is a collection of steps required to make sense of the available data. Identifying the critical stages in a data analysis process is a no-brainer. However, each step is equally important to ensure that the data is analyzed correctly and provides valuable and actionable information. Let's take a look at the five essential steps that make up a data analysis process flow.

Step 1: Define why you need data analysis: Before getting into the nitty-gritty of data analysis, a business must first define why it requires a well-founded process in the first place. The first step in a data analysis process is determining why you need data analysis. This need typically stems from a business problem or question, such as: How can we reduce production costs without sacrificing quality? What are some ways to increase sales opportunities with our current resources? Do customers see our brand positively? In addition to finding a purpose, consider which metrics to track along the way. Also, be sure to identify sources of data when it's time to collect. This process can be long and arduous, so building a roadmap will greatly prepare your data team for all the following steps.

Step 2: Collect data: After a purpose has been defined, it's time to begin collecting the data needed for analysis. This step is important because the nature of the collected data sources

determines how in-depth the analysis is. Data collection starts with primary sources, also known as **internal sources**. This is typically **structured data** gathered from CRM software, ERP systems, marketing automation tools, and others. These sources contain information about customers, finances, gaps in sales, and more. Then comes secondary sources, also known as **external sources**. This is both structured and **unstructured data** that can be gathered from many places. For example, if you're looking to perform a sentiment analysis toward your brand, you could gather data from review sites or social media APIs. While it's not required to gather data from secondary sources, it could add another element to your data analysis. This is becoming more common in the age of big data.

Step 3: Clean unnecessary data: Once data is collected from all the necessary sources, your data team will be tasked with cleaning and sorting through it. Data cleaning is extremely important during the data analysis process, simply because not all data is *good* data. Data scientists must identify and purge duplicate data, anomalous data, and other inconsistencies that could skew the analysis to generate accurate results. **80%** of a data scientist's time is spent on cleaning data than generating insights.

Step 4: Perform data analysis: One of the last steps in the data analysis process is analyzing and manipulating the data. This can be done in a variety of ways. One way is through **data mining**, which is defined as "knowledge discovery within databases". **Data mining techniques** like clustering analysis, anomaly detection, association rule mining, and others could unveil hidden patterns in data that weren't previously visible. There's also business intelligence and **data visualization software**, both of which are optimized for decision-makers and business users. These options generate easy-to-understand reports, dashboards, scorecards, and charts. Data scientists may also apply predictive analytics, which makes up one of the four data analytics used today (descriptive, diagnostic, predictive, prescriptive). **Predictive analysis** looks ahead to the future, attempting to forecast what will likely happen next with a business problem or question.

i. Examples of data analysis techniques: Data analysts can use many data analysis techniques to extract meaningful information from aw data for real-world applications and computational purposes. Some of the notable data analysis techniques that aid a data analysis process are:

ii. **Exploratory data analysis:** Exploratory data analysis is used to understand the messages within a dataset. This technique involves many iterative processes to ensure that the cleaned data is further sorted to better understand the useful meaning. Data visualization techniques such as analyzing data in an Excel sheet or other graphical format and descriptive analysis techniques such as calculating the mean or median are examples of exploratory data analysis.

iii. Using algorithms and models: Algorithms have become an integral part of today's data environment and include mathematical calculations for data analysis. Mathematical formulas or models such as **correlation** or **causation** help identify the relationships between data variables. Modeling techniques such as regression analysis analyze data by modeling the change in one variable caused by another. For example, determining whether a change in marketing (independent variable) explains a change in engagement (dependent variable). Such techniques are part of inferential statistics, the process of analyzing statistical data to draw conclusions about the relationship between different sets of data.

Step 5: Interpret the results
The final step is interpreting the results from the data analysis. This part is essential because it's how a business will gain actual value from the previous four steps. Interpreting data analysis results should validate why you conducted it, even if it's not 100 percent conclusive. For example, "options A and B can be explored and tested to reduce production costs without sacrificing quality." Analysts and business users should look to collaborate during this process. Also, when interpreting results, consider any challenges or limitations that may not have been present in the data. This will only bolster your confidence in the next steps.

6.4. ECONOMIC DATA (STATISTICS)

Economic Data: Economic data are data describing an actual economy, past or present. These are typically found in time-series form, that is, covering more than one time period (say the monthly unemployment rate for the last five years) or in cross-sectional data in one time period (say for consumption and income levels for sample households).

a) Major sources of economic information: 1. U.S. Bureau of Labor Statistics – Employment, productivity, working hours, and more. 2. U.S. Federal Reserve – Bank assets, exchange rates, interest rates, industrial activity, and more. 3. U.S. Treasury – Data, statistics, and charts on interest rates, economic trends, and the impact of fiscal policies.

b) Some Examples of Economic Indicators: Consumer prices (as measured by the Consumer Price Index or CPI) Private organizations also regularly collect and share economic data investors and economists may use as indicators. Examples of these indicators include the Fear and Greed Index, existing home sales, and the index of leading economic indicators.

c) How to Analyze Data? Top Data Analysis Techniques to Apply

To analyze data effectively, you can apply various data analysis techniques. Here are some top techniques to consider:

i) **Define Your Objectives**: Clearly define the objectives of your data analysis. Understand the questions you want to answer or the insights you want to gain from the data. This will guide your analysis process.

ii) **Data Cleaning:** Start by cleaning the data to ensure its quality and reliability. Remove duplicates, handle missing values, and correct any errors or inconsistencies. Data cleaning is crucial for accurate analysis.

iii) **Descriptive Statistics:** Calculate descriptive statistics to understand the main characteristics of the data. Compute measures such as mean, median, mode, standard deviation, and percentiles. These statistics provide insights into the data's central tendency, spread, and distribution.

iv) **Data Visualization:** Create visual representations of the data using charts, graphs, or plots. Visualization helps spot patterns, trends, or outliers that may not be immediately apparent in the raw data. Use appropriate visualizations based on the type of data and the insights you want to convey.

v) **Exploratory Data Analysis (EDA):** Perform EDA techniques to explore the data deeply. Use data profiling, summary statistics, and visual exploration to identify patterns, relationships, or interesting features within the data. EDA helps generate hypotheses and guides further analysis.

vi) **Inferential Statistics:** Apply inferential statistics to conclude the larger population based on sample data. Use techniques like hypothesis testing, confidence intervals, and regression analysis to test relationships, make predictions, or assess the significance of findings.

vii) **Machine Learning Algorithms**: Utilize machine learning algorithms to analyze data and make predictions or classifications. Choose appropriate algorithms based on the nature of your data and the problem you're trying to solve. Train models using historical data and evaluate their performance on new data.

viii) **Clustering and Segmentation**: Employ clustering techniques to identify groups or segments within your data. Clustering helps in understanding patterns or similarities between data points. It can be useful for customer segmentation, market analysis, or anomaly detection.

ix) **Time Series Analysis**: If your data is collected over time, apply time series analysis techniques. Study trends, seasonality, and patterns in the data to forecast future values or identify underlying patterns or cycles.

x) **Text Mining and NLP:** If working with textual data, employ text mining and natural language processing techniques. Analyze sentiment, extract topics, classify text, or conduct entity recognition to derive insights from unstructured text data. Remember,

xi) the choice of techniques depends on your specific data, objectives, and the insights you seek. It's essential to have a systematic and iterative approach, using multiple techniques to gain a comprehensive understanding of your data.

d) Economics and Statistics Definition: The topic of **economics and statistics** concerns the topics like dissemination, processing, collection, analysis, and compilation of economic data.

This topic includes applied economics and statistics. The data is termed “economic statistics”. The data is being used then it is referring as “economic data”. The economy of a country, region, or group of countries data includes in economic statistics. It can also refer to the subtopic of official statistics and the data produced by official organizations. Examples of these organizations are national statistical services, intergovernmental organizations such as central banks, European Union or OECD, ministries, and United Nations. Data analysis in economics, and statistics are helping to use and provide information on empirical data which is useful in economic research whether it is econometric or descriptive.

The **economics and statistics** are helping to collect, analyze the topics which include the topic related to applied economics and applied statistics. Information of empirical data are provided by statistics. Above mentioned uses of statistics in business, limitations and many more topics given which will help to know better about economics and statistics. Inflation, GDP, and HDI, are used to measure the economic stability. These are the development indicators. From economic growth, we can also measure it. However, comparing the results of these factors with other countries and with previous years will help the country to perform better economically. Through the ventures of entrepreneurs, they help people by creating more job opportunities and helping the economy to stabilize. Entrepreneurs are invented new services or products which are accepted by people. Therefore, it creates stability as it increases the country’s GDP and makes sure that money will supply the economy. In market share, forecasting sales and demand in various types of industrial products are the uses of statistics which is indispensable.

e) Factors Affecting the Economic Stability and Their Impact

i) **Financial factors**: This is the prime factor that affects the stability of an economy and can relate to a company's financial system. There are so many financial factors that affect economics and statistics. For Example – High-interest rates, rising national debt, and many more.
ii) **Political factors**: This refers to the concern for government and state affairs. For example – Corruption, a rift between political parties, and riots damage the economy.
iii) **Social factors**: This refers to those variables which impact the whole society, not just a sector or group of society. For Example – In COVID – 19, some industries led to massive unemployment, and e-commerce and online services achieved new heights.
iv) **Legal factors**: Change in government policies or laws encourages or prohibits some activities. For example – The apex court do some Few amendments and Federal bank laws. These are related to employment and then the whole business falls under the legal framework.
v) **Ethnological factors**: Across the world, technology changes rapidly so it causes some macroeconomic effects. For Example – The introduction of digital cash, skilled labor losing jobs due to automation, and crypto currencies.

f) Benefits of Economic Statistics in Business

i) **Generate employment opportunities**: To work efficiently for a steady economy, everyone's participation is important. This increases the demand for labor, and therefore this will increase employment.
ii) **Increase in public expenditure**: The government spends more on its citizens if economic stability contributes to high monetary gains. The government provides basic facilities to its citizens like free healthcare, sanitation, education, and other public services.
iii) **Improving the living standards**: Offers jobs to everyone and easily accessed public goods which offer to live a better life for the citizens of society. This will help them to grow socially and personally. Also, this will help to bring people out of the poverty line by giving them an equal and fair chance.
iv) **Attracts FDI**: A steady economy benefits every member of society. Moreover, businesses and foreign investors wish to invest their funds in such economies which are stable.
v) **Inequality of income**: The inequality of income mostly remains unnoticed in a country or society. Equal distribution of wealth and income focuses on a stable economy. Economic's growth is dependent on every citizen. So, it is important to become a part of economy and collective growth for every citizen.

g) Uses of Statistics in Business

Statistics are used in Regression, confidence intervals, probability distributions, data analysis (standard deviation, mean, etc), and hypothesis testing. Statistics are used in business to evaluate the price of stocks, vehicles, businesses, and houses. These are the examples where statistics are used in business

i) **Value of appraisal:** Determines the value of a vehicle or building in the fair market. The adjustments in pricing will help to sell faster at lower rates. This will also determine the worth of when it is worth building.

ii) **Surveys of consumers:** Surveys will discover the consumer's market demand and sentiments.
iii) **Human resources and hiring:** The offers such as stock options, benefits, and profit sharing affected the job vacancy rates, tenure, and turnover.
iv) **Insurance:** To know how rarely will claim is made and the number of average claim payments.
v) **Manufacturing:** The accuracy in the precise machining (the error tolerance and target value for weight, size, etc of items).
vi) **Online business:** This will help to optimize the website, to know the product benefits to emphasize ads.
vii) **Investing in real estate:** To know the factors like which property appreciates faster. Also, which property and neighborhood are desirable and on the rise.
viii) **Rental housing:** In the industry average, it helps in comparing the vacancy rates. If it is too low, the rent will be too low. If it is too high, then the rents will be high, or the demand for housing is high in the market.
ix) **Sales:** Predict the revenue and sales annually, monthly, quarterly, and weekly. This will help to decide which market to enter and help to see the rates of growth.
x) **Stock market:** The standard deviation and mean of bond returns and stock.

6.5. LIMITATIONS OF ECONOMIC DATA

i) Ignorance of qualitative aspects: In the quantitative terms, the statistical methods will not study the phenomenon as the are not explained. The phenomena include riches, health, intelligence, and many more. Moreover, these are not part of the study of statistics. This needs the conversion of qualitative data into a quantitative one. To measure the data reactions of experiments are undertaken of people. In all aspects of life and in universal activities the statistics are used.

ii) They did not deal with the individual items: Statistics do not recognize any individual item; it only deals with the aggregates of items and facts. In an accident, individual terms such as the death of 6 persons so 85% of the results of a class in a school in the particular year, will not amount to statistics as they are not in a group of similar items. Therefore, it does not deal with the individual items however, they may be important.

iii) These will not depict the phenomenon of the entire story: The phenomena occur in many causes and these are not expressed in the form of data. Therefore, we cannot reach the correct conclusions. Social factors depend upon the development of the group, these are Culture, region, parent's economic condition, education, administration by the government, and many more. However, many aspects are ignored as only the quantitative data will be analyzed not qualitatively so the the results or the conclusion are not fully correct.

iv) Miscued is liable: The data and procedures of conclusions and their approach can be checked. Data may have been biased or dishonest because these are collected by inexperienced persons . This can be misused by any unscrupulous person as it is a very delicate science. Outcomes can be disastrous so that the data will be used by taking caution.

v) Laws are not exact: Two fundamental laws are concerned with statistics- Law of statistical regularity-Law of inertia of large numbers. These are based on probability, so their results will not always be as good as the laws of science. Based on probability, we can only estimate the production of paddy in 2008 but cannot declare that it is fully correct.

vi) **Outcomes are correct only on average**: The results which are used is interpolated, series or probability, or regression. This is exactly true. If the average of the two sections in statistics is the same, then this does not mean that all 40 students in section A and section B got the same marks. There will be variations to get average results.

vii) **Many methods to study problems**: There are so many methods in this subject to find a single result. These can be found in many ways and the outcomes will vary in each case. These ways are mean deviations, quartile deviations, or standard deviations.

viii) **The results of statistics are not always beyond the doubt:** Statistics deals with measurable aspects of things and provides a complete solution to a problem. It will provide the basis for judgment, not the whole judgment. The results obtained are not final and conclusive though there are so many laws and formulae in statistics.

6.6. DATA ANALYSIS METHODS

Some professionals use the terms "data analysis methods" and "data analysis techniques" interchangeably. To further complicate matters, sometimes people throw in the previously discussed "data analysis types" into the fray as well! Our hope here is to establish a distinction between what kinds of data analysis exist, and the various ways it's used.

Although there are many data analysis methods available, they all fall into one of two primary types: qualitative analysis and quantitative analysis. As mentioned at the beginning of the post, data analysis methods can be divided into two big categories: quantitative and qualitative. Each of these categories holds a powerful analytical value that changes depending on the scenario and type of data you are working with. Below, we will discuss 17 methods that are divided into qualitative and quantitative approaches. Such as: Cluster analysis-Cohort analysis-Regression analysis-Factor analysis-Neural Networks-Data Mining-Text analysis-Time series analysis-Decision trees-Conjoint analysis -Correspondence Analysis-Multidimensional Scaling -Content analysis -Thematic analysis-Narrative analysis -Grounded theory analysis-Discourse analysis .Without further ado, here are the 17 essential types of data analysis methods with some use cases in the business world:

A. Quantitative Methods : Also known as statistical data analysis methods collect raw data and process it into numerical data. Quantitative analysis methods include: Hypothesis Testing, for assessing the truth of a given hypothesis or theory for a data set or demographic.

Mean, or average determines a subject's overall trend by dividing the sum of a list of numbers by the number of items on the list. Sample Size Determination uses a small sample taken from a larger group of people and analyzed. The results gained are considered representative of the entire body. We can further expand our discussion of data analysis by showing various techniques, broken down by different concepts and tools. To put it simply, quantitative analysis refers to all methods that use numerical data or data that can be turned into numbers (e.g. category variables like gender, age, etc.) to extract valuable insights. It is used to extract valuable conclusions about relationships, differences, and test hypotheses. Below we discuss some of the key quantitative methods.

1. Cluster analysis: The action of grouping a set of data elements in a way that said elements are more similar (in a particular sense) to each other than to those in other groups – hence the term 'cluster.' Since there is no target variable when clustering, the method is often used to find hidden patterns in the data. The approach is also used to provide additional context to a trend or dataset. Let's look at it from an organizational perspective. In a perfect world,

marketers would be able to analyze each customer separately and give them the best-personalized service, but let's face it, with a large customer base, it is timely impossible to do that. That's where clustering comes in. By grouping customers into clusters based on demographics, purchasing behaviors, monetary value, or any other factor that might be relevant for your company, you will be able to immediately optimize your efforts and give your customers the best experience based on their needs.

2. Cohort analysis: This type of data analysis approach uses historical data to examine and compare a determined segment of users' behavior, which can then be grouped with others with similar characteristics. By using this methodology, it's possible to gain a wealth of insight into consumer needs or a firm understanding of a broader target group. Cohort analysis can be really useful for performing analysis in marketing as it will allow you to understand the impact of your campaigns on specific groups of customers. To exemplify, imagine you send an email campaign encouraging customers to sign up for your site. For this, you create two versions of the campaign with different designs, CTAs, and ad content. Later on, you can use cohort analysis to track the performance of the campaign for a longer period of time and understand which type of content is driving your customers to sign up, repurchase, or engage in other ways. A useful tool to start performing cohort analysis method is Google Analytics. You can learn more about the benefits and limitations of using cohorts in GA in this useful guide. In the bottom image, you see an example of how you visualize a cohort in this tool. The segments (devices traffic) are divided into date cohorts (usage of devices) and then analyzed week by week to extract insights into performance.

3. Regression analysis: Regression uses historical data to understand how a dependent variable's value is affected when one (linear regression) or more independent variables (multiple regression) change or stay the same. By understanding each variable's relationship and how it developed in the past, you can anticipate possible outcomes and make better decisions in the future. Let's bring it down with an example. Imagine you did a regression analysis of your sales in 2019 and discovered that variables like product quality, store design, customer service, marketing campaigns, and sales channels affected the overall result. Now you want to use regression to analyze which of these variables changed or if any new ones appeared during 2020. For example, you couldn’t sell as much in your physical store due to COVID lockdowns. Therefore, your sales could’ve either dropped in general or increased in your online channels. Through this, you can understand which independent variables affected the overall performance of your dependent variable, annual sales. If you want to go deeper into this type of analysis, check out this article and learn more about how you can benefit from regression.

4. Neural networks: The neural network forms the basis for the intelligent algorithms of machine learning. It is a form of analytics that attempts, with minimal intervention, to understand how the human brain would generate insights and predict values. Neural networks learn from each and every data transaction, meaning that they evolve and advance over time. A typical area of application for neural networks is predictive analytics. There are BI reporting tools that have this feature implemented within them, such as the Predictive Analytics Tool from datapine. This tool enables users to quickly and easily generate all kinds of predictions. All you have to do is select the data to be processed based on your KPIs, and the software automatically calculates forecasts based on historical and current data. Thanks to its user-friendly interface, anyone in your organization can manage it; there’s no need to be an advanced scientist.

5. Factor analysis: The factor analysis also called "dimension reduction" is a type of data analysis used to describe variability among observed, correlated variables in terms of a potentially lower number of unobserved variables called factors. The aim here is to uncover independent latent variables, an ideal method for streamlining specific segments. A good way to understand this data analysis method is a customer evaluation of a product. The initial assessment is based on different variables like color, shape, wear ability, current trends, materials, comfort, the place where they bought the product, and frequency of usage. Like this, the list can be endless, depending on what you want to track. In this case, factor analysis comes into the picture by summarizing all of these variables into homogenous groups, for example, by grouping the variables color, materials, quality, and trends into a brother latent variable of design. If you want to start analyzing data using factor analysis we recommend you take a look at this practical guide from UCLA.

6. Data mining: A method of data analysis that is the umbrella term for engineering metrics and insights for additional value, direction, and context. By using exploratory statistical evaluation, data mining aims to identify dependencies, relations, patterns, and trends to generate advanced knowledge. When considering how to analyze data, adopting a data mining mindset is essential to success - as such, it's an area that is worth exploring in greater detail. An excellent use case of data mining is datapine intelligent data alerts. With the help of artificial intelligence and machine learning, they provide automated signals based on particular commands or occurrences within a dataset. For example, if you're monitoring supply chain KPIs, you could set an intelligent alarm to trigger when invalid or low-quality data appears. By doing so, you will be able to drill down deep into the issue and fix it swiftly and effectively. In the following picture, you can see how the intelligent alarms from data pine work. By setting up ranges on daily orders, sessions, and revenues, the alarms will notify you if the goal was not completed or if it exceeded expectations.

7. Time series analysis: As its name suggests, time series analysis is used to analyze a set of data points collected over a specified period of time. Although analysts use this method to monitor the data points in a specific interval of time rather than just monitoring them intermittently, the time series analysis is not uniquely used for the purpose of collecting data over time. Instead, it allows researchers to understand if variables changed during the duration of the study, how the different variables are dependent, and how did it reach the end result. In a business context, this method is used to understand the causes of different trends and patterns to extract valuable insights. Another way of using this method is with the help of time series forecasting. Powered by predictive technologies, businesses can analyze various data sets over a period of time and forecast different future events. A great use case to put time series analysis into perspective is seasonality effects on sales. By using time series forecasting to analyze sales data of a specific product over time, you can understand if sales rise over a specific period of time (e.g. swimwear during summertime, or candy during Halloween). These insights allow you to predict demand and prepare production accordingly.

8. Decision Trees : The decision tree analysis aims to act as a support tool to make smart and strategic decisions. By visually displaying potential outcomes, consequences, and costs in a tree-like model, researchers and company users can easily evaluate all factors involved and choose the best course of action. Decision trees are helpful to analyze quantitative data and they allow for an improved decision-making process by helping you spot improvement opportunities, reduce costs, and enhance operational efficiency and production. But how does a decision tree actually works? This method works like a flowchart that starts with the main decision that you need to make and branches out based on the different outcomes and

consequences of each decision. Each outcome will outline its own consequences, costs, and gains and, at the end of the analysis, you can compare each of them and make the smartest decision. Businesses can use them to understand which project is more cost-effective and will bring more earnings in the long run. For example, imagine you need to decide if you want to update your software app or build a new app entirely. Here you would compare the total costs, the time needed to be invested, potential revenue, and any other factor that might affect your decision. In the end, you would be able to see which of these two options is more realistic and attainable for your company or research.

9. Conjoint analysis: Last but not least, we have the conjoint analysis. This approach is usually used in surveys to understand how individuals value different attributes of a product or service and it is one of the most effective methods to extract consumer preferences. When it comes to purchasing, some clients might be more price-focused, others more features-focused, and others might have a sustainable focus. Whatever your customer's preferences are, you can find them with conjoint analysis. Through this, companies can define pricing strategies, packaging options, subscription packages, and more. A great example of conjoint analysis is in marketing and sales. For instance, a cupcake brand might use conjoint analysis and find that its clients prefer gluten-free options and cupcakes with healthier toppings over super sugary ones. Thus, the cupcake brand can turn these insights into advertisements and promotions to increase sales of this particular type of product. And not just that, conjoint analysis can also help businesses segment their customers based on their interests. This allows them to send different messaging that will bring value to each of the segments.

10. Correspondence Analysis: Also known as reciprocal averaging, correspondence analysis is a method used to analyze the relationship between categorical variables presented within a contingency table. A contingency table is a table that displays two (simple correspondence analysis) or more (multiple correspondence analysis) categorical variables across rows and columns that show the distribution of the data, which is usually answers to a survey or questionnaire on a specific topic. This method starts by calculating an “expected value” which is done by multiplying row and column averages and dividing it by the overall original value of the specific table cell. The “expected value” is then subtracted from the original value resulting in a “residual number” which is what allows you to extract conclusions about relationships and distribution. The results of this analysis are later displayed using a map that represents the relationship between the different values. The closest two values are in the map, the bigger the relationship. Let’s put it into perspective with an example. Imagine you are carrying out a market research analysis about outdoor clothing brands and how they are perceived by the public. For this analysis, you ask a group of people to match each brand with a certain attribute which can be durability, innovation, quality materials, etc. When calculating the residual numbers, you can see that brand A has a positive residual for innovation but a negative one for durability. This means that brand A is not positioned as a durable brand in the market, something that competitors could take advantage of.

11. Multidimensional Scaling (MDS): MDS is a method used to observe the similarities or disparities between objects which can be colors, brands, people, geographical coordinates, and more. The objects are plotted using an “MDS map” that positions similar objects together and disparate ones far apart. The (dis) similarities between objects are represented using one or more dimensions that can be observed using a numerical scale. For example, if you want to know how people feel about the COVID-19 vaccine, you can use 1 for “don’t believe in the vaccine at all” and 10 for “firmly believe in the vaccine” and a scale of 2 to 9 for in between responses. When analyzing an MDS map the only thing that matters is the distance between

the objects, the orientation of the dimensions is arbitrary and has no meaning at all. Multidimensional scaling is a valuable technique for market research, especially when it comes to evaluating product or brand positioning. For instance, if a cupcake brand wants to know how they are positioned compared to competitors, it can define 2-3 dimensions such as taste, ingredients, shopping experience, or more, and do a multidimensional scaling analysis to find improvement opportunities as well as areas in which competitors are currently leading. Another business example is in procurement when deciding on different suppliers.

Decision makers can generate an MDS map to see how the different prices, delivery times, technical services, and more of the different suppliers differ and pick the one that suits their needs the best. A final example proposed by a research paper on "An Improved Study of Multilevel Semantic Network Visualization for Analyzing Sentiment Word of Movie Review Data". Researchers picked a two-dimensional MDS map to display the distances and relationships between different sentiments in movie reviews. They used 36 sentiment words and distributed them based on their emotional distance as we can see in the image below where the words "outraged" and "sweet" are on opposite sides of the map, marking the distance between the two emotions very clearly.

B. Qualitative Methods: The qualitative data analysis method derives data via words, symbols, pictures, and observations. This method doesn't use statistics. The most common qualitative methods include: Content Analysis, for analyzing behavioral and verbal data.

Narrative Analysis, for working with data culled from interviews, diaries, surveys. Grounded Theory, for developing causal explanations of a given event by studying and extrapolating from one or more past cases. Qualitative data analysis methods are defined as the observation of non-numerical data that is gathered and produced using methods of observation such as interviews, focus groups, questionnaires, and more. As opposed to quantitative methods, qualitative data is more subjective and highly valuable in analyzing customer retention and product development.

12. Text analysis: Text analysis, also known in the industry as text mining, works by taking large sets of textual data and arranging them in a way that makes it easier to manage. By working through this cleansing process in stringent detail, you will be able to extract the data that is truly relevant to your organization and use it to develop actionable insights that will propel you forward. Modern software accelerates the application of text analytics. Thanks to the combination of machine learning and intelligent algorithms, you can perform advanced analytical processes such as sentiment analysis. This technique allows you to understand the intentions and emotions of a text, for example, if it's positive, negative, or neutral, and then give it a score depending on certain factors and categories that are relevant to your brand.

Sentiment analysis is often used to monitor brand and product reputation and to understand how successful your customer experience is. To learn more about the topic check out this insightful article. By analyzing data from various word-based sources, including product reviews, articles, social media communications, and survey responses, you will gain invaluable insights into your audience, as well as their needs, preferences, and pain points.

This will allow you to create campaigns, services, and communications that meet your prospects' needs on a personal level, growing your audience while boosting customer retention. There are various other "sub-methods" that are an extension of text analysis. Each of them serves a more specific purpose and we will look at them in detail next.

13. Content Analysis: This is a straightforward and very popular method that examines the presence and frequency of certain words, concepts, and subjects in different content formats such as text, image, audio, or video. For example, the number of times the name of a celebrity is mentioned on social media or online tabloids. It does this by coding text data that is later categorized and tabulated in a way that can provide valuable insights, making it the perfect mix of quantitative and qualitative analysis. There are two types of content analysis. The first one is the conceptual analysis which focuses on explicit data, for instance, the number of times a concept or word is mentioned in a piece of content. The second one is relational analysis, which focuses on the relationship between different concepts or words and how they are connected within a specific context. Content analysis is often used by marketers to measure brand reputation and customer behavior. For example, by analyzing customer reviews. It can also be used to analyze customer interviews and find directions for new product development. It is also important to note, that in order to extract the maximum potential out of this analysis method, it is necessary to have a clearly defined research question.

14. Thematic Analysis: Very similar to content analysis, thematic analysis also helps in identifying and interpreting patterns in qualitative data with the main difference being that the first one can also be applied to quantitative analysis. The thematic method analyzes large pieces of text data such as focus group transcripts or interviews and groups them into themes or categories that come up frequently within the text. It is a great method when trying to figure out peoples view's and opinions about a certain topic. For example, if you are a brand that cares about sustainability, you can do a survey of your customers to analyze their views and opinions about sustainability and how they apply it to their lives. You can also analyze customer service calls transcripts to find common issues and improve your service. Thematic analysis is a very subjective technique that relies on the researcher's judgment. Therefore, to avoid biases, it has 6 steps that include familiarization, coding, generating themes, reviewing themes, defining and naming themes, and writing up. It is also important to note that, because it is a flexible approach, the data can be interpreted in multiple ways and it can be hard to select what data is more important to emphasize.

15. Narrative Analysis: A bit more complex in nature than the two previous ones, narrative analysis is used to explore the meaning behind the stories that people tell and most importantly, how they tell them. By looking into the words that people use to describe a situation you can extract valuable conclusions about their perspective on a specific topic.

Common sources for narrative data include autobiographies, family stories, opinion pieces, and testimonials, among others. From a business perspective, narrative analysis can be useful to analyze customer behaviors and feelings towards a specific product, service, feature, or others. It provides unique and deep insights that can be extremely valuable. However, it has some drawbacks.The biggest weakness of this method is that the sample sizes are usually very small due to the complexity and time-consuming nature of the collection of narrative data. Plus, the way a subject tells a story will be significantly influenced by his or her specific experiences, making it very hard to replicate in a subsequent study.

16. Discourse Analysis: Discourse analysis is used to understand the meaning behind any type of written, verbal, or symbolic discourse based on its political, social, or cultural context. It mixes the analysis of languages and situations together. This means that the way the content is constructed and the meaning behind it is significantly influenced by the culture and society it takes place in. For example, if you are analyzing political speeches you need to

consider different context elements such as the politician's background, the current political context of the country, the audience to which the speech is directed, and so on. From a business point of view, discourse analysis is a great market research tool. It allows marketers to understand how the norms and ideas of the specific market work and how their customers relate to those ideas. It can be very useful to build a brand mission or develop a unique tone of voice.

17. Grounded Theory Analysis: Traditionally, researchers decide on a method and hypothesis and start to collect the data to prove that hypothesis. The grounded theory is the only method that doesn't require an initial research question or hypothesis as its value lies in the generation of new theories. With the grounded theory method, you can go into the analysis process with an open mind and explore the data to generate new theories through tests and revisions. In fact, it is not necessary to collect the data and then start to analyze it.

Researchers usually start to find valuable insights as they are gathering the data. All of these elements make grounded theory a very valuable method as theories are fully backed by data instead of initial assumptions. It is a great technique to analyze poorly researched topics or find the causes behind specific company outcomes. For example, product managers and marketers might use the grounded theory to find the causes of high levels of customer churn and look into customer surveys and reviews to develop new theories about the causes.

6.7. SUMMARY

After studying this lesson student should be able to: Know the concept of Data Analysis Process-Understand the Economic Data (Statistics) & Limitations of Economic Data- Importance of Data Analysis Methods. Data analysis is an important part of both scientific research and business, where demand has grown in recent years for data-driven decision making. Data analysis techniques are used to gain useful insights from datasets, which can then be used to make operational decisions or guide future research. With the rise of "Big Data," the storage of vast quantities of data in large databases and data warehouses, there is increasing need to apply data analysis techniques to generate insights about volumes of data too large to be manipulated by instruments of low information-processing capacity.

Data analysis frequently goes beyond descriptive analysis to predictive analysis, making predictions about the future using predictive modeling techniques. Predictive modeling uses machine learning, regression analysis methods (which mathematically calculate the relationship between an independent variable and a dependent variable), and classification techniques to identify trends and relationships among variables. Predictive analysis may involve data mining, which is the process of discovering interesting or useful patterns in large volumes of information.

6.8. TECHNICAL TERMS

Data collection: Data collection or data gathering is the process of gathering and measuring information on targeted variables in an established system, which then enables one to answer relevant questions and evaluate outcomes.
Data analysis: Data analysis is the practice of working with data to glean useful information, which can then be used to make informed decisions.
Data mining: Data mining is the process of searching and analyzing a large batch of raw data in order to identify patterns and extract useful information. Companies use data mining

software to learn more about their customers. It can help them to develop more effective marketing strategies, increase sales, and decrease costs.

Big data: Big data refers to the large, diverse sets of information that grow at ever-increasing rates. It encompasses the volume of information, the velocity or speed at which it is created and collected, and the variety or scope of the data points being covered (known as the "three v's" of big data). Big data often comes from data mining and arrives in multiple formats.

6.9. SELF ASSESSMENT QUESTIONS

1. What Is Data Analysis?
2. Why is Data Analysis Important?
3. What is the Data Analysis Process? Explain it.
4. Discuss about different Types of Data Analysis.
5. What is the Data Analysis Methods? Discuss various analysis methods.
6. What are the Quantitative data analysis methods? Discuss briefly about it.
7. What are the Qualitative data analysis techniques? Explain .

6.10. SUGGESTED READINGS

1. S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
2. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
3. J.C.Francis: Investments analysis and management
4. R.J Fuller and J.L.Farrel: Modern Investments and Security Analysis
5. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
6. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance
7. Cathy Pareto's: Dependable Wealth Managers for Women in the U.S. by Forbes

Dr. K. Vanitha

LESSON 7
PSYCHOLOGICAL TRAPS & BASIC MODEL GROUP

OBJECTIVES

After studying this lesson student should be able to:

- Know the concept of Psychological Traps and Types of Psychological Traps
- Understand the Basic Model Group
- Importance of Some of the most common frameworks and models

STRUCTURE

7.1. INTRODUCTION

Psychological traps are the root causes of unethical behavior. Psychological traps are similar to fish traps. A fish trap is comprised of a wire cage with an entrance shaped like a large funnel that narrows toward the inside of the cage; the design of the funnel directs the fish to swim into the trap. Quite frequently, some classic forms of dysfunctional psychology are directly evident in investing behavior. Here, we take a look at eight common psychological traps that investors can fall victim to, as identified by behavioral finance.

Behavioral finance applies findings in cognitive psychology to investor behavior to identify missteps. The Great Escape Next time you're caught in a mind trap, you'll become clever as a fox once you step back and question your thoughts and the conclusions you make. When you pay attention to what you're thinking and then act, you use reasoning to deal with charged situations.

Studies have shown that some factors can reduce the effect of anchoring, but it is difficult to avoid altogether, even when people are made aware of the bias and deliberately try to avoid it. In experimental studies, telling people about anchoring, cautioning them that it can bias their judgment and even offering them monetary incentives to avoid anchoring can reduce, but not eliminate, the effect of anchoring. The sunk cost trap refers to a tendency for people to irrationally continue to follow through on an activity or investment that is not worth completing. This is due to the time and/or money they have already invested. The sunk cost trap helps explain why people finish movies they are not enjoying, finish meals

that taste bad, keep clothes in their closet that they've never worn, and hold on to investments that are underperforming.

The first step to overcoming the confirmation trap is to have an awareness that it exists. Once an investor has gathered information that supports their opinions and beliefs about a particular investment, they should seek alternative ideas that challenge their point of view. It is good practice to make a list of the investment's pros and cons and reassess it with an open mind. If you are asking this question, you may already be subject to overconfidence.

Feeling that you know more than others or than you actually do is a crucial mistake made by novices to experts alike. As part of human nature, it is safe to assume that you may be exhibiting overconfidence in some aspect of decision-making. Human psychology is a dangerous thing, and there are some alarmingly standard mistakes that people make again and again. It is very easy in the heat of the moment, or when subject to stress or temptation, to fall into one of these mind traps. The wrong perceptions, self-delusion, frantically trying to avoid realizing losses, desperately seeking the comfort of other victims, shutting out reality and more can all cost you dearly.

7.2. TYPES OF PSYCHOLOGICAL TRAPS

Bad decisions can often be traced back to the way the decisions were made the alternatives were not clearly defined, the right information was not collected, the costs and benefits were not accurately weighed. But sometimes the fault lies not in the decision-making process but rather in the mind of the decision maker: The way the human brain works can sabotage the choices we make. In this article, first published in 1998, John S. Hammond, Ralph L. Keeney, and Howard Raiffa examine eight psychological traps that can affect the way we make business decisions. The anchoring trap leads us to give disproportionate weight to the first information we receive. The status-quo trap biases us toward maintaining the current situation even when better alternatives exist. The sunk-cost trap inclines us to perpetuate the mistakes of the past. The confirming-evidence trap leads us to seek out information supporting an existing predilection and to discount opposing information. The framing trap occurs when we misstate a problem, undermining the entire decision-making process. The overconfidence trap makes us overestimate the accuracy of our forecasts. The prudence trap leads us to be overcautious when we make estimates about uncertain events. And the recall ability trap prompts us to give undue weight to recent, dramatic events. The best way to avoid all the traps is awareness: forewarned is forearmed.

But executives can also take other simple steps to protect themselves and their organizations from these mental lapses to ensure that their important business decisions are sound and reliable. The anchoring trap leads us to give disproportionate weight to the first information we receive. Behavioral finance applies findings in cognitive psychology to investor behavior to identify missteps. Several biases or "traps" have been catalogued thus far, including anchoring to an arbitrary number and being overconfident. Here, we go over several common traps that investors face and how to try an overcome them.

John S. Hammond, Ralph L. Keeney, and Howard Raiffa examine eight psychological traps that can affect the way we make business decisions.

i) Anchoring Trap: First, there is the so-called anchoring trap, which refers to an over-reliance on what one originally thinks. Imagine betting on a boxing match and choosing the

fighter purely by who has thrown the most punches in their last five fights. You may come out all right by picking the statistically more-active fighter, but the fighter with the least punches may have won five bouts by first-round knockouts. Clearly, any metric can become meaningless when it is taken out of context. For instance, if you think of a certain company as successful, you may be too confident that its stocks are a good bet. This preconception may be totally incorrect in the prevailing situation or at some point in the future. Take, for example, electronics retailer Radio Shack. Once a thriving seller of personal electronics and gadgets in the 1980s and 1990s, the chain was crushed by online retailers such as Amazon (AMZN). Those trapped in the perception that Radio Shack was there to stay lost a lot of money as the company filed for bankruptcy multiple times and shrinking from its heyday size of 7,300 stores to 70 outlets by the end of 2017.1 In order to avoid this trap, you need to remain flexible in your thinking and open to new sources of information, while understanding the reality that any company can be here today and gone tomorrow. Any manager can disappear too, for that matter.

ii) Sunk Cost Trap: The sunk cost trap is just as dangerous. This is about psychologically (but not in reality) protecting your previous choices or decisions—which is often disastrous for your investments. It is truly hard to take a loss and/or accept that you made the wrong choices or allowed someone else to make them for you. But if your investment is no good, or sinking fast, the sooner you get out of it and into something more promising, the better.

It's far better not to cling to the sunk cost and to get into other assets classes that are moving up fast. Emotional commitment to bad investments just makes things worse.

iii) Confirmation Trap: Similarly, in the confirmation trap, people often seek out others who have made and are still making, the same mistake. Make sure you get objective advice from fresh sources, rather than consulting the person who gave you the bad advice in the first place. If you find yourself saying something like, "Our stocks have dropped by 30%, but it’s surely best just to hang onto them, isn’t it?" then you are seeking confirmation from some other unfortunate investor in the same situation. You can comfort each other in the short run, but it’s just self-delusion.

iv) Blindness Trap: Situational blindness can exacerbate the situation. Even people who are not specifically seeking confirmation often just shut out the prevailing market realities in order to do nothing and postpone the evil day when the losses just have to be confronted.

If you know deep down that there is a problem with your investments, such as a major scandal at the company or market warnings, but you read everything online except for the financial headlines, then you are probably suffering from this blinder effect.

v) Relativity Trap: The relativity trap is also there waiting to lead you astray. Everyone has a different psychological make-up, combined with a unique set of circumstances extending to work, family, career prospects and likely inheritances. This means that although you need to be aware of what others are doing and saying, their situation and views are not necessarily relevant outside their own context. "I think a lot of people tend to equate their self worth with their income, or they think that social media, these days puts pressure on people to make it look like they're doing better than they are. And because of that, people feel bad," said Amy Morin, Verywell Mind’s editor-in-chief. "We look at somebody else who has a new car or somebody else whose house looks beautiful and think, 'Oh, why don't I have that?' And those emotions that get stirred up, I think for a lot of people are really difficult.

Then how do you decide what you really value in life and what's most important?" Be aware, but beware too! You must invest for yourself and only in your own context. Your friends may have both the money and the risk-friendliness to speculate in pork belly futures (as in the movie *Trading Places*), but if you are a modest-earning and nervy person, this is not for you.

vi) Irrational Exuberance Trap: When investors start believing that the past equals the future, they are acting as if there is no uncertainty in the market. Unfortunately, uncertainty never vanishes. There will always be ups and downs, overheated stocks, bubbles, mini-bubbles, industry-wide losses, panic selling in Asia and other unexpected events in the market. Believing that the past predicts the future is a sign of overconfidence. When enough investors are overconfident, we have the conditions of Greenspan's famous, "irrational exuberance," where investor overconfidence terms to greed and pumps the market up to the point where a huge correction is inevitable.2 The investors who get hit the hardest—the ones who are still all-in just before the correction—are often the cocky ones who are sure that the bull run will last forever. Trusting that a bull won't turn on you is a sure way to get yourself gored.

vii) Pseudo-Certainty Trap: This phrase is an observation of investors' perceptions of risk. Investors will limit their risk exposure if they think their portfolio/investing returns will be positive – essentially protecting the lead – but they will seek more and more risk if it looks like they are heading for a loss. Basically, investors avoid risk when their portfolios are performing well and could bear more, and they seek risk when their portfolios are floundering and don't need more exposure to possible losses. This is largely due to the mentality of winning it all back. Investors are willing to raise the stakes to "reclaim" capital, but not to create more capital. How long would a race car driver survive if he only used his brakes when he had the lead?

viii) Superiority Trap: For some people, the superiority trap is extremely dangerous. A lot of investors are overconfident ant think they know better than the experts or even the market. Just being well-educated and/or clever does not mean you wouldn't benefit from good, independent advice. Also, it doesn't mean you can outwit the pros and a complex system of markets either. Many investors have lost fortunes by being convinced that they were better than the rest. Furthermore, these people are easy prey for some of the other traps mentioned above. There are (and have always been) professors of finance at the best universities who really are brilliant—technically-speaking—and this can delude them into thinking that the pickings are easy out there in the real world. Some really do cut it, but others are in for a rude awakening beyond the ivory tower. Odd as it may sound, someone with a Ph.D. in finance may, in fact, lead you in the wrong direction (for example, too calculating, too confident), while someone with no more than a high school diploma may have an amazing feel for the market and make a fortune. Be aware of the nature of these traps and always be honest and realistic with yourself. Furthermore, seek advice from competent and knowledgeable people of integrity who will bring you back to reality before it is too late.

7.2.1. The 5 Psychological Traps We All Fall Into: These are the tricks we play on ourselves.

There are many times when our social perception fails us. We have a tendency to take mental shortcuts, using what psychologists call “heuristics,” when trying to make sense of

our social world. As a result, we are prone to make errors in our mental processing. Here are some examples of common biases in social perception and how they lead us to misjudge people and events:

i) Hindsight Bias: Hindsight bias is the "I-knew-it-all-along" effect whereby we believe we had a premonition that some event was about to occur, but there really was no objective way we could have predicted it. In other words, we have a premonition that something is about to occur, and it does. However, we focus on this one instance, forgetting the dozens of times that we had premonitions but they did not come true. This common bias leads people to believe that they have some sort of extrasensory perception.

ii) The Availability Heuristic: This is the reason that we overestimate the chances that a particular event—a plane crash, or getting a certain disease—could happen. Seeing events in the news, for example, can lead us to overestimate how likely a similar event is likely to occur. This is one reason why people overestimate the chances that they could contract ebola.

iii) The Actor-Observer Effect: The Actor-Observer effect is a common bias in social perception. When we are the *actor* in a situation—for example, a minor car accident—we tend to over attribute cause for the result to elements of the *situation*: "The sun was in my eyes," or, "My brakes didn't work right." Observers, on the other hand, are biased toward making attributions about the *actor* and his or her characteristics: "He's a terrible driver," or, "He just wasn't being careful." The effect leads actors and observers to see things very differently, observers tending to see cause as something about the person, while actors seeing it as a result of the situation.

iv) Illusory Correlation: Illusory correlation is when two events happen together in time and we mistakenly believe that one was related to, or caused by, the other. For example, someone might wake up with achy joints and then it starts to rain. This person may then come to believe that his joint pain is a predictor of bad weather. Illusory correlation is one explanation for superstitious behavior—e.g., a person blows on the dice and rolls a 7, thinking that it was the blowing that caused the favorable outcome.

v) The Barnum Effect: Named after circus mogul P.T. Barnum, who said, "There's a sucker born every minute," this effect explains why fortune tellers and psychics seem to be so accurate in describing us or knowing our secrets. The Barnum Effect occurs when someone is given a very general description of their personality—"Someone in the room sometimes has low self-esteem and occasional depression, but is also kind and loving"—a description that could fit just about anyone. This leads the person to believe that the psychic has somehow zeroed in on her or him or read their thoughts.

vi) Gambler's Fallacy: This is the mistaken belief that if something happens more or less frequently than normal during a certain period, then it will happen more or less frequently *in the future*. For example, if Red keeps coming up on the roulette wheel, a gambler plays Black because of the mistaken belief that the likelihood of Black is greater than another Red outcome. I once watched a woman lose thousands of dollars at a roulette wheel because of the gambler's fallacy: She would wait until there were several Reds or Blacks in a row and then bet heavily on the opposite outcome. Needless to say, she lost all of her money because each outcome is independent—and, besides, the house has an advantage since there are two outcomes (zero and double-zero) that are neither Red nor Black.

7.3. BASIC MODEL GROUP

Model group means a series of models having the same structural components. Configurations such as two story, L-shaped and bi-level shall constitute separate model groups. Each different width of the above-listed configurations constitutes a different model group. Key concepts are variables, causal links, polarity, delay, feedback, stocks, flows, rates, equifinality, and multifinality. Group model building describes a variety of methods for involving clients or stakeholders in the creation of a system dynamics model.

System dynamics was first developed in the 1950s and 1960s by MIT's Jay Forrester. The model can be considered in two parts (see Exhibit 1.10). The first part of the model is the simple recognition of organizational inputs and outcomes. That is, organizations receive inputs from the external environment in the form of capital, raw materials, labor, community or government support, and so forth. The variables listed in the basic model are chosen because the causality is clear; in the first year of a group's existence, these variables shape the group's structure, not the other way around. J. Scott Long and Jeremy Freese, Regression Models for Categorical Dependent Variables Using Strata .

7.4. HOW TO USE STRATEGIC PLANNING FRAMEWORKS AND MODELS

Strategic Planning Basics- Strategic Planning Frameworks and Models- Using Strategic Planning Models-Strategic Planning Frameworks- Other Planning Models and Frameworks- How to Decide Which Strategic Planning Model or Framework to Use-Strategic Planning for Specific Areas- Improve Strategic Planning with Real-Time Work Management in Smart sheet

a) Strategic Planning Basics: Strategic planning is a team process that sets up how your company will accomplish its goals. When you deploy it correctly, strategic planning highlights problems, helps find solutions, and monitors progress. To learn more about the basics of strategic planning, read this article. A strategic plan includes many sections. When done well, a strategic plan can help you prioritize your company's functions and stay in line with your mission and vision. There are different ways to present a strategic plan — for example, it can be a written document, a spreadsheet, or an animated presentation.

b) Strategic Planning Frameworks and Models: Just as there are many approaches to presenting a strategic plan, you have several ways to frame or model your plan. Strategic planners often utilize different frameworks or customize particular models as they move through the planning process. But be careful; customizing models or frameworks too much might confuse people who are familiar with a particular planning process.

7.5. LIST OF SOME OF THE MOST COMMON FRAMEWORKS AND MODELS:

i) **Alignment Model**: This model helps align your mission statement with available resources. It is particularly effective for businesses facing internal struggles.
ii) **Balanced Scorecard (BSC):** The balanced scorecard system strives to connect big-picture elements with operational elements. BSC is well-known and works for companies of varying sizes.
iii) **The Basic Model:** Sometimes called a simple strategic planning model, the basic model involves creating a mission statement, goals, and strategies.

iv) **Blue Ocean Strategy:** This framework emphasizes new markets and uncontested space.
v) **Gap Planning:** A strategy gap is the distance between how a company is currently performing and its desired goal. Gap planning is the analysis and evaluation of that difference.
vi) **Inspirational Model:** This is a somewhat quick method of strategic planning that begins by coming up with a highly inspirational vision for the organization and the goals to match.
vii) **Issue-Based or Goal-Based Model**: A step up from the basic model, this model is better for more established businesses. It incorporates SWOT or other types of assessments to determine goals, mission statements, action plans, and other steps.
viii) **Organic Model:** As the name implies, this model does not necessarily follow a set plan, instead evolving and changing as conditions warrant.
ix) **PEST Model:** The PEST (political, economic, social, and technological) approach looks at elements of the external environment, including the forces in its name.
x) **Porter's Five Forces**: This model looks at five competitive forces that are present in every industry and helps to determine strengths and weaknesses: competition in the industry, the potential of new entrants into the industry, the power of suppliers, the power of customers, and the threat of substitute products.
xi) **Real-Time Model**: This a fluid process that works best for companies that operate in a rapidly changing environment.
xii) **Scenario Model:** When used in conjunction with other models, the scenario model can help you identify goals, as well as issues around them, by using scenarios that might arise. Some experts say this is more of a technique than a model.
xiii) **Strategy Mapping:** This approach helps organizations design and communicate their strategies. Strategy mapping often falls under the umbrella of a BSC, but strategy maps can also stand alone.
xiv) **SWOT Analysis or SWOT Matrix:** SWOT (strengths, weaknesses, opportunities, and threats) offers a way to examine both internal and external forces impacting your company.
xv) **VRIO Framework:** This approach looks at the questions of value, rarity, imitability, and organization concerning the competitive potential of a company.

7.6. USING STRATEGIC PLANNING MODELS

In this section, you'll learn the specifics of the different strategic planning models and frameworks. Sometimes, models can serve as a visual guide. In contrast, frameworks function as an overlay to a model that helps clarify particular items, such as goals.

i) The Basic Model: The basic model of strategic planning is the most common and simplistic approach. The basic model works well for companies that are small, do not have much time to plan, don't need to address many serious issues, or operate in stable external environments. It also works for companies that are new to strategic planning. The basic model is not meant for organizations with significant resources to pursue ambitious visions and goals. The basic model centers on the mission and vision statements. The vision statement identifies your company's purpose on a higher level, and the mission statement outlines what happens within the organization to achieve that vision. It makes sense to build the rest of your plan from these statements. The next step is to come up with goals you must achieve to live up to your mission and make it a reality, then outline what must happen to achieve those goals. Next, list the specific activities you must implement and who will

participate in those activities. Lastly, create a simple monitoring plan to make sure your organization stays on track.

ii) The Issue-Based or Goal-Based Model: The issue- or goal-based model evolves from the basic model and results in a more comprehensive plan. The steps vary. This approach is dynamic and fluid, and it works well for businesses that want to go deeper into strategic planning but have the following concerns:

i) Limited resources for planning
ii) Several issues to address
iii) Limited past success reaching ambitious goals
iv) No buy-in for the strategic planning process
v) The issue-based model requires organizations to identify their most important current issues, suggest action plans to address those issues, and include that information in the strategic plan.
vi) The goal-based model often includes the following:
vii) A way to monitor and amend the plan
viii) Action plans, including objectives, resources, and implementation roles
ix) Core values
x) Major issues and goals, along with ways to address them
xi) Mission statement
xii) SWOT analysis
xiii) Vision statement
xiv) Yearly operating plan, including a budget

iii) The Alignment Model: The alignment model focuses on making sure an organization's actions align with its vision. In the plan, you outline the mission, resources, programs, and support your organization needs to ensure it fulfills its vision. The alignment model works well for organizations that are trying to figure out what is and isn't working well, along with what needs adjusting. The process can help identify issues, such as internal inefficiencies and productivity problems. However, some critics of this model say it functions more like an internal development plan than a strategic plan.

iv) The Scenario Model: The scenario model looks at what is happening outside of an organization, including regulatory, demographic, or political forces, to determine how they can impact what is happening inside of a company. The scenario model works best when used in combination with other models and is more of a technique than a model. For each change in an external force, discuss how it could impact the future of your organization in the following three ways: A best-case scenario-A worst-case scenario- A reasonable-case scenario. After looking at the three potential impacts, figure out how to best respond to each. Then pick the most likely scenario and discuss strategies to address it. The scenario model works well for businesses that need help planning for several potential situations.

v) The Organic Model: If your company wants to stay away from strict and formal strategic planning, the organic model might be a good fit. As the name implies, the organic model of strategic planning is more of a free-spirited conversation, rather than a set process. It emphasizes the journey over the destination.The organic model relies on everyone having a shared vision and being willing to openly discuss how to get there using common values. This less systematic model requires patience since it involves constant dialogue and is never really finished.

The organic model works well for organizations where traditional methods feel static and obsolete. If you are looking for a set plan outlining steps to follow, the organic model is not for you. Storyboarding techniques and open dialogue are often a part of the organic model, and everyone is encouraged to participate openly. The focus is more on learning and less about the method of strategic planning.

vi) Real-Time Strategic Planning: The real-time method of strategic planning is even more fluid than the organic model. It helps articulate an organization's mission and, sometimes, its vision and values. Real-time strategic planning often involves presenting lists to board members or management for further discussion. Like the organic model, real-time strategic planning is a continuous process and works best for rapidly changing organizations that might not have the need for set, detailed, or traditional strategic planning.

vii) Inspirational Model: Like the name implies, the inspirational model can be energizing to participants, but also have less of a strategic impact on an organization than other, more formal models. The process works by gathering people to talk about a highly inspirational vision for the company. Leaders encourage participants to brainstorm exciting and far-reaching goals, then capture the details using powerful and poignant wording. The inspirational model works well for organizations looking to lift the spirits of a staff or to quickly produce a plan.

viii) Strategic Planning Frameworks: Like models, strategic planning frameworks help an organization through the strategic planning process. Most frameworks cover the basics of strategic planning (mission, vision, goals), but include additional sections and have more specific focus areas.

ix) Balanced Scorecard Framework: One of the more popular strategic planning frameworks is the balanced scorecard. It functions as both a strategic planning and management system, and it helps connect a company's plan to the operational elements that make it happen. The balanced scorecard takes more than financial profits into account when measuring success. Companies use the balanced scorecard to do the following: Align the daily work to the longer-term strategy. Communicate where they are doing and why. Set priorities. Monitor progress and measure success. When Drs. Robert Kaplan and David Norton created the balanced scorecard in the 1990s, it changed the way many companies do their strategic planning because it focused on more than one performance metric.

x) Porter's Five Forces: Porter's Five Forces approach helps companies assess the competitiveness of the market. Introduced in 1979, it is one of the oldest strategic planning frameworks. This approach focuses on the five forces that can impact the profitability of an organization: The Threat of Entry: Can new companies enter the market? The Threat of Other Substitute Products or Services: Is there a competitor on the market that your customers could use instead of your product or service? Customers' Bargaining Power: Can customers pressure you to react to their demands? Suppliers' Bargaining Power: Can suppliers apply pressure to your company? Competitive Rivalry Among Companies: If a rival company changes its strategy,
will it impact yours? The key is to look at the amount of pressure each force applies to a company in order to determine that company's future.

xi) SWOT Analysis: Most strategic planning processes include a SWOT analysis. Many companies perform a SWOT analysis at the beginning of the strategic planning process, as it

offers them a look at what they are doing well and where they can improve. A SWOT analysis examines the following: Strengths: What the business does well to achieve its objectives, Weaknesses: What activities could keep a business from achieving its objectives, Opportunities:

The external factors that could help achieve its objectives, Threats: Possible external factors that could keep the company from achieving its objectives, Strengths and weaknesses are internal characteristics, while opportunities and threats are external.

xii) PEST/PESTEL Planning: PEST stands for political, economic, socio cultural, and technological factors. There are several variations based on the idea, including PESTEL or PESTLE (when you also consider environmental and legal factors) or STEEPLED, where you consider socio cultural, technological, economic, environmental, political, legal, education, and demographic information. These frameworks look at an industry or business environment and see what factors could impact an organization's overall health and well-being. These do not stand alone and often go along with a SWOT analysis and other frameworks. Below are some possible examples of these factors: Political: Changes in tax laws, trading relationships, grant changes, Economic: Interest rate changes, inflation, consumer demand, Social: Changing lifestyle trends, demographic shifts, Technological: Competing technologies, productivity changes, Legal: Changes in regulations, employment laws, Environmental: Changes in customer expectations or regulations

xiii) Gap Planning: Gap planning allows you to compare an organization's current position to its goal, then identify ways to bridge that gap. Gap planning can also help you identify internal deficiencies. Gap planning is sometimes known as gap analysis, needs assessment, or a strategic planning gap. For a more detailed look at gap planning, read this article.

xiv) Blue Ocean Strategy: Created by professors W. Chan Kim and Renee Mauborgne in 2005, the blue ocean strategy is a relatively new planning framework. The idea of a blue ocean is to create an uncontested market space for your company. By contrast, a red ocean is a market space that is already developed and saturated. A blue ocean is the unknown. A company creates demand for a product or service instead of fighting over it, so there is plenty of opportunity for everyone. The idea is to pursue differentiation, thereby creating market share instead of trying to beat competitors. A red ocean is the known market space. Industries in that space define and accept the boundaries that exist, and they play by the rules. The only way to get ahead is to outperform rivals to claim a bigger share of the market. The competition can be bloody, which leads to the term red ocean. An example of an organization that found a blue ocean is Cirque du Soleil. Instead of operating as a typical circus, it found and expanded on a niche. The key to the blue ocean strategy is to make the competition irrelevant because you are doing something the others are not.

xv) VRIO Framework: VRIO (value, rarity, imitability, and organization) is a framework that deals primarily with the vision statement, rather than the entire strategy for a company. By answering four main questions, an organization should be able to create a vision statement to take it through the rest of the planning process. This results in a competitive advantage in your marketplace. Below are the four main questions: Value: Using a particular resource, can you exploit an opportunity or get rid of a threat? Rarity: Is there a lot of competition in your market, or do a few entities control most of the market? Limitability: Can anyone else do what you do? Organization: Are you organized enough as a company to adequately exploit your product or service? Companies can use the VRIO framework to evaluate its resources

and capabilities as part of the overall strategic planning process. VRIO comes into play after a company creates a vision statement, but before the rest of the planning process. The advantages you identify help determine what you need to do in order to achieve them.

xvi) McKinsey's Strategic Horizons: McKinsey's Strategic Horizons framework focuses on growth and innovation by categorizing goals into three categories: the core business, emerging opportunities, and new business. Strategic Planning- Models McKinsey Three Horizons. Image credit: CASCADE. "McKinsey's is one of my favorites because it applies to businesses small to large and generates excitement," says Wright. He adds that it is an easy model because it does not involve much jargon and focuses on the future. The first horizon deals mostly with core activities in which a company is already engaged. Existing revenue is placed here, so goals mostly deal with improving margins and processes, as well as maintaining incoming cash flow. The second horizon involves taking what is already happening and expanding it into new areas. The third horizon involves new directions, possibly including research and new programs. Wright recommends a 70/20/10 split between the three horizons. Fast-growing and startup organizations might find McKinsey's framework helpful.

xvii) The Bryson Model or Strategy Change Cycle: John M. Bryson, McKnight Presidential Professor of Planning and Public Affairs at the Hubert H. Humphrey School of Public Affairs, University of Minnesota and author of Strategic Planning for Public and Nonprofit Organizations: A Guide to Strengthening and Sustaining Organizational Achievement, created the Bryson model. Some people, himself included, call it the Strategy Change Cycle.

7.7. TUCK MAN'S MODEL OF GROUP DEVELOPMENT

Psychologist Bruce Tuckman developed his group development model in 1965 to explain how healthy teams cohere over time. Tuckman's model identifies the five stages through which groups progress: forming, storming, norming, performing, and adjourning. Each of the five stages of team development represents a step on the team-building ladder. As the group members climb the ladder, they morph from a random assembly of strangers into a high-performing team that can work toward a common goal. Here are Tuckman's five stages of group development explained in detail:

i) The forming stage of group development: The forming stage is the first stage in Tuckman's stages of group development and is a similar experience to your first day on a new job or at a new school. In this phase, most group members are overly polite and are still extremely excited about what their future may hold. Since the group dynamics and team roles aren't yet established, the team leader will often take charge to direct the individual members.

During Tuckman's forming phase, new team members may discuss team goals, ground rules, and individual roles, but since this stage of development prioritizes people over the actual work, it's unlikely the team will be high-performing at this time.

ii) The storming stage of group development: The storming phase is like when you reach that point with a new roommate where you begin to notice their small idiosyncrasies that get on your nerves. For teams, the conflict often arises due to clashing working styles between team members. Some people may start to even doubt the team's goals discussed in the earlier stage and will stop performing their necessary jobs altogether. This has a negative and

stressful effect on those who keep up the hard work since the pre-established group processes no longer function smoothly. Some project teams think they can skip this stage, but it's better to acknowledge conflicts now and work them out rather than avoiding them until they explode.

iii) The norming stage of group development: The next of Tuckman's stages is the norming phase. This is when the team moves past their previous quarrels and begins to recognize and value their teammates' strengths. During this stage, team members increasingly respect those who are in leadership roles. Now that everyone has begun to bond and familiarize themselves with the team processes, teammates feel comfortable giving each other constructive feedback as they work toward accomplishing new tasks. Since these new tasks often come with a high degree of difficulty, it is not uncommon for groups to regress back into the storming phase. Even if a group slides back into old behavior, members' new decision-making skills will make conflicts easier to resolve than they were during the initial storming phase.

iv) The performing stage of group development: The performing phase is the happiest of all the stages of development. In this stage, your team performance is at an all-time high. This high-performance level means all team members are self-reliant and confident enough in their own problem-solving skills that they can function without oversight from the leaders. Everyone is working like a well-oiled machine, free of conflict and moving in sync toward the same end goal.

v) The adjourning stage of group development: The fifth stage of Tuckman's development sequence is the adjourning phase. This final stage actually wasn't added to the Tuckman model until 1977, and it is the most melancholy of all the stages of team formation. The adjourning phase assumes that project teams only exist for a set period of time; once the team's mission is accomplished, the team itself dissolves. You can equate this stage to a breakup since team members often find it difficult to separate from people with whom they've formed close bonds. In fact, this phase is also sometimes known as the "mourning phase" because it is common for team members to experience a feeling of loss when the group is disbanded.

7.8. SUMMARY

Invalid or manipulated patterns are called psychological traps: traps which lead us down the proverbial garden path and eventually distract us from making the proper decisions. Psychological traps are common experiences for those who are easily manipulated by others.

The actual manipulators are usually in control. Here are some of the most common mental traps that hold us back from success — and how to overcome them: 1. Emotional reasoning Mistaking our emotions as evidence for the truth is one of the most common mental traps we fall into. Example: "I feel like my ideas are worthless, therefore I shouldn't share them in this meeting." These traps are the product of relationships with other people - relationships which might be actively unhealthy, or relationships whose success we take too much responsibility for. You could leave the pit, but there's someone stuck in there with you.

After studying this lesson student should be able to: Know the concept of Psychological Traps and Types of Psychological Traps- Understand the Basic Model Group-Importance of Some of the most common frameworks and models**.** In addition to that the

following aspects are covered in this lesson such as: How to Use Strategic Planning Frameworks and Models, List of some of the most common frameworks and models, Using Strategic Planning Models, Tuck man's Model of Group Development

7.9. TECHNICALTERMS

Psychological Traps: Many authors have written on psychological or behavioral traps that lead people in the wrong direction with their lives in general. Quite frequently, some classic forms of dysfunctional psychology are directly evident in investing behavior.

Model group: Model group means a series of models having the same structural components. Configurations such as two story, L-shaped and bi-level shall constitute separate model groups. Each different width of the above-listed configurations constitutes a different model group.

Strategic Planning Models: The basic model of strategic planning is the most common and simplistic approach. The basic model works well for companies that are small, do not have much time to plan, don't need to address many serious issues, or operate in stable external environments. It also works for companies that are new to strategic planning.

7.10. SELF-ASSESSMENT QUESTIONS

1. Define Psychological Trap?
2. Discuss various Types of Psychological Traps.
3. What is Basic Model Group? Explain.
4. How to Use Strategic Planning Frameworks and Models
5. Explain about Some of the most common frameworks and models.
6. What is Strategic Planning Model? How to Using Strategic Planning Models?
7. Explain about Tuck man's Model of Group Development.

7.11. SUGGESTED READINGS

1. S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
2. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
3. J.C.Francis: Investments analysis and management
4. R.J Fuller and J.L.Farrel: Modern Investments and Security Analysis
5. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
6. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance
7. Cathy Pareto's: Dependable Wealth Managers for Women in the U.S. by Forbes

Dr. K. Vanitha

LESSON 8
ECONOMIC ANALYSIS AND MARKET FORECASTS

OBJECTIVES

After studying this lesson student should be able to:

- Know the concept of Economic Analysis
- Understand about the Forecasting methods
- Importance of Marketing Forecast

STRUCTURE

8.1. INTRODUCTION

a) Economic Analysis: Economic analysis refers to evaluating costs and benefits to check the viability of a project, investment opportunity, event, or any other matter. In other words, it involves identifying, evaluating, and comparing costs and benefits. In addition, there are many other significant concepts involved. The analysis process contributes to the optimal allocation and use of resources, forming an important element in the decision-making process. For example, the microeconomic analysis makes an effort to describe how people and organizations function in a certain economy, macroeconomic analysis focus on GDP, **unemployment**, and inflation, and techno economic analysis (TEA) involves the study of the economic performance of an industrial process.

The economic analysis defines assessing the cost-benefit scenario of a project, event, or action. It helps organizations understand the opportunity cost. There are different economic analysis tools that economists and business owners employ to find the appropriateness of the plan or selection. Businesses pursue any project or financial activity only after applying economic analysis to restrict potential hazards. Economic variables, slopes, optimization, and linear programming are some tools or concepts involved. It also contributes to explaining the economic growth of a country and how a business operates and establishes inside it.

The economic analysis evaluates projects, scenarios, tasks, topics, or actions to understand their **profitability** or negative consequences. It exhibits a relationship with the study of determining the **opportunity cost** of any project or task. In business, management uses it in diverse scenarios. For example, companies apply it during new product identification or an expansion or integration process. The analysis process traverses through the pros and cons and understands the matter.

Richard Milhous Nixon, the 37th president of America, founded the U.S. Bureau of Economic Analysis (BEA) in 1972, which, from then on, helped American investors understand the **economy** of the nation based on relevant data and **statistics**, The timely and accurate information allow the government, businesses, researchers, and the American public to follow and understand the performance of the nation's economy.

b) Examples: Let's look into examples for a better understanding of the concept involving cost and benefit comparison:

Example 1: Paul has a small factory producing specific bottled products; currently, he has twenty workers, and the daily output is 3000 bottled products for delivery. Paul plans to employ heavy equipment and machinery and automate the whole process. However, if he does, it will cost him a fixed amount due to machinery purchase and automation system installation costs.

However, the new step increases the production output and reduces the variable **labor costs**. Evaluating the cost and benefit associated with automated and manual processes implies that the automated process is better. It is a simple economic analysis example through which Paul will assess and go forward with their decision to install new equipment in his factory.

Example 2: Rudy runs a construction company; he has plans to make a business complex on the land he bought years ago. But before initiating the project, he applied economic analysis to understand the vicinity and the cost-benefit scenario related to the project. The analysis helps Rudy finds out that the land is near a lake. So the land composition is not solid, and the soil around is mostly wet; this is not only a problematic situation for construction, but it may bring many issues post-construction, and there can be a potential threat to the building. Also, it may harm the lives and assets of people buying shops. At the same time, people around the land may protest against the construction, and they will have to face many legal issues. So, in the long run, it can be a bad **investment**. Hence, Rudy finally decides to let go of the project and looks for different alternatives.

It refers to studying or understanding a problem by primarily focusing on positive statements. With the help of an analysis of the actual situation, the statements can be accepted or disapproved. It is the study of desired results or anticipated outcomes. In this type of analysis, the economists study whether and how a particular system or mechanism will work correctly, what will be the preferred scenario, and how the economic challenges can be solved specifically from a moral and ethical perspective.

8.2. Economic Analysis Tools: The tools used for the analysis purpose exhibit elements and techniques of statistics and essential mathematics for economic analysis. Furthermore, the process involves various tools and is based on many assumptions. Let's look into important tools involved in the analysis:

i) **Economic variables:** It is the most common tool where variables derive the outcome of the process, and there are generally four types of variables used – dependent, independent, endogenous, and exogenous variables. The value of these variables gives important information. Examples include **GDP**, inflation, **economic growth**, interest rates, etc.
ii) **Slopes:** Slopes and graphs are other analysis tools as they portray the change in **dependent variables** when there is a change introduced in the **independent variables**. The slope depicts the change and is drafted based on the shared effect of both dependent and independent variables.
iii) **Optimization:** It is used to make managerial decisions and helps define production levels, output costs, and ways to maximize **profits**. It is done by studying the change in the dependent variable and considering the records and trends that can be used again to predict future market turns.
iv) **Linear programming:** The application of linear programming can provide numerical solutions to various business problems. Linear programming or optimization problems application will help find the best solution from all feasible solutions.

8.3. FORECASTING METHODS

a) Different approaches to predicting revenue: Sales forecasting is essential for uncovering key insights and ensuring data-driven decision making. But it's often also a high-risk game of chance. Today, too many organizations rely on disparate data and gut instincts to inform their revenue predictions. A business ability to hit revenue targets consistently and predictably can mean the difference between hitting your revenue goals and losing all credibility. Those who forecast too high suffer an embarrassing miss in expectations with company leaders and investors and leave the business with insufficient bookings to hit cash flow and profitability targets. The opposite is no better. When leaders forecast too low, surprise over-performance raises doubt that they will achieve future forecasts. Over time, they may earn a reputation of being a sandbagger who intentionally misrepresents their numbers to look good. The unexpected cash flow and profitability set a challenging precedent for future quarters. Proper forecasting that is, forecasting that results in accurate projections backed by reliable data requires an understanding of purpose, context, and intended outcome.

These components will help you determine the right approach for your unique use case and enable you to build credible, consistent predictions that boost both efficiency and success.

b) How to Choose Sales Forecast Method: Your sales forecasting method should align with your business goals, needs, and resources. Not all methods will garner the results you're looking for, so as you evaluate your forecasting options, you'll need to keep some key considerations in mind:

i) Use/purpose of the forecast - It's important to align the method you use with the actual objective(s) of your forecast. This allows you to balance the forecasts cost (i.e. scope, required resources) vs. value (i.e. precision) based on the impact a certain level of accuracy will have on the audience. The technique required for a forecast that will be used to make decisions around production and inventory, for example, will need to be quite sophisticated to reap reliable, highly accurate results. On the other hand, a forecast that will be used for a more general projection of growth (without any changes to existing sales and marketing strategies) can be built with less accuracy and more flexibility.

ii) Business context - Long-term sustainability relies on a deep understanding of all the trends, impacts, and relationships between your business and the industry in which it operates. For a newer, emerging organization, this might mean your initial forecasts will be built on simpler, less accurate methods, as you won't yet have robust data around how your business operates within the larger marketplace. A more mature company, though, should take into account a broader dataset that reflects competitive performance and utilize a more advanced forecasting method for projections.

iii) Amount of historical data - The method you choose will always be limited by the amount of historical data at your disposal. If you've been capturing accurate data over a longer period of time, for instance, you can use that data to create a forecast that acts as a benchmark for future demand. If you're a brand new business, you simply won't have the foundational data needed for any forecasting method that relies on a wide breadth of past information.

iv) Time to complete forecast - Some forecasting methods take quite a bit of time to generate the report particularly if you dont have the proper systems in place to handle complex calculations. If you can't provide high-quality, timely data or if you dont have an intelligent tool to execute intricate calculations, then you should avoid any forecasting method that relies on specific variables that are unique to your company (e.g. win rate, opportunity value, etc.). If not, you'll risk wasting precious time using imperfect data to create forecasts that dont provide any real value.

v) Accuracy needed - When determining which method to use, you should determine whether the results you're expecting should be qualitative or quantitative in nature. If you're entering into a new market, for example, a qualitative forecast can certainly be sufficient, so the method you use can rely upon industry knowledge and observations. If your business is shifting strategies to become more data-driven, however, make sure the forecasting method you choose is qualitative. That way, your predictions will be based upon the highly accurate data, historical analysis, and pipeline visibility required for a more data-driven approach.

c) Forecast Methods: Once you've carefully weighed the factors above, you're ready to actually choose the forecasting method that best fits your objectives. Before we dive into the specifics of each approach, keep in mind that there are three basic types of forecasts under which each method falls:

I) Qualitative techniques - Uses subjective data (like industry knowledge, rep experience, and expert opinions)

i) Time series and projection - Relies on historical data; focuses on patterns and changes in patterns

ii) Casual models - Also relies on the past, and uses specific data about relationships between variables (including special events)

iii) New business approach

Forecasting can seem like a bit of an uphill battle for fledgling businesses because they lack strong, historical data. But that shouldn't scare you off from building forecasts altogether, as they're a necessary part of understanding risks, needs, and potential opportunities for a young organization. What's more, they're crucial for defending your value and assumptions to

possible business investors. The new business approach focuses on the ways in which your operations impact the customer journey. By mapping out the three most prominent parts of your customer journey (i.e. sales drivers, product mix, and customer lifetime), you can better understand how target buyers interact with your brand and use that information to build your forecast.

a. **Forecasting Sales Drivers:** Start by identifying your preferred customer acquisition strategy (e.g. direct sales approach, marketing approach, or a combination of the two) as well as your expected outcomes. Here are some common growth models for each strategy:
b. **Direct Sales Approach**: Sales reps X sales efficiency = new customers; Marketing Approach: Ad spend / customer acquisition cost = new customers; Sales & Marketing Approach: Ad spend / cost per lead = leads; leads X sales close rate = new customers
c. **Forecasting Product or Service Mix:** Next, you'll need to determine how each new customer equates to actual revenue. Take a detailed list of the products and/or services you sell and identify the percent of customers that will buy each. You can use that number to convert new customers into unit sales.
d. **Forecasting Customer Lifetime:** Finally, you'll need to identify how target customers interact with your company. This is largely based on your existing business model (one-time sales vs. subscription-based sales) and whether or not your offerings drive multiple future purchases or long-term subscriptions. Make sure you focus on factors like customer retention and rate of repeat purchases. This will help you to more accurately predict customer behavior.

II) Historical forecast

One of the quickest methods you can utilize is historical forecasting, which takes into account past sales data over a given period of time. This approach is best for organizations that operate within a steady marketplace that’s not consistently impacted by changing dynamics (seasonality, a market boom, etc.). It does require a fair amount of clean, reliable data, so it might not be a great fit if you don’t have strong data collection tools at your fingertips. It’s important to note that a historical forecast operates on the assumption that buyer demand will increase and that your ability to close deals won’t be affected by external factors thus, it should be treated as more of a benchmark than your be-all-end-all prediction.

The easiest way to calculate a historical forecast is by looking at monthly recurring revenue (MRR). For example, if your sales reps sold a total of $100,000 in June, you'd lean on the assumption that they'd make at least $100,000 in July, too. To make your projection a bit more accurate, add in your historical growth percentage. For instance, if your sales team has consistently increased sales by 5% each month, you can safely estimate that they'll reach $105,000 in sales for July.

III) Multivariable analysis

If you're looking for extremely accurate forecasts, multivariable analysis is the way to go. Keep in mind; you'll need a large amount of clean data and likely a sophisticated tool to handle some complex equations so skip this approach if you still rely on manual methods for tracking the deal progress and individual sales activities within your pipeline. Multivariable analysis relies on predictive tools that take into account many different factors, like average sales cycle length, probability of closing based on opportunity type, and each reps

performance. For example, you might have two sellers working individually on two separate deals. Sales rep A is further along in the sales process for a large deal size, with a certain number of days remaining in the sales quarter. That, combined with her average win rate for this specific stage in the sales process, might indicate a 50% probability of her closing the deal; giving you a forecast of, say, $10,500. Seller B is still in the beginning stages of the sales process for a smaller deal size, and he has a higher average close rate. Based on these factors, you might calculate that he also has a 50% probability of closing the deal, with a forecast of $7,200. When you add them together, you'll get a combined quarterly sales forecast of $17,700. Of course, this is an overly-simplified example, as a real multivariable forecast considers many variables for many different reps.

IV) Opportunity stage forecasting

If your existing sales process runs like a well-oiled machine, you can use opportunity stage forecasting to predict the likelihood of each opportunity closing (based on prospects current position within the sales process). As deals move further along in the pipeline, they're more likely to close. Keep in mind, this method doesn't take into consideration the age of each opportunity, so it produces more of a rough estimate than an accurate projection. Also, because opportunity stage forecasting relies on historical data, it's not a great method for businesses who frequently change messaging, offerings, or parts of the sales process. Start by determining a reporting period, which should be dependent upon your sales cycle length and sales teams quota, then multiply the potential value of each deal by the probability of it closing. For example, your past data might help you determine these likely-to-close percentages for your pipeline stages: Prospecting - 3%; Qualification - 8%; Contact - 25%; Relationship Building - 45%; Meeting, Demo, Sales Call - 80%; Deal Closing - 100%; the opportunity stage forecasting model would predict that an $8,000 deal at the relationship building stage would have a 45% chance of closing. Thus, its forecasted amount would be $3,600.

V) Intuitive forecast

Sometimes, you just need to rely on gut instinct to make your predictions. This is especially true if you're pressed for time or you just don't have reliable data at your disposal. Intuitive forecasting is based on the opinion of your reps regarding whether or not each opportunity will close within a given period of time.

It's a highly subjective option, as reps are generally optimistic about their ability to close a deal. On the other hand, it takes into account the perspective of your most valuable, experienced resources: your salespeople.

This method can be made more accurate if your sales leaders and managers have access to reps meetings, phone calls, and other customer interactions. If your organization uses intelligent virtual assistant technology, for example, then validating rep assessments for accuracy is likely worth the effort. But if they don't have the right tools for support, theres simply no way to realistically scale that kind of verification.

VI) Length of sales cycle

It can be difficult to accurately predict the likelihood of an opportunity closing if you rely on subjective information. The length of sales cycle method takes into consideration key

factors like the age of individual opportunities and how a prospect entered the pipeline to provide a more precise projection.

Let's say a sales rep books a meeting with a prospect who they just started talking to this week. Based on the likely-to-close percentages we outlined in the opportunity stage forecasting section, this would mean the prospect has an 80% chance of closing. But that calculation doesn't take into account the fact that they're unlikely to buy because of how young the opportunity actually is.

Length of sales cycle forecasting can even be used for different sales cycles (e.g. normal leads vs. referrals vs. leads from field events). With this method, you can categorize each type of deal by the average sales cycle length, which helps to boost accuracy.

But it's important to remember that this technique is only precise if your reps track when and how prospects enter their pipelines. They need intelligent, integrated tools that let them track and manage these details without having to waste precious time on manual, error-prone data entry.

VII) Test Market

If you plan to deploy a new product or service, you might have a difficult time predicting your future sales. With test market forecasting, you focus on two smaller target regions and apply two separate sales strategies for each. By measuring the results, you can better understand how the product or service will perform and how much revenue it will likely generate. For example, you might establish a direct sales strategy for Market A, while taking a heavy marketing/advertising approach for Market B. Then, you can collect data for each stage of the sales process, respectively, and glean insights into:

i) How each sales strategy would potentially impact your revenue?
ii) What your larger sales strategy should look like, moving forward
iii) How much revenue the strategy you choose will likely generate

Moreover, test market forecasting can help you to determine whether or not the new product or service is truly viable, without spending excessive amounts on broader sales efforts. It's not always a true reflection of the general market, though, since the smaller regions you choose might have more or less buyer demand than the industry as a whole.

8.4. FORECASTING THE GNP AND ITS ELEMENTS

Businesses need to create marketing plans to determine their strategic directions. A marketing forecast is at the core of the marketing plan since it predicts the results and revenue the business will achieve. Perhaps the forecasts most familiar to the public are those of gross national product and its elements. Gross national product, or GNP, is the total value of the goods and services produced in a nation. It is, therefore, a convenient and comprehensive measure for assessing changes in general economic welfare. A forecast of the GNP also provides a useful framework for more detailed forecasts of specific industries.

Almost all developed nations maintain sets of national income accounts and make forecasts as well.

The GNP can be regarded as being composed of **three major components**: spending by government, private investment spending, and spending by consumers. Net exports (that is, exports minus imports) are also counted in the GNP but their magnitude, which may be positive or negative, is usually small. (For the nations that depend more heavily on foreign trade, like Japan after World War II, or that incur substantial imbalances in their trade accounts, like the United States in the 1980s, net exports are of course more important.)

i) Government spending is usually the easiest part of the GNP to forecast. Government expenditures can be determined with a fair degree of accuracy for well over a year in advance by studying existing budgets and appropriations, modified to take account of new political or economic developments. Most such adjustments are relatively minor for any forecast that runs only a year or two into the future; new government programs usually have only a small effect on expenditures in the short run. An obvious exception to this is a major change in the military situation, which can drastically alter spending plans. It is important to note that government spending, as counted in the GNP, is not the same as total budgeted expenditures. Spending gets into the GNP only when money is paid for goods—military equipment, buildings, and so on—or services, which principally means the wages and salaries of government employees. These kinds of expenditures account for only part of the government budget; the remainder represents money transferred to bondholders, other private citizens (particularly people receiving pensions), and state and local governments. These funds affect the GNP only when they are finally spent by the recipients.

ii) Private investment poses far more difficult forecasting problems because it reflects many thousands of individual and corporate decisions that are not recorded publicly (as government budgets are) and that can be, and often are, changed very substantially. Private investment is the most erratic of the major categories of the GNP—the most subject to "boom and bust" cycles. A good forecast of investment spending is therefore essential to an accurate appraisal of the overall economic situation. Capital investment by business (spending for new plants and equipment) is particularly important. The incomes generated in the process of manufacturing new equipment and building new plants play a major role in increasing consumer spending during periods of expansion. But when investment slumps, employment and incomes generally also suffer, slowing the entire economy. Business investment has thus been studied with great care, and a wide variety of methods to guide forecasters have been developed, including econometric models, surveys of business investment plans, regular reports on commitments for investment, and fundamental studies of the condition of the nation's stock of capital goods (*see below* Forecasting techniques).

iii) Consumer spending: Economists used to believe that forecasting consumer spending was fairly simple; as a rule of thumb, consumers could be counted on to spend 94–95 percent of their current income and save the rest. Thus an analyst could calculate the amount of personal income generated by government spending, private investment, and past consumer spending, adjust for tax payments, and arrive at a good estimate of consumer spending. This method still works well in determining the average rate of spending over an extended period of time. But in rich countries consumers as a group are quite free to vary their spending patterns in the short run; they may at any particular time spend more than usual because they anticipate shortages or because they believe that their incomes will rise further; or they may cut back their spending if they fear that a recession is about to develop. Such variations from normal spending patterns have their main effect on durable goods such as automobiles and household appliances; spending is far more stable for nondurables (food, clothing, and the like) and for services.

Because consumers account for such a large proportion of all economic activity, a shift of just 1 or 2 percent between spending and saving can make the difference between rapid growth or recession for the entire economy. Economists now use surveys of consumer attitudes in attempting to read the mood of the public; surveys of intentions to buy durable goods have also been helpful.

8.5. FORECASTING FOR AN INDUSTRY OR FIRM

General economic conditions set the tone for all parts of the economy. Good forecasting for an industry or firm begins, therefore, with a good analysis of the overall economy. Within this framework, the analyst must then take account of the particular factors that are most important to his own industry. In some cases, the sales of an industry may correlate fairly directly with one or more of the elements of the national income and product accounts—lumber sales with home construction, for example, or sales of nondurable consumer goods with consumer income and total consumer spending. Forecasting for industries that produce basic materials usually requires a series of projections for specific markets. A steel forecast might be based on the outlook for such major steel markets as automobiles, construction, and metal containers. The basic forecast would then be adjusted for expected shifts in exports and imports of steel and for changes in inventories of steel or steel-using products.

Forecasting is most difficult for companies that produce durable goods such as automobiles, industrial equipment, and appliances and for companies that supply the basic materials for these industries. This is because sales of such goods are subject to extreme variation. In a five-year span in the early 1970s, annual sales of automobiles in the United States increased by 22 percent in one year and declined by 22.5 percent in another.

Consequently, the durable goods industries in general and automobile companies in particular have developed especially complex and sophisticated forecasting techniques. In addition to careful analysis of income trends (based on a general economic forecast), automobile companies, which are particularly sensitive to competition from imports, support a number of studies of consumer attitudes and surveys of intentions to purchase automobiles.

Forecasting for an individual firm obviously begins with a forecast for the industry or industries in which it is involved. Beyond this, the analyst must determine the degree to which the company's share of each market may vary during the forecast period. Such variations can result from the introduction of a new product, the improvement of an existing product, the opening, closing, or expansion of plants, the activities of domestic or foreign competitors, a change in sales effort, or a variety of other factors. Information required to make such assessments may come in part from the company's own investment and marketing plans. Information on the activity and sales prospects of competitors is frequently collected from the firm's own salesmen. An increasing number of companies now employ sophisticated market research techniques to determine the probable reaction of their customers to new products.

8.6. LONG-TERM FORECASTING

In recent years, increasing effort has been devoted to long-range forecasting for periods extending five, 10, or more years past the normal "short-term" forecast period of one

or two years. Business has come to recognize the usefulness of such forecasts in developing plans for future expansion and financing.

Long-range forecasts usually are based on the assumption that activity toward the end of the period will reflect normal "full" employment. Given this assumption, the overall rate of growth depends on two principal factors: the number of people in the labour force and the rate at which productivity (output per worker) increases. The number of people of working age is known, barring some natural disaster (and excluding immigration), far into the future; they have already been born. Forecasters usually assume that productivity will continue to grow at the typical rates of recent decades. Expected technological developments, however, may alter the projected rate of change. The combination of changes in the labour force and productivity produces an estimate of the total growth rate for the economy.

A measure of total economic activity arrived at by such methods as these serves, in effect, as a control total for making long-range forecasts of the constituent elements of the economy. If estimates for spending by consumers, government, and business add up to more than the total of goods and services that can reasonably be expected, then the projection for one or more of these elements must be reduced. If the sum of the projected parts is less than the probable total, the analyst is likely to assume a shift in economic policy that will move the economy up to full employment by the end of the forecast period and adjust his various projections up to the appropriate total.

Long-range forecasts for individual parts of the economy depend on many of the same factors as do short-range forecasts, except that cyclical factors are usually ignored. Over the longer range, however, additional factors enter. Among the most obvious of these are growth in the population and shifts in its age composition. Changes in age composition have had a major effect on both consumer and government spending patterns in many countries since World War II. The unusually large age cohorts born in the years following World War II had enormous influence on patterns of consumption and on labour-force composition. As young adults they tended to buy large amounts of durable goods and to add to the need for home construction; on the average, they saved less and borrowed more in relation to their incomes than most older people had. Their children constituted a secondary "baby boom," who could expect to see their parents become the largest generation of retired persons ever known.

In addition to population pressures, a number of other trends and assumptions influence long-range forecasts. Assumptions about war and peace are obviously critical.

Assumptions must be made about government spending programs; expensive new programs may bring higher taxes and less consumer spending, whereas slower growth in government spending may lead to tax reductions. Over longer periods of time, technological discoveries or changes in financial institutions can affect the overall economy. When the forecast is made for an industry or a firm, the expected introduction of new products is also important.

8.7. MARKETING FORECAST

A marketing forecast is an analysis that projects the future trends, characteristics and numbers in your target market. It provides anticipated numbers that a company expects based upon market research. Marketing forecasts help you understand how many leads your

company will generate within a specific period of time and how the leads will move through the different stages of your lead nurturing process before they are ready to make a purchase.

It helps you understand which marketing channels will generate the most leads and how sales likely will perform. By understanding how many prospective customers are in each stage of the revenue cycle and how they move through each stage, you can estimate how many new opportunities and customers you will generate in the future. Marketing forecasting gives markets the ability to explore the long-term impact of their efforts. For example, they may anticipate that if they perform a specific marketing activity, they can expect a particular number of leads within a certain amount of time and a specific amount of revenue that will result from those leads.

a) Components of a marketing forecast

There are a few components that markets require to produce accurate forecasts, including:

i) **Accurate data:** The first component marketers need is good data. If the data they're using varies significantly, then the forecasting methods won't produce accurate results. If the different channels they're using have errors, the forecasts will ultimately be inaccurate and markers may miss their goals. By starting with accurate data, marketers can minimize forecasting errors and use more advanced forecasting methods.

ii) **Market size:** Market size is another component of a marketing forecast. The market size refers to the number of people in a particular market segment who are potential buyers. Companies need to examine market size to accurately complete a marketing forecast.

iii) **Target focus:** A marketing analysis should allow you to develop a strategic focus within the market. This is also referred to as segmentation and positioning. As you choose the market segments that are best for your product or service, consider your own strengths and weaknesses, the competitive advantage that your company has and the inherent differences between the market segments.

b) Processes for completing a marketing forecast

A marketing forecast is ultimately an educated guess about what could happen based on an elaborate process. However, there are several different processes you could use to complete your marketing forecast:

i) Executive opinion: This is essentially when company executives make educated guesses based on their knowledge of the company, market, sales and other factors. It is often a starting point for many marketing forecasts. That said, executive opinions should always be supported by research and qualitative techniques.

ii) Customer or channel surveys: Using this approach, companies employ research organizations that can survey potential customers about how much they likely would spend on specific types of products within a set period of time. Those companies then use the answers to make marketing forecasts. Companies also sometimes conduct their own surveys to create marketing forecasts. The downside is that while surveys are effective at determining

market potential, they are less so at determining sales potential, as the potential consumer could buy products from competitors.

iii) Sales force composite: Another method of completing a marketing forecast is to gather information from a company's sales force. Sales representatives often have a strong intuition about how much product they can sell within a specific amount of time, although this typically only works well with existing products. This method of forecasting isn't well-suited for new products.

iv) Expert opinion: This method of forecasting is similar to using executive opinions. The primary difference between the two is that you rely on the opinions of experts from outside the company. These opinions should always be supported by qualitative methods and research.

v) Correlates techniques: A correlational analysis is a sophisticated method of completing a marketing forecast. Using this method, you base your sales forecasts on the patterns of other related variables.

vi) Time series techniques: These techniques are useful for observing patterns in sales. Trend analysis, for example, allows you to measure the increase in sales over time and apply it to the future to predict company growth. If your company saw an increase in sales of 3% in the past year, as an example, it's reasonable to assume that the 3% increase will continue in the future.

vii) Response models: Using this method, a company bases its forecasts on the past responses of customers to specific marketing techniques. Using this information, the company can make educated guesses about how customers will respond to changes in pricing or different offers.

c) How to use marketing forecast

While the specific steps that a company uses to create an accurate marketing forecast can be quite sophisticated, the basic methodology is simple in concept. Here are the basic steps companies need to take to complete a marketing forecast:

i. Identify the stages of your revenue cycle
ii. Determine the types of leads that you want to track
iii. Measure how the different types of leads move through the different stages of the revenue cycle
iv. Use accurate data to determine how many new leads will go into the system within a set amount of time
v. Model the flow of new and current leads
vi. Review your results and finalize your marketing forecast

8.8. ECONOMIC FORECASTING

Economic forecasting has been around for centuries. However, it was the Great Depression of the 1930s that gave birth to the levels of analysis we see today. After that disaster, a greater onus was placed on understanding how the economy works and where it is heading. This led to the development of a richer array of statistics and analytical techniques.

Economic forecasting is often described as a flawed science. Many suspect that economists who work for the White House are forced to toe the line, producing unrealistic scenarios in an attempt to justify legislation. Will the inherently flawed self-serving economic forecasts by the Federal government be accurate? As with any forecast, time will tell. The challenges and subjective human behavioral aspects of economic forecasting are not limited to the government. Private-sector economists, academics, and even the Federal Reserve Board (FSB) have issued economic forecasts that were wildly off the mark. Ask Alan Greenspan, Ben Bernanke or a highly compensated Wall Street or ivory tower economist what GDP forecasts they produced in 2006 for 2007-2009—the period of the Great Recession.

Economic forecasters have a history of neglecting to foresee crises. According to Prakash Loungani, assistant director and senior personnel and budget manager at the International Monetary Fund (IMF), economists failed to predict 148 of the past 150 recessions. Loungani said this inability to spot imminent downturns is reflective of the pressures on forecasters to play it safe. Many, he added, prefer not to stray away from the consensus, mindful that bold projections could damage their reputation and potentially lead them to lose their jobs.

Economic forecasting is the process of attempting to predict the future condition of the economy using a combination of important and widely followed indicators. Economic forecasting involves the building of statistical models with inputs of several key variables, or indicators, typically in an attempt to come up with a future gross domestic product (GDP) growth rate. Primary economic indicators include inflation, interest rates, industrial production, consumer confidence, worker productivity, retail sales, and unemployment rates.

Government officials and business managers use economic forecasts to determine fiscal and monetary policies and plan future operating activities, respectively. Since politics is highly partisan, many rational people regard economic forecasts produced by governments with healthy doses of skepticism.

Business managers rely on economic forecasts, using them as a guide to plan future operating activities. Private sector companies may have in-house economists to focus on forecasts most pertinent to their specific businesses (e.g., a shipping company that wants to know how much of GDP growth is driven by trade.) Alternatively, they might rely on Wall Street or academic economists, those attached to think tanks or boutique consultants.

Understanding what the future holds is also important for government officials, helping them to determine which fiscal and monetary policies to implement. Economists employed by the federal, state or local governments play a key role in helping policymakers set spending and tax parameters.

Since politics is highly partisan, many rational people regard economic forecasts produced by governments with healthy doses of skepticism. A prime example is the long-term GDP growth forecast assumption in the U.S. Tax Cuts and Jobs Act of 2017 that projects a much smaller fiscal deficit that will burden future generations of Americans—with drastic implications to the economy—than independent economist estimates.

Formal economic forecasting is usually based on a specific theory as to how the economy works. Some theories are complicated, and their application requires an elaborate

tracing of cause and effect. Others are relatively simple, ascribing most developments in the economy to one or two basic factors. Many economists, for example, believe that changes in the supply of money determine the rate of growth of general business activity. Others assign a central role to investment in new facilities—housing, industrial plants, highways, and so forth. In the United States, where consumers account for such a large share of economic activity, some economists believe that consumer decisions to invest or save provide the principal clues to the future course of the entire economy. Obviously the theory that a forecaster applies is of critical importance to the forecasting process; it dictates his line of investigation, the statistics he will regard as most important, and many of the techniques he will apply.

8.9. SUMMARY

After studying this lesson student should be able to: Know the concept of Economic Analysis, Understand about the Forecasting methods, Importance of Marketing Forecast.

Economic analysis assesses financial and other costs and benefits for operating a program, project or business venture. It is used to determine if resources are being used appropriately and effectively. Costs and benefits of a course of action or a program are evaluated, and the best course of action is selected. There are several different types of economic analysis. Three of the most common are: Cost-effectiveness analysis (CEA): A cost effectiveness analysis compares the costs of different activities ending in a specific outcome.

You use it to determine what activity or method is the most cost effective in producing the desired outcome. Economic analysis refers to evaluating costs and benefits to check the viability of a project, investment opportunity, event, or any other matter. In other words, it involves identifying, evaluating, and comparing costs and benefits. In addition, there are many other significant concepts involved.

8.10. TECHNICAL TERMS

Economic Analysis: Economic analysis involves assessing or examining topics or issues from an economist's perspective. Economic analysis is the study of economic systems. It may also be a study of a production process or an industry. The analysis aims to determine how effectively the economy or something within it is operating. For example, an economic analysis of a company focuses mainly on how much profit it is making.

Forecasting: Forecasting is the estimation of the magnitude of a future event based on assumptions. Every business deals with uncertainty. Uncertainty is a risk that can affect the project or business objectives, such as cost, time, and scope. The project manager handles this uncertainty through estimating and expert judgment during the planning stage.

Marketing Forecast: A marketing forecast is a comprehensive data analysis to predict the potential success of specific marketing efforts. The purpose is to ensure that a company focuses on the proper marketing and advertising activities across channels and spends its time and money wisely.

8.11. SELF ASSESSMENT QUESTIONS

1. What is economic analysis?
2. Discuss about Economic Analysis Tools.
3. What is forecasting? Explain about different Forecasting methods.
4. Discuss about Forecasting the GNP and its elements.
5. Explain about forecasting for an industry or firm.
6. What is the Long-term forecasting?
7. Explain regarding Marketing Forecast.
8. Discuss about Economic Forecasting.

8.12. SUGGESTED READINGS

1. S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
2. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
3. J.C.Francis: Investments analysis and management
4. R.J Fuller and J.L.Farrel: Modern Investments and Security Analysis
5. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
6. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance
7. Cathy Pareto's: Dependable Wealth Managers for Women in the U.S. by Forbes

Dr. K. Vanitha

LESSON 9
PORTFOLIO ANALYSIS

OBJECTIVES

After studying this unit, you will be able to:

- Explain inputs to portfolio analysis.
- Discuss portfolio risk and return.
- Describe portfolio analysis and selection.

STRUCTURE

9.1. INTRODUCTION

Portfolio: Portfolio means a collection or combination of financial assets (or securities) such as shares, debentures and government securities. And it is not unusual to define a portfolio in such terms since the institutional portfolios (insurance companies, pension funds, mutual funds, banks, etc.) do, in fact, consist of such assets. However, in a more general sense the term 'portfolio' may be used synonymously with the expression 'collection of assets', which can even include physical assets (gold, silver, real estate, etc.). What is to be borne in mind is that, in the portfolio context, assets are held for 'investment' purposes and not for 'consumption' purposes. Portfolio analysis is an examination of the components included in a mix of products with the purpose of making decisions that are expected to improve overall return. The term applies to the process that allows a manager to recognize better ways to allocate resources with the goal of increasing profits.

Portfolio Analysis: Portfolio Analysis is one of the areas of investment management that enable market participants to analyze and assess the performance of a portfolio (equities, bonds, alternative investments, etc.), intending to measure performance on a relative and absolute basis along with its associated risks. Portfolio analysis is the process of evaluating and assessing a collection of investments, known as a portfolio, to understand its performance, risks, and potential returns.

Corporate portfolio analysis: Corporate portfolio analysis is a strategic management approach that involves analyzing individual products or businesses within a company's portfolio. It helps strategists make informed decisions by evaluating factors such as sales, market share, production costs, and market potential for each product line segment. Portfolio analysis has several applications in strategic management. It provides insights into a company's market position, helps identify areas for investment, guides product improvement strategies, and enables the evaluation of category sales and performance.

Portfolio analysis factors: Portfolio analysis considers various factors to determine a business unit's strategic advantage over competitors. Quantitative factors such as market share, growth rate, profitability, and debt/equity ratio are considered. Qualitative factors like brand name, core strengths, values, and management quality also play a crucial role. These factors, if unique and valuable, can significantly contribute to the success of a business unit.

9.2. TOOLS USED IN PORTFOLIO ANALYSIS

Some of the top ratios used are as follows –

9.2.1) Holding Period Return:

It calculates the overall return during the investment holding period. Holding Period Return = {(Ending Value–Beginning Value)+Dividends Received}/Beginning Value

9.2. 2) Arithmetic Mean:

It calculates the average returns of the overall portfolio.
Arithmetic Mean = (R1 + R2 + R3 +……+ Rn) / n
R = Returns of Individual Assets

9.2.3) Sharpe Ratio:

It calculates the excess return over and above the risk-free return per unit of portfolio risk.
Sharpe Ratio Formula = (Expected Return – Risk-Free rate of return) / Standard Deviation (Volatility)

9.2.4) Alpha:

It calculates the difference between the actual portfolio returns and the expected returns.
Alpha of portfolio = Actual rate of return of portfolio – Expected Rate of Return on Portfolio

9.2.5) Tracking Error:

It calculates the standard deviation of the excess return concerning the benchmark rate of return.
Tracking Error Formula = Rp-Rb
Rp = Return of Portfolio, Rb = Return on Benchmark

9.2.6) Information Ratio:

It calculates the success of the active investment manager strategy by calculating excess returns and dividing it by tracking error.
Information ratio Formula = (Rp – Rb) / Tracking error
Rp = Return of Portfolio, Rb = Return on Benchmark

9.2.7) Sortino Ratio

It calculates the excess return over and above the risk-free return per unit of negative asset returns.

Sortino Ratio Formula = (Rp – Rf) / σd
Rp = Return of Portfolio, Rf = Risk-Free Rate, σd = standard deviation of negative asset returns

9.3. STEPS TO PORTFOLIO ANALYSIS

9.3.1 – Understanding Investor Expectation and Market Characteristics

The first step before portfolio analysis is to sync the investor expectation and the market in which such Assets will be invested. Proper sync of the expectations of the investor vis-à-vis the risk and return and the market factors helps a long way in meeting the portfolio objective. With a higher information ratio, fund manager B has delivered superior performance.

9.3.2 – Defining an Asset Allocation and Deployment Strategy

This is a scientific process with subjective biases. It is imperative to define what type of assets the portfolio will invest, what tools will be used in analyzing the portfolio, which type of benchmark the portfolio will be compared with, the frequency of such performance measurement, and so on.

9.3.3 – Evaluating Performance and Making Changes if Required

After a stated period as defined in the previous step, portfolio performance will be analyzed and evaluated to determine whether the portfolio attained stated objectives and the remedial actions, if any, required. Also, any changes in the investor objectives are incorporated to ensure portfolio analysis is up to date and keeps the investor expectation in check.

9.4. ADVANTAGES

i. It helps investors to assess the performance periodically and make changes to their Investment strategies if such analysis warrants. ii. This helps in comparing the portfolio against a benchmark for return perspective and understanding the risk undertaken to earn such return, enabling investors to derive the risk-adjusted return. iii. It helps realign the investment strategies with the changing investment objective of the investor. iv. It helps in separating underperformance and outperformance, and accordingly, investments can be allocated.

9.5. INPUTS TO PORTFOLIO ANALYSIS

Portfolio analysis builds on the estimates of future return and risk of holding various combinations of assets. As we know, individual assets have risk return characteristics of their own. Portfolios, on the other hand, may or may not take on the aggregate characteristics of their individual parts. In this section, we will reflect on the assessment of return-risk attributes of individual assets and portfolios.

9.5.1. Return and Risk Characteristics of Individual Assets

For individual assets, the returns are measured in an intuitively logical way over the predetermined investment horizon (or holding period). For instance, the returns from investment in equity shares are measured over a single holding period (t) as follows:

Total Returns = [Dividends + (Market Prices – Market Prices – 1)]/[Market Prices – 1]
Within a multi-period framework, one may even apply a discounting model to estimate returns.

What an investment analyst essentially endeavors to obtain is the forecasts of return. It is axiomatic that return predictions are seldom accurate. So, investment analyst also aims at measuring 'upside' potential and 'downside' danger – that is, the potential that actual returns may exceed the estimate and the danger that the returns may be less than that. In investment parlance, this is known as measuring 'investment risk'.

Usually, an analyst obtains, for a given period of time in the future, a series of possible rates of return with some probability of occurrence for each return estimate. Based on the distribution of these return estimates, he computes two summary statistics, namely 'expected (or mean) rate of return' and the 'variance (or equivalent i.e., its square root, (or the standard deviation) of return distribution'. The latter, which measures the breadth of the distribution of expected returns from an investment, is considered a measure of the investment risk.

A question with variance as a measure of risk is: why count 'happy' surprises (those above the expected return) at all in a measure of risk? Why not just consider the deviations below the expected return (i.e. the downside danger)? Measures that do so have much to recommend them.

But if a distribution is symmetric, such as the normal distribution, the result will be the same.

Because the left side of a symmetric distribution is a mirror image of the right side. Although distributions of forecasted returns are often non-normal, analysts generally assume normality to simplify their analysis.

9.5.2. Expected Return and Risk of a Portfolio

The return on a portfolio of assets is simply a weighted average of the return on the individual assets. The weight applied to each return is the fraction of the portfolio invested in that asset.
Thus,

$$r_p = \sum_{i=1}^{n} x_i r_i$$

Where

r_p = Expected return of the portfolio;
x_i = Proportion of the portfolio's initial fund invested in asset i;
r_i = Expected return of asset i; and
n = Number of assets in the portfolio;

Example: Consider a portfolio of two equity shares A and B. The expected return on A is, say, 15% and that on B is 20%. Further, assume that we have invested 40% of our fund in share A and the remaining in B. Then, what will be the expected portfolio return?
Solution: The expected portfolio return will be 0.40 × 15 + 0.60 × 20 = 18%.

The computation of the portfolio variance in the above example is based on the following formula:

$$\sigma_p^2 = \sum_{i=1}^{n} \sum_{j=1}^{n} X_{pi} X_j \sigma_{pj}$$

Where $_{pj}$ denotes the covariance of returns between asset i and asset j. An explanation of the formula is now in order. We start off with the most important element of this formula, namely, covariance. It is a statistical measure of how two random variables, such as the returns on asset i and j, 'move together'. A positive value for covariance indicates that the assets' returns tend to go together.

Example: A better-than-expected return for one is likely to occur along with a better than-expected return for the other. A negative covariance indicates a tendency for the returns to offset one another. For example, a better-than-expected return for one asset is likely to occur along with a worse-than-expected return for the other. A relatively small or zero value for the covariance indicates that there is little or no relationship between the returns for two assets. Closely related to covariance is the statistical measure known as correlation. The relationship is given by

$$c = \frac{\text{cov.}(i,j)}{\sigma_i \sigma_j}$$

Where c. denotes the coefficient of correlation between the return on asset i and the on j. The correlation coefficient simply rescales the covariance to facilitate comparison with corresponding values for other pairs of random variables. The coefficient ranges from -1 (perfect negative correlation) to +1 (perfect positive correlation). A co-efficient of 0 indicates, in our context, that returns are totally unrelated.

$$\sigma_p^2 = \sum_{j=1}^{3} X_1 X_j \sigma_{ij} + \sum_{j-1}^{3} X_2 X_j \sigma_{2j} + \sum_{j-1}^{3} X_3 X_j \sigma_{3j}$$

$$= [X_1 X_1 \sigma_{11} + X_1 X_2 \sigma_{12} + X_1 X_3 \sigma_{13} + X_2 X_1 \sigma_{21} + X_2 X_2 \sigma_{22} + X_2 X_3 \sigma_{23} + X_3 X_1 \sigma_{31} + X_3 X_2 \sigma_{32} + X_3 X_3 \sigma_{33}]$$

9.6. RETURN AND RISK OF PORTFOLIO

Return of Portfolio (Two Assets)
The expected return from a portfolio of two or more securities is equal to the weighted average of the expected returns from the individual securities.
$P(R) = W_A(R_A) + W_B(R_B)$

Where,
P (R) = Expected return from a portfolio of two securities
W_A = Proportion of funds invested in Security A
W_B = Proportion of funds invested in Security B
R_A = Expected return of Security A
R_B = Expected return of Security B
$W_A + W_B = 1$

Example: A Ltd.'s share gives a return of 20% and B Ltd.'s share gives 32% return. Mr. Gotha invested 25% in A Ltd.'s shares and 75% of B Ltd.'s shares. What would be the expected return of the portfolio?

Solution:
Portfolio Return = 0.25(20) + 0.75 (32) = 29%

***Example*:** Mr. RKV's portfolio consists of six securities. The individual returns of each of the security in the portfolio are given below:

Security	Proportion of Investment in the Portfolio	Return
Wipro	10%	18%
Latham	25%	12%
SBI	8%	22%
ITC	30%	15%
RNL	12%	6%
DLF	15%	8%

Calculate the weighted average of return of the securities consisting the portfolio.

Solution:

Security	Weight (W)	Return (%) (R)	(W × R)
Wipro	0.10	18	1.80
Latham	0.25	12	3.00
SBI	0.08	22	1.76
ITC	0.30	15	4.50
RNL	0.12	6	0.72
DLF	0.15	8	1.20
			12.98

∴ Portfolio return is 12.98%

9.7. RISK OF PORTFOLIO (TWO ASSETS)

The risk of a security is measured in terms of variance or standard deviation of its returns. The portfolio risk is not simply a measure of its weighted average risk.

The securities that a portfolio contains are associated with each other. The portfolio risk also considers the covariance between the returns of the investment.

Covariance of two securities is a measure of their co-movement; it expresses the degree to which the securities vary together. The standard deviation of a two-share portfolio is calculated by applying formula given below:

$$\sigma_P^2 = W_A^2\sigma_A^2 + W_B^2\sigma_B^2 + 2W_A W_B \rho_{AB}\sigma_A\sigma_B$$

Where,

σ_P = Standard deviation of portfolio consisting securities A and B

$W_A\ W_B$ = Proportion of funds invested in Security A and Security B

$\sigma_A\ \sigma_B$ = Standard deviation of returns of Security A and Security B

ρ_{AB} = Correlation coefficient between returns of Security A and Security B

The correlation coefficient (AB) can be calculated as follows:

$$AB = \frac{Cov_{AB}}{\sigma_A\sigma_B}$$

The covariance of Security A and Security B can be presented as follows:

$$Cov_{AB} = \sigma_A\ \sigma_B\ \rho_{AB}$$

The diversification of unsystematic risk, using a two-security portfolio, depends upon the correlation that exists between the returns of those two securities. The quantification of correlation is done through calculation of correlation coefficient of two securities (ρ_{AB}). The value of correlation ranges between –1 to 1; it can be interpreted as follows:

If ρ_{AB} = 1, No unsystematic risk can be diversified.

If ρ_{AB} = –1, All unsystematic risks can be diversified.

If ρ_{AB} = 0, No correlation exists between the returns of Security A and Security B.

The returns of Security of Wipro and Security of Infosys for the past six years are given below:

Year	Security of Wipro Return %	Security of Infosys Return %
2003	9	10
2004	5	-6
2005	3	12
2006	12	9
2007	16	15

Calculate the risk and return of portfolio consisting both where the proportion of funds invested in security of Wipro is 80%.

Calculate the risk and return of portfolio consisting both where the proportion of funds invested in security of Wipro is 80%.

Solution: Calculation of Mean Return and Standard Deviation of Security of Wipro (Security A)

Year	Return % (R_A)	$(R_A - \overline{R}_A)$	$(R_A - \overline{R}_A)^2$
2003	9	0 (9 – 9)	0
2004	5	-4 (5 – 9)	16
2005	3	-6 (3 – 9)	36
2006	12	3 (12 – 9)	9
2007	16	7 (16 – 9)	49
	45		110

Mean Return ($\overline{R}_A$) = 45/5 = 9%

Standard Deviation (σ_A) = $\sqrt{110}$ = 10.49%

Calculation Mean Return and Standard Deviation of Security of Infosys (Security B)

Year	Return % (R_B)	$(R_B - \overline{R}_B)$	$(R_B - \overline{R}_B)^2$
2001	10	2 (10 – 8)	4
2002	-6	–14 (–6 – 8)	196
2003	12	4 (12– 8)	16
2004	9	1 (9 – 8)	1
2005	15	7 (15 – 8)	49
	40		266

Mean Return ($\overline{R}_B$) = 40/5 = 8%

Standard Deviation (σ_B) = $\sqrt{266}$ = 16.31%

Analysis – Security A has a higher historic level of return and lower risk as compared to Security B. Correlation Coefficient (ρ_{AB}).

$$= \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{N\Sigma X^2 - (\Sigma X)^2}\sqrt{N\Sigma Y^2 - \Sigma Y^2}}$$

A's return (%)		B's return (%)		
X	X^2	Y	Y^2	XY
9	81	10	100	90
5	25	-6	36	-30
3	9	12	144	36
12	144	9	81	108
16	256	15	225	240
ΣX= 45	ΣX^2 = 515	ΣY = 40	ΣY^2 = 586	ΣXY = 444

$$= \frac{5 \times 444 - (45 \times 40)}{\sqrt{5 \times 515 - (45)^2}\sqrt{5 \times 586 - (40)^2}}$$

$$= \frac{2,220 - 1800}{\sqrt{2575 - 2025}\sqrt{2930 - 1600}} = \frac{420}{\sqrt{550}\sqrt{1330}}$$

$$= \frac{420}{23.452 \times 36.469} = \frac{420}{855.271} = 0.491$$

Verification:

Calculation of Covariance of Returns of Securities A and B

Year	Returns (%)		$(R_A - \bar{R}_A)$	$(R_B - \bar{R}_B)$	$(R_A - \bar{R}_A) \times (R_B - \bar{R}_B)$
	R_A	R_B			
2001	9	10	0(9 – 9)	2 (10 – 8)	0 (0 × 2)
2002	5	-6	-4 (5 – 9)	-14 (-6 – 8)	56 (-4 × -14)
2003	3	12	-6 (3 – 9)	4 (12 – 8)	-24 (-6 × 4)
2004	12	9	3 (12 – 9)	1 (9 – 8)	3 (3 × 1)
2005	16	15	7 (16 – 9)	7 (15 – 8)	49 (7 × 7)
					Cov_{AB} = 84

$$\rho_{AB} = \frac{Cov_{AB}}{\sigma_A \sigma_B} = \frac{84}{10.49 \times 16.31} = 0.491$$

$$Cov_{AB} = \sigma_A \sigma_B \rho_{AB} = 10.49 \times 16.31 \times 0.491 = 84$$

$$\text{Return of portfolio } (R_p) = W_A (R_A) + W_B (R_B) \quad \text{.....(1)}$$

$$W_A = 80\% = .8;\ W_B = 1 - .8 = .2$$

Putting the values in Eq. (1), we get (0.80 × 9) + (0.20 × 8) = 7.2+1.6 = 8.8%

Risk of portfolio (σ_p)

Since, $$\sigma_p^2 = w_A^2\sigma_A^2 + w_B^2\sigma_B^2 + 2W_A W_B P_{AB}\sigma_A\sigma_B \quad \text{.....(2)}$$

Putting the values in Eq. (2), we get

$$\sigma_p^2 = (0.80^2 \times 10.49^2) + (0.20^2 \times 16.31^2) + (2 \times 0.80 \times 0.20 \times 0.491 \times 10.49 \times 16.31)$$

$$= (0.64 \times 110.04) + (0.04 \times 266.02) + 26.88$$

$$= 70.43 + 10.64 + 26.88 = 107.95$$

Hence, $\sigma_p = \sqrt{\sigma_p^2} = \sqrt{107.95} = 10.39\%$

Thus the risk and return of combined portfolio are 10.39% and 8.8% respectively.

9.8. RISK AND RETURN OF PORTFOLIO (THREE ASSETS)

Formula for calculating risk of portfolio consisting three securities

$$\sigma_p^2 = W_x^2\sigma_x^2 + W_y^2\sigma_y^2 + W_z^2\sigma_z^2 + 2W_x W_y \rho_{yz}\sigma_y\sigma_z + W_x W_z \rho_{xz}\sigma_x\sigma_z$$

Where,

W_1, W_2, W_3 = Proportion of amount invested in securities X, Y and Z

$\sigma_x, \sigma_y, \sigma_z$ = Standard deviations of securities X, Y and Z

ρ_{xy} = Correlation coefficient between securities X and Y

ρ_{yz} = Correlation coefficient between securities Y and Z

ρ_{xz} = Correlation coefficient between securities X and Z

***Example:* A portfolio consists of three securities P, Q and R with the following parameters:**

	Security			Correlation coefficient
	P	Q	R	
Expected return (%)	35	22	20	
Standard deviation (%)	20	26	24	
Correlation coefficient:				
PQ				-0.5
QR				+0.4
PR				+0.6

If the securities are equally weighted, how much is the risk and return of the portfolio of these three securities?

Solution:

Expected Portfolio Return

$$= (25 \times 1/3) + (22 \times 1/3) + (20 \times 1/3) = 22.33\%$$

$$\sigma_P^2 = \begin{matrix}(30)^2(1/3)^2 + (26)^2 + (24)^2(1/3)^2 + 2(1/3)(-0.5)(30)(26) + 2(1/3)(1/3)(0.4)(26)(24) \\ +2(1/3)(1/3)(0.6)(30)(24)\end{matrix}$$

$$\sigma_P^2 = 100 + 75.11 + 64 - 86.67 + 55.47 + 96 = 303.91$$

$$\sigma_P = \sqrt{303.91} = 17.43\%$$

9.9. OPTIMAL PORTFOLIO (TWO ASSETS)

The investor can minimise his risk on the portfolio. Risk avoidance and risk minimisation are the important objectives of portfolio management. A portfolio contains different securities; by combining their weighted returns we can obtain the expected return of the portfolio. A risk averse investor always prefers to minimise the portfolio risk by selecting the optimal portfolio. The minimum risk portfolio with two assets can be ascertained as follows:

$$W_A = \frac{\partial_B^2 - Cov_{AB}}{\partial_A^2 + \partial_B^2 - Cov_{AB}}$$

We can also calculate the proportion to be invested (W_A) in Security A.

$$= \frac{16.31^2 - 84}{(10.49^2 + 16.31^2) - (2 \times 84)} = \frac{182.02}{208.06} = 0.875$$

Therefore, 87.5% of funds should be invested in Security A and 12.5% should be invested in Security B, which represents the optimal portfolio.

9.10. PORTFOLIO ANALYSIS AND SELECTION

Now that we have reviewed all the attributes of combination of assets (namely, return, risk and diversification), we are in position to examine the portfolio selection process. For the purpose of our analysis, we will assume that rational investors are risk averse and prefer more returns to less. With this assumption, let us first state the portfolio selection problem.

1. ***Portfolio Selection Problem:*** What is the opportunity set of investments or portfolios from which an investor must take a choice? A quick reflection on the above equations would reveal that there are infinite number of possibilities to combine *n* assets into a portfolio, provided an investor can hold a fraction of an asset if he or she so desires. Each one of these portfolios available for investment corresponds to a set of portfolio weights (i.e., the proportions of fund that investors may allocate to different assets), and is characterized by an expected rate of return and variance (or standard deviation).Does an investor need to evaluate all the portfolios of 'feasible set' to determine his or her 'best' or 'optimal' portfolio? Fortunately, the answer to this question is 'no'. The investor is required to examine only a subset of feasible set of portfolios. Generally, the investors would, however, prefer some of them to others. Since the investors are assumed to be risk-averse and prefer more return to less, their choice of portfolios will be bounded by the following two criteria:

(a) Given two portfolios with the same expected return, prefer the one with the least risk exposure.
(b) Given two portfolios with the same risk exposures, prefer the one with the higher expected return.

2. *Selection of Optimal Portfolio:* The actual computational procedure for locating efficient frontier is much more complex than what it might appear to be from our geometric interpretations. We need to employ some optimisation technique, and this we will discuss in next unit. Meanwhile, let us search for an optimal portfolio from the efficient set. Once the location and composition of the efficient set have determined, the selection of optimal portfolio by an investor will depend on his/her 'risk tolerance' or "trade-offs between risk and expected return." For instance, a risk-averse investor, such as person nearing retirement, may prefer an efficient portfolio with low risk (as measured by standard deviation or variance), whereas a risk-taker may prefer a portfolio with greater risk and commensurately higher returns.

Portfolio selection process entails four basic steps:
Step 1: Identifying the assets to be considered for portfolio construction.

Step 2: Generating the necessary input data to portfolio selection. This involves estimating

the expected returns, variances and covariance for all the assets considered.

Step 3: Delineating the efficient portfolio.

Step 4: Given an investor's risk tolerance level, selecting the optimal portfolio in terms of: a) the assets to be held; and (b) the proportion of available funds to be allocated to each.

9.11. SUMMARY

Portfolio analysis is an indispensable part of investment management and should be undertaken periodically to identify and improvise any deviation observed against the investment objective. Another important objective it intends to achieve is to identify the real risk undertaken to achieve the desired return and whether the risk is commensurate with the return achieved by the investor.

In short, it is a complex task and requires professional expertise and guidance to make it impactful.

Risk can be defined as the probability that the expected return from the security will not materialize. Every investment involves uncertainties that make future investment returns risk- prone. Uncertainties could be due to the political, economic and industry factors. Risk could be systematic in future, depending upon its source. Systematic risk is for the market as a whole, while unsystematic risk is specific to an industry or the company individually. The first three risk factors discussed below are systematic in nature and the rest are unsystematic.

Political risk could be categorised depending upon whether it affects the market as whole or just a particular industry. Beta is a measure of the systematic risk of a security that cannot be avoided through diversification. Beta is a relative measure of risk - the risk of an individual stock relative to the market portfolio of all stocks. If the security's returns move more (less) than the market's returns as the latter changes, the security's returns have more (less) volatility (fluctuations in price) than those of the market. It is important to note that beta measures a security's volatility, or fluctuations in price, relative to a benchmark, the market portfolio of all stocks. The risk/return trade-off could easily be called the "ability-to-sleep-at-night test." While some people can handle the equivalent of financial skydiving without batting an eye, others are terrified to climb the financial ladder without a secure harness. **Technical terms**

Beta: A coefficient that describes how the expected return of a stock or portfolio is correlated to the return of the financial market as a whole

Portfolio: A collection of investments held by an institution or a private individual

Systematic Risks: A risk of security that cannot be reduced through diversification.

Unsystematic Risks: Company or industry specific risk that is inherent in each investment. The amount of unsystematic risk can be reduced through appropriate diversification.

9.12. REVIEW QUESTIONS

1. Mr. RKV invested in equity shares of Wipro Ltd., its anticipated returns and associated probabilities are given below:

Return (%)	-15	-10	5	10	15	20	30
Probability	0.05	0.10	0.15	0.25	0.30	0.10	0.05

You are required to calculate the expected rate of return and risk in terms of standard deviation.

2. The probabilities and associated returns of Modern Foods Ltd., are given below:

Return (%)	12	15	18	20	24	26	30
Probability	0.05	0.10	0.24	0.26	0.18	0.12	0.05

Calculate the standard deviation.

3. Mr. Marin provides the following informations, from the same compute his expected return and standard deviation and variance.

Events	1	2	3	4
Probability	.20	.40	.30	.10
Return (%)	–10	25	20	10

4. The possible returns and associated probabilities of Securities X and Y are given below:

Security X		Security Y	
Probability	Return (%)	Probability	Return (%)
0.05	6	0.10	5
0.15	10	0.20	8
0.40	15	0.30	12
0.25	18	0.25	15
0.10	20	0.10	18
0.05	24	0.05	20

Calculate the expected return and standard deviation of securities X and Y.

5.The returns on the equity stocks of TCS limited and the market portfolios over a 12-year period are given below:

Year	Return on auto TCS Ltd. (%)	Return on market portfolio (%)
1	15	12
2	-6	1
3	18	14
4	30	24
5	12	16
6	25	30
7	2	-3
8	20	24
9	18	15
10	24	22
11	8	12

a. Calculate the beta for the stock of TCS Limited.
b. Established the characteristics line for the stock of TCS Limited.

9.13. SUGGESTED READINGS

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LESSON 10
MODERN PORTFOLIO THEORIES

OBJECTIVES

After studying this unit, you will be able to:

- Discuss Markowitz Risk-return Optimisation.
- Explain Single Index Model

STRUCTURE

10.1. INTRODUCTION

The modern portfolio theory argues that any given investment's risk and return characteristics should not be viewed alone but should be evaluated by how it affects the overall portfolio's risk and return. That is, an investor can construct a portfolio of multiple assets that will result in greater returns without a higher level of risk. Since MPT's introduction in 1952, many attempts have been made to improve the model, especially by using more realistic assumptions. Post-modern portfolio theory extends MPT by adopting non-normally distributed, asymmetric, and fat-tailed measures of risk. This helps with some of these problems, but not others. One critique of the theory is that all estimates are based on historical data that may not be relevant to current or future markets. Projected values based on historical data don't represent real-world conditions. Another serious limitation is that modern portfolio theory's measure of risk ignores downside risk. With these principles in mind, investors proceed by modeling a range of different portfolios with varying levels of risk and expected returns.

i) Managing the portfolio: After establishing the asset allocation, the investor has to decide how to manage the portfolio over time. He can adopt PASSIVE approach or ACTIVE APPROACH toward the management of the portfolio. Modern portfolio theory (MPT)—or portfolio theory—was introduced by Harry Markowitz with his paper "Portfolio Selection," which appeared in the 1952 Journal of Finance. Thirty-eight years later, he shared a Nobel Prize with Merton Miller and William. Sharpe for what has become a broad theory for portfolio selection. The modem Portfolio Theory emphasizes the need for **maximization of return**s through a combination of securities, whose **total variability is lower**. The risk of each security is different from that of others and by a proper combination of securities, called

diversification; one can arrive at a combination wherein the risk of one is offset partly or fully by that of the other. In other words, the variability of each security and covariance for their returns reflected through their inter-relationships should be taken into account. Thus, as per the Modem Portfolio Theory, expected returns, the variance of these returns and covariance of the returns of the securities within the portfolio arc to be considered for the choice of a portfolio.

10.2. MODERN PORTFOLIO THEORY (MPT)

Modern Portfolio Theory (MPT) is a widely used practice for optimizing investment portfolios to achieve the greatest potential reward for the amount of risk an investor is willing to assume. Learn what MPT tells us and how investors can use it to develop optimally diversified portfolios. MPT, or modern portfolio theory, is a mathematical technique for developing the "optimal" mix of assets (or asset classes) in a portfolio for a given amount of risk. Optimal in this instance means the asset mix that will theoretically deliver the maximum return for the level of risk in the portfolio. Risk is defined by the standard deviation of historic returns in the selected assets (which relates to their volatility). In plain language, MPT is a tool for optimizing portfolio diversification.

Businessman holds sign diversification as part of risk management. Designer491/iStock via Getty Images

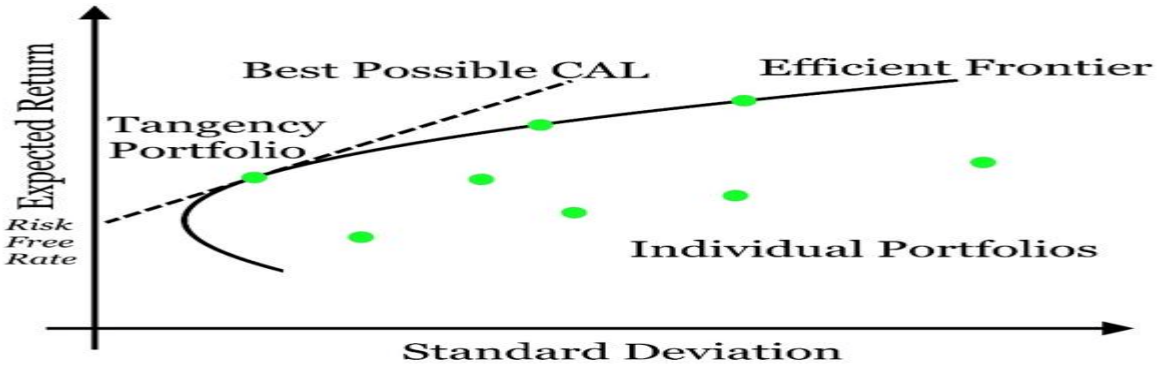
At its core, MPT is a statistical analysis that uses the historical returns of any asset or asset class and the correlation of those returns with that of other assets in the portfolio to determine the proportion of each asset that will maximize the reward for any given amount of risk. Portfolios are said to be most “efficient” when they can return the most reward for a given amount of risk and MPT tells us that combining assets in certain proportions can lead to better risk-reward characteristics for the overall portfolio.

An accepted premise in investing is that the higher your potential reward with an asset or asset class, the higher the risk (as measured by its standard deviation in historical returns).

What MPT discovered was that you can often achieve better overall results (i.e. more return for the same amount of risk or lower risk for the same expected return) by combining multiple assets in a portfolio–and MPT can tell you which assets and in what proportion.

10.2.1.Efficient Frontier Curve (Scot Stockton/Seeking Alpha): The results of an MPT analysis for a portfolio of specified assets can be shown on a graphical plot of the standard

deviation (i.e. risk) versus the expected return of all combinations of those assets. In the simple case of just two assets, say stocks and cash, the plot would show all possible portfolios from 100% stocks and 0% cash to 0% stocks and 100% cash. When a line is drawn through the highest return portfolios for all levels of risk, it forms a curve that is called "the efficient frontier".



10.2.2. Modern Portfolio Theory Key Assumptions

One can never know exactly how a risky financial asset will perform in the future, but classic financial theories such as the Efficient Market Hypothesis, Capital Asset Pricing Model, and Modern Portfolio Theory use statistical methodologies to predict the performance of a large number of stocks and they have worked well for institutional investors for decades. Two of the key assumptions that MPT is based on include:

1. That Standard Deviation of Past Returns is a Valid Measure of Risk While standard deviations in returns represent a widely used proxy for risk, they do not specifically address the downside risk in any asset. Furthermore, standard deviations are not a constant and will vary in different time periods.

2. That Correlations Between Different Assets and Asset Classes Will Remain Constant in the Future Correlations are also not constant and will vary in different time periods. For situations where these assumptions are not valid, MPT may not be a useful tool. In addition, MPT can only optimize a portfolio against idiosyncratic risk, which is the risk of a specific asset. It cannot optimize against market risk, which impacts an entire portfolio.

10.2.3. Modern Portfolio Theory vs. Behavioral Economics

Investors often focus too much on what stocks to own and not on the risk-reward profile of their overall portfolio. An understanding of what has been learned from Modern Portfolio Theory can be very instructive in establishing more of a perspective on the portfolio as a whole and the diversification of asset classes within it. Behavioural Economics tells us that absent a particular diversification discipline, investors will tend to herd in and out of stocks at the wrong times, thereby reducing their performance relative to the market. Two ways in which MPT can be used to keep investors on the right track are as follows.

1. Two-Fund Theory: The two-fund theory is an outgrowth of MPT that can be used practically by individual investors. It says that optimal portfolios at different risk levels can,

in essence, be constructed with just two assets: a diverse mutual fund and a risk-free asset such as a money market fund, cash, or Treasury Bills. This implies that investors with modest portfolios need not attempt to find enough individual stocks to perform an effective MPT analysis and instead can merely hold a combination of a single mutual fund and cash to achieve a similar result.

2. Strategic Asset Allocation: Strategic asset allocation seeks to diversify a portfolio with a mix of different asset classes that take a long-term view of investing and then rebalance those allocations periodically. That means that as asset classes appreciate or depreciate relative to the target allocation, the rebalancing brings them back into line. As an example, assume that an optimal long-term allocation was determined to be 60% in stocks, 30% in bonds, and 10% in cash and after six months stocks outperformed bonds such that the portfolio was now 65% stocks, 27% bonds, and 7% cash, a rebalancing would sell some of the stocks and buy more bonds and cash to restore the original mix.

10.2.4. Benefits to Understanding MPT: While the mathematics of MPT can be a bit complex for individual investors, there are important lessons from MPT that can be used to improve overall performance. These include: Increasing asset diversification to achieve better risk-reward characteristics in an overall portfolio.

i. Improving a portfolio's overall performance by mixing in non-correlated or negatively-correlated assets (i.e. assets that will go up when others go down)
ii. Combining high-risk assets (i.e. stocks) with low-risk assets (i.e. bonds or cash) to provide better long-term risk-reward characteristics overall than either asset class by itself.
iii. Diversifying by asset class as well as individual assets A large number of stocks helps to diversify, but mixing stocks with bonds, government securities, cash, gold, or other types of assets can even be more important.

10.3. MODERN APPROACH – MARKOWITZ PORTFOLIO THEORY

History of Markowitz Portfolio Theory: MPT was pioneered by Harry Markowitz in his 1952 paper called "Portfolio Selection", which earned him a Nobel Prize in Economics.

Also known as "Markowitz portfolio optimization" or simply "mean-variance analysis", MPT is a portfolio management tool that is widely used by institutional investors such as mutual funds, pension funds, and hedge funds. Traditional approach is based on **Comprehensive financial plan** for the individual. In the modern approach Markowitz model is used. More importance is given to the risk and return analysis.

Markowitz gives more attention to **the process of selecting the portfolio**. His planning can be applied more in the **selection of common stocks portfolio** than the bond portfolio. The **stocks are selected** on the **basis of risk and return analysis** and not on the basis of need for income and capital appreciation. Return includes the market return and dividend. In the modern portfolio the final step is asset allocation process that is to choose the portfolio that meets the requirement of the investor. **Risk taker** –who are willing to accept a **higher probability of risk** for getting theexpected return would choose high risk portfolio.

Lower tolerance of risk –choose low risk portfolio. A portfolio is said to **be efficient**, if it is expected to **yield the highest return** possible for the **lowest risk or a given**

level of risk. A set of efficient portfolios can be generated by using the above process of combining various securities whose combined risk is lowest for a given level of return for the same amount of investment, that the investor is capable of. The theory of Markowitz. as stated above is based on a number of assumptions

10.3.1. Assumptions of Markowitz Theory: The Modern Portfolio Theory of Markowitz is based on the following assumptions:

- Investors are rational and behave in a manner as to maximize their utility with a given level of income or money.
- Investors have free access to fair and correct information on the returns and risk.
- The markets are efficient and absorb the information quickly and perfectly.
- Investors are risk averse and try to minimize the risk and maximize return.
- Investors base decisions on expected returns and variance or standard deviation of these returns from the mean.
- Investors prefer higher returns to lower returns for a given level of risk.

10.3.2. Markowitz Diversification: Markowitz postulated that diversification should not only aim at reducing the risk of a security by reducing Its variability or standard deviation, but by reducing the covariance or interactive risk of two or more securities in a portfolio. As by combination of different securities, it is theoretically possible to have a range of risk varying from zero to infinity. Markowitz theory of portfolio diversification attaches importance to standard deviation, to reduce it to zero, if possible, covariance to have as much as possible negative interactive effect among the securities within the portfolio and coefficient of correlation to have - 1 (negative) so that the overall risk of the portfolio as a whole is nil or negligible. Then the securities have to be combined in a manner that standard deviation is zero.

10.3.3. Parameters of Markowitz Diversification: Based on his research, Markowitz has set out guidelines for diversification on the basis of the attitude of investors towards risk and return and on a proper quantification of risk. The investments have different types of risk characteristics, some caused systematic and market related risks and the other called unsystematic or company related risks. Markowitz diversification involves a proper number of securities, not too few or not too many which have no correlation or negative correlation.

The proper choice of companies, securities, or assets whose return are not correlated and whose risks are mutually offsetting to reduce the overall risk. For building up the efficient set of portfolio, as laid down by Markowitz.., we need to look into these important parameters.

1. Expected return.
2. Variability of returns as measured by standard deviation from the mean.
3. Covariance or variance of one asset return to other asset returns.

In general the higher the expected return, the lower is the standard deviation or variance and lower is the correlation the better will be the security for investor choice. Whatever is the risk of the individual securities in isolation, the total risk of the portfolio of all securities may be lower, if the covariance of their returns is negative or negligible.

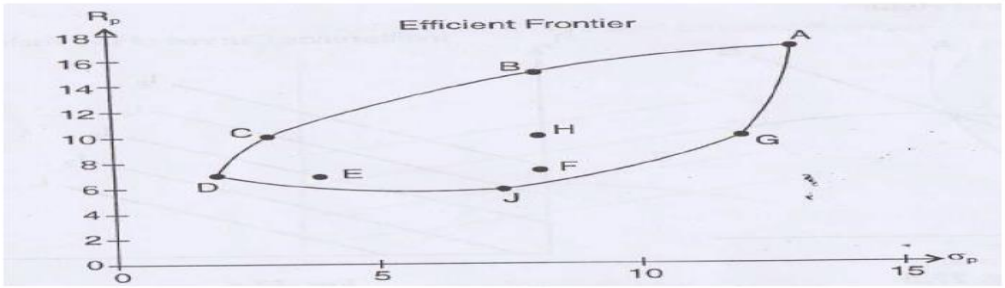
10.4. THE MARKOWITZ EFFICIENT FRONTIER

The risk and return of all portfolios plotted in risk-return space would be dominated by efficient portfolios. Portfolio may be constructed from available securities. All the possible combination of expected return and risk compose the attainable set. The following example shows the expected return and risk of different portfolios.

Portfolio Expected	**Return (R_p) %**	**Risk (σ_p)**
A	**17**	**1**3
B	**15**	**8**
C	**10**	3
D	**7**	**2**
E	**7**	**4**
F	**7**	**8**
G	**10**	**12**
H	**9**	**8**
J	**6**	**7.5**

The attainable set of portfolios is illustrated. Each of the portfolio along the line or within the line ABCDEFGJ is possible. It is not possible for the investor to have portfolio outside of this perimeter because no combination of expected return and risk exists there.

When the attainable sets are examined, some are more attractive than others. Portfolio B is more attractive than portfolios F and H because B offers more return on the same level of risk. Likewise, C is more attractive than portfolio G even though same level of return is got in both the points, the risk level is lower at point C. in other words, any portfolio which gives more return for the same level of risk or same return with lower power risk is more preferable than any other portfolio. Among all the portfolios, the portfolios which offer the highest return at particular level of risk are called efficient portfolios. Here the efficient portfolios are A, B, C and D, because at these points no other portfolio offer higher return. The ABCD line is the efficient frontier along which all attainable and efficient portfolios are available.



10.5. SHARPE MODEL

Sharpe has developed a simplified model to analyse the portfolio. He assumed that the return of a security is linearly related to a single index like the market index. Strictly speaking, the market index should consist of all the securities trading on the exchange. In the absence of it, a popular index can be treated as a surrogate for the market index. For example, even though BSE- sensex, BSE 100, and NSE -50 do not use all the scrip's prices to construct their indices, they can be used as surrogates. This would dispense the need for calculating

hundreds of co-variances. Any movement in security prices could be understood with the help of index movement.

10.5.1. Single Index Model: Casual observation of the stock prices over a period of time reveals that most of the stock prices move with the market index. When the Sensex increases, stock prices also tend to increase and vice-versa. This indicates that some underlying factors affect the market index as well as the stock prices. Stock prices are related to the market index and this relationship could be used to estimate the return on stock. Towards this purpose, the following equation can be used.

$R_i = \alpha_i + \beta_i R_m + e_i$

Where R_I - expected return on security i

α_i - intercept of the straight line or alpha co-efficient

β_i - slope of straight line or beta co-efficient

R_m - the rate of return on market index

e_I - error term

According to the equation, the return of a stock can be divided into two components, the return due to the market and the return independent of the market. β_i indicates the sensitiveness of the stock return to the changes in the market return. For example β_i of 1.5 means that stock return is expected to increase by 1.5% when the market index return increases by 1% and vice versa. Likewise, β_i of 0.5 expresses that the individual stock return would change by 0.5% when there is a change of 1 percent in the market return. β_i of 1 indicates that the market return and the security return are moving in tandem. The estimates of β_i and α_i are obtained from regression analysis. The single index model is based on the assumption that stocks vary together because of the common movement in the stock market and there are no effects beyond the market (i.e. any fundamental factor effects) that account the stocks co-movement. The expected return, standard deviation and co-variance of the single index model represent the joint movement of securities.

$$R_i = \alpha_i + \beta_i R_m + e_i$$

The variance of security's return, $\sigma^2 = \beta_i^2 \sigma_m^2 + \sigma_{ei}^2$

The covariance of returns between securities i and is

$\sigma_{ij} = \beta_i \beta_j \sigma^2_m$

The variance of the security has t components namely, systematic risk or market risk and unsystematic risk or unique risk. The variance explained by the index is referred to systematic risk. The unexplained variance is called residual variance or unsystematic risk. Systematic risk = β_i^2 x variance of market index.

$= \beta_i^2 \sigma_m^2$

Unsystematic risk = Total variance — Systematic risk.

$e_i^2 = \sigma_i^2$- systematic risk.

Thus, the total risk = Systematic risk + Unsystematic risk.

$'=\beta_i^2 \sigma_m^2 + e_i^2$

From this, the portfolio variance can be derived

σ^2 = variance of portfolio

σ_p^2 = expected variance of index

e_i^{2m} = variation in security's return not related to the market index

x_i = the portion of stock i in the portfolio

Likewise expected return on the portfolio also can be estimated. For each security α_I and β_I should be estimated. N

$$RP = \sum_{t=1}^{N} xi(ai + \beta_i R_m)$$

$$\sum_{i=1}^{N} x$$

Portfolio return is the weighted average of the estimated return for each security in the portfolio. The f weights are the respective stocks' proportionsin the portfolio.

A portfolio's alpha value is a weighted average of the alpha values for its component securities using the F proportion of the investment in a security as weight.

$$\sigma_p = \sum_{t=1}^{N} x_i \alpha_i$$

$$\sum_{i=1}^{N} x$$

σ_p - Value of the alpha for the portfolio

x_i - Proportion of the investment on security i

α_i - Value of alpha for security i

N - The number of securities in the portfolio

Similarly, a portfolio's beta value is the weighted average of the beta values of its component stocks using relative share of them in the portfolio as weights.

$$\sigma_p = \sum_{t=1}^{N} x_{ii}\beta_i.$$

β_p is the portfolio beta.

10.6. SHARPE'S OPTIMAL PORTFOLIO

Sharpe had provided a model for the selection of appropriate securities in a portfolio. The selection of any stock is directly related to its excess return-beta ratio.

$$\frac{R_i - R_f}{\beta_i}$$

Where,

R_i = the expected return on stock i ; R_f = the return on a riskless asset

β_i = the expected change in the rate of return on stock I associated with one unit change in the market return.

The excess return is the difference between the expected return on the stock and the riskless rate of interest such as the rate offered on the government security or treasury bill. The excess return to beta ratio measures the additional return on a security (excess of the riskless asset return) per unit of systematic risk or non-diversifiable risk. This ratio provides a relationship between potential risk and reward.

Ranking of the stocks are done on the basis of their excess return to beta. Portfolio managers would like to include stocks with higher ratios. The selection of the stocks depends on a unique cut-off rate such that all stocks with higher ratios of R.-R / B are included and the stocks with lower ratios are left off. The cut-off point is denoted by C*.

The steps for finding out the stocks to be included in the optimal portfolio are given below

1. Find out the "excess return to beta" ratio for each stock under consideration.
2. Rank them from the highest to the lowest.
3. Proceed to calculate C for all the stocks according to the ranked order using the following formula.

$$C_i \frac{\sigma_m^2 \sum_{i=1}^{N} \frac{(R_i - R_f)\beta_i}{\sigma_{ei}^2}}{1 + \sigma_m^2 \sum_{i=1}^{N} \frac{\beta_i^2}{\sigma_{ei}^2}}$$

σ_m^2 = variance of the market index

σ_{ei}^2 = variance of a stock's movement that is not associated with the movement of market index i.e. stock's unsystematic risk.

4. The cumulated values of C start declining after a particular C and that point is taken as the cut-off point and that stock ratio is the dut-off ratio C.

Security Number	Mean Return R_i	Excess Return $R_i - R_f$	Beta β	Unsystematic Risk σe_i^2	Excess Return to Beta $\frac{R_i - R_f}{\beta_i}$
1	19	14	1.0	20	14
2	23	18	1.5	30	12
3	11	6	0.5	10	12
4	25	20	2.0	40	10
5	13	8	1.0	20	8
6	9	4	0.5	50	8
7	14	9	1.5	30	6

This is explained with the help of an example.
Data for finding out the optimal portfolio are given below:

Security Number	$\frac{R_i - R_f}{\beta_i}$	$\frac{(R_i - Rf) \times \beta_i}{\sigma e_i^2}$	$\sum_{i=1} \frac{N (Ri-Rf) \beta i}{\sigma e_i^2}$	$\frac{\beta_i^2}{\sigma e_i^2}$	$\frac{\beta_i^2}{\sigma e_i^2}$	c_i
1	14	0.7	0.7	0.05	0.05	4.67
2	12	0.9	1.6	0.075	0.125	7.11
3	12	0.3	1.9	0.025	0.15	7.60
4	10	1.0	2.9	0.1	0.25	8.29
5	8	0.4	3.3	0.05	0.3	8.25
6	8	0.04	3.34	0.005	0.305	8.25
7	6	0.45	3.79	0.075	0.38	7.90

C calculations are given below For Security 1

$$C_1 = \frac{10 \times .7}{1 + (10 \times .05)} = 4.67$$

Here 0.7 is got from column 4 and 0.05 from column 6. Since the preliminary calculations are over, it is easy to calculate the C

$$C_2 = \frac{10 \times .1.6}{1 + (10 \times .125)} = 7.11$$

$$C_3 = \frac{10 \times 1.9}{1 + (10 \times .125)} = 7.11$$

$$C_4 = \frac{10 \times 2.9}{1 + (10 \times .25)} = 8.2$$

$$C_5 = \frac{10 \times 3.3}{1 + (10 \times .3)} = 8.25$$

$$C_6 = \frac{10 \times 3.34}{1 + (10 \times .305)} = 8.25$$

$$C_7 = \frac{10 \times 3.79}{1 + (10 \times .38)} = 7.90$$

The highest Ci. value is taken as the cutoff point i.e. C*. The stocks ranked above C*have high excess returns to beta than the cut-off C. and all the stocks ranked below C* have low excess returns to beta. Here, the cut-off rate is 8.29. Hence, the first four securities are selected. If the number of stocks is larger there is no need to calculate Ci values for all

The stocks after the ranking has been done. It can be calculated until the C* value is found and after calculating for one or two stocks below it, the calculations can be terminated.

The C_i can be stated with mathematically equivalent way.

$$C_i = \frac{\beta_{ip}(R_p - R_f)}{\beta_i}$$

β_{ip} - the expected change in the rate of return on stock i associated with 1 per cent change in the return on the optimal portfolio.

R_p - the expected return on the optimal portfolio

β_{ip} and R_p cannot be determined until the optimal portfolio is found. lb find out the optimal portfolio, the formula given previously should be used. Securities are added to the portfolio as long as

$$\frac{R_p - R_f >}{\beta_i} \quad C_i$$

The above equation can be rearranged with the substitution of equation:

$$C_i = \frac{\beta_{ip}\,(R_p - R_f)}{\beta_i}$$

Now we have,

$$R_i - R_f > \beta_{ip}(R_p - R_f)$$

The right hand side is the expected excess return on a particular stock based on the expected performance of the optimum portfolio. The term on the left hand side is the expected excess return on the individual stock. Thus, if the portfolio manager believes that a particular stock will perform better than the expected return based on its relationship to optimal portfolio, he would add the stock to the portfolio**.**

10.7. BEST MODERN DESIGN PORTFOLIOS OF 2021

Having a beautifully designed portfolio is a must for every web and graphic designer. It's the most important factor that helps to set yourself apart from the amateurs and show professionalism. Many professional designers try to come up with their own unique portfolio designs when showcasing their best work to win clients and promote their skills. In this post, we're featuring some of those unique and creative design portfolios we've seen around the web. If you're planning on making your own portfolio website or looking to upgrade your current design, check out these beautifully designed portfolio websites to find inspiration.

01. Ben Mingo: Ben Mingo is a graphic and interactive designer from California. He uses his portfolio quite well to showcase how good he really is. Ben takes an unusual approach to website user experience by replacing mouse wheel scrolling with a more interactive approach. Instead of using the mouse wheel, the users have to click and drag with their mouse to explore the website. This is actually a brilliant approach that improves the user experience on mobile devices. In addition, the entire website is also filled with stylish animations and transition effects as well.

02. Kuon Yagi: Kuon Yagi, Tokyo-based web and UX designer, has a killer portfolio full of animations and vibrant colors. Featuring a fully-interactive background, Kuon uses plenty of animations throughout his portfolio website. The carefully picked color palette of this website design is another reason we wanted to rank this site on top. One of the coolest features that make this portfolio stand out is its transition effects. Even the pages on this website open immediately without any loading delays.

03. Rachel Cheng: Rachel Cheng is a product designer from Toronto. Her portfolio website uses a minimalist design with a modern touch. After briefly introducing herself on the top half of the website, Rachel showcases her portfolio directly on the homepage using beautiful product mockups and CTA (call to action) buttons for learning more about each and every item. The best feature of Rachel's portfolio is its simplicity. There's no jargon-filled introductions or bragging. She quickly gets to the point and shows off her skills using the portfolio gallery on the website homepage.

04. Marco Marino: Italian UX and UI designer, Marco Marino also has an impressive portfolio website. Marco uses a static website with an animated background with no-scrolling. At first sight, you can tell Marco is a fan of minimalism. His website homepage includes less than 20 words. The feature that truly grabbed our attention was the portfolio page of Marco's website. The portfolio only shows the names of the projects he's worked on. Once you hover your mouse over an item, an image related to the project appears. Only when you click on a portfolio item it opens a page with more info.

05. Julie Bonnemoy: Julie is a freelance graphic designer from Amsterdam. Her portfolio website features a quirky design with a fun welcome message and an unusually animated background. But, it gets better once you start scrolling. Julie's website features an unusual design that also includes lots of transition animations. She also uses a water ripple effect on her image thumbnails that adds an interactive element to the user experience as well.

06. Jane Song: Jane Song is a designer from Georgia. She's currently working at MailChimp to craft beautiful marketing materials for the company. She also works on other projects on the side. Jane's portfolio website is quite simple and basic. Anyone who visits a design portfolio expects to see one thing, and that is lots of images. By showing all of her portfolio items on the homepage, Jane's website doesn't disappoint its audience.

07. Olivier Guilleux: Olivier is a freelance Word Press developer from France. As you can imagine, his portfolio website also gets powered by Word Press and he uses his own unique design for his website. Olivier seems to be a fan of vibrant colors and gradients, which you can clearly see all throughout his website. He also uses an animated background. The portfolio page of the website includes a scrolling gallery of Olivier's best works that shows a preview image when you hover over an item.

08. Daniel Polevoy: Daniel Polevoy is a product designer. His website uses a scrolling design that highlights his work by showcasing one item per each time you scroll down. Believe it or not, his website also gets powered by Word Press. Daniel's portfolio website is the perfect example of minimalism at its best. His website homepage doesn't include any giant headlines, titles, or words. It's just nothing but full screen images of his portfolio of work.

09. Eugene So: Rhode Island-based graphic designer, Eugene So also has a beautiful portfolio that uses a modern split-page design. Her website uses one half to showcase an image of her projects while the other half describe more info related to each project. Each item in her portfolio also opens up to view more details on the same window without any loading delays. It adds an effortless website browsing experience that enhances the user experience.

10. Stephen Calvillo: Stephen Calvillo is an experienced designer who's working at LinkedIn. He's worked on the platform's some of the major features, such as LinkedIn Elevate. Designers can learn a lot from his personal portfolio website. Stephen's website features a minimal design with a dark color theme. The homepage mainly highlights many different types of work Stephen has done while also showcasing his design style. The entire website gets powered by WordPress and it uses a smooth transition effect to open portfolio items with minimum load time.

11. Etienne Godiard: French graphic designer Etienne Godiard's portfolio is truly one of a kind. The Word Press-powered website uses a unique design that allows users to scroll through the portfolio items either up scrolling up and down. The entire website design is also highly interactive. Even when viewing each portfolio item, it showcases the projects as a gallery of images that responses to mouse movements. It works well on mobile view as well.

12. Martjin Snapper: Martjin is a designer from the Netherlands. His portfolio website features a simple one-page design that highlights his previous work. The website is limited to a brief introduction of himself and the work he does. Martjin has dedicated the rest of the space on his website for the portfolio gallery. The portfolio section features a beautifully styled gallery that nicely aligns with each previous image as you scroll down. Once you click on an item it quickly opens a new modal window that shows more information related to each project.

13. Karen Song: Karen Song is a visual and a user experience designer who's worked with many popular companies, including Microsoft and Ford. Yet her website features a minimal design that shows off her previous projects. Karen's website features a basic image gallery that shows a brief intro about each image when you hover over them. Every case study in the portfolio instantly opens when clicked without any loading delays.

14. Qaisar Ahmad: Qaisar Ahmad is an interaction designer from Pakistan. His website features a fixed design that only takes the top-half of the screen. When scrolling down, each item in his portfolio pops open with a smooth transition effect. The simple and minimal approach in this website design makes it easier for the viewers to explore and learn more about each portfolio project. To make the website even more user-friendly Qaisar also uses interactive elements across his website design as well.

15. Alex Coven: Graphic and web designer Alex Coven has a truly unique portfolio website. In addition to the smooth hamburger menu on the left-hand side, his website also uses smooth scrolling effects and animation. Much like many other design portfolios in our list, Alex also uses his portfolio to highlight his projects with full screen images and allows people to learn more about his work by directing them to a case study page using an animated button. Another thing you'll notice across his website design is the use of various colors, which actually goes along well with the overall design.

10.8 SUMMARY

The application of Markowitz's model requires estimation of large number of co-variances. And without having estimates of co-variances, one cannot compute the variance of portfolio returns. This makes the task of delineating efficient set extremely difficult.

However, William Sharpe's single-index model' simplifies the task to a great extent. Even with a large population of assets from which to select portfolios, the numbers of required estimates are amazingly less than what are required in Markowitz's model. But how accurate is the portfolio variance estimate as provided by the single-index model's simplified formula?

While the Markowitz's model makes no assumption regarding the source of the co-variances, the single-index model does so. Obviously, the accuracy of the latter model's formula for portfolio variance is as good as the accuracy of its underlying assumptions. Some

other portfolio selection models that seem to hold great promises to practical applications are also looked at here. Having a portfolio website will allow you to promote your services and skills as a professional and win more clients. If you don't have a portfolio website yet, now is the best time to build one. Thanks to Word Press, you can now build a portfolio site with just a few clicks. All you have to do is buy hosting, install Word Press, grab a cool theme, and setup the website. The process doesn't even require any coding or web design experience. So, what are you waiting for? Go build your portfolio and win new clients!

10.9 TECHNICAL TERMS

Single-Index Model: The primary model that relates the returns of individual assets or securities to the returns of a broad market index.

Beta (β): A measure of systematic risk, indicating the sensitivity of an asset's returns to changes in the market index. It is a key parameter in the Single-Index Model.

Excess Return: The return earned by an asset above the risk-free rate or a benchmark return, which is used in the Single-Index Model to calculate alpha and beta.

Market Index: Typically, a broad and representative stock market index like the S&P 500, used as a proxy for overall market performance.

Residual (Idiosyncratic) Risk: The risk that remains after accounting for systematic risk (captured by beta) in the Single-Index Model. It represents the unique risk associated with an individual asset.

Risk-Free Rate: The hypothetical return on a completely risk-free investment, often used as a benchmark for evaluating the risk and return of other investments.

Systematic Risk: The portion of an asset's risk that is related to overall market movements, as opposed to asset-specific factors. It is represented by beta in the Single-Index Model.

Efficient Frontier: A set of optimal portfolios that offer the highest expected return for a given level of risk, or the lowest risk for a given level of expected return, in the context of the Single-Index Model.

10.10 REVIEW QUESTIONS

1. Define the Markowitz diversifications explain the statistical method used by Markowitz to obtain the risk reducing benefit?
2. How do the utility curves differ for risk loving neutral and averse investors?
3. What are the simple diversification (a) will it reduce total risk (b) will it reduce unsystematic risk?
4. Explain the Sharpe index model? How does it differ from the Markowitz model?
5. Enumerate the steps involved in optimal portfolio.

10.11 SUGGESTED READING

1. Fischer and Jordan, *Security Analysis and Portfolio Management*, Prentice Hall.
2. Preeti Singh, *Investment Management*, Himalaya Publishing House, N Delhi.

3. Sauvain, Harry C., *Investment Management*, Englewood Cliffs, N.J., Prentice Hall,1973.
4. Shade, Phillip A., *Common Stocks: A Plan for Intelligent Investing*, Illinois, Irwin,1971.
5. Richard Lehman: Adjunct Finance Professor at Cal Poly, UCLA, and UC Berkeley (19 yrs), author of three investment books, Wall Street veteran, and founder of Informed Assets, PBC. Helping people understand the financial implications of climate change and alternative investments.
6. S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
7. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
8. J.C.Francis: Investments analysis and management
9. R.J Fuller and J.L.Farrel: Modern Investments and Security Analysis
10. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
11. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance

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LESSON 11
CAPITAL MARKET THEORY

OBJECTIVES

After studying this lesson, you will be able to:

- Discuss concepts of risk-free asset, risk free lending and borrowings
- Explain the Capital Asset Pricing Model
- Discuss Empirical Evidence on the Capital Asset Pricing Model
- Explain Arbitrage Pricing Theory
- Understand Capital Market Line and Identification of Market Portfolio

STRUCTURE

11.1 INTRODUCTION

CAPM: The **Capital Asset Pricing Model (CAPM)** estimates the expected return on an investment given its systematic risk. The cost of equity – i.e. the required rate of return for equity holders – is calculated using the CAPM. The term CAPM stands for "Capital Asset Pricing Model" and is used to measure the cost of equity (ke), or expected rate of return, on a particular security or portfolio. The CAPM formula is: Cost of Equity (Ke) = rf + β (Rm – Rf). CAPM establishes the relationship between the risk-return profile of a security (or portfolio) based on three variables: the risk-free rate (rf), the beta (β) of the underlying security, and the equity risk premium (ERP). CAPM calculates the cost of equity (Ke), or expected return, which is a core component of the weighted average cost of capital (WACC).

CAPM stands for Capital Asset Pricing Model. It is used to calculate the predicted rate of return of any risky asset. It compares the relationship between systematic risk and expected return. CAPM determines the fairest price for an investment, based on the risk, potential return and other factors. Advantages and disadvantages of capm -CAPM is a simple measure to provide an understanding of security volatility compared to the market. -It's also

good to note that Beta only considers systematic risk hence it provides the real picture of the risks involved.

William F. Sharpe and John Linter developed the Capital Asset Pricing Model (CAPM). The model is based on the portfolio theory developed by Harry Markowitz. The model emphasises the risk factor in portfolio theory is a combination of two risks, systematic risk and unsystematic risk. The model suggests that a security's return is directly related to its systematic risk, which cannot be neutralised through diversification. The combination of both types of risks stated above provides the total risk. The total variance of returns is equal to market related variance plus company's specific variance. CAPM explains the behaviour of security prices and provides a mechanism whereby investors could assess the impact of a proposed security investment on the overall portfolio risk and return. CAPM suggests that the prices of securities are determined in such a way that the risk premium or excess returns are proportional to systematic risk, which is indicated by the beta coefficient. The model is used for analysing the risk-return implications of holding securities. CAPM refers to the manner in which securities are valued in line with their anticipated risks and returns. A risk-averse investor prefers to invest in risk-free securities. For a small investor having few securities in his portfolio, the risk is greater. To reduce the unsystematic risk, he must build up well-diversified securities in his portfolio.

11.1.1. Benefits of CAPM: CAPM model of portfolio management can be effectively used to:

1. Investments in risky projects having real assets can be evaluated of its worth in view of expected return.
2. CAPM analyses the riskiness of increasing the levels of gearing and its impact on equity shareholders returns.
3. CAPM suggests the diversification of portfolio in minimisation of risk.

11.1.2. Limitations of CAPM: CAPM is criticised for the following reasons:

1. In real world, assumptions of CAPM will not hold good.
2. In practice, it is difficult to estimate the risk-free return, market rate of return, and risk premium.
3. Investors can estimate the required rate of return on a particular investment in companies securities.
4. CAPM is a single period model while most projects are often available only as large indivisible projects. It is, therefore, more difficult to adjust.

11.2. HOW DOES THE CAPITAL ASSET PRICING MODEL WORK?

The capital asset pricing model (CAPM) is a fundamental method in corporate finance used to determine the required rate of return on an investment given its risk profile. The CAPM establishes a relationship between the risk and expected return by an investor using three key variables: i) Risk-Free Rate (rf); ii) Beta (β) of the Underlying Asset (or Security); iii) Equity Risk Premium (ERP). Before delving into the core components of the capital asset pricing model (CAPM) theory, we'll quickly review the discount rate concept under the context of valuation. The discount rate represents the "hurdle rate" – i.e. the minimum rate of return – corresponding to the risk profile of an investment, which could refer to share issuances by a publicly-traded company or a proposed project that a corporation is under consideration on whether to proceed. To perform a cash flow-oriented valuation on a

company, the implied intrinsic value equals the sum of its future cash flows discounted to their present value (PV) using an appropriate discount rate. Under the specific context of equity investors, the discount rate that pertains solely to common shareholders is referred to as the "cost of equity," — which is the required rate of return to equity investors that the capital asset pricing model is used to calculate. The unlevered free cash flows, or free cash flow to firm (FCFF), is generated by a company and discounted using the weighted average cost of capital (WACC), whereas levered free cash flows or free cash flow to equity (FCFE) is discounted using the cost of equity (ke).

i. Free Cash Flow to Firm (FCFF) → Weighted Average Cost of Capital (WACC)
ii. Free Cash Flow to Equity (FCFE) → Cost of Equity (Ke)

But regardless of the type of cash flow being discounted, the cost of equity (ke) serves an integral role in either approach because it is an input in the WACC formula.

11.3. ASSUMPTIONS OF THE CAPM THEORY

Because the CAPM is a theory, we must assume for argument that:

a. All assets in the world are traded.
b. All assets are infinitely divisible.
c. All investors in the world collectively hold all assets.
d. For every borrower, there is a lender.
e. There is a riskless security in the world.
f. All investors borrow and lend at the riskless rate.
g. Everyone agrees on the inputs to the Mean-STD picture.
h. Preferences are well described by simple utility functions.
i. Security distributions are normal, or at least well described by two parameters.
j. There are only two periods of time in our world.

This is a long list of requirements, and together they describe the capitalist's ideal world. *Everything* may be bought and sold in perfectly liquid fractional amounts even human capital! There is a perfect, safe haven for risk-averse investors i.e. the riskless asset. This means that everyone is an equally good credit risk! No one has any informational advantage in the CAPM world. Everyone has already generously shared all of their knowledge about the future risk and return of the securities, so no one disagrees about expected returns. All customer preferences are an open book risk attitudes are well described by a simple utility function. There is no mystery about the shape of the future return distributions. Last but not least, decisions are not complicated by the ability to change your mind through time. You invest irrevocably at one point, and reap the rewards of your investment in the next period at which time you and the investment problem cease to exist. Terminal wealth is measured at that time i.e. he who dies with the most toys wins! The technical name for this setting is "A frictionless one-period, multi-asset economy with no asymmetric information."

11.4. FUNDAMENTAL DRIVERS

To explain the fundamental drivers, we'll briefly discuss each concept in more detail.

i) Systematic Risk → Often referred to as market risk, systematic risk is inherent to the entire equities market, as opposed to being specific to a particular company or industry. In

short, systematic risk is unavoidable and cannot be mitigated through portfolio diversification (e.g. global recessions).

ii) Unsystematic Risk → Unsystematic risk refers to the company-specific (or industry-specific) risk that can actually be reduced through portfolio diversification (e.g. supply chain shutdowns, lawsuits). The benefits of diversification become more profound if the portfolio contains investments in different asset classes, industries, and geographies.

The common source of criticism is most often related to beta, as many criticize it as a flawed measure of risk.

iii) Trailing-Basis → The standard procedure for estimating the beta of a company is through a regression model that compares the historical market index returns and company-specific returns, in which the slope of the regression line corresponds to the beta of the company's shares (the calculation is thus "backward-looking"). However, the past performance (and correlation) of a company relative to the market may not be an accurate indicator of future share price performance.

11.4. 1. **Investment Implications:** CAPM tells us that all investors will want to hold "capital weighted" portfolios of global wealth. In the 1960s when the CAPM was developed, this solution looked a lot like a portfolio that was already familiar to many people: the S&P500.

The S&P 500 is a capital-weighted portfolio of most of the US' largest stocks. At that time, the US was the world's largest market, and thus, it seemed to be a fair approximation to the 'cake.' Amazingly, the answer was right under our noses – the tangency portfolio must be something like the S&P 500 Not co-incidentally, widespread use of index funds began about this time. Index funds are mutual funds and/or money managers who simply match the performance of the S&P. Many institutions and individuals discovered the virtues of indexing. Trading costs were minimal in this strategy: capital-weighted portfolios automatically adjust to changes in value when stocks grow, so that investors need not change their weights all the time – it is a "buy-and-hold" portfolio. There was also little evidence at the time that active portfolio management beat the S&P index – so why not?

11.5. MODERN PORTFOLIO THEORY (MPT)

Under Modern Portfolio Theory (MPT), there are two core assumptions that underpin the capital asset pricing model (CAPM):

i) Competitive, Efficient Markets → The financial markets are competitive and efficient in terms of information collection, which impacts the pricing of securities in the markets – identifying mispricings in the market is becoming increasingly challenging.

ii) Rational Investors in Markets → The participants in the financial markets are assumed to be rational, risk-averse investors for the most part. The cost of equity (ke) is most commonly estimated using the capital asset pricing model (CAPM), which connects the expected return on security (or portfolio of securities) to its sensitivity to the broader market.

11.5.1. CAPM Formula: Per the capital asset pricing model (CAPM), the cost of equity – i.e. the expected return by common shareholders – is equal to the risk-free rate (rf) plus the product of beta and the equity risk premium (ERP). **Expected Return (Ke) = rf + β (rm –**

rf) Where: Ke → Cost of Equity (or Expected Return); rf → Risk-Free Rate; β → Beta; (rm – rf) → Equity Risk Premium (ERP)

11.5.2. CAPM Calculation Example: Suppose we're computing the cost of equity (ke) using the CAPM given the following set of assumptions: i) Risk-Free Rate (rf) = 3.0%; ii) Beta (β) = 0.8; iii) Expected Market Return (rm) = 10.0%; iv) Equity Risk Premium (ERP) = 10.0% – 3.0% = 7.0%. Next, by entering this into our formula, we get: Cost of Equity (Ke) = 3% + 0.8 (7.0%); Ke = 8.6%

11.5.3. Full-Form CAPM Equation: Expected Return (Ke) = rf + β (rm – rf): The capital asset pricing model (CAPM) equation is composed of three components:

1. Risk-Free Rate (rf) → The return received from risk-free investments — most often proxied by the 10-year treasury yield. Starting off, the risk-free rate (rf) should theoretically reflect the yield to maturity (YTM) of default-free government bonds of equivalent maturity to the duration of each cash flow being discounted. However, due to the lack of liquidity in government bonds with the longest maturities (i.e. less trade volume and data sets), the current yield on 10-year US treasury notes has become the standard proxy for the risk-free rate assumption for companies based in the US.

2. Beta (β) →The measurement of the volatility (i.e. systematic risk) of a security compared to the broader market (S&P 500). In corporate finance, beta (β) measures the systematic risk of a security compared to the broader market (i.e. non-diversifiable risk). The beta of an asset is calculated as the covariance between expected returns on the asset and the market, divided by the variance of expected returns on the market. The relationship between beta (β) and the expected market sensitivity is as follows: β = 0: No Market Sensitivity; β < 1: Low Market Sensitivity; β = 1: Same as Market (Neutral); β > 1: High Market Sensitivity; β < 0: Negative Market Sensitivity. For instance, a company with a beta of 1.0 would expect to see returns consistent with the overall stock market returns. So if the market has gone up by 10%, the company should also see a return of 10%. But if that company were to have a beta of 2.0, it would expect a return of 20%, assuming the market had gone up by 10%.

3. Equity Risk Premium (rm – rf) (ERP): The incremental return received from investing in the market (S&P 500) above the risk-free rate (rf, as described above). Our third input, the equity risk premium, or "market risk premium," measures the incremental risk (or excess return) of investing in equities over risk-free securities. Since investing in risky assets such as equities comes with additional risk (i.e. potential for loss of capital), the equity risk premium serves as additional compensation for investors to have an incentive to take on the risk. The equity risk premium has been around the 4% to 6% range, based on historical spreads between the S&P 500 returns over the yields on risk-free government bonds.

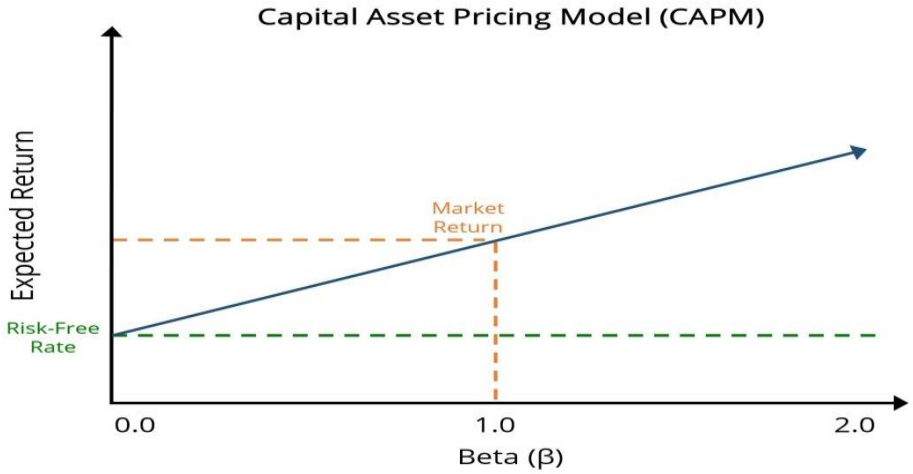
11.5.4. CAPM Model Assumptions

Suppose we have three companies that each shares the following assumptions: i) Risk-Free Rate (rf) = 2.5%, ii) Expected Market Return = 8.0% Since we're given the expected return on the market and risk-free rate, we can calculate the equity risk premium (ERP) for each of the three companies using the formula below:

i) Equity-Risk Premium (ERP) = 8.0% – 2.5% = 5.5%

11.5.5. CAPM Theory Graph: Expected Return vs. Beta (Systematic Risk):

The following graph of the capital asset pricing model (CAPM) illustrates the relationship between expected returns (y-axis) and beta (x-axis). **Green Dotted Line** → Risk-Free Rate (rf).**Orange Dotted Line** → Market Return. **Navy Line** → Security Market Line (SML); **X-Axis** → Beta (β), **Y-Axis** → Expected Return, E(R), or Cost of Equity (Ke); *Note: The market beta is equal to 1.0 here.* The difference between the yield earned on the risk-free rate and the market return represents the equity risk premium (ERP). If plotted on a chart, the capital asset pricing model (CAPM) depicts the relationship between the expected return and trade-off with regard to risk. The CAPM graph implies the expected returns (i.e. the y-axis) rise in tandem as more risk is undertaken by the investor (i.e. the x-axis), and vice versa.



11.5.6. Cost of Equity Calculation Example (ke): The difference in expected returns among the three companies will be attributable to the beta (i.e. systematic risk). i) Beta (β), Company A = 0.5, ii) Beta (β), Company B = 1.0, iii) Beta (β), Company C = 1.5. To calculate the cost of equity (Ke), we'll take the risk-free rate and add it to the product of beta and the equity risk premium, with the ERP calculated as the expected market return minus the risk-free rate.

For example, Company A's cost of equity can be calculated using the following equation:
i) Cost of Equity (Ke) = 2.5% + (0.5 × 5.5%) = 5.3%. Under the provided assumptions, the expected equity returns for the three companies come out to 5.3%, 8.0%, and 10.8%, respectively. ii) Cost of Equity (Ke), Company A = 5.3%. iii) Cost of Equity (Ke), Company B = 8.0%. iv) Cost of Equity (Ke), Company C = 10.8%

	A	B	C	D	E	F	G
1							
2		**Capital Asset Pricing Model (CAPM)**					
3		($ in millions)			Company A	Company B	Company C
4					Low Beta	Neutral Beta	High Beta
5							
6		Risk-Free Rate (r_f)			2.5%	2.5%	2.5%
7							
8		Beta (β)			0.5	1.0	1.5
9							
10		Expected Market Return (R_M)			8.0%	8.0%	8.0%
11		Equity Risk Premium (ERP)			5.5%	5.5%	5.5%
12							
13		**Cost of Equity (K_e)**			=E6+E8*E11	**8.0%**	**10.8%**
14							

11.6. CAPM ANALYSIS EXAMPLE

In the final section of our practice exercise, we'll review the core concepts covered in our illustrative cost of equity calculation using the capital asset pricing model (CAPM):

i) **Low Beta = Lower Potential Returns** → The lowest the potential returns (and risk) attributable to a particular investment, the lower the beta
ii) **Market Beta = 1.0** → The returns earned on a security with a beta of 1.0 will exhibit return in line with that of the broader market (S&P)
iii) **Higher Beta = Greater Potential Returns (and Risk)** → The company with the highest potential returns (and risk) has the highest beta

In conclusion, a company with a high beta implies increased risk and higher volatility relative to the overall market (i.e. greater sensitivity to market fluctuations). Therefore, a higher cost of equity would be used by investors to discount the future cash flows generated by the company, causing a reduction to the implied valuation, all else being equal.

	A	B	C	D	E	F	G
1							
2		**Capital Asset Pricing Model (CAPM)**					
3		($ in millions)			Company A	Company B	Company C
4					Low Beta	Neutral Beta	High Beta
5							
6		Risk-Free Rate (r_f)			2.5%	2.5%	2.5%
7							
8		Beta (β)			0.5	1.0	1.5
9							
10		Expected Market Return (R_M)			8.0%	8.0%	8.0%
11		Equity Risk Premium (ERP)			5.5%	5.5%	5.5%
12							
13		**Cost of Equity (K_e)**			**5.3%**	**8.0%**	**10.8%**
14							

The asset return depends on the amount for the asset today. The price paid must ensure that the market portfolio's risk/return characteristics improve when the asset is added to it. The CAPM is a model, which derives the theoretical required return (i.e. discount rate) for an asset in a market, given the risk-free rate available to investors and the risk of the market as a whole. The CAPM is usually expressed:

$$E(R_i) = R_f + \beta_i (E(R_m) - R_f)$$

Notes: (Beta), is the measure of asset sensitivity to a movement in the overall market Beta is usually found via regression on historical data. Betas exceeding one signify more than average "riskiness"; betas below one indicate lower than average. E(Rm) – (Rf) is the market premium, the historically observed excess return of the market over the risk-free rate. Once the expected return, E(ri), is calculated using CAPM, the future cash flows of the asset can be discounted to their present value using this rate to establish the correct price for the asset.

(*Hereaga in, the theory accepts in its assumptions that a parameter based on past data can be combined with a future expectation.*). A more risky stock will have a higher beta and will be discounted at a higher rate; less sensitive stocks will have lower betas and be discounted at a lower rate. In theory, an asset is correctly priced when its observed price is the same as its value calculated using the CAPM derived discount rate. If the observed price is higher than the valuation, then the asset is overvalued; it is undervalued for a too low price.

11.6.1. Mathematically: (a) The incremental impact on risk and return when an additional risky asset, a, is added to the market portfolio, m, follows from the formulae for a two-asset portfolio.

These results are used to derive the asset appropriate discount rate.

$$\text{Risk} = (w_m^2\sigma_m^2 + [w_a^2\sigma_a^2 + 2w_m w_a \rho_{am}\sigma_a\sigma_m])$$

$$\text{Hence, risk added to portfolio} = [w_a^2\sigma_a^2 + 2w_m\rho_{am}\sigma_a\sigma_m]$$

But, since the weight of the asset will be relatively low, $w_a^2 \approx 0$

i.e. additional risk = $[2w_m w_a \rho_{am}\sigma_a\sigma_m]$

Return = $(w_m E(R_m) + [w_a E(R_a)])$

Hence additional return = $[w_a E(R_a)]$

(b) If an asset, a, is correctly priced, the improvement in risk to return achieved by adding it to the market portfolio, m, will at least match the gains of spending that money on an increased stake in the market portfolio. The assumption is that the investor will purchase the asset with funds borrowed at the risk-free rate, R_f; this is rational if $E(R_a) > R_f$.

Thus

$[w_a(E(R_a) - R_f)]/[2w_m w_a \rho_{am}\sigma_a\sigma_m] = [w_a(E(R_m) - R_f)]/[2w_m w_a \sigma_m\sigma_m]$

i.e. : $[E(R_a)] = R_f + [E(R_m) - R_f] * [\rho_{am}\sigma_a\sigma_m]/[\sigma_m\sigma_m]$

i.e. : $[E(R_a)] = R_f + [E(R_m) - R_f] * [\sigma_{am}]/[\sigma_{mm}]$

$[\sigma_{am}]/[\sigma_{mm}]$ is the "beta", β — the covariance between the asset and the market compared to the variance of the market, i.e. the sensitivity of the asset price to movement in the market portfolio.

11.6.2. ***Is the CAPM true?*** Any theory is only strictly valid if its assumptions are true. There are a few nettlesome issues that call into question the validity of the CAPM: (a) is the world in equilibrium? (b) Do you hold the value-weighted world wealth portfolio? (c) Can you even come close? (d) What about "human capital?" While these problems may violate the letter of the law, perhaps the spirit of the CAPM is correct. That is, the theory may be a good prescription for investment policy. It tells investors to choose a very reasonable, diversified and low cost portfolio. It also moves them into global assets, i.e. towards investments that are not too correlated with their personal human capital. In fact, even if the CAPM is approximately correct, it will have a major impact upon how investors regard individual securities. Why?

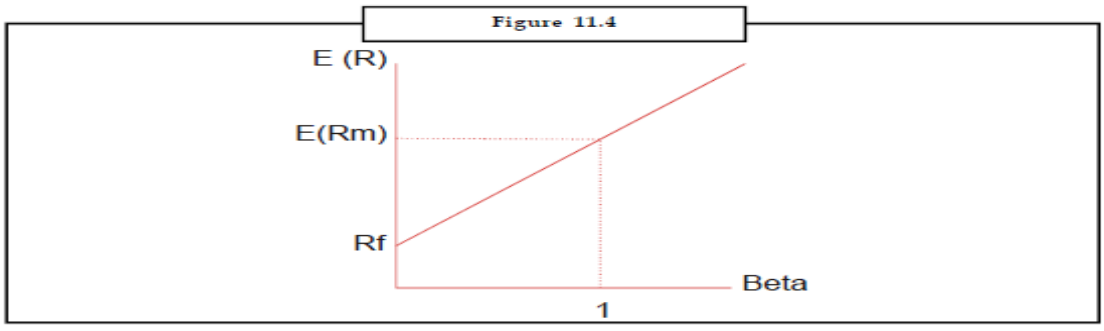
11.7. SECURITY MARKET LINE (SML)

The CAPM equation describes a linear relationship between risk and return. Risk, in this case, is measured by beta. We may plot this line in mean and ß space: The Security Market Line (SML) expresses the basic theme of the CAPM i.e., expected return of a security increases linearly with risk, as measured by 'beta'. The SML is an upward sloping straight line with an intercept at the risk-free return securities and passes through the market portfolio.

The upward slope of the line indicates that greater excepted returns accompany higher levels of beta. In equilibrium, each security or portfolio lies on the SML. The next figure shows that the return Expected from portfolio or investment is a combination of risk free return plus risk premium. An investor will come forward to take risk only if the return on investment also includes risk premium. CAPM provides an intuitive approach for thinking about the return that an investor should require on an investment, given the assessed systematic or market risk.

One remarkable fact that comes from the linearity of this equation is that we can obtain the beta of a *portfolio* of assets by simply multiplying the betas of the assets by their portfolio weights. For instance, the beta of a 50/50 portfolio of two assets, one with a beta of .8 and the other with a beta of 1 is .9. The line also extends out infinitely to the right, implying that you can borrow infinite amounts to lever up your portfolio.

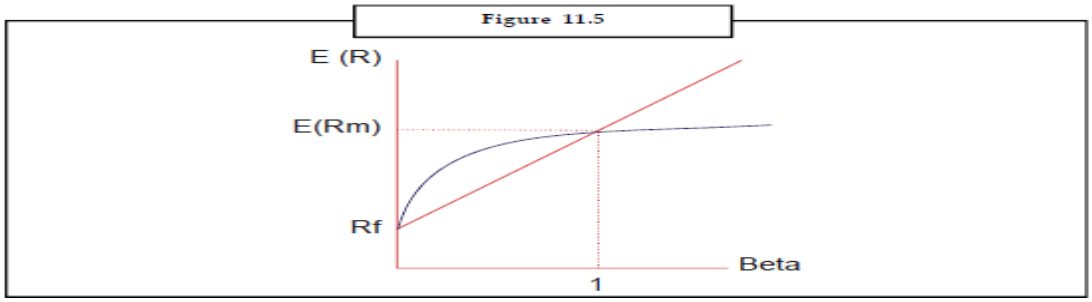
Figure 11.4



Why is the line straight? Well, suppose it curved, as the blue line does in the figure below. The figure shows what could happen. An investor could borrow at the riskless rate and invest in the market portfolio. Any investment of this type would provide a higher expected return than a security, which lies on the curved line below. In other words, the investor could receive a higher expected return for the same level of systematic risk. In fact, if the security on the curve could be sold short, then the investor could take the proceeds from

the short sale and enter into the levered market position generating an arbitrage in expectation.

Figure 11.5



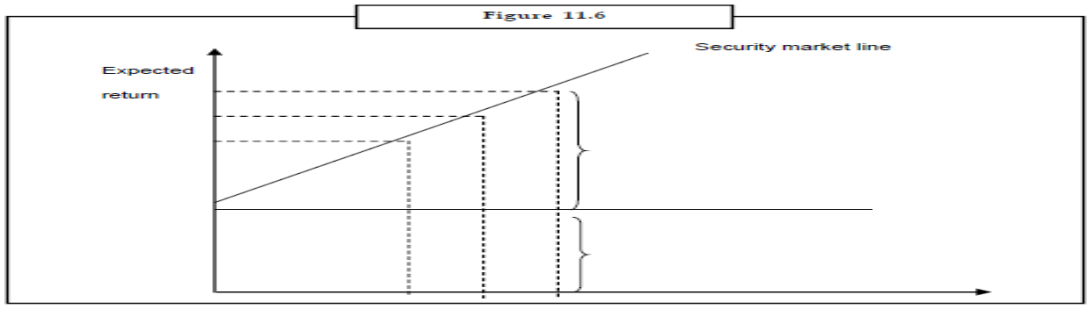
1. ***Expectations vs. Realizations:*** It is important to stress that the vertical dimension in the security market line picture is *expected* return. Things rarely turn out the way you expect. However, the CAPM equation also tells us about the *realized* rate of return. Since the realization is just the expectation plus random error, we can write:

This is useful, because it tells us that when we look at past returns, they will typically deviate from the security market line – not because the CAPM is wrong, but because random

$$R_i = R_f + \beta_i [R_m - R_f] + e_i$$

error will push the returns off the line. Notice that the realized Rm does not have to behave as expected, either. So, even the slope of the security market line will deviate from the average equity risk premium. Sometimes it will even be negative!

Figure 11.6



(R_m)
Risk premium
Risk free return
O 0.5 1.0 1.5 Risk (beta)

2. ***Security Market Line:*** CAPM shows the risk and return relationship of an investment in the formula given below:

$$E(R_i) = R_f + \beta_i (R_m - R_f)$$

Where,

$E(R_i)$ = Expected rate of return on any individual security (or portfolio of securities)

R_f = Risk free rate of return

R_m = Expected rate of return on the market portfolio

$R_m - R_f$ = Risk premium

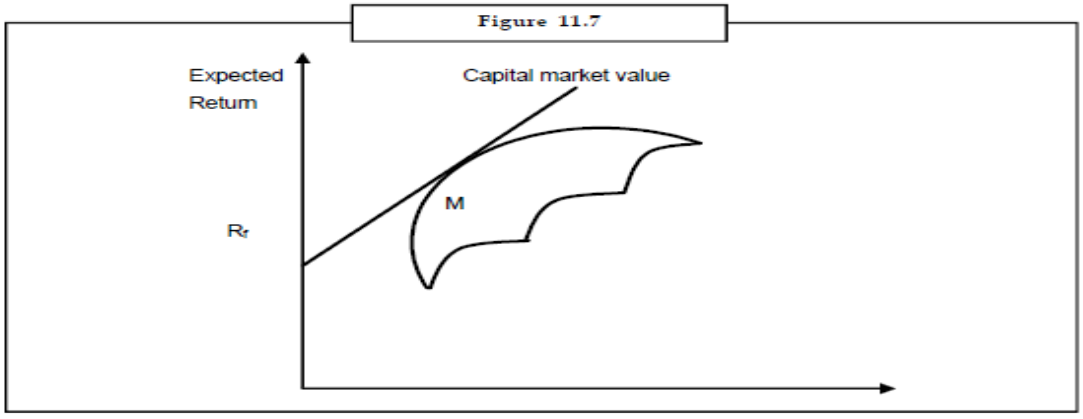
β_i = Market sensitivity index of individual security (or portfolio of securities)

11.8. CAPITAL MARKET LINE (CML)

The Markowitz mean-variance model is modified by introducing into the analysis the concept of risk-free asset. If it is assumed that the investor has access to risk-free securities (for example, Treasury bills) in addition to the universe of risky securities, then he can construct a new set of portfolios as depicted by the line R_fM. At point Rf the investor is investing all his investible fund in risk-free securities, whilst at point M he is holding an all-equity portfolio.

The combination of risk-free investment and risky investments in portfolio which may be achieved by points between these two limits are termed 'lending portfolios.' Let us now assume that the investor **can** lend and borrow funds at the same risk-free interest rate. In such circumstances the efficiency boundary simply becomes the straight line drawn from Rf that is a tangent to the original risky portfolio efficiency boundary. The efficiency boundary that arises out of this assumption of the identical risk-free lending and borrowing rates leads to some very important conclusions and is termed as 'Capital Market Line' (CML).

Figure 11.7



Example: Dummy Ltd., an investment company, has invested in equity shares of a blue chip company. It's risk-free rate of return (R_f) = 10%, Expected total return (R_m) = 16%, Market sensitivity index (β) = 1.50, (of individual security)
Calculate the expected rate of return on the investment make in the security.

Solution:
Total expected return (R_m) = 16%
Risk free return (R_f) = 10%
Risk premium ($R_m - R_f$) = 6%
$E(R_i) = R_f + \beta_i (R_m - R_f)$
$= 10 + 1.50 (16 - 10) = 19\%$
Example: Mr. Rakesh provides you following information compute expected return by using CAPM
Rm = 16% Rf = 9% i = 0.8%

Solution:
The expected return on portfolio
E(R1) = Rf + i (Rm – Rf)= 9 + 0.8 (16 – 9) = 14.6%
Example: The rates of return on the security of Company Wipro and market portfolio for 10 periods are given below:

Period	Return of Security Wipro (%) (x)	Return on market portfolio (%) (y)
1	20	22
2	22	20
3	25	18
4	21	16
5	18	20
6	-5	8
7	17	-6
8	19	5
9	-7	6
10	20	11

1. What is the beta of Security Wipro?
2. What is the characteristic line for Security Wipro?

1. Let us assume that Market is y and Security Wipro is x

Period	R_x	R_m	$(R_x - \bar{R}_x)$	$(R_m - \bar{R}_m)$	$(R_x - \bar{R}_x)(R_m - \bar{R}_m)$	$(R_m - \bar{R}_m)^2$
1	20	22	5	10	50	100
2	22	20	7	8	56	64
3	25	18	10	6	60	36
4	21	16	6	4	24	16
5	18	20	3	8	24	64
6	–5	8	–20	–4	80	16
7	17	-6	2	–18	–36	324
8	19	5	4	-7	–28	49
9	–7	6	–22	–6	132	36
10	20	11	5	–1	–5	1
	150	120	120		357	706
	ΣR_x	ΣR_m			$\Sigma (R_x - \bar{R}_x)(R_m - \bar{R}_m)$	$\Sigma(R_m - \bar{R}_m)$

$$\bar{R}_x = 15,\ \bar{R}_m = 12$$

$$\sigma^2_m = \frac{\sum (R_m - \bar{R}_m)^2}{n-1} = \frac{706}{9} = 78.44$$

$$\text{Cov} = \frac{\sum (R_x - \bar{R}_x) - (R_m - \bar{R}_m)}{n-1} = \frac{357}{9} = 39.67$$

$$\beta = \frac{\text{Cov}_{xm}}{\sigma^2_m} = \frac{39.67}{78.44} = 0.506$$

2. $Y = 15 x = 12$

$Y = \alpha + \beta x$

$15 = \alpha + (0.506 \times 12)$

$\alpha = 15 - (0.506 \times 12) = 8.928\%$

Characteristic Line for Security X = $\alpha + (\beta \times R_m)$

Where R_m = Expected return on market index

∴ Characteristic Line for Security X = $8.928 + 0.506\ R_m$

11.9. ARBITRAGE PRICING MODEL

The Arbitrage Pricing Model (APM) looks very similar to the CAPM, but its origins are significantly different. Whereas the CAPM is a single-factor model, the APM is a multi-factor model instead of just a single beta value; there is a whole set of beta values – one for each factor. Arbitrage Pricing Theory, out of which the APM arises, states that the expected return on an investment is dependent upon how that investment reacts to a set of individual macro-economic factors (the degree of reaction being measured by the betas) and the risk premium associated with each of those macro-economic factors. The APM, which was developed by Ross (1976),holds that there are four factors, which explain the risk/risk premium relationship of a particular security.

Basically, CAPM says that:

$$E(Ri) = Rf + i\ (Rm - Rf),$$

Where, λ is the average risk premium = Rm – Rf

However, APM holds that:

$$E(R_i) = R_f + \lambda_1\beta_{i1} + \lambda_2\beta_{i2} + \lambda_3\beta_{i3} + \lambda_4\beta_{i4}$$

Where,

$\lambda_1, \lambda_2, \lambda_3$, and λ_4 the average risk premium for each of the four factors in the model and $\beta_{i1}, \beta_{i2}, \beta_{i3}$ and β_{i4} are measures of the sensitivity of the particular security 'i' to each of the four factors.

Several factors appear to have been identified as being important (some of which, such as inflation and money supply, industrial production and personal consumption, do have aspects of being inter-related). In particular, researchers have identified:

1. Changes in the level of industrial production in the economy
2. Changes in the shape of the yield curve
3. Changes in the default risk premium (i.e., changes in the return required on bonds\different perceived risks of default)
4. Changes in the inflation rate
5. Changes in the real interest rate
6. Level of personal consumption
7. Level of money supply in the economy

Solution:

1. Calculation of Expected Rate of Return on Market Portfolio

Investments	Amount Invested (₹)	Dividends (₹)	Capital Gains (₹)
A. Equity shares of			
Cement Ltd.	25	2	25
Steel Ltd.	35	2	25
Liquor Ltd.	45	2	90
B. Government of India bonds	1,000	140	5
	1,105	146	145

You are required to calculate:

1. Expected rate of returns of portfolio in each using Capital Asset Pricing Model(CAPM)
2. Average return of portfolio

Expected Rate of Return on Market Portfolio

$$\frac{\text{Dividends earned + Capital appreciation}}{\text{Initial investment}} \times 100 = \frac{146+145}{1,105} \times 100 = 26.33\%$$

Now we can calculate the expected rate of return on individual portfolio, by applying CAPM.

$$E(R_i) = R_f + \beta_i (R_m - R_f)$$

Cement Ltd. $= 14 + 0.8\ (26.33 - 14) = 23.86\%$

Steel Ltd. $= 14 + 0.7\ (26.33 - 14) = 22.63\%$

Liquor Ltd. $= 14 + 0.5\ (26.33 - 14) = 20.17\%$

Govt. of India bonds $= 14 + 0.99\ (26.33 - 14) = 26.21\%$

2. Average Return of the Portfolio $= \frac{23.86 + 22.63 + 20.17 + 26.21}{4} = 23.22\%$

The average return is also calculated by finding out the average of beta factors of all securities in the portfolio.

Average of betas $= \frac{0.8 + 0.7 + 0.5 + 0.99}{4} = 0.7475$

Average return $= 14 + 0.7475\ (26.33 - 14) = 23.22\%$

Example: The market portfolio has a historically based expected return of 0.095 and a standard deviation of 0.035 during a period when risk-free assets yielded 0.025. The 0.06 risk premium is thought to be constant through time. Riskless investments may now be

Purchased to yield 0.08. A security has a standard deviation of 0.07 and a 0.75 correlation with the market portfolio. The market portfolio is now expected to have a standard deviation of 0.035.

Find out the following:
1. Market's return-risk trade-off,
2. Security beta,
3. Equilibrium required expected return of the security.

Solution:

1. Calculation of Market's Return-risk Trade-off

$$\frac{(R_m - R_f)}{\sigma} = \frac{0.095 - 0.025}{0.035} = 2$$

2. Calculation of Security Beta

$$\beta_i = \frac{\sigma_i}{\sigma_m} \times r_m = \frac{0.07}{0.035} \times 0.75 = 1.5$$

3. Calculation of equilibrium required for Expected Rate of Return on the Security

$$E(R_i) = R_f + \beta_i (R_m - R_f)$$
$$= 8 + 1.5\ (6) - 17\%$$

11.10. ARBITRAGE PRICING THEORY (APT)

Arbitrage Pricing Theory (APT) in finance is a general theory of asset pricing, which has become influential in the pricing of shares.APT holds that the expected return of a financial asset can be modelled as a linear function of various macro-economic factors or theoretical market indices, where sensitivity to changes in each factor is represented by a factor specific beta coefficient. The model-derived rate of return will then be used to price the asset correctly – the asset price should equal the expected end-of period- price discounted at the rate implied by model. If the price diverges, arbitrage should bring it back into line. The theory was initiated by the economist Stephen Ross in 1976.

1. ***The APT Model:*** If APT holds, then a risky asset can be described as satisfying the following relation:

$$E(r_j) = r_j + b_{j1}RP_1 + b_{j2}RP_2 + \ldots + b_{jn}RP_n$$

$$r_j = E(r_j) + b_{j1}F_1 + b_{j2}F_2 + \ldots + b_{jn}F_n + \epsilon_j$$

where

$E(r_j)$ is the risky asset's expected return,

RP_k is the risk premium of the factor,

r_f is the Risk-free

F_k is the macroeconomic factor,

b_{jk} is the sensitivity of the asset to factor k, also called factor loading,

ε_j is the risky asset's idiosyncratic random stock with mean zero.

Arbitrage and the APT: Arbitrage is the practice of taking advantage of a state of imbalance between two (or possibly more) markets and thereby making a risk-free profit, rational Pricing.

Arbitrage in Expectations: The APT describes the mechanism whereby arbitrage by investors will bring an asset that is mispriced, according to the APT model, back into line with its *expected* price. Note that under true arbitrage, the investor locks-in a *guaranteed* payoff, whereas under APT arbitrage as described below, the investor locks-in a positive *expected* payoff. The APT, thus, assumes "arbitrage in expectations" – i.e. that arbitrage by investors will bring asset prices back into line with the returns expected by the model portfolio theory.

Arbitrage Mechanics: In the APT context, arbitrage consists of trading in two assets – with at least one being mispriced. The arbitrageur sells the asset that is relatively too expensive and uses the proceeds to buy one which is relatively too cheap. Under the APT, an asset is mispriced if its current price diverges from the price predicted by the model. The asset price today should equal the sum of all future cash flows discounted at the APT rate, where the expected return of the asset is a linear function of various factors, and sensitivity to changes in each factor is represented by a factor-specific beta coefficient.

A correctly priced asset here may be in fact a *synthetic* asset – a *portfolio* consisting of other correctly priced assets. This portfolio has the same exposure to each of the macroeconomic factors as the mispriced asset. The arbitrageur creates the portfolio by identifying x correctly priced assets (one per factor plus one) and then weighting the assets such that portfolio beta per factor is the same as for the mispriced asset. When the investor is long the asset and short the portfolio (or vice versa) he has created a position which has a positive expected return (the difference between asset return and portfolio return) and which has a net-zero exposure to any macroeconomic factor and is, therefore, risk free (other than for firm specific risk). The arbitrageur is thus in a position to make a risk free profit:

2. ***Where today's price is too low:*** The implication is that at the end of the period the *portfolio* would have appreciated at the rate implied by the APT, whereas the mispriced asset would have appreciated at *more* than this rate. The arbitrageur could therefore:

Today: (a) Short-sell the *portfolio* (b) Buy the mispriced-asset with the proceeds.
(c) At the end of the period: (i) Sell the mispriced asset (ii) Use the proceeds to buy back the *portfolio* (iii) Pocket the difference.

3. ***Where today's price is too high:*** The implication is that at the end of the period the *portfolio* would have appreciated at the rate implied by the APT, whereas the mispriced asset would have appreciated at *less* than this rate. The arbitrageur could therefore:

Today: (a) Short sell the mispriced-asset
(b) Buy the *portfolio* with the proceeds
(c) At the end of the period:
(i) Sell the *portfolio* (ii) Use the proceeds to buy back the mispriced-asset
(iii) Pocket the difference

4. ***Relationship with the Capital Asset Pricing Model:*** The APT along with the CAPM is one of two influential theories on asset pricing. The APT differs from the CAPM in that it is less restrictive in its assumptions. It allows for an explanatory (as opposed to statistical) model of asset returns. It assumes that each investor will hold a unique portfolio with its own particular array of betas, as opposed to the identical "market portfolio." In some ways, the CAPM can be considered a "special case" of the APT in that the securities market liner presents a single-factor model of the asset price, where Beta is exposure to changes in of the market.

Additionally, the APT can be seen as a "supply side" model, since its beta coefficients reflect the sensitivity of the underlying asset to economic factors. Thus, factor shocks would cause structural changes in the asset's expected return, or in the case of stocks, in the firm's profitability.

On the other side, the capital asset pricing model is considered a "demand side" model. Its results, although similar to those in the APT, arise from a maximization problem of each investor's utility function, and from the resulting market equilibrium (investors are considered to be the "consumers" of the assets).

11.11. SUMMARY

CAPM explains the behavior of security prices and provides a mechanism whereby investors could assess the impact of a proposed security investment on the overall portfolio risk and return. CAPM suggests that the prices of securities are determined in such a way that the risk premium or excess returns are proportional to systematic risk, which is indicated by the beta coefficient. The model is used for analysing the risk-return implications of holding securities. CAPM refers to the way in which securities are valued in line with their anticipated risks and returns. CAPM tells us that all investors will want to hold "capital-weighted" portfolios of global wealth. The CAPM equation describes a linear relationship between risk and return.

Risk, in this case, is measured by beta. We may plot this line in mean and space: The Security Market Line (SML) expresses the basic theme of the CAPM, i.e., expected return of a security increases linearly with risk, as measured by 'beta'. The SML is an upward sloping straight line with an intercept at the risk-free return securities and passes through the market portfolio. Since a rational investor would hold the market portfolio, the asset in question will be added to the market portfolio. MPT derives the required return for a correctly priced asset

in this context. Beta coefficient is a measure of the volatility of stock price in relation to movement in stock index of the market; therefore, beta is the index of systematic risk. The model-derived rate of return will then be used to price the asset correctly – the asset price should equal the expected end of period price discounted at the rate implied by model. The APT differs from the CAPM in that it is less restrictive in its assumptions. It allows for an explanatory (as opposed to statistical) model of asset returns. It assumes that each investor will hold a unique portfolio with its own particular array of betas, as opposed to the identical "market portfolio".

11.12. TECHNICAL TERMS

Arbitrage: The practice of taking advantage of a state of imbalance between two (or possibly more) markets and thereby making a risk-free profit, Rational Pricing.

Beta: The measure of asset sensitivity to a movement in the overall market.

CAPM: A model that explains relative security prices in terms of a security's contribution to the risk of the whole portfolio, not its individual standard deviation.

Security Characteristic Line (SCL): It represents the relationship between the market return (r_m) and the return of a given asset i(ri) at a given time t.

11.13. REVIEW QUESTIONS NOTES

1. Examine the concept of the Beta factor of a market portfolio.
2. What do you analyse as the benefits and limitations of CAPM.
3. Do you think that the assumptions of CAPM are practical? Why/why not?
4. Critically evaluate Arbitrage Pricing Model.
5. What do you see as the difference between arbitrage and the APT?
6. As an investor, how do you use the APT?
7. Examine the concept of Efficient Frontier.
8. What are the Assumptions of the CAPM Theory?

11.14. SUGGESTED READINGS

1. *Books* Cleeton, Cloud E, *Strategies for the Options Traders*, NY, John Wiley.
2. Francis J.C. and Archer, S.H., *Portfolio Analysis*, Englewood Cliffs, NJ, PrenticeHall.
3. Mayo, Herbert B., *Basic Investments*, The Dryden Press; Hinsdale.
4. Meredith, G.G., *Capital Investment Decisions*, NY, Harper & Row.
5. S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
6. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
7. J.C.Francis: Investments analysis and management
8. R.J Fuller and J.L.Farrel: Modern Investments and Security Analysis
9. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
10. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance

Dr. S. Srinivasa Rao

LESSON 12
EFFICIENT MARKET HYPOTHESES

OBJECTIVES

After studying this lesson, you will be able to:

- Discuss forms of the Efficient Market Theory
- Explain the concept of weak form and random walk, semi-strong form.
- Describe strong form efficient market hypothesis.
- Discuss implications of efficient market hypothesis
- Understand efficient market theory and appraisal.

STRUCTURE

12.1 INTRODUCTION

The efficient market hypothesis (EMH), alternatively known as the efficient market theory, is a hypothesis that states that share prices reflect all information and consistent alpha generation is impossible. Such adaptations imply that, although the wisdom of crowds implied by the EMH governs over extended periods, it does not govern at every point in time.

He referred to this characteristic as the "adaptive market hypothesis." The efficient market hypothesis begins with Eugene Fama, a University of Chicago professor and Nobel Prize winner who is regarded as the father of modern finance. In 1970, In the competitive limit, market prices reflect all available information and prices can only move in response to news.

Thus there is a very close link between EMH and the random walk hypothesis. The efficient-market hypothesis emerged as a prominent theory in the mid-1960s. An efficient capital market is one in which security prices adjust rapidly to the arrival of new information and, therefore, the current prices of securities reflect all information about the security. Some of the most interesting and important academic researches during the past 20 years have

analyzed whether our capital markets are efficient or not. This extensive research is important because its results have significant real-world implications for investors and portfolio managers. In addition, the question of whether capital markets are efficient is one of the most controversial areas in investment research. Recently, a new dimension has been added to the controversy because of the rapidly expanding research in behavioral finance that likewise has major implications regarding the concept of efficient capital markets. You need to understand the meaning of the terms efficient capital markets and efficient market hypothesis (EMH) because of its importance and controversy associated with it. You should understand the analysis performed to test the EMH and the results of studies that either support or contradict the hypothesis. Finally, you should be aware of the implications of these results when you analyze alternative investments and work to construct a portfolio.

12.2. UNDERSTANDING THE EFFICIENT MARKET HYPOTHESIS (EMH):

Although it is a cornerstone of modern financial theory, the EMH is highly controversial and often disputed. Believers argue it is pointless to search for undervalued stocks or to try to predict trends in the market through either fundamental or technical analysis. Theoretically, neither technical nor fundamental analysis can produce risk-adjusted excess returns (alpha) consistently, and only inside information can result in outsized risk-adjusted returns. While academics point to a large body of evidence in support of EMH, an equal amount of dissension also exists. For example, investors such as Warren Buffett have consistently beaten the market over long periods, which by definition is impossible according to the EMH. Detractors of the EMH also point to events such as the 1987 stock market crash, when the Dow Jones Industrial Average (DJIA) fell by over 20% in a single day, and asset bubbles as evidence that stock prices can seriously deviate from their fair values. The assumption that markets are efficient is a cornerstone of modern financial economics—one that has come under question in practice.

12.2.1. Special Considerations: Proponents of the Efficient Market Hypothesis conclude that, because of the randomness of the market, investors could do better by investing in a low-cost, passive portfolio. Data compiled by Morningstar Inc., in its June 2019 Active/Passive Barometer study, supports the EMH. Morningstar compared active managers' returns in all categories against a composite made of related index funds and exchange-traded funds (ETFs). The study found that over a 10 year period beginning June 2009, only 23% of active managers were able to outperform their passive peers. Better success rates were found in foreign equity funds and bond funds. Lower success rates were found in US large-cap funds. In general, investors have fared better by investing in low-cost index funds or ETFs.

While a percentage of active managers do outperform passive funds at some point, the challenge for investors is being able to identify which ones will do so over the long term. Less than 25 percent of the top-performing active managers can consistently outperform their passive manager counterparts over time.

12.2.2. Can Markets Be Inefficient? There are certainly some markets that are less efficient than others. An inefficient market is one in which an asset's prices do not accurately reflect its true value, which may occur for several reasons. Market inefficiencies may exist due to information asymmetries, a lack of buyers and sellers (i.e. low liquidity), high transaction costs or delays, market psychology, and human emotion, among other reasons.

Inefficiencies often lead to deadweight losses. In reality, most markets do display some level of inefficiencies, and in the extreme case an inefficient market can be an example of a market failure. Accepting the EMH in its purest (strong) form may be difficult as it states However, modifications of EMH exist to reflect the degree to which it can be applied to markets:

i. **Semi-strong efficiency** - This form of EMH implies all public (but not non-public) information is calculated into a stock's current share price. Neither fundamental nor technical analysis can be used to achieve superior gains.
ii. **Weak efficiency** - This type of EMH claims that all past prices of a stock are reflected in today's stock price. Therefore, technical analysis cannot be used to predict and beat the market.

12.2.3. What Can Make a Market More Efficient? The more participants are engaged in a market, the more efficient it will become as more people compete and bring more and different types of information to bear on the price. As markets become more active and liquid, arbitrageurs will also emerge, profiting by correcting small inefficiencies whenever they might arise and quickly restoring efficiency.

12.2.4. Why should Capital Markets be Efficient? As noted earlier, in an efficient capital market, security prices adjust rapidly to the infusion of new information, and, therefore, current security prices fully reflect all available information. To be absolutely correct, this is referred to as an information ally efficient market. Although the idea of an efficient capital market is relatively straightforward, we fail to consider why capital markets should be efficient. What set of assumptions imply an efficient capital market? An initial and important premise of an efficient market requires that a large number of profit maximizing participants analyze and value securities, each independently of the others. A second assumption is that new information regarding securities comes to the market in a random fashion, and the timing of one announcement is generally independent of others. The third assumption is especially crucial: profit maximizing investors adjust security prices rapidly to reflect the effect of new information. Although the price adjustment may be imperfect, it is unbiased. This means that sometimes the market will over-adjust and other times it will under-adjust, but you cannot predict which will occur at any given time.

12.3. EFFICIENT MARKET HYPOTHESIS (EMH)

12.3.1. Markets to Be Efficient: Market efficiency refers to how well prices reflect all available information. The efficient markets hypothesis (EMH) argues that markets are efficient, leaving no room to make excess profits by investing since everything is already fairly and accurately priced. This implies that there is little hope of beating the market, although you can match market returns through passive index investing.

12.3.2. Validity of Efficient Markets Hypothesis: The validity of the EMH has been questioned on both theoretical and empirical grounds. There are investors who have beaten the market, such as Warren Buffett, whose investment strategy focused on undervalued stocks made billions and set an example for numerous followers. There are portfolio managers who have better track records than others, and there are investment houses with more renowned research analysis than others. EMH proponents, however, argue that those who outperform the market do so not out of skill but out of luck, due to the laws of probability: at any given time in a market with a large number of actors, some will

outperform the mean, while others will underperform. The efficient market hypothesis (EMH), alternatively known as the efficient market theory, is a hypothesis that states that share prices reflect all information and consistent alpha generation is impossible.

According to the EMH, stocks always trade at their fair value on exchanges, making it impossible for investors to purchase undervalued stocks or sell stocks for inflated prices.

Therefore, it should be impossible to outperform the overall market through expert stock selection or market timing, and the only way an investor can obtain higher returns is by purchasing riskier investments. The efficient market hypothesis (EMH) or theory states that share prices reflect all information. The EMH hypothesizes that stocks trade at their fair market value on exchanges. Proponents of EMH posit that investors benefit from investing in a low-cost, passive portfolio. Opponents of EMH believe that it is possible to beat the market and that stocks can deviate from their fair market values. Most of the early works related to efficient capital markets were based on the random walk hypothesis, which contended that changes in stock prices occurred randomly. This early academic work contained extensive empirical analysis without much theory behind it. An article by Fama attempted to formalize the theory and organize the growing empirical evidence. Fama presented the efficient market theory in terms of a fair game model, contending that investors can be confident that a current market price fully reflects all available information about a security and the expected return based upon this price is consistent with its risk.

12.3.3. The efficient market sub-hypotheses: Fama divided the overall efficient market hypothesis (EMH) and the empirical tests of the hypothesis into three sub-hypotheses depending on the information set involved: (1) weak-form EMH,(2) semi-strong-form EMH, and (3) strong-form EMH. In a subsequent review article, Fama again divided the empirical results into three groups but shifted empirical results between the prior categories. Therefore, the following discussion uses the original categories but organizes the presentation of results using the new categories.

a) The weak-form EMH: The weak-form EMH assumes that current stock prices fully reflect all security market information, including the historical sequence of prices, rates of return, trading volume data, and other market-generated information, such as odd-lot transactions, block trades, and transactions by exchange specialists. Because it assumes that current market prices already reflect all past returns and any other security market information, this hypothesis implies that past rates of return and other historical market data should have no relationship with future rates of return (that is, rates of return should be independent). Therefore, this hypothesis contends that you should gain little from using any trading rule that decides whether to buy or sell a security based on past rates of return or any other past market data.

b) The semi strong-form EMH: The semi strong-form EMH asserts that security prices adjust rapidly to the release of all public information; that is, current security prices fully reflect all public information. The semi-strong hypothesis encompasses the weak-form hypothesis, because all the market information considered by the weak-form hypothesis, such as stock prices, rates of return, and trading volume, is public information. Public information also includes all non-market information, such as earnings and dividend announcements, price-to-earnings (P/E) ratios, dividend-yield(D/P) ratios, price book value (P/BV) ratios, stock splits, news about the economy, and political news. This hypothesis implies that investors who base their decisions on any important new information after it is public should

not derive above-average risk-adjusted profits from their transactions, considering the cost of trading because the security price already reflects all such new public information.

c) The strong-form EMH: The strong-form EMH contends that stock prices fully reflect all information from public and private sources. This means that no group of investors has monopolistic access to information relevant to the formation of prices. Therefore, this hypothesis contends that no group of investors should be able to consistently derive above-average risk-adjusted rates of return. The strong form EMH encompasses both the weak form and the semi-strong form EMH. Further, the strong form EMH extends the assumption of efficient markets, in which prices adjust rapidly to their lease of new public information, to assume perfect markets, in which all information is cost free and available to everyone at the same time. This unit contains five major sections. The first discusses why we would expect capital markets to be efficient and the factors that contribute to an efficient market where the prices of securities reflect available information. The efficient market hypothesis has been divided into three sub-hypotheses to facilitate testing.

The second section describes these three sub-hypotheses and the implications of each of them. The third section is the largest section because it contains a discussion of the results of numerous studies. This review of the research reveals that a large body of evidence supports the EMH, but a growing number of other studies do not support the hypotheses. In the fourth section, we discuss the concept of behavioural finance, the studies that have been done in this area related to efficient markets, and the conclusions as they relate to the EMH.

The final section discusses what these results imply for an investor who uses either technical analysis or fundamental analysis or what they mean for a portfolio manager who has access to superior or inferior analysts. We conclude with a brief discussion of the evidence for markets in foreign countries

12.4. EFFICIENT FRONTIER: (I) RISK-FREE AND (II) RISKY LENDING AND BORROWING

We saw how the risk and return of investments may be characterized by measures of central tendency and measures of variation, i.e. mean and standard deviation. In fact, statistics are the foundations of modern finance, and virtually all the financial innovations of the past thirty years, broadly termed “Modern Portfolio Theory,” have been based upon statistical models.

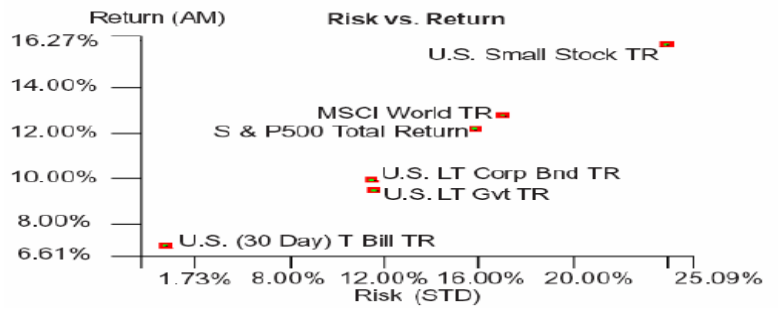
Because of this, it is useful to review what a statistic is, and how it relates to the investment problem. In general, a statistic is a function that reduces a large amount of information to a small amount. For instance, the average is a single number that summarizes the typical “location” of a set of numbers. Statistics boil down a lot of information to a few useful numbers and as such, they ignore a great deal. Before the advent of the modern portfolio theory, the decision about whether to include a security in a portfolio was based principally upon fundamental analysis of the firm, its financial statements and its dividend policy.

Finance professor Harry Markowitz began a revolution by suggesting that the value of a security to an investor might best be evaluated by its mean, its standard deviation, and its correlation to other securities in the portfolio. This audacious suggestion amounted to

ignoring a lot of information about the firm, its earnings, its dividend policy, its capital structure, its market, its competitors and calculating a few simple statistics. In this unit, we will follow Markowitz's lead and see where the technology of modern portfolio theory takes us.

1. *The Risk and Return of Securities:* Markowitz's great insight was that the relevant information about securities could be summarized by three measures: the mean return (taken as the arithmetic mean), the standard deviation of the returns and the correlation with other assets' returns. The mean and the standard deviation can be used to plot the relative risk and return of any selection of securities. Consider six asset classes:

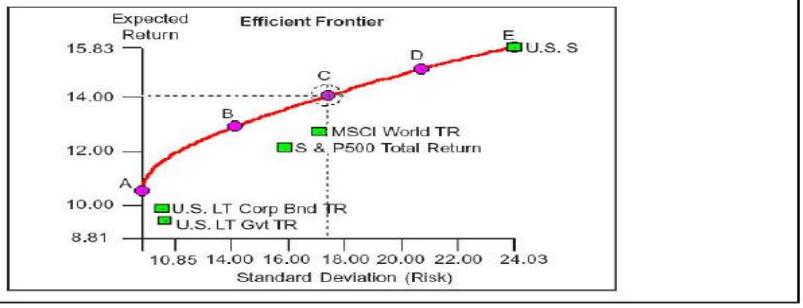
Figure 7.1: Risk vs Return



This figure was constructed using historical risk and return data on Small Stocks, S&P stocks, corporate and government bonds, and an international stock index called MSCI, or Morgan Stanley Capital International World Portfolio. The figure shows the difficulty an investor faces about which asset to choose. The axes plot annual standard deviation of total returns, and average annual returns over the period 1970 through 3/1995. Notice that small stocks provide the highest return, but with the highest risk. In which asset class would you choose to invest your money? Is there any single asset class that dominates the rest? Notice that an investor who prefers a low risk strategy would choose T-Bills, while an investor who does not care about risk would choose small stocks. There is no one security that is best for all investors.

12.4.1. Markowitz and the First Efficient Frontier The first efficient frontier was created by Harry Markowitz, using a handful of stocks from the New York Stock Exchange. Here it is, reproduced from his book Portfolio Selection Cowles Monograph 16, Yale University Press, 1959. It has a line going to the origin, because Markowitz was interested in the effects of combining risky assets with a riskless asset: cash.

Figure 7.2: Efficient Frontier



12.4.2. An Actual Efficient Frontier Today

This figure is an efficient frontier created from historical inputs for U.S. and international assets over the period 1970 through 3/1995, using the Ibbotson EnCorr Optimizer program.

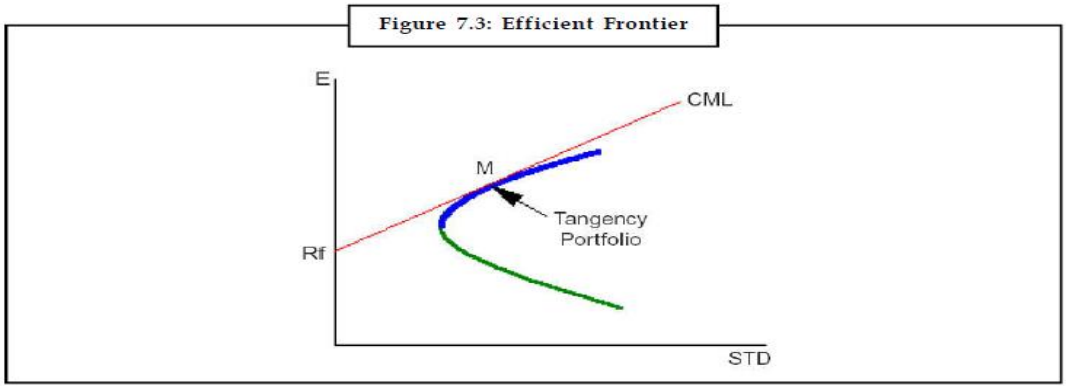
This is state-of-the-art portfolio selection technology. However, it is still based upon Markowitz's original optimization program. There are some basic features to remember:

(a) A minimum variance portfolio exists
(b) A maximum return portfolio is composed of a single asset.
(c) B, C, D & E are critical points at which the set of assets used in the frontier changes, i.e., an asset drops out or comes in at these points.
(d) There are no assets to the northwest of the frontier. That is why we call it a frontier.

It is the edge of the feasible combinations of risk and returns.

2. *The Efficient Frontier with the Riskless Asset:* T-Bills are often taken to be riskless assets, and their return is indicated as Rf, the risk-free rate. Once you allow the riskless asset to be combined into a portfolio, the efficient frontier can change. Since it is riskless, it has no correlation to other securities. Thus it provides no diversification, per se. It does provide an opportunity to have a low-risk portfolio, however. This picture is a diagram of the efficient frontier composed of all the risky assets in the economy, as well as the riskless asset.

Figure 7.3: Efficient Frontier



In this special case, the new efficient frontier is a ray, extending from Rf to the point of tangency (M) with the "risky-asset" efficient frontier, and then beyond. This line is called the Capital Market Line (CML). It is actually a set of investable portfolios, if you were able to borrow and lend at the riskless rate. All portfolios between Rf and M are portfolios composed of treasury bills and M, while all portfolios to the right of M are generated by borrowing at the riskless rate Rf and investing the proceeds into M.

The Markowitz model was a brilliant innovation in the science of portfolio selection. With almost a disarming slight-of-hand, Markowitz showed us that all the information needed to choose the best portfolio for any given level of risk is contained in three simple statistics: mean, standard deviation and correlation. It suddenly appeared that you didn't even need any fundamental information about the firm. The model requires no information about dividend policy, earnings, market share, strategy, and quality of management – nothing about the myriad of things with which Wall Street analysts concern themselves! In short, Harry

Markowitz fundamentally altered how investment decisions were made. Virtually every major portfolio manager today consults an optimization programme. They may not follow its recommendations exactly, but they use it to evaluate basic risk and return trade-offs.

Why doesn't everyone use the Markowitz model to solve his or her investment problems?

The answer again lies in the statistics. The historical mean return may be a poor estimate of the future mean return. As you increase the number of securities, you increase the number of correlations you must estimate – and you must estimate them correctly to obtain the right answer. In fact, with more than 1,500 stocks on the NYSE, one is certain to find correlations that are widely inaccurate. Unfortunately, the model does not deal well with incorrect inputs. That is why it is best applied to allocation decisions across asset classes, for which the number of correlations is low, and the summary statistics are well estimated.

12.5. BENEFITS OF AN EFFICIENT MARKET (INVESTORS UTILITY)

So far, arbitrageurs sound like vultures waiting to swoop in for the kill. They take risks to exploit new information at the expense of the less informed. The costs seem to be rewarding opportunism at the expense of other investors. Are there any benefits to having a market operate efficiently? Arguments in favour of efficient capital markets are:

(a) The market price will not stray too far from the true economic price if you allow arbitrageurs to exploit deviations. This will avoid sudden, nasty crashes in the future.
(b) An efficient market increases liquidity, because people believe the price incorporates all public information, and thus they are less concerned about paying way too much. If only the market for television sets were as efficient as the market for stocks! A lot less comparison-shopping would be needed.
(c) Arbitrageurs provide liquidity to investors who need to sell or buy securities for purposes other than "betting" on changes in expected returns. *Example:* Currently, China is seeking to limit access to global financial information in Shanghai (site of its major stock exchange).

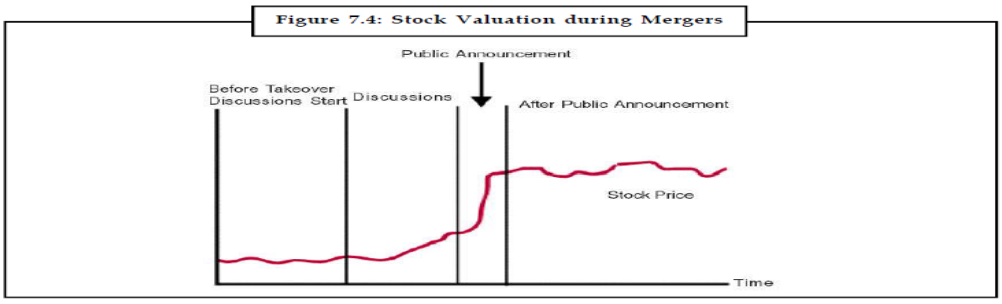
The government wishes to keep certain kinds of information from market participants. Market efficiency has implications for corporate managers as well as for investors. This takes a lot of the "gamesmanship" out of corporate management. If a market is efficient, it is difficult to fool the public for long and by very much. For instance, only genuine 'news' can move the stock price. It is hard to pump-up the stock price by claims that are not verifiable by investors. 'Fake' news will not move the price at all. Even if it does so, the price will quickly revert to the preannouncement value when the news proves hollow. Publicly available information is probably impounded in the price already. This is hard for some managers to believe. An example is Sears 'attempt to sell the Sears Tower in Chicago in the late 1980s.

The company believed that, since it carried the property on its balance sheet at greatly depreciated values, the public did not credit the company with the full market price of the building and thus Sears' stock was under priced. This proved to be false – in fact, it seems that Sears was overestimating the value of the building and the stock price was relatively efficient! Another lesson: accounting tricks don't fool anybody. Don't worry about timing accounting charges and don't worry about whether information is revealed in the footnotes or

in the statements. An efficient market will quickly figure out the meaning of the information, once it is made public.

12.6. EVIDENCE FOR MARKET EFFICIENCY

A simple test for Strong Form Efficiency is based upon price changes close to an event. Acts of nature may move prices, but if private information release does not, then we know that the information is already in the stock price. *Example:* Consider a merger between two firms. Normally, a merger or an acquisition is known about by an 'inner circle' of lawyers, investment bankers and firm managers before the public release of the information. When these insiders violate the law by trading on this private information, they may make money. They also make it to the SEC's wall of shame.



Unfortunately, stock prices typically move up before a merger, indicating that someone is acting dishonestly. The early move indicates that the market has a tendency towards strong form efficiency, i.e. even private information is incorporated into prices.

However, the public announcement of a merger is typically met with a large price response, suggesting that the market is not strong-form efficient. Leakage, even if illegal, does occur, but it is not fully impounded in stock price. By the way, until recently, insider trading was legal in Switzerland.

12.7. IS THE STOCK MARKET SEMI-STRONG FORM EFFICIENT?

The most obvious indication that the market is not always and everywhere semi-strong form efficient is that money managers frequently use public information to take positions in stocks.

While there is no evidence that they beat the market on a risk-adjusted basis, it is hard to believe that an entire industry of information production and analysis is for naught. It seems likely that there is value to publicly available information. However, there are probably degrees to which information really is public knowledge. What is surprising is that recent studies have shown some evidence that excess returns can be made by trading upon very public information. These tests usually take the form of 'back-testing' trading strategies.

That is, you play a "what-if" game with past stock prices, and pretend you followed some rule, using information available only at the time of the pretend trade. One common rule that seems to perform well historically is to buy stocks when the dividend yield is high.

This apparently has made money in the past, even though the information about which stocks have high yields and which have low yields is widely available. Another rule that

generates positive excess returns in back-tests is to buy stocks when the earnings announcement is higher than expected. This seems simple, since current announcements and even forecasts are widely available as well. Does this mean that it is easy to become rich on Wall Street? Hardly! The profitability of these simple trading rules depends upon the liquidity of the stocks involved, and trading costs('frictions'). Sometimes the costs outweigh the benefits. While many investment managers explain that they pursue a strategy of buying 'value' stocks (such as low P/E firms) few of these managers have consistently superior track records.

The assumption of semi-strong form efficiency is a good first approximation for a market with as many sharp traders and with as much publicly available information as the US equity market.

12.8. IS THE STOCK MARKET WEAK FORM EFFICIENT?

Weak form efficiency should be the simplest type of efficiency to prove, and for a time it was widely accepted that the US stock market was at least weak form efficient. Recall that weak form efficiency only requires that you cannot make money using past price history of a stock (orindex) to make excess profits. Recall the intuition that, if people know the price will rise tomorrow, then they will bid the price up today in order to capture the profit. Researchers have been testing weak form efficiency using daily information since the 1950s and typically they have found some daily price patterns, e.g. momentum. However, it appears difficult to exploit these short-term patterns to make money. Interestingly, as you increase the horizon of the return, there seems to be evidence of profits through trading. Buying stocks that went down over the last two weeks and shorting those that went up appears to have been profitable. When you really increase the horizons, stock returns look even more predictable.

Eugene Fama and Ken French for instance, found some evidence that 4-year returns tend to revert towards the mean. Unfortunately, this is a difficult rule to trade on with any confidence, since the cycles are so long. In fact, they are as long as the patterns conjectured by Charles Henry Dow some 100 years ago! Does this all lend credence to the chartists, who look for cryptic patterns in security prices? Perhaps. But in all likelihood there is no easy money in charting, either. Prices for widely traded securities are pretty close to a random walk, and if they were not, then they would quickly become so, as arbitrageurs moved in to buy the stock when it is underpriced and short it when it is overpriced. But who knows?

Maybe a retired rocket scientist playing around with fractal geometry and artificial intelligence will hit upon something– of course if he or she did, it wouldn't become common knowledge, at least for a while.

12.9. FORMS OF THE EFFICIENT MARKET HYPOTHESIS

Tests of the market efficiency are essentially tests of whether the three general types of information—past prices, other public information and inside information – can be used to make above-average returns on investments. In an efficient market, it is impossible to make above-average return regardless of the information available, unless abnormal risk is taken.

Moreover, no investor or group of investors can consistently outperform other investors in such a market. These tests of market efficiency have also been termed as weak-

form (price information), semi-strong form (other public information) and strong-form (inside information) tests.

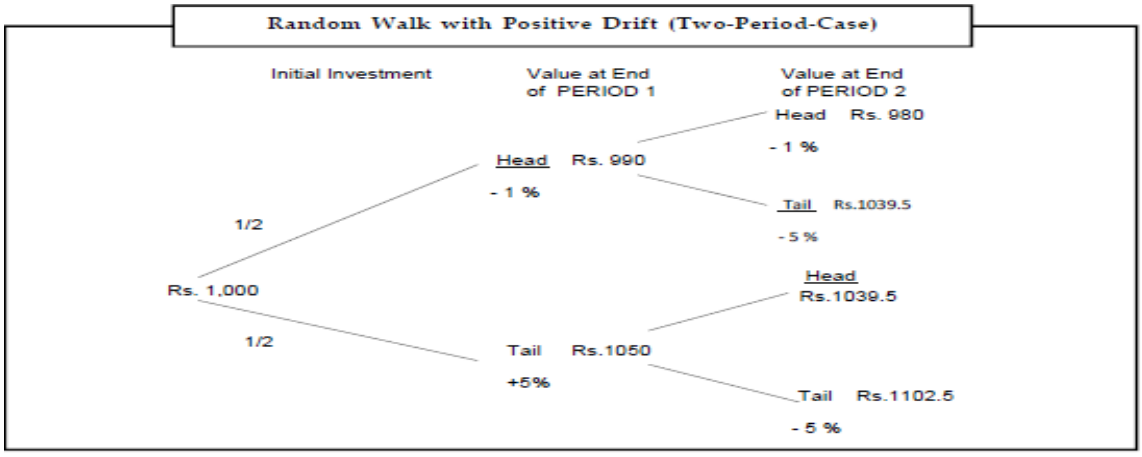
12.9.1. Weak-form and the Random Walk: This is the oldest statement of the hypothesis. It holds that present stock market prices reflect all known information with respect to past stock prices, trends, and volumes. Thus it is asserted, such past data cannot be used to predict future stock prices. Thus, if a sequence of closing prices for successive days for XYZ stock has been 43, 44, 45, 46, 47, it may seen that tomorrow's closing price is more likely to be 48 than 46, but this is not so. The price of 47 fully reflects whatever information is implied by or contained in the price sequence preceding it. In other words, the stock prices approximate a random walk. (That is why sometimes the terms Random Walk Hypothesis and Efficient Market Hypothesis are used interchangeably).

As time passes, prices wander or walk more or less randomly across the charts. Since the walk is random, a knowledge of past price changes does nothing to inform the analyst about whether the price tomorrow, next week, or next year will be higher or lower than today's price.

12.9.2. The weak form of the EMH: The weak form of the EMH is summed up in the words of the pseudonymous 'Adam Smith', author of The Money Game: "prices have no memory, and yesterday has nothing to do with tomorrow." It is an important property of such a market, so that one might do as well flipping a coin as spending time analyzing past price movements or patterns of past price levels. Thus, if the random walk hypothesis is empirically confirmed, we may assert that the stock market is weak-form efficient. In this case any work done by chartists based on past price patterns is worthless.

12.9.3. Random walk: Random walk theorists usually take as their starting point the model of a perfect securities market in which a relatively large number of investors, traders, and speculators compete in an attempt to predict the course of future prices. Moreover, it is further assumed that current information relevant to the decision-making process is readily available to all at little or no cost. If we 'idealize' these conditions and assume that the market is perfectly competitive, and then equity prices at any given point of time would reflect the market's evaluation of all currently available information that becomes known. And unless the new information is distributed overtime in a non-random fashion – and we have no reason to presume this – price movements in a perfect market will be statistically independent of one another. If stock price changes behave like a series of results obtained by flipping a coin, does this mean that on average stock price changes have zero mean? Not necessarily. Since stocks are risky, we actually expect to find a positive mean change in stock prices.

Example: Suppose an investor invests 1,000 in a share. Flip a coin; if heads comes up he loses 1%, and if tails shows up he makes 5%. The value of investment will be as shown in figure.



Suppose that an investor flips the coin (looks up the prices) once a week and it is his decision when to stop gambling (when to sell). If he gambles only once, his average return is 1/2 × 990+1/2 × ₹ 1050 = ₹ 1020 since the probabilities of 'heads' or 'tail' are each equal to 1/2. The investor may decide to gamble for another week. Then the expected terminal value of his investment will be: ½ x980.1+1/4 x 1039.5+1/5x1039.5+1/4x1102.5 + 1040.4

Now assume that these means are equal to the value of the given shares at the end of the first week and at the end of the second week. The fact that the shares went up in the first period, say to 1050, does not affect the probability of the price going up 5% or that ongoing changes in each period are independent of the share price changes in the previous period. In each period, we would obtain the results that one could obtain by flipping a coin, and it is well known that the next outcome of flipping a coin is independent of the past series of 'heads' and 'tails.' Note, however, that on an average we earn 2% if we invest for one week and 4.04% if we invest for two weeks. Thus, the random walk hypothesis does not contradict the theory that asserts that risky assets must yield a positive mean return. We say in such a case, a random walk process with a "positive drift" can characterize share price changes. In our specific example, the drift is equal to:1/2x5% +1/2 x (–1%) = 2%, which implies that on average the investment terminal value increases every period by 2%.

Thus, reflecting the historical development, the weak form implies that the knowledge of the past patterns of stock prices does not aid investors to attain improved performance.

Random walk therapists view stock prices as moving randomly about a trend line, which is based on anticipated earning power. Hence they contend that (1) analysing past data does not permit the technician to forecast the movement of prices about the trend line and (2) new information affecting stock prices enters the market in random fashion, i.e. tomorrow's news cannot be predicted nor can future stock price movements be attributable to that news.

12.10. TESTING MARKET EFFICIENCY NOTES

There are several ways to test the EMH. Analysts have devised direct and indirect tests of market efficiency. Direct tests assess the success of specific investment strategies or trading rules. An example of a direct test would be a test of the accuracy of predictions by some specific technical indicator. Indirect tests are statistical tests of prices or returns. For example, if prices follow a random walk, the serial correlation of returns should be close to zero.

Establishing a Benchmark: Test of the EMH must usually establish some sort of benchmark. The most common benchmark is the so-called buy-and-hold portfolio.

The Time Factor: The time period(s) selected can, of course, always be criticized. A trading rule partisan may respond to a conclusion that the rule did not work by saying, "of course my trading rule didn't work over that period."

Kiss and Tell: Suppose that someone discovered an investment strategy that really worked and made a lot of money. Why would this person want to tell anyone? He or she could try to make money writing a book or an investment newsletter describing the strategy, but it would probably generate more money if keep secret. Suppose an analyst discovers that stocks beginning with the letter K rise on Wednesdays and fall on Fridays.

12.11. SUMMARY

An efficient capital market is one in which security prices adjust rapidly to the arrival of new information and, therefore, the current prices of securities reflect all information about the security. Some of the most interesting and important academic research during the past 20 years has analyzed whether our capital markets are efficient. Fama divided the overall efficient market hypothesis (EMH) and the empirical tests of the hypothesis into three sub-hypotheses depending on the information set involved: (1) weak-form EMH, (2) semi-strong-form EMH, and (3) strong-form EMH. In a subsequent review article, Fama again divided the empirical results into three groups but shifted empirical results between the prior categories.

Therefore, the following discussion uses the original categories but organizes the presentation of results using the new categories. A simple test for strong form efficiency is based upon price changes close to an event. Acts of nature may move prices, but if private information release does not, then we know that the information is already in the stock price.

An investor can add leverage to the portfolio by borrowing the risk-free asset. The addition of the risk-free asset allows for a position in the region above the efficient frontier.

Thus, by combining a risk-free asset with risky assets, it is possible to construct portfolios whose risk-return profiles are superior to those on the efficient frontier. A market portfolio is a portfolio consisting of a weighted sum of every asset in the market, with weights in the proportions that they exist in the market (with the necessary assumption that these assets are infinitely divisible). Weak-Form and the Random Walk holds that present stock market prices reflect all known information with respect to past stock prices, trends, and volumes. Thus it is asserted, such past data cannot be used to predict future stock prices.

12.12. TECHNICAL TERMS

Efficient Capital Market: An efficient capital market is one in which security prices adjust rapidly to the arrival of new information and, therefore, the current prices of securities reflect all information about the security.

Market Portfolio: Market portfolio is a theoretical portfolio in which every available type of asset is included at a level proportional to its market value.

Market Value of an Investment: The market value of an investment is described as its current price on the market.

12.13. SELF ASSSEMENT QUESTIONS

1. Do you think that the capital markets be efficient? Why/Why not?
2. What do you think was the reason behind insider's trading being legal in Switzerland
3. Till recent past? Analyse the causes for Swiss government to illegalise the practice.
4. Is the stock market semi strong form efficient? Why/Why not?
5. Prove that volatility increases your risk of loss of principal.
6. Do you think that the markets are efficient today?
7. When combined with the risk-free asset, the market portfolio will produce a return
8. Rate above the efficient frontier. Comment.
9. Currently, China is seeking to limit access to global financial information in Shanghai (site of its major stock exchange). The government wishes to keep certain kinds of information from market participants. Is this desirable? Will this be possible?
10. Examine the concept of efficient frontier with the riskless asset.

12.14. SUGGESTED READINGS

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2. Melcher, B., *Stockholder Equity*, N.Y., AICPA, 1973.
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6. Lucas Downey-Updated April 24, 2023- Reviewed By Gordon Scott-Fact Checked By Vikki Velasquez

Dr. S. Srinivasa Rao

LESSON 13
EVOLUTION OF PORTFOLIO

OBJECTIVES

- To understand the objective of portfolio evolution
- To understand the need for portfolio evolution
- To know the various methods of portfolio evolution
- To know the merits and demerits of various valuation methods
- To able to compare the various methods of evolutions

Structure

3.0 INTRODUCTION

Performance evaluation is one of the most critical areas of investment analysis. Performance results can be used to assess the quality of the investment approach and suggest changes that might improve it. They are also used to communicate the results of the investment process to other stakeholders and may even be used to compensate the investment managers. Therefore, it is of vital importance that practitioners who use these analyses understand how the results are generated. By gaining an understanding of the details of how these analyses work, practitioners will develop a greater understanding of the insights that might be gathered from the analysis and will also be cognizant of the limitations of those approaches, careful not to infer more than what is *explicit or logically implicit in the results.*

A portfolio combines investment products, including bonds, shares, securities, and mutual funds. Experienced portfolio managers customise this combination based on the client's risk tolerance to create a long-term return portfolio. It is ongoing process of assessing, adapting, and optimizing a portfolio of investments or assets over time. This process is crucial for ensuring that the portfolio continues to align with an investor's or an organization's financial goals, risk tolerance, and investment strategy as market conditions, objectives, and circumstances change.

13.1 KEY ASPECTS OF PORTFOLIO EVOLUTION

The following are some key aspects of portfolio evolution:

13.1.1 Rebalancing: Portfolio managers regularly review and rebalance the portfolio to bring it back in line with the desired asset allocation. This involves buying or selling assets within the portfolio to maintain the target mix of asset classes (e.g., stocks, bonds, cash) and risk levels. Rebalancing helps control risk and ensures that the portfolio doesn't become too heavily weighted in one asset class.

13.1.2 Performance Evaluation: Monitoring the performance of the portfolio is an essential part of its evolution. Portfolio managers assess how well the portfolio is performing relative to its benchmarks and objectives. They may use various metrics and performance indicators to gauge returns, risk-adjusted performance, and other relevant factors.

13.1.3 Market Analysis: Keeping a close watch on financial markets and economic conditions is vital for portfolio evolution. Market analysis helps portfolio managers make informed decisions about asset allocation, security selection, and risk management. They may adjust the portfolio's exposure to different sectors or geographic regions based on market trends and expectations.

13.1.4 Risk Management: As market conditions change, the risk profile of a portfolio can also shift. Portfolio managers need to assess and manage risks effectively. This may involve hedging strategies, diversification, and adjusting the mix of assets to mitigate potential losses.

13.1.5 Goal Reassessment: Investment goals and objectives may evolve over time due to changing financial circumstances, such as retirement plans, changes in income, or shifting priorities. Portfolio managers work with investors to reassess these goals periodically and adjust the portfolio accordingly.

13.1.6 Tax Considerations: Portfolio evolution can also involve tax-efficient strategies. Portfolio managers may consider tax implications when making decisions about buying or selling assets to minimize tax liabilities and optimize after-tax returns.

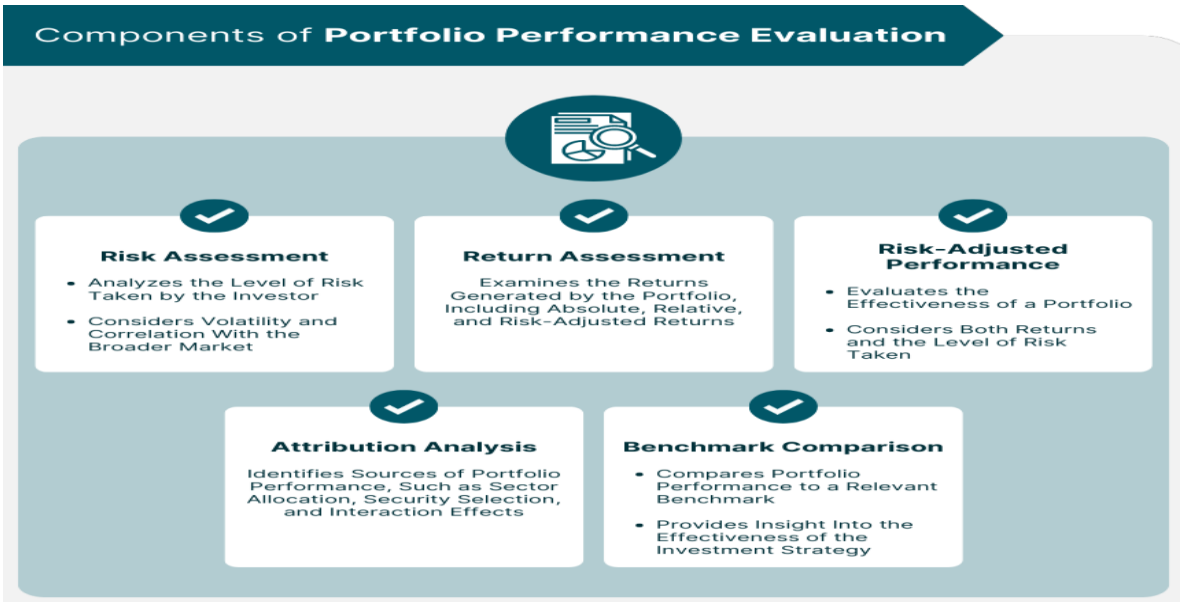
13.1.7 Liquidity Needs: Investors may have changed liquidity needs over time, such as funding for major expenses or withdrawals in retirement. Portfolio managers take these liquidity requirements into account when managing the portfolio.

13.1.8 External Factors: External factors like changes in tax laws, regulatory changes, and geopolitical events can impact the investment landscape. Portfolio managers need to adapt to these external factors to optimize portfolio performance.

Overall, portfolio evolution is a dynamic and continuous process that aims to ensure that an investment portfolio remains aligned with the investor's or organization's objectives and risk tolerance in an ever-changing financial environment. It requires ongoing monitoring, analysis, and decision-making to make adjustments that enhance the likelihood of achieving desired financial outcomes while managing risks effectively.

13.2 DIFFERENT COMPONENTS OF PORTFOLIO EVOLUTION

The main goal of performance evaluation is to determine whether the chosen investment strategy is achieving the desired risk and return objectives.



Source: Definition of portfolio performance evaluation, by True Tamplin.

13.2.1 Risk Assessment:

A crucial part of evaluating portfolio performance is assessing the level of risk taken by the investor. This can be done by examining the volatility of the portfolio, measured by the standard deviation or other risk metrics, as well as the correlation of the portfolio's returns with the broader market.

13.2.2 Return Assessment:

Return assessment involves analyzing the returns generated by the portfolio over a specific period. This can include measures such as absolute returns, relative returns compared

to a benchmark, or even risk-adjusted returns that take into account the level of risk taken to achieve the given returns.

13.2.3 Risk-Adjusted Performance:

Risk-adjusted performance metrics allow investors to evaluate the effectiveness of a portfolio by considering both the returns generated and the level of risk taken to achieve those returns. This is important as it helps determine whether a portfolio is generating sufficient returns for the level of risk taken.

13.2.4 Attribution Analysis:

Attribution analysis seeks to identify the sources of a portfolio's performance, such as sector allocation, security selection, and interaction effects. This information can help investors and portfolio managers make more informed decisions about their investment strategies.

13.2.5 Benchmark Comparison:

Comparing a portfolio's performance to a relevant benchmark is a common practice in performance evaluation. This allows investors to determine whether the portfolio is outperforming or underperforming the market or its peers, providing valuable insight into the effectiveness of the investment strategy.

13.3 PORTFOLIO CONSTRUCTION AND MANAGEMENT

Portfolio construction refers to allocation of funds among variety of financial assets open for investment. Portfolio theory concern itself with principles governing such allocation. The objective of this theory is to elaborate such principles in which risk can be minimized and return can be maximized.

Portfolio management is a dynamic and flexible concept and involves continues and systematic analysis, judgement and operation.

1. It involves construction of portfolio taking into account investors objectives constraint, preference for risk and return and tax liability.

2. It involves that portfolio is reviewed and adjusted from time to time in tune with the market conditions.

3. The evaluation of portfolio performance is to be done by the manager in terms of targets set for risk and return and changes in the portfolio are to be affected to meet the changing conditions.

Investors who have to pay to portfolio managers for actively management of their portfolio have right to know about the performance of portfolio. Also, the manager by evaluating his own performance can identify sources of strength or weakness- Hence portfolio performance evaluation can be viewed as a feedback and control mechanism that can make the investment management process more effective. Portfolio performance is evaluated by measuring and comparing portfolio return and associated risk. There are three major methods of assessing performance

1. Return per unit of risk
2. Differential return
3. Components of performance

The first of the risk adjusted performance measures in the type that assesses the performance of a fund in terms per unit of risk. The technique here is to relate the absolute level of return achieved to the level incurred. According to this method, funds that provide the highest return per unit of risk would be judged as having provided the best performance, while those providing the lowest return per unit of risk would be judged as the poorest performers. There are two alternatives, yet similar methods of measuring return per unit of risk:

a. The reward to variability ratio developed by William Sharpe, and
b. The reward to volatility ratio developed by Jack Treynor.

These two performances ratios differ only in that former considers total risks measured by standard deviation, while the letter considers only market risk as measured by P is Beta. ;

A second category of risk-adjusted performance evaluation is the type referred to as differential return measure and is developed by Michael Jensen. The underlying objective of this technique is to calculate the return that should be expected for the fund given the realized risk of the fund and compare that with the return actually realized over that period. In making this comparison, it is assumed that the investor has a passive alternative of merely buying the market portfolio and adjusting for the appropriate level of risk by borrowing or lending at the risk-free rate.

The performance measures stated above are primarily concerned to an analysis of overall performance of a fund. However, it is useful to develop a more refined breakdown and assess the sources or components of performance. Eugene Fama has provided an analytical framework that elaborates on the three previously state risk-adjusted methods to allow a more detailed breakdown of the performance of a fund. This is done in three ways:

1. Stock selection here examines the overall performance of the fund in terms of superior or inferior stock selection and the normal return associated with a given level or risk; therefore,

Total excess return = Selectivity and risk

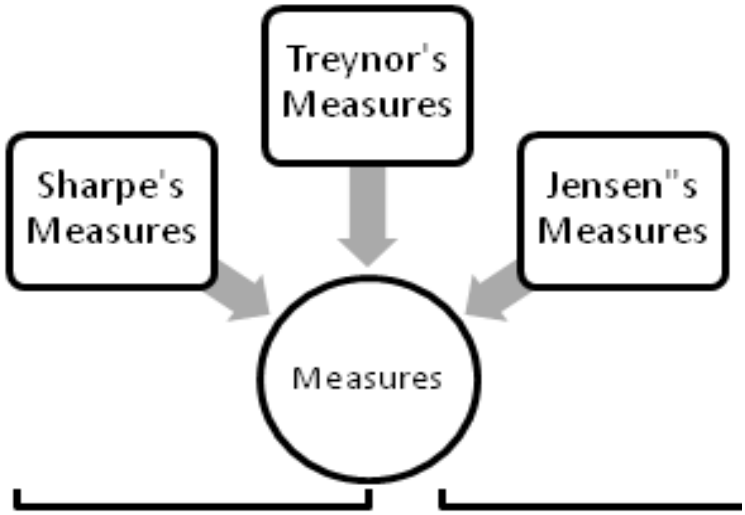
In striving to achieve above average returns, fund managers will generally have to forsake some diversification that will have its cost in terms of additional portfolio risk. Hence some added return should be expected to compensate for this additional diversification risk. This is done by using the capital market line to determine the return commensurate with the incurred risk as measured by the standard deviation of the return.

2. Market timing the first method focused on the capability of management in generating superior performance by means of stock-selection techniques. Under this second method, fund managers can also generate superior performance better than market average, by timing the market correctly, that is, by assessing correctly the direction of the market, either bull or bear, and positioning the portfolio accordingly. Managers with a forecast of declining market can position a portfolio properly by increasing the cash percentage of the portfolio or by decreasing the beta of the equity portion of the portfolio. Conversely, a forecast of a rising

market would call for reduction in the cash position or an increase in the beta of the equity portion of the portfolio.

3. Cash management analysis-Farrell used the alternative but complementary method of directly analysing the way mutual funds varied the cash percentage of the fund to assess the competence of funds in market timing in different environments. To assess the degree to which variations in the cash percentage around the long-term average have benefited or detracted from fund performance, two indices were constructed for each fund. The first index is based on the average cash to other asset allocation experienced by the fund over the period of analysis. The second index is based on a quarter-to-quarter changes experienced by the fund over the period.

13.4 IMPORTANT MEASURES FOR PORTFOLIO EVOLUTION



13.5 WILLIAM F. SHARPE METHOD

The Sharpe Ratio, developed by Nobel laureate William F. Sharpe, is a widely used method for evaluating the risk-adjusted performance of an investment portfolio. Portfolio evaluation has evolved dramatically over the last two decades. The acceptance of modern portfolio theory has changed the evaluation process from crude return calculation to rather detailed explorations of risk and return and the sources of each. The evaluation of portfolio performance is essentially concerned with comparing the return earned on some portfolio with the return earned on one or more other portfolios. It is important that the portfolios chosen for comparison are truly comparable broadly speaking, there are three widely used and universally recognized methods of portfolio performance evaluation. The Sharpe Ratio is calculated as follows:

Sharpe Ratio = (Portfolio Return - Risk-Free Rate) / Portfolio Standard Deviation

13.5.1 The components of the method:

a. **Portfolio Return:** This is the historical or expected return of the investment portfolio over a specific period. It reflects the gains or losses generated by the assets within the portfolio.

b. Risk-Free Rate: The risk-free rate represents the return an investor could achieve with no risk of loss. Typically, it's based on the yield of a government bond, such as the U.S. Treasury bill, with a similar duration to the portfolio's time horizon. The risk-free rate serves as a benchmark for assessing whether the portfolio is adequately compensating for the risk taken.

c. Portfolio Standard Deviation: This measures the volatility or risk associated with the portfolio's returns. It quantifies the degree to which the portfolio's returns fluctuate. A higher standard deviation implies greater volatility and risk.

The Sharpe Ratio provides a single metric that evaluates the risk-adjusted return of a portfolio. A higher Sharpe Ratio indicates better risk-adjusted performance. Portfolio managers and investors use this ratio to assess whether the potential return of a portfolio justifies the level of risk taken.

13.5.2 The Sharpe Ratio can be used in the following ways:

1. **Asset Selection:** When considering adding or removing assets from a portfolio, portfolio managers can calculate the Sharpe Ratio for each asset under consideration. Assets with higher Sharpe Ratios may be favoured, as they offer better risk-adjusted returns.

2. **Portfolio Rebalancing:** During the rebalancing process, portfolio managers may adjust the allocation of assets based on their individual Sharpe Ratios. The goal is to optimize the portfolio's risk-return profile.

3. **Performance Evaluation:** As part of the portfolio evaluation process, portfolio managers can calculate the historical Sharpe Ratio of the portfolio to assess its past risk-adjusted performance. This information informs decisions about whether the portfolio is meeting its objectives.

4. **Comparative Analysis:** The Sharpe Ratio is useful for comparing different portfolios or investment strategies. Portfolio managers can evaluate which portfolio offers the best risk-adjusted return and make adjustments accordingly.

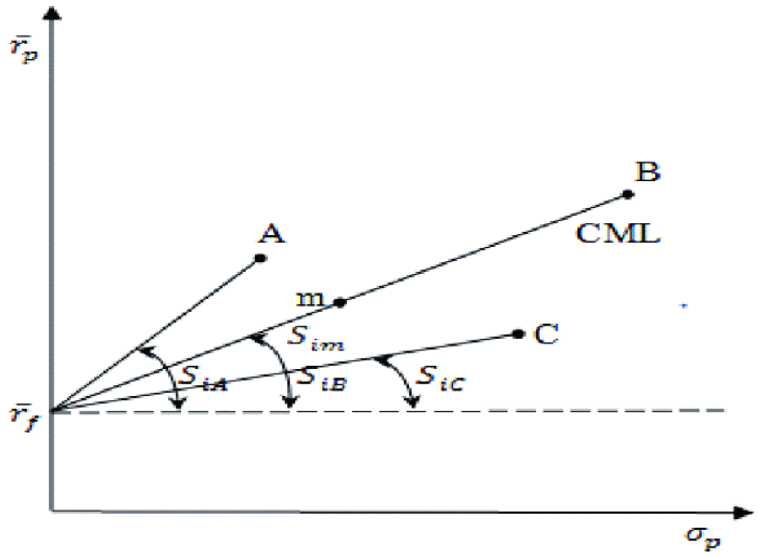
This model yields a single value that can be used for investment performance rankings. It assigns the highest value to portfolios that have the best risk-adjusted rate of return. The difference between an investment's expected rate of return and the risk-less rate, (Rp - Rs), is called the risk premium. This can be expressed symbolically as follows

Symbolically, $$S = \frac{R_p - R_i}{\sigma_p}$$

Whereas:
S = Sharpe's value
(R_p) = Expected average return from the portfolio,
R_i = Risk-less rate of return
σ_p = Variability in portfolio's return or standard deviation of portfolio or the risk of portfolio

Graphically, the index, S measures the slope of the line emanating from the risk-less rate outward to the portfolio in question (Fig. 1). Thus, the Sharpe model summarizes the risk

and return of a portfolio in a single measure that categories the performance of the fund on a risk adjusted basis. The larger the value of S, the better the portfolio has performed.



13.5.3 Assumptions of Sharpe Ratio:

1. *Normal Distribution of Returns:*
Assumption: The Sharpe Ratio assumes that the returns of the portfolio follow a normal distribution. In a normal distribution, returns are symmetrically distributed around the mean, with a bell-shaped curve. This assumption implies that extreme positive or negative returns are relatively rare events.

Implication: If the actual returns of the portfolio do not conform to a normal distribution (e.g., they exhibit fat tails, skewness, or kurtosis), the Sharpe Ratio may not accurately capture the risk and may underestimate the potential for extreme losses.

2. *Single Investment Period:*
Assumption: The Sharpe Ratio typically calculates risk-adjusted returns for a single investment period, whether it's daily, monthly, quarterly, or annually. It assumes that the investor's horizon matches this period.

Implication: If the investor has a different investment horizon, the Sharpe Ratio may not fully capture the investor's preferences and risk exposure. For example, a longer-term investor may have a different risk tolerance.

3. *Risk-Free Rate is Constant:*
Assumption: The Sharpe Ratio assumes a constant risk-free rate throughout the investment period. This rate is typically represented by a government bond yield with a similar duration to the investment horizon.

Implication: In reality, risk-free rates can fluctuate over time due to changes in monetary policy, economic conditions, or market dynamics. Using a constant risk-free rate may not accurately reflect changing opportunities in the fixed-income market.

4. *Linear Relationship Between Risk and Return:*
Assumption: The Sharpe Ratio assumes a linear relationship between risk (measured by standard deviation) and return. In other words, it assumes that risk and return move in a consistent and predictable manner.

Implication: Markets can exhibit nonlinear behaviour, especially during extreme events or financial crises. In such cases, the linear assumption may not hold, and the Sharpe Ratio may not fully capture the portfolio's risk.

5. *Past Returns are Indicative of Future Returns:*
Assumption: Like many financial models, the Sharpe Ratio relies on historical data to calculate risk and return metrics. It assumes that past returns and risk levels are indicative of future performance.

Implication: Past performance is not always a reliable predictor of future results. Unexpected events, changing market conditions, and other factors can lead to significant deviations from historical patterns.

6. *Complete and Accurate Data:*
Assumption: The Sharpe Ratio assumes that the data used for calculations, including historical returns, risk-free rates, and portfolio values, are complete and accurate.

Implication: In practice, data may have errors or missing values, which can affect the accuracy of the Sharpe Ratio calculation.

It's important to recognize these assumptions when using the Sharpe Ratio and to be aware of their potential limitations. While the Sharpe Ratio is a valuable tool for assessing risk-adjusted performance, it should be used in conjunction with other metrics and analyses, and its results should be interpreted with an understanding of its underlying assumptions. Additionally, investors should consider their specific circumstances and investment horizons when using the Sharpe Ratio to make investment decisions.

The Sharpe Ratio is a widely used measure for evaluating the risk-adjusted performance of an investment portfolio. Like any financial model, it has its merits and demerits. Understanding both its advantages and limitations is important when using the Sharpe Ratio for performance evaluation of a portfolio.

13.5.4 Merits of the Sharpe Model for Portfolio Performance Evaluation:

1. Simple and Intuitive: The Sharpe Ratio provides a straightforward and intuitive way to assess the risk-adjusted return of a portfolio. It condenses complex information into a single metric, making it easy for investors to compare different portfolios or investment strategies.

2. Focus on Risk: It explicitly considers risk, as measured by the standard deviation of returns. This is crucial because investors not only seek returns but also want to manage risk. The Sharpe Ratio emphasizes the importance of achieving returns commensurate with the level of risk taken.

3. Uniform Metric: The Sharpe Ratio provides a uniform metric that can be applied across various asset classes and investment horizons. This makes it useful for comparing portfolios with different compositions and time frames.

4. Risk-Free Benchmark: By comparing a portfolio's return against a risk-free rate, the Sharpe Ratio provides a clear benchmark for assessing whether the portfolio is adequately compensating for risk. It helps investors gauge whether the excess return justifies the level of risk taken.

13.5.5 Demerits of the Sharpe Model for Portfolio Performance Evaluation:

1. **Assumption of Normality:** The Sharpe Ratio assumes that returns follow a normal distribution. In reality, financial markets often exhibit non-normal characteristics, such as fat tails and skewness. This assumption can lead to misinterpretations of risk.

2. **Single-Period Focus:** The Sharpe Ratio typically assesses risk-adjusted performance for a single investment period, which may not align with the investor's actual investment horizon. Long-term investors may have different risk and return objectives that the ratio does not capture.

3. **Dependency on Historical Data:** The Sharpe Ratio relies on historical data to calculate risk and return metrics. Past performance is not always indicative of future results, and unexpected events or changes in market conditions can lead to deviations from historical patterns.

4. **Risk-Free Rate Assumption:** The use of a constant risk-free rate assumption may not accurately reflect changing opportunities in the fixed-income market. In periods of fluctuating interest rates, the choice of the risk-free rate can significantly impact the Sharpe Ratio's results.

5. **Linear Risk-Return Relationship:** The Sharpe Ratio assumes a linear relationship between risk (measured by standard deviation) and return. In reality, this relationship may not hold, especially during extreme market conditions.

6. **Lack of Consideration for Non-Financial Factors:** The Sharpe Ratio focuses exclusively on financial metrics and does not consider non-financial factors, such as environmental, social, and governance (ESG) criteria or qualitative factors that may be important to certain investors.

7. **Limited to Two Assets:** The traditional Sharpe Ratio is designed for evaluating individual portfolios or assets in comparison to a risk-free asset. It may not be suitable for evaluating more complex portfolios with multiple asset classes.

The Sharpe Ratio is a valuable tool for assessing the risk-adjusted performance of portfolios, but it has its limitations, particularly related to its assumptions and its focus on historical data. Investors and portfolio managers should use the Sharpe Ratio in conjunction with other performance metrics and consider the specific context and objectives of the portfolio when making investment decisions.

13.5.6 Example problem:

Consider the following two portfolios A and B. On the basis of information given, compare the performance of portfolios A and B. You have to request that find and comment which one is best as per Sharper' method of evolution:

Portfolio	Return I (RM)	Risk-free rate (RF)	Excess return (RF – RM)	Portfolio risk (SD)
A	21	8	13	10
B	17	8	9	8

Solution:
A = 13/10 = 1.3
B = 9/8 = 1.125

With the above information it is conclude that the reward per unit of risk in case of Portfolio A is relatively higher than the portfolio B. Hence the portfolio A's performance is said to be good.

13.6 SUMMERY

This comprehensive lesson explores the intricacies of portfolio management, covering key components such as rebalancing, performance evaluation, market analysis, risk management, goal reassessment, tax considerations, liquidity needs, and external factors. It emphasizes the importance of risk and return assessment, risk-adjusted performance, attribution analysis, and benchmark comparison in constructing and managing portfolios.

Additionally, the lesson provides insights into the William F. Sharpe method, particularly the Sharpe Ratio, detailing its components, applications, assumptions, merits, and demerits. An example problem illustrates practical application, making this lesson a valuable resource for understanding portfolio evolution and enhancing investment decision-making.

13.7 KEY WARDS

Rebalancing

Rebalancing refers to the process of returning the values of a portfolio's asset allocations to the levels defined by an investment plan. Those levels are intended to match an investor's tolerance for risk and desire for reward.

External factors

External factors are elements from outside the preview of investor of company that affect business performance, such as competition, economic climate, political and legal environment, technological advances, or major global events.

Risk assessment

Risk assessment is a general term used across many industries to determine the likelihood of loss on an asset, loan, or investment. Assessing risk is essential for determining how worthwhile a specific investment is and the best process(es) to mitigate risk. It presents the upside reward compared to the risk profile. Risk assessment is important in order to determine the rate of return an investor would need to earn to deem an investment worth the potential risk.

Return assessment

Return on investment (ROI) is a performance measure used to evaluate the efficiency or profitability of an investment or compare the efficiency of a number of different investments. ROI tries to directly measure the amount of return on a particular investment, relative to the investment's cost.

Attribution analysis

Attribution analysis, also known as "return attribution" or "performance attribution," is an evaluation tool used to explain and analyze a portfolio's performance against a particular benchmark. It is used to identify sources of excess returns from a firm or fund manager's active investment decisions.

13.8 SELF-ASSESSMENT QUESTIONS

1. *What are the key aspects of portfolio evolution?*
2. *Write a note on different components of portfolio evolution.*
3. *Brief the William F. Sharpe method of portfolio evolution.*
4. *What are the assumptions of Sharpe ratio measurement?*
5. *What are the merits and demerits of Sharpe ratio analysis?*

13.9 FURTHER READINGS

1. *William F. Sharpe, Gordon J. Alexander, and Jeffrey V. Bailey, "Investments" - Prentice Hall*
2. *Prasanna Chandra, "Investment Analysis and Portfolio Management" - McGraw-Hill Education*
3. *S. Kevin, "Investment Management: A Modern Approach" - McGraw-Hill Education*
4. *Rajiv Srivastava and Anil Misra, "Security Analysis and Portfolio Management" - Oxford University Press*
5. *V. K. Bhalla, "Security Analysis and Portfolio Management" - S. Chand & Company Ltd.*
6. *Hrishikes Bhattacharyya, "Investment Management: Text and Cases" - Pearson Education India*
7. *K. V. Bhanu Murthy, "Investment Management: A Strategic Approach" - Excel Books*
8. *P. N. Varshney, "Investment Management: Stock and Bond Portfolios" - Sultan Chand & Sons*
9. *Alok Kumar, "Investment Management" - Excel Books*
10. *Vineeta Sharma, "Portfolio Management: Concepts and Practice" - PHI Learning Private Ltd.*

LESSON 14
METHODS OF TREYNOR AND JENSE FOR PORTFOLIO EVOLUTION

OBJECTIVES

- To understand the method of Treynor properly
- To understand concept of the method of Jense
- To know the differences of these methods
- To able to perform the solutions in this regard

STRUCTURE

14.0 INTRODUCTION

In understanding portfolio evolution, the methodologies of Treynor and Jensen stand as pivotal frameworks. The Treynor method, introduced by Jack Treynor, focuses on risk-adjusted returns by considering portfolio beta as a key factor. It emphasizes assessing performance relative to market risk, aiding investors in optimizing their portfolios for a desired risk level. On the other hand, Jensen's method, pioneered by Michael Jensen, introduces the concept of 'alpha,' indicating the excess return generated by a portfolio beyond what can be explained by market movements. Jensen's Alpha assists investors in evaluating a

portfolio manager's skill in generating returns beyond the expected market performance. Both methodologies play crucial roles in guiding portfolio adaptation and decision-making, ensuring portfolios are fine-tuned for optimal risk-adjusted returns.

14.1 TREYNOR RATIO OF PERFORMANCE

The Treynor Ratio, developed by Jack L. Treynor, is another widely used measure for evaluating the risk-adjusted performance of an investment portfolio. Like the Sharpe Ratio, the Treynor Ratio provides insights into how well a portfolio has performed relative to the risk it has taken. Here's the formula for the Treynor Ratio:

Treynor Ratio = (Portfolio Return - Risk-Free Rate) / Portfolio Beta

14.2 THE COMPONENTS OF THE METHOD

a. **Portfolio Return:** This is the actual return of the investment portfolio over a specific period, which reflects the gains or losses generated by the assets within the portfolio.

b. **Risk-Free Rate:** Similar to the Sharpe Ratio, the Treynor Ratio uses a risk-free rate as a benchmark. The risk-free rate represents the return an investor could achieve with no risk of loss and is typically based on the yield of a government bond with a similar duration to the portfolio's time horizon.

c. **Portfolio Beta:** Portfolio Beta measures the sensitivity of the portfolio's returns to changes in the overall market, typically represented by a broad market index (e.g., Nifty 50). A portfolio with a Beta of 1.0 is expected to move in line with the market, while a Beta greater than 1.0 indicates greater volatility, and a Beta less than 1.0 suggests lower volatility than the market.

The Treynor Ratio provides a measure of how much return a portfolio generates for each unit of systematic risk it takes on. Systematic risk, in this context, is the risk that cannot be eliminated through diversification and is related to market movements.Here are some merits and limitations of the Treynor Ratio for portfolio evaluation:

14.3 TREYNOR'S COMPOSITE PERFORMANCE MEASURE

He was interested in a performance measure that would apply to all investors regardless of their risk preferences. He argued that investors would prefer a CML with a higher slope (as it would place them on a higher utility curve). The slope of this portfolio possibility line is:

$$T = \frac{R_M - R_F}{B_i}$$

Whereas:

R_M = Market Return
R_F = Risk free return and
B_i = Standard Deviation

A larger Ti value indicates a larger slope and a better portfolio for all investors regardless of their risk preferences. The numerator represents the risk premium and the

denominator represents the risk of the portfolio; thus, the value, T, represents the portfolio's return per unit of systematic risk. All risk-averse investors would want to maximize this value.

Notes: The Treynor measure only measures systematic risk – it automatically assumes an adequately diversified portfolio.

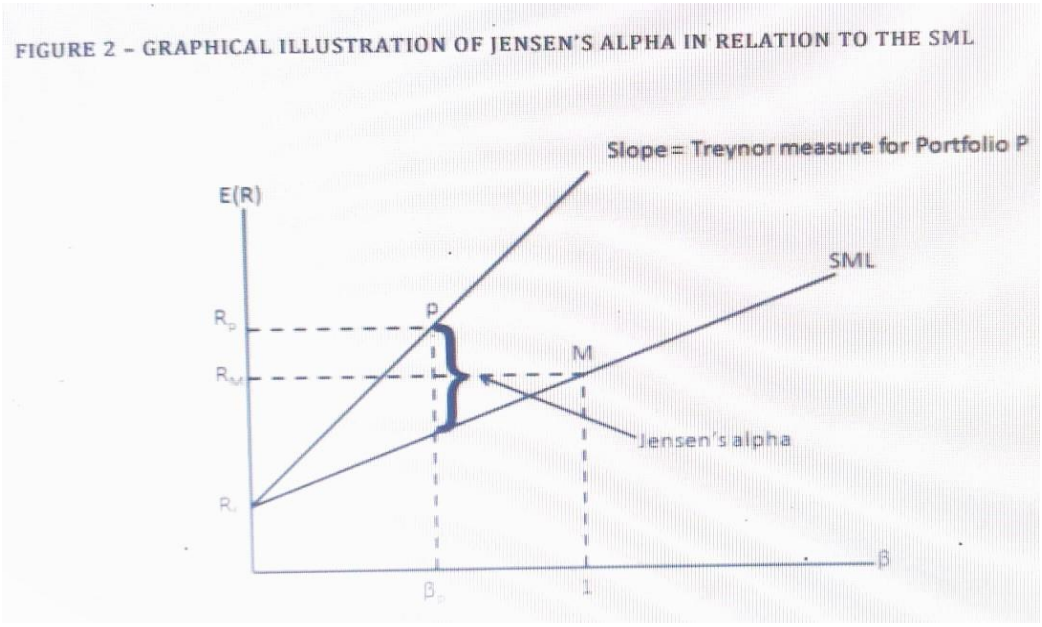
You can compare the T measures for different portfolios. The higher the T value, the better the portfolio performance. For instance, the T value for the market is:

$$Tm = \frac{R_m - RFR}{B_m}$$

In this expression, $B_m = 1$.

14.4 GRAPHICAL PRESENTATION OF TREYNOR'S MODEL

FIGURE 2 – GRAPHICAL ILLUSTRATION OF JENSEN'S ALPHA IN RELATION TO THE SML



14.4.1 Treynor Ratio is based on certain assumptions and simplifications as follows:

1. ***Normal Distribution of Returns:***

Assumption: The Treynor Ratio assumes that the returns of the portfolio and the market follow a normal distribution. In a normal distribution, returns are symmetrically distributed around the mean, forming a bell-shaped curve. This assumption implies that extreme positive or negative returns are relatively rare events.

Implication: If the actual returns of the portfolio and the market do not conform to a normal distribution (e.g., they exhibit fat tails, skewness, or kurtosis), the Treynor Ratio may not accurately capture the risk and may underestimate the potential for extreme losses.

2. ***Linear Relationship Between Risk and Return:***

Assumption: The Treynor Ratio assumes a linear relationship between risk (measured by Portfolio Beta) and return. In other words, it assumes that risk and return move in a consistent and predictable manner.

Implication: Markets can exhibit nonlinear behaviour, especially during extreme events or financial crises. In such cases, the linear assumption may not hold, and the Treynor Ratio may not fully capture the portfolio's risk.

3. ***Constant Risk-Free Rate:***
Assumption: The Treynor Ratio assumes a constant risk-free rate throughout the investment period. This rate is typically represented by a government bond yield with a similar duration to the portfolio's time horizon.

Implication: In reality, risk-free rates can fluctuate over time due to changes in monetary policy, economic conditions, or market dynamics. Using a constant risk-free rate may not accurately reflect changing opportunities in the fixed-income market.

4. ***Single Investment Period:***
Assumption: Like the Sharpe Ratio, the Treynor Ratio typically assesses risk-adjusted performance for a single investment period, whether it's daily, monthly, quarterly, or annually. It assumes that the investor's horizon matches this period.

Implication: If the investor has a different investment horizon, the Treynor Ratio may not fully capture the investor's preferences and risk exposure. For example, a longer-term investor may have a different risk tolerance.

5. ***Past Returns are Indicative of Future Returns:***
Assumption: The Treynor Ratio, like many financial models, relies on historical data to calculate risk and return metrics. It assumes that past returns and risk levels are indicative of future performance.

Implication: Past performance is not always a reliable predictor of future results. Unexpected events, changing market conditions, and other factors can lead to significant deviations from historical patterns.

It's important to recognize these assumptions when using the Treynor Ratio and to be aware of their potential limitations. While the Treynor Ratio is a valuable tool for assessing risk-adjusted performance, it should be used in conjunction with other metrics and analyses, and its results should be interpreted with an understanding of its underlying assumptions. Additionally, investors should consider their specific circumstances and investment horizons when using the Treynor Ratio to make investment decisions.

14.4.2 Merits of the Treynor Model for Portfolio Performance Evaluation:

a. Focus on Systematic Risk: The Treynor Ratio specifically considers the systematic risk of a portfolio, making it a useful metric for investors who want to assess how well a portfolio is rewarded for bearing market risk.

b. Clear Risk-Adjusted Measure: Like the Sharpe Ratio, the Treynor Ratio offers a clear risk-adjusted performance measure that is easy to interpret. It quantifies the excess return earned for each unit of market risk taken.

c. Considers Portfolio Volatility: The use of Portfolio Beta incorporates the portfolio's volatility relative to the market. Portfolios with lower volatility relative to the market will have higher Treynor Ratios, assuming the return is maintained.

14.4.3 Limitations of the Treynor Model for Portfolio Performance Evaluation:

- **Assumption of Linear Relationship:** Similar to the Sharpe Ratio, the Treynor Ratio assumes a linear relationship between risk and return. In reality, this relationship may not always hold, especially during extreme market conditions.

- **Single-Period Focus:** The Treynor Ratio assesses performance for a specific investment period, which may not align with the investor's actual investment horizon. Long-term investors may have different risk and return objectives.

- **Dependency on Historical Data:** Like the Sharpe Ratio, the Treynor Ratio relies on historical data to calculate risk and return metrics. Past performance is not always indicative of future results.

- **Risk-Free Rate Assumption:** The use of a constant risk-free rate assumption may not accurately reflect changing opportunities in the fixed-income market, particularly during periods of fluctuating interest rates.

- **Limited to Systematic Risk:** The Treynor Ratio focuses primarily on systematic risk and may not fully capture other sources of risk, such as specific asset or industry risk.

Treynor Ratio is a valuable tool for assessing risk-adjusted performance, with a specific focus on systematic risk. Like any financial metric, it should be used in conjunction with other performance measures and considered alongside an investor's specific goals and risk tolerance when making investment decisions.

14.5 JENSEN'S COMPOSITE PERFORMANCE MEASURE

Jensen's Alpha, also known as the Jensen Index or Jensen's Performance Measure, is a method used in portfolio management to assess the risk-adjusted performance of an investment portfolio or individual security. Developed by Michael C. Jensen, this measure aims to determine whether a portfolio or security has outperformed or underperformed its expected return based on its level of systematic risk (beta). It is a part of the Capital Asset Pricing Model (CAPM) framework. Here's a brief overview of Jensen's Alpha and how it works:

14.5.1 Formula for Jensen's Alpha:

*Jensen's Alpha (α) = Portfolio Return - [Risk-Free Rate + Portfolio Beta * (Market Return - Risk-Free Rate)]*

14.5.2C**omponents in the theory**:

a. Portfolio Return: This is the actual return of the investment portfolio over a specific period, reflecting the gains or losses generated by the assets within the portfolio.

b. Risk-Free Rate: The risk-free rate represents the return an investor could achieve with no risk of loss. It is typically based on the yield of a government bond with a similar duration to the portfolio's time horizon.

c. Portfolio Beta: Portfolio Beta measures the sensitivity of the portfolio's returns to changes in the overall market, typically represented by a broad market index (e.g., Nifty 50). A portfolio with a Beta of 1.0 is expected to move in line with the market, while a Beta greater than 1.0 indicates greater volatility, and a Beta less than 1.0 suggests lower volatility than the market.

d. Market Return: Market Return represents the return generated by the overall market during the same period. It is typically represented by the return of a market index, such as the S&P 500.

14.5.3 Interpreting Jensen's Alpha:

- A positive Jensen's Alpha (α) indicates that the portfolio or security has outperformed its expected return, considering its level of systematic risk (Beta). In other words, it has generated excess returns beyond what would be expected based on its exposure to market risk.

- A negative Jensen's Alpha suggests that the portfolio or security has underperformed its expected return, given its systematic risk.

- A Jensen's Alpha equal to zero means that the portfolio or security has performed exactly in line with its expected return, given its systematic risk.

14.5.4 Key Points to Consider:

- Jensen's Alpha is a measure of active portfolio management. Positive Alpha suggests that the portfolio manager has added value through active management, while negative Alpha suggests value destruction.

- Jensen's Alpha is based on the Capital Asset Pricing Model (CAPM), which assumes that investors are rational and markets are efficient.

- It focuses on systematic risk (Beta) and does not account for unsystematic or idiosyncratic risk.

- Like other performance metrics, Jensen's Alpha has limitations, including the assumption of a linear relationship between risk and return, reliance on historical data, and the sensitivity to the choice of the risk-free rate and market index.

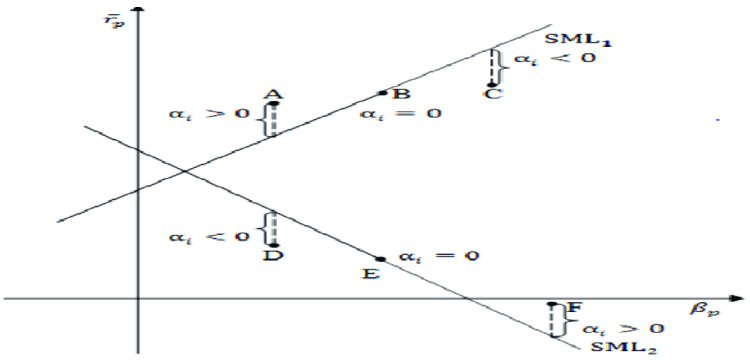
- Portfolio managers and investors often use Jensen's Alpha in conjunction with other performance measures to assess a portfolio's overall risk-adjusted performance.

Jensen's Alpha is a valuable tool for evaluating the risk-adjusted performance of an investment portfolio or security by comparing its actual returns to the returns that would be expected based on its level of systematic risk. A positive Alpha indicates value-added performance, while a negative Alpha suggests underperformance.

By simplification of the method:

Jenson's alpha*=PR−CAPM*
where:
PR=portfolio return
CAPM=risk-free rate+β(return of market risk-free rate of return)

14.5.5 Graphical presentation:



14.5.6 Assumptions of the Jensen's method:

This method is based on the Capital Asset Pricing Model (CAPM) framework and makes several assumptions to assess the risk-adjusted performance of an investment portfolio or individual security. Understanding these assumptions is important when using Jensen's Alpha for portfolio evaluation:

1. *Efficient Markets Hypothesis (EMH):*
Assumption: Jensen's Alpha assumes that financial markets are efficient, meaning that all available information is reflected in asset prices. In efficient markets, it is difficult to consistently outperform the market by making superior investment decisions.

Implication: If markets are not perfectly efficient, and there are opportunities for investors to exploit mispricing or information asymmetries, Jensen's Alpha may not accurately reflect the performance of active portfolio management.

2. *Linear Relationship Between Risk and Return:*
Assumption: Jensen's Alpha assumes a linear relationship between risk and return. It implies that the systematic risk (Beta) of a portfolio or security accurately reflects its expected return. This assumption is consistent with the CAPM.

Implication: In reality, markets may exhibit nonlinear behavior, especially during extreme events or market crises. The linear assumption may not hold under all circumstances.

3. *Rational Investors:*
Assumption: The CAPM framework, upon which Jensen's Alpha is based, assumes that investors are rational and risk-averse. Rational investors make decisions based on expected returns and risk considerations.

Implication: If investors do not always behave rationally, and behavioral biases influence their investment decisions, the relationship between risk and return may deviate from the CAPM assumptions.

4. ***Homogeneous Expectations:***
Assumption: Jensen's Alpha assumes that all investors in the market have the same expectations regarding risk and return for the assets being evaluated.

Implication: In reality, investors may have diverse views and expectations about asset prices, which can lead to varying assessments of risk-adjusted performance.

5. ***Risk-Free Rate and Market Proxy:***
Assumption: Jensen's Alpha relies on a constant risk-free rate and a chosen market index or proxy to represent the market. The risk-free rate is assumed to be risk-free throughout the investment horizon.

Implication: In practice, risk-free rates can fluctuate over time, and the choice of the market proxy may impact the results of Jensen's Alpha. Changes in these inputs can affect the assessment of performance.

6. ***Single-Period Focus:***
Assumption: Jensen's Alpha typically assesses performance for a single investment period, whether it's daily, monthly, quarterly, or annually. It assumes that the investor's horizon matches this period.

Implication: If the investor has a different investment horizon, the use of Jensen's Alpha for performance evaluation may not fully capture the investor's goals and risk tolerance.

It's important to recognize these assumptions when using Jensen's Alpha and to be aware of their potential limitations. While Jensen's Alpha is a valuable tool for assessing risk-adjusted performance, it should be used alongside other metrics and analyses, and its results should be interpreted with an understanding of its underlying assumptions. Additionally, investors and portfolio managers should consider the specific context and objectives of the portfolio when using Jensen's Alpha for performance evaluation.

Jensen's Alpha, a performance measure used in portfolio management, has both advantages and limitations. Understanding these can help investors and portfolio managers make informed decisions when evaluating portfolio performance.

14.5.7 Advantages of Jensen's Method (Jensen's Alpha) for Portfolio Evolution:

- ***Risk-Adjusted Performance:*** Jensen's Alpha provides a measure of risk-adjusted performance by considering the excess return generated by a portfolio or security relative to its expected return given its systematic risk (Beta). This allows investors to assess whether a portfolio is providing value for the level of risk taken.

- ***Focus on Systematic Risk:*** By incorporating Beta, Jensen's Alpha emphasizes systematic risk, which is the risk that cannot be diversified away. This is particularly important for investors who want to evaluate how well a portfolio has performed relative to market movements.

- ***Comparison to a Benchmark:*** Jensen's Alpha provides a clear benchmark for evaluating portfolio performance. A positive Alpha indicates that the portfolio has outperformed expectations, while a negative Alpha suggests underperformance. This makes it easier to assess the value added by active management.

- ***Alignment with CAPM:*** Jensen's Alpha is grounded in the Capital Asset Pricing Model (CAPM), a widely accepted framework for pricing and assessing risk in financial markets. This alignment makes it a theoretically sound metric.

- **Useful for Active Management:** Jensen's Alpha is particularly useful for evaluating the performance of actively managed portfolios where portfolio managers actively make investment decisions to outperform a benchmark.

14.5.8 Limitations of Jensen's Method (Jensen's Alpha) for Portfolio Evolution:

- **Assumptions of CAPM:** Jensen's Alpha is based on the CAPM framework, which makes several simplifying assumptions, including market efficiency, rational investors, and a linear relationship between risk and return. These assumptions may not always hold in real-world markets.

- **Single-Factor Model:** Jensen's Alpha is essentially a single-factor model, relying on Beta as the sole measure of risk. It does not account for other sources of risk or idiosyncratic (firm-specific) risk, which can be important factors in portfolio performance.

- **Dependence on Historical Data:** Like other performance metrics, Jensen's Alpha relies on historical data for calculation. Past performance is not always indicative of future results, and unexpected events or changing market conditions can impact the reliability of historical data.

- **Sensitivity to Benchmark Choice:** The choice of the market index or proxy used as a benchmark can significantly affect the calculation of Jensen's Alpha. Different benchmarks may lead to different conclusions about portfolio performance.

- **Short-Term Focus:** Jensen's Alpha is typically calculated for a single investment period, which may not align with the investor's actual investment horizon. For long-term investors, this short-term focus may not capture the full picture of performance.

- **Difficulty in Interpretation:** Interpreting Jensen's Alpha can be challenging, especially for non-financial professionals. A positive Alpha does not necessarily mean the portfolio is a good investment, and a negative Alpha does not always indicate poor performance.

14.6 PROBLEMS WITH SOLUTIONS OF VARIOUS METHODS:

14.6.1 Problem: Sharpe’s method:

Suppose, you are a portfolio manager responsible for managing a client's investment portfolio. The client has a moderate risk tolerance and is interested in evaluating the

performance of their portfolio over the past year. The portfolio consists of the following assets:

- Stock A: Average annual return = 12%, Standard deviation of returns = 18%
- Stock B: Average annual return = 9%, Standard deviation of returns = 15%
- Bond C: Average annual return = 4%, Standard deviation of returns = 5%

The risk-free rate is currently 3%. Calculate the Sharpe Ratio for the client's portfolio over the past year and assess its risk-adjusted performance.

Solution:
Formula for Sharpe Ratio is:

Sharpe Ratio = (Portfolio Return - Risk-Free Rate) / Portfolio Standard Deviation

Then, we need to calculate the portfolio return and portfolio standard deviation:

1. Calculate the portfolio return:

Portfolio Return = (Weight of Stock A X Return of Stock A) +
(Weight of Stock B X Return of Stock B) +
(Weight of Bond C X Return of Bond C)

Therefore: Portfolio Return = (0.5 X 12%) + (0.3 X 9%) + (0.2 X 4%)
= 6% + 2.7% + 0.8% = 9.5%

2. Calculate the portfolio standard deviation:

To calculate the portfolio standard deviation, we need to consider the weights and correlations of the assets in the portfolio. Since the correlation between assets is not provided in the problem, we will assume that they are uncorrelated for simplicity.

Portfolio Standard Deviation = $\sqrt{[(\text{Weight of Stock A})^2 \text{ X } (\text{Standard Deviation of Stock A})^2 + (\text{Weight of Stock B})^2 \text{ X } (\text{Standard Deviation of Stock B})^2 + (\text{Weight of Bond C})^2 \text{ X} (\text{Standard Deviation of Bond C})^2]}$

Portfolio Standard Deviation = $\sqrt{[(0.5^2 * 18^2) + (0.3^2 * 15^2) + (0.2^2 * 5^2)]}$

Portfolio Standard Deviation = $\sqrt{[81 + 13.5 + 2]} \approx \sqrt{96.5} \approx 9.82\%$

Now, we can calculate the Sharpe Ratio:

Sharpe Ratio = (9.5% - 3%) / 9.82% ≈ 0.65

The calculated Sharpe Ratio for the client's portfolio over the past year is approximately 0.65.

Assessment of Risk-Adjusted Performance:

The Sharpe Ratio measures the risk-adjusted performance of the portfolio. In this case, the calculated Sharpe Ratio of 0.65 indicates that the portfolio has generated a return that is 0.65 standard deviations above the risk-free rate per unit of risk taken.

A Sharpe Ratio of 0.65 suggests that the portfolio has provided a reasonable level of risk-adjusted return. However, the interpretation of whether this is good or bad depends on the client's specific risk tolerance and investment objectives. Further analysis and discussions with the client are necessary to determine if the portfolio's risk-adjusted performance aligns with their goals and preferences.

14.6.2 Problem: Treynor's method:

Suppose, you are a financial analyst analysing a portfolio for a client. The portfolio consists of the following assets with their respective characteristics:

- Stock A: Average annual return = 15%, Beta = 1.2
- Stock B: Average annual return = 10%, Beta = 0.8
- Bond C: Average annual return = 5%, Beta = 0.1

The risk-free rate is currently 3%. Calculate the Treynor Ratio for the portfolio and evaluate its risk-adjusted performance.

Solution:

The formula to calculate the Treynor Ratio is as follows:

Treynor Ratio = (Portfolio Return - Risk-Free Rate) / Portfolio Beta

First, let's calculate the portfolio return and portfolio beta:

1. Calculate the portfolio return:

Portfolio Return = (Weight of Stock A X Return of Stock A) +
(Weight of Stock B X Return of Stock B) +
(Weight of Bond C X Return of Bond C)
Portfolio Return = (0.4 X 15%) + (0.3 X 10%) + (0.3 X 5%)
= 6% + 3% + 1.5%
= 10.5%

2. Calculate the portfolio beta:

Portfolio Beta = (Weight of Stock A XBeta of Stock A) +
(Weight of Stock B XBeta of Stock B) +
(Weight of Bond C X Beta of Bond C)
Portfolio Beta = (0.4 * 1.2) + (0.3 * 0.8) + (0.3 * 0.1)
= 0.48 + 0.24 + 0.03 = 0.75

Now, we can calculate the Treynor Ratio:

Treynor Ratio = (Portfolio Return - Risk-Free Rate) / Portfolio Beta

Treynor Ratio = (10.5% - 3%) / 0.75 ≈ 9.4%

The calculated Treynor Ratio for the portfolio is approximately 9.4%.

Evaluation of Risk-Adjusted Performance:

The Treynor Ratio measures the risk-adjusted performance of the portfolio, specifically focusing on the portfolio's sensitivity to systematic risk (Beta). In this case, the calculated Treynor Ratio of approximately 9.4% indicates that for each unit of systematic risk (Beta) the portfolio has taken, it has generated a return of 9.4% above the risk-free rate.

The interpretation of whether this is good or bad depends on the client's specific risk tolerance and investment objectives. A higher Treynor Ratio suggests better risk-adjusted performance. Further analysis and discussions with the client are necessary to determine if the portfolio's risk-adjusted performance aligns with their goals and preferences.

14.6.3 Problem: Jensen's method:

If you are a portfolio manager tasked with evaluating the performance of a portfolio relative to its expected return based on the Capital Asset Pricing Model (CAPM). The portfolio consists of the following assets:

- Portfolio Return: 14%
- Risk-Free Rate: 3%
- Market Return: 10%
- Portfolio Beta: 1.2

Calculate Jensen's Alpha for the portfolio and assess whether the portfolio has outperformed or underperformed the expected return based on its systematic risk.

Solution:
Jensen's Alpha is calculated using the formula:

Jensen's Alpha (α) = Portfolio Return - [Risk-Free Rate + Portfolio Beta X (Market Return - Risk-Free Rate)]

Let given values:

- Portfolio Return (Rp) = 14%
- Risk-Free Rate (Rf) = 3%
- Market Return (Rm) = 10%
- Portfolio Beta (β) = 1.2

Now, let's substitute the values into the formula:

*Jensen's Alpha (α) = 14% - [3% + 1.2 * (10% - 3%)]*
*Jensen's Alpha (α) ≈ 14% - [3% + 1.2 * 7%]*
Jensen's Alpha (α) ≈ 14% - [3% + 8.4%]
Jensen's Alpha (α) ≈ 14% - 11.4%

Jensen's Alpha (α) ≈ -(-3.4%)
Jensen's Alpha (α) ≈ 3.4%
The calculated Jensen's Alpha for the portfolio is approximately 3.4%.

Interpretation:

Jensen's Alpha of approximately 3.4% suggests that the portfolio has outperformed its expected return, given its level of systematic risk (Beta). The positive Alpha indicates that the portfolio has generated excess returns of about 3.4% beyond what would be expected based on its exposure to market risk.

In summary, the portfolio has performed well in terms of generating returns above the expected return based on its Beta, demonstrating positive performance relative to the Capital Asset Pricing Model (CAPM).

14.7 SUMMERY

Evolution of portfolio is one of the important events of both the individuals and firms. Every inverter wishes to get more than existing minimum rate of return through his investment. To understand the worth of the portfolio and make changes appropriately and timely portfolio evolution is essential. Most of the theories are helping in this pattern.

However, Treynor, Jensen, Sharper and others are contributing a lot in this direction. They provide facility to understanding easily with the contents and proper interpretation made easy.

14.8 KEY WARDS

1. *Return on investment:*
2. *Portfolio Beta:*
3. *Normal distribution:*
4. *Systematic risk*
5. *Portfolio return*

14.9 SELF-ASSESSMENT QUESTIONS

1. *Write a note on Treynor's ratio for evolution of portfolio.*
2. *What are the advantages and disadvantages with Treynor's ratio analysis?*
3. *How Jensen' composite performance measure works?*
4. *What are the key points to be consider for Jensen's method?*
5. *Make comparison between Treynor and Jensen's methods.*
6. *What is Sharpe's method of portfolio valuation?*

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LESSON 15

FAMA'S THEORY AND PORTFOLIO REVISION

OBJECTIVES

- To understand the concept of Fama's theory of evolution
- To able to find the solutions of evolution problem
- To able to understand the variations in different evolution theories
- To understand the concept of portfolio revision
- To know the merits and demerits of the revision

STRUCTURE

15.0 INTRODUCTION

Fama's Theory, attributed to Nobel laureate Eugene Fama, is a cornerstone of modern finance. It postulates that markets are efficient and incorporate all available information, making it challenging to consistently outperform the market through stock selection or timing. Efficient Market Hypothesis (EMH), a key element of Fama's theory, suggests that asset prices already reflect all known information, rendering attempts to predict future prices futile. Consequently, portfolio revision within the context of Fama's theory emphasizes diversification, risk management, and asset allocation as essential strategies to optimize returns within the efficient market framework. Investors following Fama's theory seek to construct portfolios that align with their risk tolerance and financial goals, while acknowledging that beating the market consistently through stock-picking or market-timing is exceedingly difficult due to the efficiency of financial markets.

15.1 FAMA'S DECOMPOSITION OF PORTFOLIO THEORY

The Fama-French three-factor model was developed by University of Chicago professors Eugene Fama and Kenneth French. Both are attempted to better measure market returns and, through research, found that value stocks outperform growth stocks.

Similarly, small-cap stocks tend to outperform large – cap stocks. As an evaluation tool, the performance of portfolios with a large number of small-cap or value stocks would be lower than the CAPM result, as the Three-Factor Model adjusts downward for observed small-cap and value stock outperformance.

The Fama and French model has three factors: the size of firms, book-to-market values, and excess return on the market. In other words, the three factors used are small minus big (SMB), high minus low (HML), and the portfolio's return less the risk-free rate of return. SMB accounts for publicly traded companies with small market caps that generate higher returns, while HML accounts for value stocks with high book-to-market ratios that generate higher returns in comparison to the market.

15.1.1 Assumptions of Fama's Decomposition Theory:

This decomposition is typically done using a multifactor model like the Capital Asset Pricing Model (CAPM) or the Fama-French Three-Factor Model. The assumptions for this decomposition can include:

1. **Efficient Markets Hypothesis (EMH):** Fama's theory assumes that financial markets are efficient, implying that all available information is already incorporated into the prices of securities. In an efficient market, it's challenging for investors to consistently earn excess returns.

2. **Investor Rationality:** The theory assumes that investors are rational and make investment decisions based on maximizing expected returns for a given level of risk. Rationality implies that investors incorporate all available information into their investment decisions.

3. **Risk and Return Relationship:** The theory assumes a linear relationship between risk and expected return. It follows the traditional finance notion that higher expected returns are associated with higher levels of risk. This assumption is fundamental to the CAPM, which forms the basis for decomposition in Fama's theory.

4. **Homogeneous Expectations:** The decomposition assumes that all investors in the market share similar expectations regarding risk and return for the assets being evaluated. This assumption simplifies the model, assuming a uniform perception of asset characteristics and market expectations.

5. **Portfolio Diversification:** Fama's decomposition assumes that investors hold well-diversified portfolios to mitigate unsystematic risk. Diversification ensures that the risk factors analysed are systematic and relevant to the portfolio's overall return.

6. **Risk-Free Rate:** The presence of a risk-free rate is assumed, providing a baseline for risk-adjusted return calculations. The risk-free rate represents a theoretical investment with zero risk and serves as a benchmark for assessing portfolio performance.

7. **Linear Factor Models:** Fama's decomposition relies on linear factor models like the CAPM or the Fama-French Three-Factor Model to break down the portfolio's return into contributions from systematic risk factors. The assumption is that these factor models adequately represent the portfolio's risk exposures.

8. **Normality of Returns:** The theory often assumes that asset returns follow a normal distribution or a distribution close to normality. This assumption simplifies calculations and statistical analysis, although in practice, returns may not strictly adhere to a normal distribution.

These assumptions help construct a framework for analysing and understanding the sources of portfolio returns. However, it's important to recognize that these assumptions are simplifications of the real-world complexities of financial markets, and deviations from these assumptions can and do occur in practice. Investors and practitioners should use these assumptions as a starting point while acknowledging the limitations and realities of financial markets.

15.1.2 The Fama-French Three-Factor Model Formula:

The mathematical representation of the Fama-French three-factor model is:

$$r = r_f + \beta_1(r_m - r_f) + \beta_2(SMB) + \beta_3(HML) + \varepsilon$$

Whereas:

R = Expected rate of return

r_f = Risk-free rate

ß = Factor's coefficient (sensitivity)

$(r_m - r_f)$ = Market risk premium

SMB = Historic excess returns of small-cap companies over large-cap companies. (Small Minus Big)

HML = Historic excess returns of value stocks (high book-to-price ratio) over growth stocks (low book-to-price ratio)(High Minus Low)

Ɛ = Risk

Let discuss about prime concepts in this model:

1. Market Risk Premium (MRP): It is a key concept in finance that represents the additional return an investor expects to receive for holding a risky asset, such as a stock, compared to a risk-free asset, typically represented by government bonds. It is a fundamental component of various asset pricing models, including the Capital Asset Pricing Model (CAPM), which is widely used to estimate the expected return on an asset.

Calculation: Market risk premium is the difference between the expected return of the market and the risk-free rate. Mathematically, MRP = Expected Market Return - Risk-Free Rate. It provides an investor with an excess return as compensation for the additional volatility of returns over and above the risk-free rate.

Interpretation: A positive Market Risk Premium suggests that investors are demanding compensation for taking on the inherent risk associated with investing in the market compared to a risk-free alternative. The higher the MRP, the greater the compensation investors are seeking for the additional risk.

Investment Decision-Making: Investors use the Market Risk Premium as a guide for making investment decisions. If the expected return on a particular investment is higher than what is justified by the Market Risk Premium, it may be considered an attractive investment opportunity.

2. SMB (Small Minus Big):SMB is one of the three factors in the Fama-French Three-Factor Model, which aims to explain stock returns by considering three main sources of risk: market risk (captured by the market return), size risk (SMB), and value risk (HML - High Minus Low). SMB specifically measures the historical difference in returns between small-cap stocks and large-cap stocks.

Calculation: Small Minus Big (SMB) is a size effect based on the market capitalization of a company. SMB measures the historic excess of small-cap companies over big-cap companies. Once SMB is identified, its beta coefficient (β) can be determined via linear regression. A beta coefficient can take positive values, as well as negative ones. The main rationale behind this factor is that, in the long-term, small-cap companies tend to see higher returns than large-cap companies.

Interpretation: A positive SMB indicates that, historically, small-cap stocks have outperformed large-cap stocks, while a negative SMB suggests that large-cap stocks have outperformed small-cap stocks. The SMB factor is based on the observation that, over certain periods, small-cap stocks tend to have higher average returns compared to large-cap stocks. This is often attributed to the higher risk associated with small-cap stocks, including higher volatility and lower liquidity.

Investment Decision-Making: Investors and portfolio managers use information about SMB to adjust their investment strategies. For instance, if SMB is expected to be positive in the future, investors might tilt their portfolios towards small-cap stocks to potentially benefit from this expected outperformance.

3. HML (High Minus Low): HML is one of the three factors in the Fama-French Three-Factor Model, which aims to explain stock returns by considering three main sources of risk:

market risk (captured by the market return), size risk (SMB - Small Minus Big), and value risk (HML). HML specifically measures the historical difference in returns between value and growth stocks based on their book-to-market ratios.

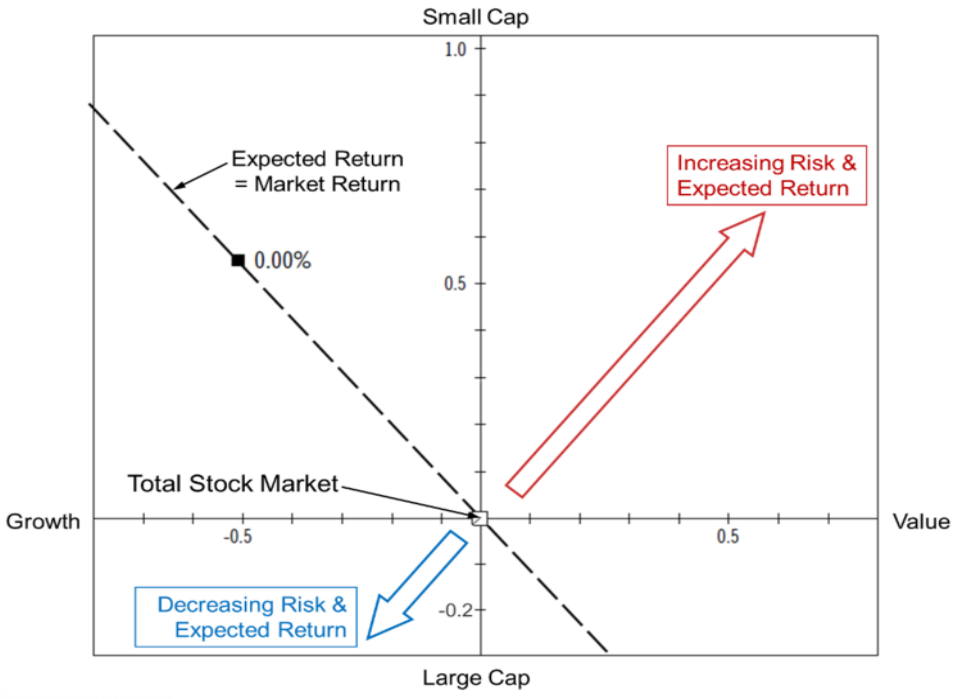
Calculation: High Minus Low (HML) is a value premium. It represents the spread in returns between companies with a high book-to-market value ratio (value companies) and companies with a low book-to-market value ratio. Like the SMB factor, once the HML factor is determined, its beta coefficient can be found by linear regression. The HML beta coefficient can also take positive or negative values.

Interpretation: A positive HML indicates that, historically, value stocks (high book-to-market) have outperformed growth stocks (low book-to-market), while a negative HML suggests the opposite.

Investment Decision-Making: HML contributes to understanding market anomalies, helping researchers and practitioners explain observed patterns in stock returns. It forms part of the academic foundation for understanding the value premium, a phenomenon where value stocks tend to outperform growth stocks.

The HML factor reveals that, in the long-term, value stocks (high book-to-market ratio) enjoy higher returns than growth stocks (low book-to-market ratio).

Graphical presentation:



15.1.3 Importance of the Fama-French Three-factor Model:

The Fama-French three-factor model is an expansion of the Capital Asset Pricing Model (CAPM). The model is adjusted for outperformance tendencies. Also, two extra risk factors make the model more flexible relative to CAPM.

According to the Fama-French three-factor model, over the long-term, small companies over perform large companies, and value companies beat growth companies. The studies conducted by Fama and French revealed that the model could explain more than 90% of diversified portfolios' returns. Similar to the CAPM, the three-factor model is designed based on the assumption that riskier investments require higher returns.

15.1.4 Problem and solution- 1:

You are a financial analyst evaluating the performance of a portfolio using the Fama-French Three-Factor Model. The portfolio consists of the following investments:

Portfolio's average annual return : 12%
Risk-free rate : 3%
Market return : 10%
Small Cap minus Big Cap (SMB) factor return : 4%
High Minus Low (HML) factor return : 3%
Portfolio's beta with respect to the market (βm) : 1.2
Portfolio's exposure to the SMB factor (βs) : 0.8
Portfolio's exposure to the HML factor (βh) : 0.5

Calculate the expected return of the portfolio using the Fama-French Three-Factor Model.

Solution:

The Fama-French Three-Factor Model estimates the expected return of a portfolio using the following formula:

Expected Portfolio Return = Risk-Free Rate + βm C (Market Return - Risk-Free Rate) + βs X SMB + βh X HML

Given values:

- Risk-free rate (Rf) = 3%
- Market return (Rm) = 10%
- SMB factor return = 4%
- HML factor return = 3%
- Portfolio's beta with respect to the market (βm) = 1.2
- Portfolio's exposure to the SMB factor (βs) = 0.8
- Portfolio's exposure to the HML factor (βh) = 0.5

Now, let's substitute the values into the formula to calculate the expected portfolio return:

Expected Portfolio Return = 3% + 1.2 * (10% - 3%) + 0.8 * 4% + 0.5 * 3%

Expected Portfolio Return ≈ 3% + 1.2 * 7% + 3.2% + 1.5%

Expected Portfolio Return ≈ 3% + 8.4% + 3.2% + 1.5%

Expected Portfolio Return ≈ 16.1%

The calculated expected return of the portfolio using the Fama-French Three-Factor Model is approximately 16.1%.

Interpretation:

The expected portfolio return estimated using the Fama-French Three-Factor Model is approximately 16.1%. This model accounts for not only the market factor but also the size and value factors (SMB and HML, respectively) in estimating the portfolio's expected return.

15.1.5 Problem and solution-2:

You are analyzing the performance of a portfolio using the Fama-French Three-Factor Model. The portfolio has the following characteristics and factor exposures:

- Portfolio's average annual return: 15%
- Risk-free rate: 4%
- Market return: 12%
- Small Cap minus Big Cap (SMB) factor return: 5%
- High Minus Low (HML) factor return: 4%
- Portfolio's beta with respect to the market (βm): 1.5
- Portfolio's exposure to the SMB factor (βs): 1.0
- Portfolio's exposure to the HML factor (βh): 0.7

Calculate the expected return of the portfolio using the Fama-French Three-Factor Model.

Solution:

The Fama-French Three-Factor Model estimates the expected return of a portfolio using the following formula:

Expected Portfolio Return = Risk-Free Rate + βm * (Market Return - Risk-Free Rate) + βs * SMB + βh * HML

Given values:

- Risk-free rate (Rf) = 4%
- Market return (Rm) = 12%
- SMB factor returns = 5%
- HML factor return = 4%
- Portfolio's beta with respect to the market (βm) = 1.5
- Portfolio's exposure to the SMB factor (βs) = 1.0
- Portfolio's exposure to the HML factor (βh) = 0.7

Now, let's substitute the values into the formula to calculate the expected portfolio return:

Expected Portfolio Return = 4% + 1.5 * (12% - 4%) + 1.0 * 5% + 0.7 * 4%

Expected Portfolio Return ≈ 4% + 1.5 * 8% + 5% + 2.8%

Expected Portfolio Return ≈ 4% + 12% + 5% + 2.8%

Expected Portfolio Return ≈ 23.8%

The calculated expected return of the portfolio using the Fama-French Three-Factor Model is approximately 23.8%.

Interpretation:

The expected portfolio returns estimated using the Fama-French Three-Factor Model is approximately 23.8%. This model considers not only the market factor but also the size and value factors (SMB and HML, respectively) in estimating the portfolio's expected return.

15.2 MERITS AND DEMERITS OF THE FAMA-FRENCH THREE-FACTOR MODEL

The model is an extension of the Capital Asset Pricing Model (CAPM) that incorporates additional factors to better explain stock returns. The model uses three factors: market risk (systematic risk), size (small minus big, SMB), and value (high minus low, HML). While the model has been widely adopted and has significantly contributed to our understanding of asset pricing, it's important to recognize its merits and demerits as stated below:

15.2.1 Merits of the model:

1. **Improved Explanation of Stock Returns:** The Fama-French Three-Factor Model provides a more comprehensive and accurate explanation of stock returns compared to the traditional CAPM. By incorporating size and value factors, it accounts for empirical observations that small-cap and value stocks often have different returns than predicted by the CAPM.

2. **Factors Reflect Real Economic Intuition:** The three factors (market, size, and value) have economic intuition and represent sensible risk factors. Market risk captures the overall market risk premium, size accounts for the additional risk associated with smaller companies, and value accounts for the extra risk related to value stocks.

3. **Reflects Market Anomalies:** The model helps in explaining certain market anomalies, such as the value premium (value stocks outperforming growth stocks) and the size premium (small-cap stocks outperforming large-cap stocks). This contributes to a more realistic understanding of market behaviour.

4. **Provides Useful Insights for Portfolio Management:** Portfolio managers can use the Fama-French factors to adjust their investment strategies. By considering size and value factors, they can tailor portfolios to potentially benefit from the characteristics associated with these factors.

5. **Academic and Empirical Acceptance:** The Fama-French Three-Factor Model has gained widespread acceptance in academic and empirical research. Numerous studies have validated the model's effectiveness in explaining stock returns and have expanded upon it to include additional factors.

15.2.2 Demerits of the Model:

1. **Simplified Assumptions:** The model, like the CAPM, is built on certain simplifying assumptions such as a linear relationship between risk and return. Real-world markets may exhibit nonlinearities and complexities that the model doesn't fully capture.

2. **Data Sensitivity:** The Fama-French Three-Factor Model is sensitive to the data period and the choice of factors. Different time frames or variations in factors can lead to variations in the results, impacting the interpretation of the model's effectiveness.

3. **Limited Factors:** The model includes three main factors, but it may not capture all relevant risk factors that influence stock returns. Other factors like momentum, quality, or market sentiment could also be important but are not accounted for in this model.

4. **Difficulty in Implementation:** Implementing the model can be complex, especially for individual investors or practitioners who may lack the resources or tools to efficiently calculate and utilize the factors in their portfolio strategies.

5. **Market Dynamics Change Over Time:**Market dynamics change, and the factors that were relevant in the past may not hold the same significance in the future. Economic conditions, investor behaviour, and market regulations can evolve, affecting the validity of the model over time.

The Fama-French Three-Factor Model is a valuable tool that enhances our understanding of asset pricing and stock returns by incorporating additional risk factors beyond the traditional CAPM. However, it's important to acknowledge its limitations and use it as part of a broader toolkit for analysing and managing portfolios.

15.3 A table format of three formulas:

The William Sharpe Ratio, Treynor Ratio, and Jensen's Alpha are all commonly used measures to evaluate the performance and risk-adjusted returns of a portfolio. Here's a comparative table outlining the key features of each measure:

Measure	**Formula**	**Key Features**
Sharpe Ratio	Sharpe Ratio =σpRp−Rf	- Measures risk-adjusted returns
		- Compares portfolio return to risk-free rate
		- Higher value indicates better risk-adjusted return
Treynor Ratio	Treynor Ratio =βpRp−Rf	- Measures risk-adjusted returns relative to market
		- Compares portfolio return to market risk (beta)
		- Useful for assessing systematic risk
Jensen's Alpha	Jensen′s Alpha =Rp−(Rf+βp×(Rm−Rf))	- Measures excess return over the expected return from CAPM
		- Compares portfolio actual return to expected return based on CAPM
		- Positive alpha indicates outperformance relative to the CAPM expected return

Rp = Portfolio return; Rf = Risk-free rate; σp = Portfolio standard deviation (risk)
βp = Portfolio beta (systematic risk); Rm = Market return

These measures are essential tools in portfolio analysis, helping investors evaluate the risk-adjusted performance of their investments and compare them to appropriate benchmarks. The Sharpe Ratio and Treynor Ratio assess risk-adjusted returns, while Jensen's Alpha evaluates performance relative to the Capital Asset Pricing Model (CAPM).

15.4 PORTFOLIO REVISION

The art of changing the mix of securities in a portfolio is called as portfolio revision. The process of addition of more assets in an existing portfolio or changing the ratio of funds invested is called as portfolio revision. The sale and purchase of assets in an existing portfolio over a certain period of time to maximize returns and minimize risk is called as Portfolio revision.

Portfolio revision involves changing the existing mix of securities. This may be affected either by changing the securities currently included in the portfolio or by altering the proportion of funds invested in the securities. New securities may be added to the portfolio or some of the existing securities may be removed from the portfolio. Portfolio revision thus leads to purchases and sales of securities.

15.5 OBJECTIVES OF THE PORTFOLIO REVISION

The objective of portfolio revision is the same as the objective of portfolio selection like maximizing the return for a given level of risk or minimizing the risk for a given level of return. The ultimate aim of portfolio revision is the maximization of returns and minimization of risk. Here is a brief overview of portfolio revision:

15.5.1 Assessment of Objectives: The first step in portfolio revision is to assess the investor's or organization's financial objectives. This includes determining their long-term and short-term goals, risk tolerance, and liquidity needs. Understanding these objectives is crucial for making appropriate revisions.

15.5.2 Review of Current Portfolio: Portfolio managers review the existing portfolio to evaluate its performance and composition. They examine the asset allocation, individual holdings, and how well the portfolio has performed relative to benchmarks and goals.

15.5.3 Asset Allocation Adjustments: Based on the assessment of objectives and current portfolio composition, portfolio revision may involve changes to the asset allocation. Asset allocation refers to the distribution of investments across different asset classes, such as stocks, bonds, and cash. Adjustments are made to achieve the desired balance between risk and return.

15.5.4 Security Selection: Within each asset class, portfolio managers may revise their security selection. This involves deciding which specific stocks, bonds, or other securities to include in the portfolio. They consider factors like the potential for growth, income generation, and risk associated with each security.

15.5.5 Risk Management: Portfolio revision includes a focus on risk management. Portfolio managers assess the portfolio's risk exposure and may implement strategies to mitigate risks. This could involve diversification, hedging, or adjustments to the mix of assets.

15.5.6 Market Analysis: Ongoing market analysis is crucial for portfolio revision. Portfolio managers monitor economic and market conditions, as well as geopolitical events, to anticipate potential changes that may impact the portfolio. This analysis informs decisions about asset allocation and security selection.

15.5.7 Tax Considerations: Tax implications are taken into account during portfolio revision. Managers may implement tax-efficient strategies when buying or selling assets to minimize tax liabilities and optimize after-tax returns.

15.5.8 Liquidity Needs: Portfolio revision considers the investor's or organization's liquidity needs. If there are upcoming expenses or withdrawals, the portfolio may be adjusted to ensure that sufficient liquid assets are available.

15.5.9 Rebalancing: As part of the revision process, portfolio managers may rebalance the portfolio to bring it back in line with the target asset allocation. This involves selling assets that have become over weighted and purchasing assets that have become underweighted.

15.5.10 Regular Review: Portfolio revision is not a one-time event but an ongoing process. Investors and portfolio managers regularly review and revise the portfolio to adapt to changing circumstances and ensure it remains aligned with objectives.

Overall, portfolio revision is a dynamic and iterative process that aims to optimize the portfolio's performance while managing risk and ensuring that it continues to meet the investor's or organization's financial goals. It requires careful analysis, monitoring, and decision-making to make adjustments that enhance the likelihood of achieving desired outcomes.

15.6 NEED FOR PORTFOLIO REVISION

Portfolio revision is a critical aspect of portfolio management, and it involves reviewing and adjusting the composition of a portfolio to align with the investor's financial goals, risk tolerance, market conditions, and changes in the economic and financial landscape. The need for portfolio revision arises due to several important reasons:

15.6.1 Changing Financial Goals and Objectives: Over time, an investor's financial goals and objectives may change. Life events such as marriage, having children, buying a house, or nearing retirement could necessitate a shift in the portfolio's composition to meet new financial targets.

15.6.2 Risk Tolerance Adjustments: An investor's risk tolerance may evolve due to changes in personal circumstances, such as changes in income, employment status, or health. A reassessment of risk tolerance often leads to adjustments in the portfolio to ensure it aligns with the investor's risk appetite.

15.6.3 Market Conditions and Economic Factors: Market conditions and economic factors change constantly. Economic indicators, interest rates, inflation, and geopolitical events impact various asset classes differently. Portfolio revision helps to reallocate assets based on changing market dynamics to optimize returns and manage risk.

15.6.4 Performance Evaluation and Monitoring: Regular portfolio reviews and performance evaluations are crucial to assess the effectiveness of the existing investment strategy. If the portfolio is underperforming or not meeting the expected returns, a revision may be necessary to enhance performance.

15.6.5 Rebalancing to Maintain Asset Allocation: Asset allocation is a fundamental strategy for risk management and return optimization. Market movements can cause deviations from the intended asset allocation. Periodic portfolio revision ensures that the portfolio is rebalanced to maintain the desired asset allocation and risk-return profile.

15.6.6 New Investment Opportunities: New investment opportunities may arise in the market due to technological advancements, changes in regulations, or the introduction of new financial instruments. Portfolio revision allows investors to capitalize on these opportunities and potentially enhance the portfolio's returns.

15.6.7 Tax Considerations: Tax implications are an important factor in portfolio management. Changes in tax laws or an investor's tax situation may necessitate adjustments to the portfolio to optimize tax efficiency and minimize tax liability.

15.6.8 Liquidity Needs: Changing liquidity needs, such as upcoming major expenses or retirement, can require portfolio adjustments to ensure that sufficient funds are available when needed. Portfolio revision can help create a more liquid portfolio if necessary.

15.6.9 Long-Term vs. Short-Term Goals: A well-constructed portfolio should be aligned with an investor's investment horizon. Portfolio revision helps in adjusting the portfolio to ensure that it is structured to meet both short-term and long-term financial goals.

In summary, the need for portfolio revision is driven by changes in an investor's financial situation, market conditions, risk tolerance, performance evaluation, tax considerations, and the pursuit of optimal returns. Regular reviews and adjustments are essential to maintain a well-structured and effective investment portfolio that aligns with the investor's evolving circumstances and objectives.

15.7 SUMMERY

Fama's theory postulates that markets are efficient and incorporate all available information, making it challenging to consistently outperform the market through stock selection or timing. Observing the merits and demerits of the theory, it concludes that very useful in the modern days. One of the essential act that has to be adopted by all the investor is revision of their portfolio. In is not only meant of providing security for the present list of items but, also able to maintain a better one than the previous. The need for frequent revision of present portfolio is stressed due to the dynamism in the market.

15.8 KEY WORDS

Investor rationality:

Rational behaviour refers to a decision-making process that is based on making choices that result in the optimal level of benefit or utility for an individual. The assumption of rational behavior implies that people would rather take actions that benefit them versus

actions that are neutral or harm them. Most classical economic theories are based on the assumption that all individuals taking part in an activity are behaving rationally.

Risk free rate:

The risk-free rate of return is the theoretical rate of return of an investment with zero risk. The risk-free rate represents the interest an investor would expect from an absolutely risk-free investment over a specified period of time.

Market dynamics:

Market dynamics are the forces that impact prices and the behaviors of producers and consumers in an economy. These forces create pricing signals that result from a change in supply and demand.

15.9 SELF – ASSESSMENT QUESTIONS

1. Brief the theory of decomposition of portfolio of Fama.
2. What are the advantages and disadvantages to use of Fama's theory?
3. What are the prime assumptions of Fama's theory?
4. Discuss about prime concepts of Fama's theory.
5. What are the objectives of portfolio revision?
6. What is the need for portfolio revision?

15.10 FURTHER READINGS

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LESSON 16

STRATEGIES OF PORTFOLIO REVISION

OBJECTIVES

- To understand the concept of portfolio revision
- To know the various taxes implemented on capitals
- To understand the statuary and other provisions in this regard
- To understand different strategies for portfolio revision
- To know the benefits with portfolio revision

STRUCTURE

16.0 INTRODUCTION

Portfolio revision involves the strategic review and adjustment of an investment portfolio to align with an investor's changing objectives, risk tolerance, and market conditions. It is a dynamic process aimed at optimizing returns and minimizing risk by reallocating assets based on evolving financial goals, economic factors, or market trends. Investors frequently reassess their portfolios to ensure they reflect their desired asset mix and risk profile. This may involve buying or selling securities, adjusting allocations, or diversifying to enhance performance or manage risk. The goal of portfolio revision is to maintain an optimal balance that aligns with an investor's evolving financial situation and objectives, thereby maximizing the potential for achieving long-term financial success.

16.1 CONSTRAINTS IN PORTFOLIO REVISION

Portfolio revision is the process of adjusting the existing portfolio in accordance with the changes in financial markets and the investor ‘s position so as to ensure maximum return from the portfolio with the minimum of risk. Portfolio revision or adjustment necessitates purchase and sale of securities. The practice of portfolio adjustment involving purchase and sale of securities gives rise to certain problems which act as constraints in portfolio revision. Some of these areas under:

16.2 TRANSACTION COST

Transaction costs are the expenses incurred when buying or selling assets within a portfolio. These costs can significantly impact the overall return and performance of the portfolio. It's essential to understand and manage transaction costs effectively during portfolio revision. Here's a brief overview:

16.2.1 Definition:

Transaction costs include brokerage fees, commissions, bid-ask spreads (the difference between buying and selling prices of an asset), taxes on capital gains, and other expenses associated with trading securities.Transaction costs directly reduce the returns on investments. High transaction costs can erode a significant portion of the gains or even result in a loss on a particular investment.

16.2.2 Minimization Strategies:

- **Bulk Trading:** Aggregating trades to reduce the number of transactions can help minimize costs.
- **Negotiating Fees:** Negotiating lower commission rates with brokers can reduce trading expenses.
- **Using Low-Cost Platforms:** Utilizing online platforms or discount brokers with lower transaction fees can be cost-effective.
- **Efficient Portfolio Rebalancing:** Combining multiple adjustments into a single rebalancing event helps minimize the number of trades and associated costs.
- **Tax-Efficient Trading:** Considering tax implications and employing tax-efficient trading strategies can reduce capital gains taxes.

Frequent trading can result in higher transaction costs due to the increased number of trades. Long-term investors often opt for a buy-and-hold strategy to minimize transaction costs and taxes. Less liquid assets, like certain small-cap stocks or bonds, may have wider bid-ask spreads, resulting in higher transaction costs. High liquidity assets, such as major exchange-traded funds (ETFs) or large-cap stocks, generally have lower transaction costs.

Transaction costs, as a percentage of the portfolio, tend to be higher for smaller portfolios compared to larger portfolios. Smaller portfolios may need to carefully consider transaction costs relative to the potential benefits of each trade. Utilizing advanced trading technologies and algorithms can help automate trading decisions, reduce errors, and minimize transaction costs.

Effectively managing transaction costs is crucial to ensure that portfolio revisions are cost-efficient and align with the investor's goals of maximizing returns and managing risk within the specified constraints.

16.3 TAXES

Taxes play a critical role in portfolio revision, and understanding their implications is essential for making informed investment decisions. Here's a brief overview of taxes in relation to portfolio revision:

16.3.1 Capital Gains Tax: Capital gains tax is levied on the profits realized from selling investments like stocks, bonds, real estate, or other capital assets. It's important to consider the tax consequences of selling assets during portfolio revision, as it impacts the after-tax return on the investment.

16.3.2 Short-Term vs. Long-Term Capital Gains: Short-term capital gains typically have higher tax rates compared to long-term gains. Holding an investment for more than a specified period (usually one year) can qualify for lower long-term capital gains tax rates.

16.3.3 Tax-Loss Harvesting: Tax-loss harvesting involves selling investments that have experienced losses to offset gains and minimize taxes. Losses can be used to offset gains in the same tax year or carried forward to offset gains in future years.

16.3.4 Dividend and Interest Income: Dividends and interest earned from investments are usually taxable in the year they are received. Different types of income (e.g., qualified dividends) may have preferential tax rates.

16.3.5 Tax-Efficient Investing: Portfolio revision should consider tax-efficient strategies to minimize tax liabilities. This may involve placing tax-inefficient assets (those generating high taxable income) in tax-advantaged accounts and tax-efficient assets in taxable accounts.

16.3.6 Tax-Advantaged Accounts: Utilize tax-advantaged accounts like Individual Retirement Accounts (IRAs), 401(k)s, or Health Savings Accounts (HSAs) to reduce tax liabilities on capital gains, dividends, and interest income.

16.3.7 Estate and Inheritance Taxes: Depending on the jurisdiction and the estate's value, there may be taxes associated with transferring assets to heirs. Estate planning is crucial to minimize the tax impact on the estate and beneficiaries.

16.3.8 Tax Bracket Consideration: Consider the investor's current and expected future tax brackets when making decisions on portfolio revision, especially for withdrawals from tax-deferred accounts like traditional IRAs.

16.3.9 State and Local Taxes: Be aware of state and local taxes, which can vary in rates and treatment of investment income. Consider the impact of state taxes on portfolio revision decisions.

16.3.10 Tax Reporting and Compliance: Ensure accurate tax reporting and compliance with tax laws and regulations, including reporting gains, losses, and income from investments. Seek advice from tax professionals or financial advisors with expertise in tax planning to optimize portfolio revision decisions in a tax-efficient manner.

Effectively managing taxes during portfolio revision helps investors maximize after-tax returns and align their investment strategies with their overall financial goals while complying with tax regulations.

16.4 STATUTORY STIPULATIONS

The largest portfolios in every country are managed by investment companies and mutual funds. These institutional investors are normally governed by certain statutory stipulations regarding their investment activity. These stipulations often act as constraints in timely portfolio revision.

16.5 INTRINSIC DIFFICULTY

Portfolio revision is a difficult and time-consuming exercise. The methodology to be followed for portfolio revision is also not clearly established. Different approaches may be adopted for the purpose. The difficulty of carrying out portfolio revision itself may act as a constraint to portfolio revision.

16.6 RISK TOLERANCE

Investors have different levels of risk tolerance based on their financial goals, time horizon, and psychological comfort with risk. Portfolio revisions must adhere to the investor's risk tolerance to avoid taking on too much or too little risk.

16.7 LIQUIDITY NEEDS

Investors may have specific liquidity requirements, such as regular cash flows for living expenses or planned expenses like education or a home purchase. Portfolio revision should consider these needs and ensure adequate liquidity.

16.8 TIME HORIZON

The time horizon for achieving financial goals is crucial in determining the portfolio's asset allocation and risk profile. Changes in the portfolio should be consistent with the investor's time horizon for each goal.

16.9 INVESTMENT MANDATE

Institutional investors, such as pension funds or endowments, often have specific investment mandates that dictate the types of investments and strategies they can employ. Portfolio revision must align with these mandates.

16.10 ETHICAL OR SOCIAL CONSTRAINTS

Some investors have ethical or social guidelines that dictate the types of companies or industries they want to avoid or support. Portfolio revision should consider these constraints.

16.11 DIVERSIFICATION REQUIREMENTS

Diversification is essential to manage risk. Portfolio revisions should maintain appropriate diversification across asset classes, regions, and industries based on the investor's diversification strategy.

16.12 RETURN OBJECTIVES

Portfolio revisions should align with the investor's return objectives, whether it's income generation, capital appreciation, or a combination of both.

16.13 MARKET CONDITIONS

The prevailing market conditions, economic outlook, and interest rate environment should be considered when revising a portfolio to ensure the portfolio remains aligned with the changing market dynamics.

16.14 INFLATION AND PURCHASING POWER

Revisions should consider the impact of inflation on the purchasing power of the portfolio over time, aiming to preserve and potentially grow the real value of investments.

By carefully considering these constraints, investors and portfolio managers can make informed decisions when revising a portfolio to meet the investor's financial goals while adhering to the specified limitations and conditions.

16.15 NEED FOR PORTFOLIO REVISION STRATEGIES

Two different strategies may be adopted for portfolio revision, namely an active revision strategy and a passive revision strategy. The choice of the strategy would depend on the investor‘s objectives, skill, resources and time. Active revision strategy involves frequent and sometimes substantial adjustments to the portfolio. Investors who undertake active revision strategy believe that security markets are not continuously efficient. They believe that securities can be mispriced at times giving an opportunity for earning excess returns through trading in them. Moreover, they believe that different investors have divergent or heterogeneous expectations regarding the risk and return of securities in the market.

Active portfolio revision is essentially carrying out portfolio analysis and portfolio selection all over again. It is based on an analysis of the fundamental factors affecting the economy, industry and company as also the technical factors like demand and supply. Consequently, the time, skill and resources required for implementing active revision strategy will be much higher. The frequency of trading is likely to be much higher under active revision strategy resulting in higher transaction costs.

Passive revision strategy, in contrast, involves only minor and infrequent adjustment to the portfolio over time. The practitioners of passive revision strategy believe in market efficiency and homogeneity of expectation among investors. They find little incentive for actively trading and revising portfolios periodically. Under passive revision strategy, adjustment to the portfolio is carried out according to certain predetermined rules and procedures designated as formula plans. These formula plans help the investor to adjust his portfolio according to changes in the securities market.

16.16 DIFFERENT PORTFOLIO REVISION STRATEGIES

Portfolio revision strategies involve making changes to an investment portfolio to align with an investor's objectives, risk tolerance, market conditions, or changes in the investor's circumstances. These strategies are designed to optimize the portfolio's performance, manage risk, and achieve the desired financial goals. Here are some common portfolio revision strategies:

16.16.1 Rebalancing: Rebalancing involves adjusting the portfolio's asset allocation back to the original target weights to maintain the desired risk-return profile. It often involves selling over performing assets and buying underperforming ones.

16.16.2 Strategic Asset Allocation: Strategic asset allocation involves setting long-term target allocations to different asset classes based on an investor's risk tolerance and investment horizon. Periodic adjustments are made to maintain these target allocations.

16.16.3 Tactical Asset Allocation: Tactical asset allocation involves deviating from the long-term strategic asset allocation based on short-to-medium-term market expectations.

Investors may adjust their portfolio to take advantage of perceived market opportunities or to manage risks.

16.16.4 Dynamic Asset Allocation: Dynamic asset allocation allows for flexible adjustments in asset allocations based on changes in market conditions, economic outlook, or other relevant factors. The goal is to capitalize on changing market trends and economic cycles.

16.16.5 Sector Rotation: Sector rotation involves shifting investments among different sectors of the economy based on anticipated changes in economic and market conditions. Investors may overweight sectors expected to perform well and underweight those expected to underperform.

16.16.6 Market Timing: Market timing involves adjusting the portfolio's exposure to the market based on forecasts of market movements. Investors may increase exposure during anticipated upswings and reduce exposure during expected downturns.

16.16.7 Risk Parity: Risk parity aims to balance risk across different asset classes within the portfolio rather than focusing on a specific asset allocation. It seeks to achieve a more consistent risk exposure across the portfolio.

16.16.8 Tax-Loss Harvesting: Tax-loss harvesting involves selling investments that have experienced losses to offset gains and minimize capital gains taxes. Losses realized can be used to offset taxable gains, reducing the tax burden.

16.16.9 Diversification Adjustments: Adjusting the level of diversification in the portfolio by adding new assets or reducing exposure to existing ones based on changing market conditions and risk considerations.

16.16.10 Systematic Withdrawal Plan (SWP): SWP involves setting a regular schedule for withdrawing funds from the portfolio to meet income or cash flow needs. The withdrawal rate and frequency are determined based on the investor's financial requirements.

16.16.11 Lifestyle Changes: Aligning the portfolio with changes in an investor's life circumstances, such as retirement, changing risk tolerance, or other major life events that necessitate a shift in investment strategy.

16.16.12 Reinvestment of Dividends and Income: Strategically reinvesting dividends, interest, and other income generated by the portfolio to acquire additional shares or assets, enhancing portfolio growth.

Each portfolio revision strategy has its own advantages and considerations, and the appropriate strategy depends on an investor's financial goals, risk tolerance, time horizon, and market outlook. It's important to carefully evaluate these strategies and tailor them to meet individual investment objectives. Additionally, consulting with a financial advisor can provide valuable insights and guidance in choosing the most suitable portfolio revision strategy.

16.17 FORMULA PLANS

In the market, the prices of securities fluctuate. Ideally, investors should buy when prices are low and sell when prices are high. If portfolio revision is done according to this principle, investors would be able to benefit from the price fluctuations in the securities market. But investors are hesitant to buy when prices are low either expecting that prices will fall further lower or fearing that prices would not move upwards again. Similarly, when prices are high, investors hesitate to sell because they feel that prices may rise further and they may be able to realize larger profits. Thus, left to themselves, investors would not be acting in the way required to benefit from price fluctuations. Hence, certain mechanical revision techniques or procedures have been developed to enable the investors to benefit from price fluctuations in the market by buying stocks when prices are low and selling them when prices are high. These techniques are referred to as formula plans.

Formula plans represent an attempt to exploit the price fluctuations in the market and make them a source of profit to the investor. They make the decisions on timings of buying and selling securities automatic and eliminate the emotions surrounding the timing decisions. Formula plans consist of predetermined rules regarding when to buy or sell and how much to buy and sell. These predetermined rules call for specified actions when there are changes in the securities market.

The use of formula plans demands that the investor divide his investment funds into two portfolios, one aggressive and the other conservative or defensive. The aggressive portfolio usually consists of equity shares while the defensive portfolio consists of bonds and debentures. The formula plans specify predetermined rules for the transfer of funds from the aggressive portfolio to the defensive portfolio and vice versa. These rules enable the investor to automatically sell shares when their prices are rising and buy shares when their prices are falling. There are different formula plans for implementing passive portfolio revision; some of them are as under:

16.18 CONSTANT RUPEE VALUE PLAN

This is one of the most popular or commonly used formula plans. In this plan, the investor constructs two portfolios, one aggressive, consisting of equity shares and the other, defensive, consisting of bonds and debentures. The purpose of this plan is to keep the value of the aggressive portfolio constant, i.e., at the original amount invested in the aggressive portfolio.

As share prices fluctuate, the value of the aggressive portfolio keeps changing. When share prices are increasing, the total value of the aggressive portfolio increases. The investor has to sell some of the shares from his portfolio to bring down the total value of the aggressive portfolio to the level of his original investment in it. The sale proceeds will be invested in the defensive portfolio by buying bonds and debentures.

On the contrary, when share prices are falling, the total value of the aggressive portfolio would also decline. To keep the total value of the aggressive portfolio at its original level, the investor has to buy some shares from the market to be included in his portfolio. For this purpose, a part of the defensive portfolio will be liquidated to raise the money needed to buy additional shares.

Under this plan, the investor is effectively transferring funds from the aggressive portfolio to the defensive portfolio and thereby booking profit when share prices are increasing. Funds are transferred from the defensive portfolio to the aggressive portfolio when share prices are low. Thus, the plan helps the investor to buy shares when their prices are low and sell them when their prices are high.

In order to implement this plan, the investor has to decide the action points, i.e. when he should make the transfer of funds to keep the rupee value of the aggressive portfolio constant. These action points, or revision points, should be predetermined and should be chosen carefully. The revision points have a significant effect on the returns of the investor. For instance, the revision points may be predetermined as 10 per cent, 15 per cent, 20 per cent, etc. above or below the original investment in the aggressive portfolio. If the revision points are too close, the number of transactions would be more and the transaction costs would increase reducing the benefits of revision. If the revision points are set too far apart, it may not be possible to profit from the price fluctuations occurring between these revision points.

Example:

Let us consider an investor who has Rs. 1,00,000 for investment. He decides to invest Rs. 50,000 in an aggressive portfolio of equity shares and the remaining Rs. 50,000 in a defensive portfolio of bonds and debentures. He purchases 1250 shares selling at Rs. 40 per share for his aggressive portfolio. The revision points are fixed as 20 per cent above or below the original investment of Rs. 50,000.

After the construction of the portfolios, the share price will fluctuate. If the price of the share increases to Rs. 45, the value of the aggressive portfolio increases to Rs. 56,250 (1250 * Rs. 45). Since the revision points are fixed to 20 per cent above or below the original investment, the investor will act only when the value of the aggressive portfolio increases to Rs. 60,000 or falls to Rs. 40,000. If the price of the share increases to Rs. 48 or above, the value of the aggressive portfolio will exceed Rs. 60,000.

Let us suppose that the price of the share increases to Rs. 50, the value of the aggressive portfolio will be Rs. 62,500. The investor will sell shares worth Rs. 12,500 (250 * Rs. 50) and transfer the amount to the defensive portfolio by buying bonds for Rs. 12,500. The value of the aggressive and defensive portfolios would now be Rs. 50,000 and Rs. 62,500 respectively. The aggressive portfolio now has only 1000 shares valued at Rs. 50 per share.

Let us now suppose that the share price falls to Rs. 40 per share. The value of the aggressive portfolio would then be Rs. 40,000 (1000 * Rs. 40) which is 20 per cent less than the original investment. The investor now has to buy shares worth Rs. 10,000 (250* Rs. 40) to bring the value of the aggressive portfolio to its original level of Rs. 50,000. The money required for buying the shares will be raised by selling bonds from the defensive portfolio. The two portfolios now will have values of Rs. 50,000 (aggressive) and Rs. 52,500 (i.e. Rs. 62,500 – Rs. 10,000) (defensive), aggregating to Rs. 1,02,500. It may be recalled that the investor started with Rs. 1,00,000 as investment in two portfolios.

Thus, when the constant rupee value planis being implemented, funds will be transferred from one portfolio to the other, whenever the value of the aggressive portfolio increases or declines to the predetermined levels.

16.19 CONSTANT RATIO PLAN

This is a variation of the constant rupee value plan. Here again the investor would construct two portfolios, one aggressive and the other defensive with his investment funds. The ratio between the investments in aggressive portfolio and the defensive portfolio would be predetermined such as 1:1 or 1.5:1 etc. The purpose of this plan is to keep this ratio constant by readjusting the two portfolios when share prices fluctuate from time to time. For this purpose, a revision point will also have to be predetermined.

Suppose the revision points may be fixed as + 0.10. This means that when the ratio between the values of the aggressive portfolio and the defensive portfolio moves up by 0.10 points or moves down by 0.10 points, the portfolios would be adjusted by transfer of funds from one to the other.

Let us assume that an investor starts with Rs. 20,000, investing Rs. 10,000 each in the aggressive portfolio and the defensive portfolio. The initial ratio is then 1:1. He has predetermined the revision points as + 0.20. As share price increases the value of the aggressive portfolio would rise. When the value of the aggressive portfolio rises to Rs. 12,000, the ratio becomes 1.2:1 (i.e., Rs. 12,000: Rs. 10,000).

Shares worth Rs. 1,000 will be sold and the amount transferred to the defensive portfolio by buying bonds. Now, the value of both the portfolios would be Rs. 11,000 and the ratio would become 1:1. Now let us assume that the share prices are falling. The value of the aggressive portfolio would start declining. If, for instance, the value declines to Rs. 8,500, the ratio becomes 0.77:1 (i.e., Rs. 8,500: Rs, 11,000). The ratio has declined by more than 0.20 points. The investor now has to make the value of both portfolios equal. He has to buy shares worth Rs. 1,250 by selling bonds for an equivalent amount from his defensive portfolio. Now the value of the aggressive portfolio increases by Rs. 1,250 and that of the defensive portfolio decreases by Rs. 1,250. The values of both portfolios become Rs. 9,750 and the ratio becomes 1:1. The adjustment of portfolios is done periodically in this manner.

16.20 DOLLAR COST AVERAGING

This is another method of passive portfolio revision. All formula plans assume that stock prices fluctuate up and down in cycles. Dollar cost averaging utilizes this cyclic movement in share prices to construct a portfolio at low cost. The plan stipulates that the investor invest a constant sum, such as Rs. 5,000, Rs. 10,000, etc. in a specified share or portfolio of shares regularly at periodical intervals, such as a month, two months, a quarter, etc. regardless of the price of the shares at the time of investment. This periodic investment is to be continued over a fairly long period to cover a complete cycle of share price movements. If the plan is implemented over a complete cycle of stock prices, the investor will obtain his shares at a lower average cost per share than the average price prevailing in the market over the period. This occurs because more shares would be purchased at lower prices than at higher prices.

The dollar cost averaging is really a technique of building up a portfolio over a period of time. The plan does not envisage withdrawal of funds from the portfolio in between. When a large portfolio has been built up over a complete cycle of share price movements, the investor may switch over to one of the other formula plans for its subsequent revision. The dollar cost averaging is especially suited to investors who have periodic sums to invest.

All formula plans have their limitations. By their very nature they are inflexible. Further, these plans do not indicate which securities from the portfolio are to be sold and which securities are to be bought to be included in the portfolio. Only active portfolio revision can provide answers to these questions.

A hypothetical analysis:

Here's a hypothetical problem (situation) related to portfolio revision, along with a potential solution:

16.21 PROBLEM AND SOLUTION

John is a 45-year-old investor who has been managing his investment portfolio for the past decade. He initially set up a diversified portfolio consisting of stocks, bonds, and real estate investment trusts (REITs) with a long-term growth objective and a moderate risk tolerance. However, John's circumstances have changed. He recently inherited a substantial sum of money, and he is now considering revising his portfolio to align with his new financial goals, which include retirement in 15 years and funding his children's college education. John is seeking advice on how to revise his portfolio to optimize his investment strategy.

Solution:

- **Assess Current Portfolio:** Begin by evaluating John's existing portfolio. Review the current asset allocation, including the percentage of stocks, bonds, and REITs, as well as specific holdings within each asset class.

- **Define New Financial Goals:** Understand John's updated financial objectives, including the target amount he needs for retirement and the anticipated costs of his children's education.

- **Reassess Risk Tolerance:** Revaluate John's risk tolerance in light of his new financial situation and goals. Given his moderate risk tolerance, determine whether he is comfortable with his current level of risk or if it needs adjustment.

- **Long-Term Asset Allocation:** Given John's long-term investment horizon for retirement and college funding, consider maintaining a significant allocation to equities to harness their growth potential. A well-diversified mix of domestic and international stocks can provide broad exposure to global markets. Rebalance the portfolio to the target asset allocation, taking into account John's risk tolerance and time horizon.

- **College Savings Account:** Create a separate account or sub-portfolio specifically for funding his children's college education. This account may have a more conservative asset allocation to reduce risk as the education expenses approach.

- **Tax-Efficiency:** Consider placing tax-efficient investments, such as index funds, in taxable accounts to minimize capital gains taxes. Tax-advantaged accounts like IRAs can be used for tax-inefficient assets.

- **Diversification:** Ensure proper diversification within asset classes. Diversifying across different sectors, industries, and geographic regions can help manage risk.

- **Regular Monitoring and Rebalancing:** Implement a systematic approach to portfolio monitoring and rebalancing. Set specific time intervals (e.g., annually) to review and adjust the portfolio to maintain the desired asset allocation.

- **Emergency Fund:** Ensure that John maintains an adequate emergency fund in a liquid and easily accessible account to cover unexpected expenses.

- **Professional Advice:** Given the complexity of John's financial situation and goals, consider consulting a financial advisor to create a comprehensive financial plan that addresses retirement, college funding, and portfolio revision.

- **Education and Ongoing Learning:** Encourage John to continue educating himself about investing and financial planning, so he can make informed decisions as his circumstances evolve.

It's essential to stress that this solution is a hypothetical one and should not be taken as personalized financial advice. Individual financial situations can vary widely, and it's crucial for investors like John to consult with a qualified financial advisor who can provide tailored guidance based on their unique circumstances and goals.

16.22 SUMMERY

Portfolio revision is very essential for better results of the returns and security. Several changes in the economic environment leads to change in the priorities of the sectors in the economy. Hence, it is very crucial to investors to revision on investments in periodically. We should consider the tax treatments and its impact on the revision. We also consider some statutory stipulations in this regard. Depends on the market’s situations and other environmental factors the investor takes decisions appropriately.

16.23 KEY WORDS

Negotiating fee:
Negotiation Fee means the fee, computed at the negotiation fee rate specified by Bank or specified in any Loan Document, charged by Bank on the amount of each Demand paid by Bank or any other bank specified by Bank when each Demand is paid.

Diversification of funds:
Diversification is a strategy that mixes a wide variety of investments within a portfolio in an attempt to reduce portfolio risk. Diversification is most often done by investing in different asset classes such as stocks, bonds, real estate, or crypto currency.

Rebalancing
What does rebalancing a portfolio mean? Rebalancing a portfolio means adjusting the weightings of the different asset classes in your investment portfolio. This is achieved by buying or selling assets, which changes the weighting of a specific asset class.

Dynamic asset allocation

Dynamic asset allocation is a portfolio management strategy that frequently adjusts the mix of asset classes to suit market conditions. Adjustments usually involve reducing positions in the worst-performing asset classes while adding to positions in the best-performing assets.

Professional advises

Professional advice can be defined as:"Advice given by someone trained in a particular and relevant profession or job."

16.24 SELF – ASSESSMENT QUESTIONS

1. What is transaction cost? How to minimize it?
2. What type of taxes applied for transactions?
3. What are the portfolio revision strategies?
4. What is dollar cos averaging?

16.25 FURTHER READINGS

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LESSON 17
PORTFOLIO MANAGEMENT

OBJECTIVES

After studying this lesson, you should be able to:

- Know the Meaning &Construction of a Portfolio.
- Understand the meaning of Active Management.
- Understand the meaning of Passive Management.
- Apply the formula plan for maximizing the returns.

STRUCTURE

17.1 PORTFOLIO MANAGEMENT - INTRODUCTION

Individual securities have risk return characteristics of their own. The future return expected from a security is variable and this variability of returns is termed risk. It is rare to find investors investing their entire wealth in a single security. This is because most investors have an aversion to risk. It is hoped that if money is invested in several securities simultaneously, the loss in one will be compensated by the gain in others. Thus, holding more than one security at a time is an attempt to spread and minimize risk by not putting all our eggs in one basket. Most investors thus tend to invest in a group of securities rather than a single security. Such a group of securities held together as an investment is what is known as a *portfolio*. The process of creating such a portfolio is called diversification. It is an attempt to spread and minimize the risk in investment. This is sought to be achieved by holding different types of securities across different industry groups.

From a given set of securities, any number of portfolios can be constructed. A rational investor attempts to find the most efficient of these portfolios. The efficiency of each portfolio can be evaluated only in terms of the expected return and risk of the portfolio as such. Thus, determining the expected return and risk of different portfolios is a primary step in *portfolio management.* This step is designated as portfolio analysis.

The portfolio management process needs frequent changes in the composition of stocks and bonds. In securities, the type of securities to be held should be revised according to the portfolio policy. If the policy of investor shifts from earnings to capital appreciation, the stocks should be revised accordingly. An investor can sell his shares if the price of shares reaches the historic high prices. Likewise, if the security does not fulfill the investor's expectation regarding return and growth, it is better to get rid of it. The investor should also consider the factors like risk, quality and tax concessions. If another stock offers a competitive edge over the present stock, investment should be shifted to the other stock. Many investors find themselves inadequate in their ability to trade and earn profit.

17.2 PORTFOLIO CONSTRUCTION

Portfolio is a combination of securities such as stocks, bonds and money market instruments. The process of blending together the broad asset classes so as to obtain optimum return with minimum risk is called *portfolio construction*. Diversification of investments helps to spread risk over many assets. A diversification of securities gives the assurance of obtaining the anticipated return on the portfolio. In a diversified portfolio, some securities may not perform as expected, but others may exceed the expectation and making the actual return of the portfolio reasonably close to the anticipated one. Keeping a portfolio of single security may lead to a greater livelihood of the actual return somewhat different from that of the expected return. Hence, it is a common practice to diversify securities in the portfolio.

17.3 APPROACHES IN PORTFOLIO CONSTRUCTION

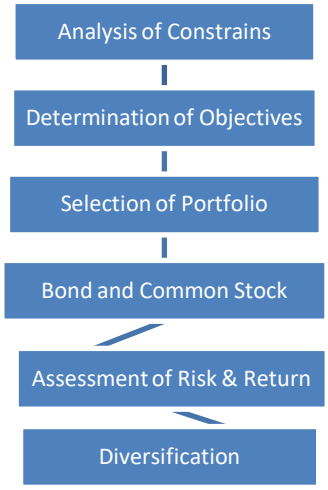
Approaches in Portfolio Construction Commonly, there are two approaches in the construction of the portfolio of securities viz, traditional approach and Markowitz efficient frontier approach. In the traditional approach, investor's needs in terms of income and capital appreciation reevaluated and appropriate securities are selected to meet the needs of the investor. The common practice in the traditional approach is to evaluate the entire financial plan of the individual. In the modem approach, portfolios are constructed to maximize the expected return for a given level of risk. It views portfolio construction in terms of the expected return and the risk associated with obtaining the expected return.

17.4 The Traditional Approach

The traditional approach basically deals with two major decisions.
They are: Determining the objectives of the portfolio. Selection of securities to be included in the portfolio. Normally, this is carried out in four to six steps. Before formulating the objectives, the constraints of the investor should be analyzed. Within the given frame work of constraints, objectives are formulated. Then based on the objectives, securities are selected.

After that, the risk and return of the securities should be studied. The investor has to assess the major risk categories that he or she is trying to minimize. Compromise on risk and non-risk factors has to be carried out. Finally relative portfolio weights are assigned to securities like bonds, stocks and debentures and then diversification is carried out.

17.5 STEPS IN TRADITIONAL APPROACH IN PORTFOLIO CONSTRUCTION



17.5.1 ANALYSIS OF CONSTRAINTS:

The constraints normally discussed are: Income needs, liquidity, time horizon, safety, tax considerations and the temperament.

17.5.1.1 INCOME NEEDS:

The income needs depend on the need for income in constant rupees and current rupees. The need for income in current rupees arises from the investor's need to meet all or part of the living expenses. At the same time inflation may erode the purchasing power, the investor may like to offset the effect of the inflation and so, needs income in constant rupees.

(a) Need for current Income: The investor should establish the income which the portfolio should generate. The current income need depends upon the entire current financial plan of the investor. The expenditure required to maintain a certain level of standard of living and the other entire income generating source should be determined. Once this information is arrived at, it is possible to decide how much income must be provided for the port1olio of securities.

(b) Need for Constant Income: Inflation reduces the purchasing power of the money. Hence, the investor estimates the impact of inflation on his estimated stream of income and tries to build a portfolio which could offset the effect of inflation. Funds should be invested in such securities where income from them might increase at a rate that would offset the effect of inflation. The inflation or purchasing power risk must be recognized but this does not pose a serious constraint on portfolio if growth stocks are selected.

17.5.1.2 LIQUIDITY

Liquidity need of the investment is highly individualistic of the investor. If the investor prefers to have high liquidity, then funds should be invested in high- quality short-term debt maturity issues such as money market funds, commercial papers and shares that are widely traded. Keeping, the funds in shares that are poorly traded or stocks in closely held business and real estate lack liquidity. The investor should plan his cash drain and the need for net cash inflows during the investment period.

17.5.1.3 SAFETY OF THE PRINCIPAL

Another serious constraint to be considered by the investor is the safety of the principal value at the time of liquidation. Investing in bonds and debentures is safer than investing in the stocks. Even among the stocks, the money should be invested in regularly traded companies of longstanding. Investing money in the unregistered finance companies may not provide adequate safety

17.5.1.4 TIME HORIZON:

Time horizon is the investment-planning period of the individuals. This varies from individual to individual. Individual's risk and return preferences are often described in terms of his "life cycle". The stages of the life cycle determine the nature of investment. The first stage is the early career situation. At the career starting point assets are lesser than their liabilities. More goods are purchased on credit. His house might have been built with the help of housing loan scheme. His major asset may be the house he owns. His priority towards investments may be in the form of savings for liquidity purposes. He takes life insurance for protecting him from unforeseen events like death and accidents and then he thinks of the investments. The investor is young at this stage and has long horizon of life expectancy with possibilities of growth in income, he can invest in high-risk and growth-oriented investments.

17.5.1.5 TAX CONSIDERATION

Investors in the income tax paying group consider the tax concessions they could get from their investments. For all practical purpose, they would like to reduce the taxes. For income tax purpose, interests and dividends are taxed under the head "income from other sources". The capital appreciation is taxed under the head "capital gains" only when the investor sells the securities and realizes the gain. The tax is then at a concessional rate depending on the period for which the asset has been held before being sold. From the tax point of view, the form in which the income is received i. e. interest, dividend, short term capital gains and long-term capital gains are important. If the investor cannot avoid taxes, he can delay the taxes. Investing in government bonds and NSC can avoid taxation. This constraint makes the investor to include the items which will reduce the tax.

17.5.1.6 TEMPERAMENT

The temperament of the investor himself poses a constraint on framing his investment objectives. Some investors are risk lovers or takers who would like to take up higher risk even for low return while some investors are risk averse, who may not be willing to undertake higher level of risk even for higher level of return. The risk neutral investors match the return and the risk. For example, if a stock is highly volatile in nature, then the stock may be selling in a range of ` l00 - 200 and returns may fluctuate. Investors who are risk averse would find it disturbing and do not have the temperament to invest in this stock. Hence, the temperament of the investor plays an important role in setting the objectives.

17.5.2 DETERMINATION OF OBJECTIVES:

Portfolios have the common objective of financing present and future expenditures from a large pool of assets. The return that the investor requires and the degree of risk he is willing to take depend upon the constraints. The objectives of portfolio range from income to capital appreciation. The common objectives are stated below

1. Current income
2. Growth in income
3. Capital appreciation
4. Preservation of capital

The investor in general would like to achieve all the four objectives; nobody would like to lose his investment. But it is not possible to achieve all the four objectives simultaneously. If the investor aims at capital appreciator, he should include risky securities where there is an equal likelihood of losing the capital. Thus, there is a conflict among the objectives.

17.5.3 SELECTION OF PORTFOLIO

The selection of portfolio depends on the various objectives of the investor. The selections of portfolio under different objectives are dealt subsequently.

17.5.3.1 OBJECTIVES AND ASSET MIX

If the main objective is getting adequate amount of current income, sixty per cent of the investment is made on debts and 40 per cent on equities. The proportions of investments on debt and equity differ according to the individual's preferences. Money is invested in short term debt and fixed income securities. Here the growth of income becomes the secondary objective and stability of principal amount may become the third. Even within the debt portfolio, the funds invested in short term bonds depends on the need for stability of principal amount in comparison with the stability of income. If the appreciation of capital is given third priority, instead of short-term debt the investor opts for long term debt. The maturity period may not be a constraint.

17.5.3.2 GROWTH AND INCOME AND ASSET MIX:

Here the investor requires a certain percentage of growth in the e received from his investment. The investor's portfolio may consist of 60 to 100 percent equities and 0 to40 percent debt instrument. The debt portion of the portfolio may consist of concession regarding tax exemption. Appreciation of principal amount is given third priority. For example, computer software, hardware and non-conventional energy producing company shares provide good possibility of growth in dividend.

17.5.3.3 CAPITAL APPRECIATION AND ASSET MIX:

Capital appreciation and asset mix Capital appreciation means that the value of the original investment increases over the years. Investment in real estates like land and house may provide a faster rate of capital appreciation but they lack liquidity. In the capital market, the values of the shares are much higher than their original issue prices. For example, Satyam Computers, share value was ` 306 in April 1998 but in October 1999 the value was ` 1658. Likewise, several examples can be cited. The market capitalisation also has increased. Next to real assets, the stock markets provide best opportunity for capital appreciation. If the investor's objective is capital appreciation, 90 to 100 per cent of his portfolio may consist of equities and 0-10% of debts. The growth of income becomes the secondary objective.

17.5.4 SAFETY OF PRINCIPAL AND ASSET MIX

Usually, the risk averse investors are very particular about the stability of principal. According to the life cycle theory, people in the third stage of life also give more importance to the safety of the principal. All the investors have this objective in their mind. No one likes to lose his money invested in different assets. But the degree may differ. The investor's portfolio may consist more of debt instruments and within the debt portfolio more would be on short term debts.

17.5.5 RISK AND RETURN ANALYSIS

The traditional approach to portfolio building has some basic assumptions. First, the individual prefers larger to smaller returns from securities. To achieve this goal, the investor has to take more risk. The ability to achieve higher returns is dependent upon his ability to judge risk and his ability to take specific risks. The risks are namely interest rate risk, purchasing power risk, financial risk and market risk. The investor analyses the varying degrees of risk and constructs his portfolio. At first, he establishes the minimum income that he must have to avoid hardships under most adverse economic condition and then he decides risk of loss of income that can be tolerated. The investor makes a series of compromises on risk and non-risk factors like taxation and marketability after he has assessed the major risk categories, which he is trying to minimize.

17.5.6 DIVERSIFICATION:

Once the asset mix is determined and the risk and return are analyzed, the final step is the diversification of portfolio. Financial risk can be minimized by commitments to top-quality bonds, but these securities offer poor resistance to inflation. Stocks provide better inflation protection than bonds but are more vulnerable to financial risks. Good quality convertibles may balance the financial risk and purchasing power risk. According to the investor's need for income and risk tolerance level portfolio is diversified. In the bond portfolio, the investor has to strike a balance between the short term and long-term bonds. Short term fixed income securities offer more risk to income and long-term fixed income securities offer more risk to principal.

17.6 MODERN APPROACH

The traditional approach is a comprehensive financial plan for the individual. It takes into account the individual needs such as housing, life insurance and pension plans. But these types of financial planning approaches are not done in the Markowitz approach. Markowitz gives more attention to the process of selecting the portfolio. His planning can 215 be applied more in the selection of common stocks portfolio than the bond portfolio. The stocks are not selected on the basis of need for income or appreciation. But the selection is based on the risk and return analysis. Return includes the market return and dividend. The investor needs return and it may be either in the form of market return or dividend. They are assumed to be indifferent towards the form of return.

From the list of stocks quoted at the Bombay Stock Exchange or at any other regional stock exchange, the investor selects roughly some group of shares say of 10 or 15 stocks. For these stocks' expected return and risk would be calculated. The investor is assumed to have the objective of maximizing the expected return and minimizing the risk. Further, it is assumed that investors would take up risk in a situation when adequately rewarded for it. This implies that individuals would prefer the portfolio of highest expected return for a given level of risk.

In the modern approach, the final step is asset allocation process that is to choose the portfolio that meets the requirement of the investor. The risk taker i.e., who are willing to accept a higher probability of risk for getting the expected return would choose high risk portfolio. Investor with lower tolerance for risk would choose low level risk portfolio. The risk neutral investor would choose the medium level risk portfolio.

17.7 MANAGING THE PORTFOLIO

After establishing the asset allocation, the investor has to decide how to manage the portfolio over time. He can adopt passive approach or active approach towards the management of the portfolio. In the passive approach the investor would maintain the percentage allocation for asset classes and keep the security holdings within its place over the established holding period. In the active approach the investor continuously assesses the risk and return of the securities within the asset classes and changes them. He would be studying the risks (1) market related (2) group related and (3) security specific and changes the components of the portfolio to suit his objectives.

17.7.1 CONSTRUCTION OF THE OPTIMAL PORTFOLIO:

After determining the securities to be selected, the portfolio manager should find out how much should be invested in each security. The percentage of funds to be invested in each security can be estimated as follows:

$$X_i = \frac{Z_i}{\sum_{i=1}^{N} Z_i}$$

$$Z_i = \frac{\beta_i}{\sigma_{ei}^2}\left(\frac{R_i - R_f}{\beta_i} - C^*\right)$$

The first expression indicates the weights on each security and they sum up to one. The second shows the relative investment in each security. The residual variance or the unsystematic risk has a role in determining the amount to be invested in each security.

17.8 ACTIVE VS PASSIVE PORTFOLIO

One of the longest-standing debates in investing is over the relative merits of ***active portfolio management versus passive management***. With an actively managed portfolio, a manager tries to beat the performance of a given benchmark index by using his or her judgment in selecting individual securities and deciding when to buy and sell them. A passively managed portfolio attempts to match that benchmark performance, and in the process, minimize expenses that can reduce an investor's net return. Each camp has strong advocates who argue that the advantages of its approach outweigh those for the opposite side.

17.8.1 ACTIVE INVESTING:

Attempting to add value Proponents of active management believe that by picking the right investments, taking advantage of market trends, and attempting to manage risk, a skilled investment manager can generate returns that outperform a benchmark index. For example, an active manager whose benchmark is the Standard & Poor's 500 Index (S&P 500) might attempt to earn better than-market returns by overweighting certain industries or individual securities, allocating more to those sectors than the index does. Or a manager might try to control a portfolio's overall risk by temporarily increasing the percentage devoted to more conservative investments, such as cash alternatives.

An actively managed individual portfolio also permits its manager to take tax considerations into account. For example, a separately managed account can harvest capital losses to offset any capital gains realized by its owner, or time a sale to minimize any capital

gains. An actively managed mutual fund can do the same on behalf of its collective shareholders.

However, an actively managed mutual fund's investment objective will put some limits on its manager's flexibility; for example, a fund may be required to maintain a certain percentage of its assets in a particular type of security. A fund's prospectus will outline any such provisions, and you should read it before investing.

17.8.2 PASSIVE INVESTING:

Focusing on costs Advocates of unmanaged, passive investing--sometimes referred to as indexing--have long argued that the best way to capture overall market returns is to use low-cost market tracking index investments. This approach is based on the concept of the efficient market, which states that because all investors have access to all the necessary information about a company and its securities, it's difficult if not impossible to gain an advantage over any other investor. As new information becomes available, market prices adjust in response to reflect a security's true value. That market efficiency, proponents say, means that reducing investment costs is the key to improving net returns.

If we are looking at the bigger picture, passive investing has proven to be more effective than active investing in the long run. The lower fees are only one of the aspects that confirm that notion. What makes passive investing more appealing to many investors is that you don’t have to worry about the decision-making process. Stock prices still move around, sometimes dramatically, on the basis of new data and new ideas. Still, passive investing may well be degrading the informational content of the markets, messing up price signals and making business decisions harder as a result. Indexing does create certain cost efficiencies.

Because the investment simply reflects an index, no research is required for securities selection. Also, because trading is relatively infrequent--passively managed portfolios typically buy or sell securities only when the index itself changes--trading costs often are lower. Also, infrequent trading typically generates fewer capital gains distributions, which means relative tax efficiency.

Popular investment choices that use passive management are index funds and exchange-traded funds (ETFs). However, some actively managed ETFs are now being introduced, and index funds and ETFs can be used as part of an active manager's strategy. Note: Before investing in either an active or passive ETF or mutual fund, carefully consider the investment objectives, risks, charges, and expenses, which can be found in the prospectus available from the fund. Read it carefully before investing.

17.8.3 DIFFERENCES BETWEEN ACTIVE & PASSIVE MANAGEMENT

Active Management	**Passive Management**
1. Attempts to beat benchmark performance	1. Attempts to match benchmark performance
2. Contends pricing inefficiencies in the market create investing opportunities	2. Contends that it is difficult or impossible to "beat the market"

3. Securities selected by portfolio manager	3. Securities selected based on an index
4. Focuses on choice of specific securities and timing of trades	4. Focuses on overall sector or asset class
5. Trading and the degree of liquidity for individual securities may increase portfolio costs.	**5.** Infrequent trading tends to minimize portfolio expenses

17.9 PASSIVE MANAGEMENT

Passive management is a process of holding a well-diversified portfolio for a long term with the buy and hold approach. Passive management refers to the investor's attempt to construct a portfolio that resembles the overall market returns. The simplest form of passive management is holding the Index fund that is designed to replicate a good and well-defined index of the common stock such as BSE-Sensex or NSE-Nifty. The fund manager buys every stock in the index in exact proportion of the stock in that index. If Reliance Industry's stock constitutes 5% of the index, the fund also invests 5% of its money in Reliance Industry stock.

The problem in the index fund is the transaction cost. If it is NSE-Nifty, the manager has to buy all the 50 stocks in market proportion and cannot leave the stocks with smallest weights to save the transaction costs. Further, the reinvestment of the dividends also poses a problem.

Here, the alternative is to keep the cash in hand or to invest the money in stocks incurring transaction cost. Keeping away the stock of smallest weights and the money in hand fail to replicate the index fund in the proper manner. The commonly used approaches in constructing an index fund are as follows: 1.Keeping each stock in proportion to its representation in the index Holding a specified number of stocks for example 20, which historically track the index in the best manner. Holding a smaller set of stocks to match the index in a pre-specified set of characteristics. This may be in terms of sector, industry and the market capitalisation.

17.10 ACTIVE MANAGEMENT

Active Management is holding securities based on the forecast about the future. The portfolio managers who pursue active strategy with respect to market components are called 'market timers. The portfolio managers vary their cash position or beta of the equity portion of the portfolio based on the market forecast. The managers may indulge in 'group rotations.

Here, the group rotation means changing the investment in different industries' stocks depending on the assessed expectations regarding their future performance.

Stocks that seem to be best bets or attractive are given more weights in the portfolio than their weights in the index. For example, Information Technology or Fast-Moving Consumer Goods industry stocks may be given more weights than their respective weights in the NSE-50. At the same time, stocks that are considered to be less attractive are given lower weights compared to their weights in the index.

Here, the portfolio manager may either remain passive with respect to market and group components but active in the stock selection process or he may be active in the market, group and stock selection process.

17.11 THE FORMULA PLANS

The formula plans provide the basic rules and regulations for the purchase and sale of securities. The amount to be spent on the different types of securities is fixed. The amount may be fixed either in constant or variable ratio. This depends on the investor's attitude towards risk and return. The commonly used formula plans are rupee cost averaging, constant rupee value, the constant ratio and the variable ratio plans. The formula plans help to divide the investible fund between the aggressive and conservative portfolios. The aggressive portfolio consists more of common stocks which yield high return with high risk. The aggressive portfolio's return is volatile because the share prices generally fluctuate. The conservative portfolio consists of more bonds that have fixed rate of returns. It is called conservative portfolio because the return is certain and the risk is less. The conservative portfolio serves as a cushion for the volatility of the aggressive portfolio. The capital appreciation in the conservative portfolio is rather slow and the fall in price of the bond or debenture is also alike.

17.11.1 ASSUMPTIONS OF THE FORMULA PLAN:

The first assumption is that certain percentage of the investor's fund is allocated to fixed income securities and common stocks. The proportion of money invested in each component depends on the prevailing market condition. If the stock market is in the boom condition lesser funds are allotted to stocks. Perhaps it may be a ratio of 80 per cent to bonds and 20 per cent to stocks in the portfolio. If the market is low, the proportion may reverse. In a balanced fund, 50 per cent of the fund is invested in stocks and 50 per cent in bonds.

2. The second assumption is that if the market moves higher, the proportion of stocks in the portfolio may either decline or remain constant. The portfolio is more aggressive in the low market and defensive when the market is on the rise.
3. The third assumption is that the stocks are bought and sold whenever there is a significant change in the price. The changes in the level of market could be measured with the help of indices like BSE-Sensitive Index and NSE-Nifty.
4. The fourth assumption requires that the investor should strictly follow the formula plan once lie chooses it. He should not abandon the plan but continue to act on the plan.
5. The investors should select good stocks that move along with the market. They should reflect the risk and return features of the market. The stock price movement should be closely correlated with the market movement and the beta value should be around 1.0. The stocks of the fundamentally strong companies have to be included in the portfolio.

17.11.2 ADVANTAGES OF THE FORMULA PLAN

- Basic rules and regulations for the purchase and sale of securities are provided.
- The rules and regulations are rigid and help to overcome human emotion.
- The investor can earn higher profits by adopting the plans.
- A course of action is formulated according to the investor's objectives.
- It controls the buying and selling of securities by the investor.
- It is useful for taking decisions on the timing of investments.

17.11.3 DISADVANTAGES

- The formula plan does not help the selection of the security. The selection of the security has to be done either on the basis of the fundamental or technical analysis.
- It is strict and not flexible with the inherent problem of adjustment.
- The formula plan should be applied for long periods, otherwise the transaction cost may be high.
- Even if the investor adopts the formula plan, he needs forecasting. Market forecasting helps him to identify the best stocks.

17.12 SUMMARY

Portfolio management is the art and science of selecting and overseeing a group of investments that meet the long-term financial objectives and risk tolerance of a client, a company, or an institution. An investor should construct a portfolio according to the needs of his own. While constructing he should consider his income needs, liquidity, time horizon, safety, tax considerations and the temperament. Broadly there are two methods of investment i.e., Active investment and passive investment. Active investment is a process of investment based on projections made by investors. Passive management is a process of holding a well-diversified portfolio for a long term with the buy and hold approach.

17.13 TECHNICAL TERMS: PORTFOLIO CONSTRUCTION

Portfolio construction is a process of selecting securities optimally by taking minimum risk to achieve maximum returns. The portfolio consists of various securities such as bonds, stocks, and money market instruments.

PORTFOLIO CONSTRUCTION: Portfolio construction is a process of selecting securities optimally by taking minimum risk to achieve maximum returns. The portfolio consists of various securities such as bonds, stocks, and money market instruments.

DIVERSIFICATION: Diversification is a risk management strategy that creates a mix of various investments within a portfolio. A diversified portfolio contains a mix of distinct asset types and investment vehicles in an attempt to limit exposure to any single asset or risk. The rationale behind this technique is that a portfolio constructed of different kinds of assets will, on average, yield higher long-term returns and lower the risk of any individual holding or security.

ACTIVE MANAGEMENT: Active Management is holding securities based on the forecast about the future. The portfolio managers who pursue active strategy with respect to market components are called ‘market timers. The portfolio managers vary their cash position or beta of the equity portion of the portfolio based on the market forecast.

PASSIVE MANAGEMENT: Passive management is a process of holding a well-diversified portfolio for a long term with the buy and hold approach. Passive management refers to the investor’s attempt to construct a portfolio that resembles the overall market returns. The simplest form of passive management is holding the Index fund that is designed to replicate a good and well-defined index of the common stock such as BSE-Sensex or NSE-Nifty.

FORMULA PLAN: The formula plans provide the basic rules and regulations for the purchase and sale of securities. The amount to be spent on the different types of securities is fixed. The amount may be fixed either in constant or variable ratio.

17.14 SELF-ASSESSMENT QUESTIONS

1. Explain the meaning & importance of Portfolio Management?
2. What is portfolio Construction? Explain different methods of Portfolio Construction?
3. How do you minimize the risk with Portfolio? Discuss?
4. Discuss the differences between Active & Passive Management?
5. What is Active & Passive Investment? Explain?
6. What is formula plan? Explain the pros and cons of it?

17.15 SUGGESTED READINGS

1. S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
2. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
3. J.C.Francis: Investments analysis and management
4. R.J Fuller and J.L.Farrel: Modern Investments and Security Analysis
5. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
6. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance

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LESSON 18
STOCK INDICES

OBJECTIVES

After studying this lesson, you should be able to:

- Understand the meaning & features of stock exchange.
- Know the functions of stock exchanges.
- Observe the securities traded in Stock Exchange.

STRUCTURE

18.1 INTRODUCTION

Stock Exchange: The stock exchange plays a crucial role in the stock market by enabling the exchange of financial instruments between traders and interested buyers. In India, the stock exchange serves as a marketplace for trading various financial assets such as stocks, bonds, and commodities.

It provides a platform where buyers and sellers can engage in transactions for these financial instruments within specific hours on any business day, following the well-established guidelines set by the Securities and Exchange Board of India (SEBI). However,

participation in the stock exchange is limited to companies that have undergone the process of listing.

There are two types of Stock Exchanges in India:

i) Stock Exchanges in India that works at National level.
ii) Stock Exchanges in India that work at the regional level

Over the last few years, there has been a rapid change in the Indian securities market, especially in the secondary market. Advanced technology and online-based transactions have modernized the stock exchanges. Stock exchanges were permitted to expand their trading to locations outside their jurisdiction through computer terminals. Trading is much more transparent and quicker than in the past. Stock market refers to a market place where investors can buy and sell securities. Primary market deals with only new issue of shares, debentures and bonds, whereas secondary market provides a place for securities which have already been issued in an initial private or public offering. After the securities are issued in primary market, they are traded in the secondary market by the company's issuing securities, investors, brokers and the regulators. The stock exchanges along with a host of intermediaries provide the necessary platform for trading in secondary market and for clearing and settlement.

18.2. MEANIG OF STOCK EXCHANGES

The word 'stock' means a fraction of the capital of a company and the word 'exchange' means a place for buying and 83 selling something. The market or place, where securities are exchanged or traded is called stock exchange or stock market. A stock exchange thus provides a trading platform for the sale and purchase of securities. Stock exchange is a structured market place for the proper conduct of trading activities in shares, stocks and other securities issued by companies and government. Stock exchange provides marketability and price continuity for shares and helps a fair evaluation of securities in terms of their intrinsic worth. Stock exchanges are formal organisations, approved and regulated by the regulatory authorities of a country. Stock exchanges deals in securities like shares, debentures or bonds issued by the companies or corporations in the private, as well as public sector and bonds issued by the central and state governments, municipal corporations etc.

In addition, the stock exchange sometimes buys and sells certificates representing commodities of trade. Stock exchanges also facilitate the issue and redemption of securities and other financial instruments. Members are only permitted to trade those securities, which are generally entered in the official list of the exchange. The right to trade securities or make markets on an exchange floor is granted only to an individual or firm on becoming a member of the exchange. An organised and recognised stock market ensures liquidity and marketability to securities, encourage investments in securities and support corporate growth.

18.3 OBJECTIVES OF STOCK EXCHANGE

Main objectives of stock exchange are the following:

1. To create an efficient securities market in the country.
2. To regulate stock market practices and to protect the interest of investors.
3. To control illegitimate speculation, manipulation and other undesirable trade practices.

18.4 DEFINITION OF STOCK EXCHANGE

The Securities Contracts (Regulations) Act, 1956 defines stock exchange "as an association, organisation or body of individuals, whether incorporated or not, established for the purpose of assisting, regulating and controlling the business of buying, selling and dealing in securities."

According to the Oxford Dictionary of the business world, the stock market also known as the stock exchange is defined "as a place in which stock, shares and other securities are bought and sold, price being controlled by demand and supply."

18.5 CHARACTERISTICS OF STOCK EXCHANGE

Following are the salient features of a stock exchange:

i) Stock Exchange is an organised market place where securities are purchased and sold.
ii) Stock Exchange is a formal organisation which provides facilities to their members to transact only in securities.
iii) By tradition stock exchange was a voluntary association of persons owned by its members and stockbrokers. Recently, stock exchanges got transformed from a mutually owned association to a shareholder owned company.
iv) Recognition to a stock exchange is accorded by the Central Government.
v) Stock exchange does not conduct business for them.
vi) The right to trade securities or make markets is strictly restricted to the members of the exchange.
vii) The trading in a stock exchange is under the overall supervision of the regulatory authorities of the nation.
viii) Each stock exchange formulates its own rules and regulations. Any member who acts against the rules of the exchange can be removed from its membership.
ix) Trading is strictly regulated and rules and regulations are prescribed for various types of transactions.
x) Securities listed in the official list of the stock exchange alone are traded in an exchange.
xi) The trading platforms of stock exchanges are now accessible through internet from anywhere in the country.
xii) Both genuine investors and speculators can buy and sell shares in stock exchange.
xiii) Stock exchange provides information about the market price of the securities.
xiv) Members of the stock exchange generally elect a governing body which control and direct the activities of their members. However, in a demutualized stock exchange, shareholders elect board of directors and they exercise direct and proper control over the activities of the exchange.

18.6. FUNCTIONS OF STOCK EXCHANGE

Stock Exchange is a vital organ in a modern society. Stock exchanges have a vital role to play in the economic development of the country in general and the growth of industrial sector in particular. Stock exchanges perform an important function of mobilising and channelizing resources which remain otherwise scattered. Apart from the above basic function it also assists in mobilising funds for government. Thus stock exchanges help orderly flow and distribution of savings between different types of investments. Stock exchanges perform multiple functions, which are given below:

i. **Capital Formation and Economic Growth**: Stock exchanges help in mobilisation of surplus funds of individuals and business firms for investment in securities. The funds, which could have been consumed, or to be kept in idle deposits are mobilised and redirected to invest in securities, resulting in a stronger economic growth and higher productivity levels.
ii. **Ensure Continuous And Ready Market For Securities**: By regular dealings in securities, stock exchange ensures continuous and ready market for the securities. This enables it to attract people who have surplus money even for a short period of time.
iii. **Rational Allocation of Resources to the Various Sectors**: Stock exchange enables mobilisation of funds by allocation of the same rationally which would otherwise be invested in not so productive bank deposits and funds. Investment in various types of securities leads to rational allocation of resources, which promote divergent economic sectors such as agriculture, commerce and industry.
iv. **Provide Liquidity**: Stock exchange is a place for selling and buying of securities. The trading facility in stock exchange allows the small investors to quickly and easily sell off the securities thereby converting them into cash. This is an attractive feature of investing in securities over other less liquid investments like real estate.
v. **Evaluation of Securities**: Stock exchange provides information about the demand and market price of various securities traded in the exchange. This information is published by the exchange in newspaper and other media. This helps investors to ascertain the current market prices of their holdings.
vi. **Acts as Barometer of the Economy:** Stock Exchange acts as a barometer of the business conditions in the country. At the stock exchange, share prices rise and fall depending, largely on market forces. Booms and depressions are reflected in the index of prices of various securities maintained by the stock exchange.
vii. **Better Control over Corporate Sector**: Every company indenting to list their securities has to fulfil certain conditions and rules framed by the stock exchange. Through these rules, stock exchange influence on the management and working of companies in public interest.
viii. **Ensure Fair Dealings and Safety**: Stock exchange ensures fair dealings and safety of investors' funds because trading in a stock exchange is under the overall supervision of the regulatory authorities of the nation and in accordance with the rules and regulations of the exchange.
ix. **Creating Investment Opportunities for Small Investors**: An investor can buy the number of shares as he/she can afford. Therefore stock exchanges provide the opportunity for small as well as large investors to own shares of the same companies.
x. **Facilitate Takeovers and Acquisitions**: Takeovers, acquisitions or mergers are means of expansion of businesses for companies, which are made easier through the stock exchanges. Stock exchange facilitates takeovers by acquiring majority of shares in another company.
xi. **Assist in Primary Issue**: The efficient functioning of stock exchanges creates a conducive environment for an active and growing primary market for new issues.
xii. **Facilitate the Growth of Companies**: Stock market motivates companies to go public, or raise additional capital. It helps the companies with an opportunity to expand product line, increase distribution channels, increase market share and acquire other necessary business assets.
xiii. **Assist Government to Raise Capital**: Stock exchange helps governments to raise capital finance for many public works such as development of water supply, housing

estates etc. by selling bonds. The general public buy these bonds thereby giving loan to the government.

18.7. MAJOR STOCK EXCHANGES IN INDIA

List of Stock Exchanges in India: India has several stock exchanges, providing platforms for trading equities and other financial instruments.(By **Sushma Singh** September 19, 2023).

Stock exchanges are platforms where financial securities like stocks and bonds are bought and sold. National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE) are the two major and prominent ones. Though most people are only familiar with these two, there are other notable stock exchanges in India that play a crucial role in facilitating trading and investment activities. They contribute significantly to India's economic growth and this provide opportunities for investors to participate in the country's dynamic financial sector. In this article we will learn more about all major stock exchanges in India for better understanding of the Indian stock market and its operations.

What is the Stock Market?

Before we check out the list of Stock Exchanges in India, we must understand what a stock market is. The stock market encompasses various exchanges and over-the-counter platforms where individuals can buy and sell shares of publicly traded companies. These financial activities adhere to specific regulations and take place in formal marketplaces. By facilitating interactions between buyers and sellers, the stock market enables transactions and the determination of share prices.

Additionally, it serves as an indicator of the overall economic health. Participants in the market benefit from fair pricing, ample liquidity, and transparent competition among buyers and sellers. In simple language, here, investors and traders buy and sell financial securities during a particular time of business days. These trading hours, days, and holidays are decided as per the product trade and the investor base targeted.

Also, it is substantial for you to understand that the stock market and stock exchanges in India are two different things.

List of Stock Exchanges in India: There are 9 stock exchanges in India that are functioning at present. They are under the scrutiny of SEBI. Let's take a look at the table below.

A Complete List of Active Stock Exchanges in India

Name	Location
Bombay Stock Exchange	Mumbai
Calcutta Stock Exchange	Kolkata
India International Exchange (India INX)	Gandhinagar
Indian Commodity Exchange	Navi Mumbai
Metropolitan Stock Exchange of India	Mumbai
Multi Commodity Exchange of India	Mumbai
National Commodity & Derivatives Exchange	Mumbai
National Stock Exchange of India	Mumbai
NSE IFSC	Gandhinagar

18.7.1 NATIONAL STOCK EXCHANGE OF INDIA

In the year 1991 Pherwani Committee recommended to establish National Stock Exchange (NSE) in India. In 1992 the Government of India authorised IDBI for establishing this exchange. In NSE, there is trading of equity shares, bonds and government securities. India's stock exchanges particularly National Stock Exchange (NSE) has achieved world standards in the recent years.

NSE Indices Limited (formerly known as India Index Services & Products Limited), or NSE Indices, owns and manages a portfolio of over 350 indices under the NIFTY brand as of June 30, 2023, including NIFTY 50. NIFTY indices are used as benchmarks for products traded on NSE.

NIFTY indices served as the benchmark index for 122 ETFs listed in India and 12 ETFs listed abroad as of June 30, 2023. Derivatives benchmarked to NIFTY indices are also available for trading on NSE and NSE International Exchange IFSC Limited (NSE IX) as of July 03, 2023.

The NSE India ranked its 3rd position since last four years in terms of total number of trading per calendar year. Presently, there are 24 stock exchanges in India, out of which 20 have exchanges, National Stock Exchange (NSE), Over The Counter Exchange of India Ltd. (OTCEI), and Inter-connected Stock Exchange of India Ltd (ISE) have nation-wide trading facilities.

New NSE Reference Rates Both MIBOR (Mumbai Inter Bank Offer Rate) and MIBID (Mumbai Inter Bank Bid Rate) are the two new references rates of National Stock Exchanges. These two new reference rates were launched on 15 June1998 for the loans of inter-bank call money market. Both MIBOR and MIBID work simultaneously. The MIBOR indicates lending rates for loans while MIBID is the rate for receipts.

18.7.2. BOMBAY STOCK EXCHANGE (BSE)

BSE stands for the Bombay Stock Exchange. It was founded by "Premchand Roychand" in the year 1875. BSE is based on the largest securities market in Bombay (India).

BSE is Asia's first and older stock exchange in the world. BSE is regulated under SEBI (Security Exchange Board Of India). The BSE consist of more than 5000 registered companies and the official website of BSE is bseindia.com. BSE is one of the oldest stock exchanges in Asia and was established in the year 1875 in the name of "The Native Share and Stock Brokers Association." 24 BSE is located at Dalal Street, Mumbai, India. It got recognition in the year 19516 from the Government of India under Securities Contracts (Regulation) Act, 19516. Presently BSE SENSEX is recognised world-wide. Trading volumes have drawn the attention over the globe.

BSE 100 Index: The equity share of 100 companies from the list of 5 major stock exchanges such as Mumbai, Calcutta, Delhi, Ahmedabad and Madras are selected for the purpose of compiling the BSE National Index. The year 1983-84 is taken as the base year for this index. The method of compilation here is same as that of the BSE SENSEX.

BSE 200 Index: The BSE 200 Index was launched on 27th May 1994. The companies under BSE 200 have been selected on the basis of their market capitalisation, volumes of turnover and other fundamental factors. The financial year 1989-90 has been selected as the base year.

BSE 500 Index: BSE 500 Index consisting of 500 scrips is functioning since 1999. Presently BSE 500 Index represents more than 90% of the total market capitalisation on Bombay Stock Exchange Limited.

BSE PSU Index: BSE PSU Index has been working since 4th June 2001. This index includes major Public Sector Undertakings listed in the Exchange. The BSE PSU Index tracks the performance of listed PSU stocks in the exchange.

How Bombay Stock Exchange (BSE) works in the Market?

A stock exchange is the main part of the stock market. We can sell and buy the shares with the help of the stock exchange. The stock exchange works as a platform between the buyers and the sellers. The buying and selling order is being executed through the Automatic Order Matching System. To execute the orders of the buyers and sellers and to help the companies to make money from the public by issuing shares in the market and much similar work is being performed by the stock exchange. Here the question arises, that from where the stock exchanges make money? There are two main stock exchanges in India; National Stock Exchange and Bombay Stock Exchange. If we talk about the income sources of the Bombay Stock Exchange (BSE). It earns from many different sources which are listed below:

i. The shares we buy and sell the brokerage charges are being paid to the stockbroker and these stock exchanges charge the Transaction Charges. BSE charges 0.00275% as transaction charges in INTRADAY & DELIVERY.
ii. Whenever a company introduces an IPO there, to be on the list of Stock Exchange, the company has to pay some fee to the stock exchanges. Hence, the fee paid by the IPO is one of the Income sources of the stock exchange like BSE.

iii. Companies like Exchange Traded Fund (ETF) and Close Ended Mutual Fund are also listed on the stock exchange and provide fees to them which is also an income source of the stock exchange.
iv. Stock brokers have to take membership in the stock exchange. Hence, the fees paid to the stock exchange from the stock brokers to become its member also works as its source of income.
v. The stock exchange also sells the "Real-Time Data" and Information regarding the trade to earn money.
vi. BSE has many Subsidiary Companies which is also the source of income of BSE. For example, the subsidiary of BSE, "BSE Institution Ltd" provides certificates of the stock market and financial trading. Therefore, the fees of these courses and training also provide income to BSE.
vii. And many other different companies run under BSE all over the country to provide profit and income to BSE.

THE DALAL STREET

Dalal Street is a street name which is located in Mumbai, India. It is the main street or you can call it the house of the Bombay Stock Exchange (BSE) or the largest stock exchanges in India and for the other fine institutions. In the year 1874, the BSE was moved to Mumbai and the name Dalal Street had received after it when BSE becomes the first stock exchange market which is recognized by the government of India.

Understanding the DALAL STREET

The name 'Dalal' is pronounced as a broker or intermediary in the Marathi language. Dalal street is similar to the Dow Jones Industrial Average (DJIA) which is the famous street for the stock exchange market and is known as Wall Street. It is situated in the United States.

Dalal street is the major location for the stock exchange where every day, the money flows in a large amount. On the daily basis, the media covers all the news regarding the stock exchange market's flows in the lower and above situation and collects all the data of the stock market from Dalal Street. The most important and the best-known stock exchange is located on Dalal street commonly known as the Bombay Stock Exchange (BSE). In the era of electronic trading, BSE is the first exchange in Asia. To raise market capital, the BSE by creating an efficient market place has facilitated the growth of the corporate sector. The most popular equity index of the Bombay Stock Exchange includes the S&P BSE Sensex, In India and all around the world, S&P BSE Sensex is recognized as a wide benchmark.

18.8. CALCULATION OF SENSEX AND NIFTY

What is Sensex? The word Sensex was given by "Deepak Mohini" who is a stock market analyst. Sensex stands for Stock Exchange Sensitive Index which is a stock market index for BSE. It is one of the oldest stock indexes in India and Asia which truly shows the Indian stock market movement. It constitutes of stock values of 30 specific companies which are listed on the Bombay Stock Exchange (BSE). As all ships rise with the rising tides, If the Sensex value is increasing in the market, the low price share companies will also rise, similarly, with the low value of Sensex, the price share value of high-level companies will also be down. Sensex use to understand the overall growth and development of particular industries along with the ups and downs of the Indian economy. The starting figure of Sensex

was 100, in the base year 1978-1979. Sensex publishes many incidents such as Auto Indices, Power Indices, Midcap and Smallcaps, etc.

What is the meaning of "Point" in Sensex? In the stock market, 1 point is equal to 1 dollar. When the stock lost or gained X number of points, it means the stock has lost or gained X number of dollars. These points are different from basic points for bonds or currencies. The Sensex points are based on the relative movement of its components. The term 'points' is generally used to describe the short-term results of the stock market, such as for a day or week. The percentage value of a 1 point movement can be different for two companies because the point refers to the dollar value, not the percentage.

Sensex and Nifty are two large-cap indexes associated with two different stock exchanges of the country namely Bombay Stock Exchange (BSE) and National Stock Exchange (NSE). These are just statistical aggregate on how a change in the stock market can be measured.

Sensitive Index or Sensex is the stock market app index indicator for the BSE. It is also sometimes referred to as BSE Sensex. It was first published in 1986 and is based on the market-weighted stock index of 30 companies based on the financial performance. The large, established companies that represent various industrial sectors are a part of this.

18.8.1 How is Sensex calculated: The calculation of Sensex is done by a Free-Float method that came into existence from September 1, 2003. The level of Sensex is a direct indication of the performance of 30 stocks in the market. The free-float method takes into account the proportion of the shares that can be readily traded in the market. This does not include the ones held by various shareholders and promoters or other locked-in shares not available in the market. The value of BSE Sensex can be calculated using the formula below. Value of Sensex = (Total free float market capitalization/ Base market capitalization) * Base period index value. The base period (year) for Sensex calculation is 1978-79. The base value index is 100. Using the above formula, one can calculate the value of BSE Sensex**.** The value of Sensex is calculated on the basis of free float market capitalization method. The formula for the same is: Free Float Market Capitalization = Market Capitalization*Free Float Factor.

Where market capitalization is the market value of the company, which is calculated as: If the Sensex increases, it means the prices of the underlying 30 stocks have increased. If the Sensex has decreased, it means the prices of the underlying 30 stocks have decreased The Sensex is the oldest index in India, and people consider it to be a reflection of the Indian economy.

18.8.2 Process of calculation of Sensex: First, the market capitalization is taken into account. This is done by multiplying all the shares issued by the company with the price of its stock. Then BSE determines a Free-float factor that is a multiple of the market capitalization of the company. This helps in determining the free-float market capitalization based on the details submitted by the company. Then, Ratio and Proportion are used based on the base index of 100. This helps to determine the Sensex.

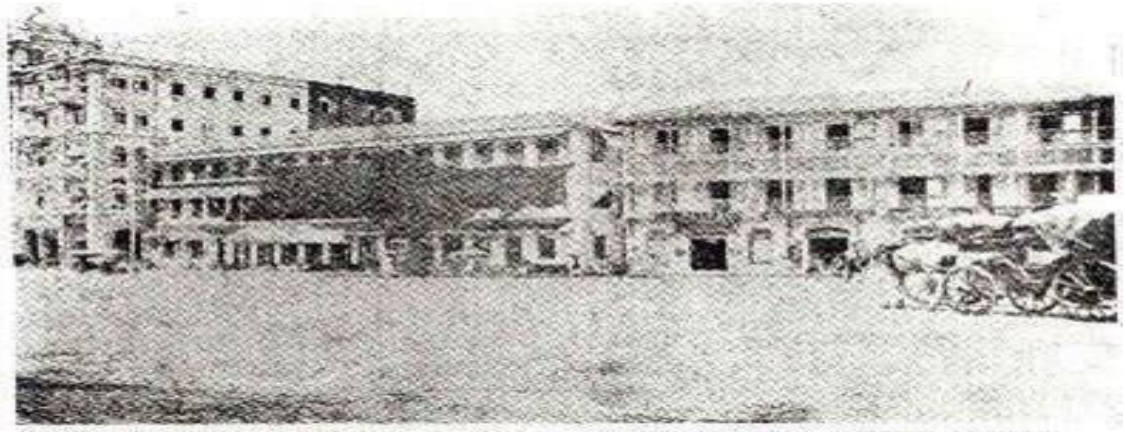
18.8.3 What is Nifty: The term Nifty is derived from the combination National and Fifty as Nifty consists of 50 actively traded stocks. Nifty is primarily an equity benchmark index which was introduced in April 21, 1996 by National Stock Exchange. Nifty is an abbreviation of National Stock Exchange Fifty, it is the broad index of National Stock Exchange (NSE).

National Stock Exchange Fifty or Nifty is the market indicator of NSE. It ideally is a collection of 50 stocks but presently has 51 listed in it. It is also referred to as Nifty 50 and CNX Nifty by some as it is owned and managed by India Index Services and Products Ltd. (IISL). NIFTY is a market index introduced by the National Stock Exchange. It is a blended word – National Stock Exchange and Fifty coined by NSE on 21st April 1996. NIFTY 50 is a benchmark based index and also the flagship of NSE, which showcases the top 50 equity stocks, traded in the stock exchange out of a total of 1600 stocks. These stocks span across 12 sectors of the Indian economy which include – information technology, financial services, consumer goods, entertainment and media, financial services, metals, pharmaceuticals, telecommunications, cement and its products, automobiles, pesticides and fertilizers, energy, and other services. NIFTY is one of the two national indices, the other being SENSEX, a product of the Bombay Stock Exchange. It is owned by the India Index Services and Products (IISL), which is a fully-owned subsidiary of the National Stock Exchange Strategic Investment Corporation Limited. NIFTY contains a host of indices – NIFTY 50, NIFTY IT, NIFTY Bank, and NIFTY Next 50; and is a part of the Futures and Options (F&O) segment of NSE which deals in derivatives.

18.8.4. How is Nifty calculated? Nifty is also calculated through the free-float market capitalization weighted method. Just like Sensex, Nifty also follows a mathematical formula based to know the market capitalization. It multiples the Equity capital with a price to derive the market capitalization. To determine the Free-float market capitalization, equity capital is multiplied by a price which is further multiplied with IWF which is the factor for determining the number of shares available for trading freely in the market. The Index is determined on a daily basis by taking into consideration the current market value divided by base market capital and then multiplied by the Base Index Value of 1000.

For a certain period, the level index represents the aggregate market value of the companies in the index. The Nifty Index's base duration is November 3, 1995. Stocks have a 1,000 starting value. The minimum capital requirement is Rs. 2.06 trillion. NIFTY is a market index introduced by the National Stock Exchange. It is a blended word – National Stock Exchange and Fifty coined by NSE on 21st April 1996. NIFTY 50 is a benchmark based index and also the flagship of NSE, which showcases the top 50 equity stocks, traded in the stock exchange out of a total of 1600 stocks. NIFTY 50 is the most important index of the National Stock Exchange of India Limited (NSE), which is located in Mumbai. It evaluates the performance of 50 blue-chip stocks, the most reliable and liquid among Indian securities. Blue-chip stocks refer to shares of the most well-recognized and trustworthy enterprises with a reputation for financial soundness. Of the approximately 1600 companies listed and traded on NSE, the 50 stocks make up an efficient portfolio since they cover major sectors of the Indian stock market like financials, energy, utilities, and technology. Blue-chip stocks that make up the index must be domiciled in India and listed and traded on the NSE.

Some of the companies that currently make up the index are State Bank of India Ltd., Bharat Petroleum Corporation Ltd., JSW Steel Ltd., and Bharti Airtel Ltd. The components of the index are not constant; old companies are removed (if their performance deteriorates consistently), and new companies are added (once they fill certain criteria regarding liquidity, free-float market capitalization, listing history, and trading frequency) regularly.



Origin of Bombay Stock Exchange- Meeting place of the Brokers under the Banyan Tree on Esplanade Road in 1875.

NIFTY 50 is the most important index of the National Stock Exchange of India Limited (NSE), located in Mumbai. A stock market index measures the performance of the entire market or a subset thereof. The NIFTY 50 index is calculated using a process called the free-float market capitalization-weighted method.

Eligibility Criteria for NIFTY Index Listing:
The eligibility criteria for getting listed on the NIFTY Index are mentioned below –

i. The company must be a domicile of India and registered with the National Stock Exchange.
ii. Stocks must possess high liquidity, which is measured by their average impact cost. It is the cost of security transaction execution in relation to the index weight as reckoned through market capitalisation. It should be 0.50% or lower than that for a period of 6 months while 90% of the observations are made on a portfolio of Rs. 10 Crore.
iii. The company should have a trading frequency of 100% during the previous six months.
iv. It should have an average free-floating market capitalisation, which is 1.5 times higher than the smallest constituent in the index.
v. Shares which have Differential Voting Rights or DVR are also eligible for the index.

The NIFTY Index is reconstituted every six months and considers the performance of a stock over such period. Depending on this performance, and given that a company and its stock fulfils all the eligibility criteria mentioned above, the list might include or eliminate new/old stocks respectively. In case any new additions and eliminations are done, the companies in question are informed through a notice four weeks before reconstitution. Apart from a periodical routine, reconstitution can also be undertaken in case a company goes through a scheme of arrangements for events involving suspension, spin-off, merger and compulsory delisting. Other than these, NIFTY share market is supposed to conduct a quarterly screening of companies to check their adherence to portfolio concentration regulations for Index Funds and ETFs as per SEBI mandate as announced on 10th January 2019.

What is a Stock Market Index? A stock market index measures the performance of the entire market or a subset thereof. A selected group of stocks that reflect the state of either the entire market or a segment of the market constitutes the index. Fluctuations in the prices of the stocks are an indicator of market movements, and investors can compare price levels in different periods to evaluate market performance.

How is the NIFTY 50 Index Calculated? The NIFTY 50 index is calculated using a process called the free-float market capitalization-weighted method. It reflects the total market value of all stocks in the index relative to a base period value (November 3, 1995).

Market capitalization, or market cap, is the total value of a company's shares held by all investors, including the organization itself. Free-float market cap captures the total market value of those shares which are available for public trading, that is, that are not held by company owners or the government.

Using the weighted method means that the component of each stock in calculating the index is assigned a weight according to the total value of its outstanding shares.
The total market cap of each stock is computed by multiplying it with a float-factor or Investible Weight Factor (IWF). It considers only those shares that are available for public trading and exclude the following categories:

i) Shares held by company owners and promoters
ii) Shares held by the government
iii) Shares held through American/Global Depository Receipts (shares held by foreigners indirectly through foreign financial institutions in India)
iv) Strategic stakes by corporate bodies
v) Investments held under FDI
vi) Shares held by associate companies (cross-holdings)
vii) Employee Welfare Trusts (for example, shares given to employees of the company as some form of security)
viii) Locked-in shares (shares that cannot be traded, due to some regulation imposed on the company by a regulatory authority)

Market capitalization = Shares Outstanding * Current Price
Free-float Market Capitalization = Market Cap * IWF
Index Value = (Current Market Value/Base Market Capital) * 1000

The current market value is the weighted aggregate market cap of all the 50 companies. The base market capital is the weighted aggregate market cap of all 50 companies as in the base period.

Computing the Index: An Illustration

Let stocks A, B, and C form the NIFTY index. The following information (hypothetical) is given about the stocks (all values in INR).

	Market Cap (Current)	IWF	Free-float Market Cap (Current)	Weight	Weighted Free-float Market Cap
Stock A	1,00,000	0.9	90,000	0.35	31,500
Stock B	1,50,000	0.8	1,20,000	0.47	56,400
Stock C	50,000	0.9	45,000	0.18	8,100
Current Market Value					96,000

	Market Cap (Base)	IWF	Free-float Market Cap (Base)	Weight	Weighted Free-float Market Cap
Stock A	80,000	0.95	76,000	0.40	30,400
Stock B	1,10,000	0.75	82,500	0.43	35,475
Stock C	40,000	0.8	32,000	0.17	5,440
Base Market Capital					71,315

Whenever the price of an individual stock changes, its weight in the index value also changes. The base market capital is INR 2.06 trillion. Given the current index value, one can easily calculate the current market value. Stocks in the NIFTY 50 capture approximately 65% of the float-adjusted market capitalization of the NSE, and the index is therefore considered a true reflection of the Indian stock market.

18.11 SUMMARY

Stock market refers to a market place where investors can buy and sell securities. Primary market deals with only new issue of shares, debentures and bonds, whereas secondary market provides a place for securities which have already been issued in an initial private or public offering. The objectives of stock exchange are create an efficient securities market in the country, regulate stock market, control illegitimate speculation, manipulation and other undesirable trade practices. Stock Exchange is a vital organ in a modern society. Stock exchanges have a vital role to play in the economic development of the country in general and the growth of industrial sector in particular.

18.12 TECHNICAL TERMS

STOCK EXCHANGE: Stock Exchange refers to a market place where investors can buy and sell securities. Stock Exchanges refer secondary market. Primary market deals with only new issue of shares, debentures and bonds, whereas secondary market provides a place for securities which have already been issued in an initial private or public offering. After the securities are issued in primary market, they are traded in the secondary market by the company's issuing securities, investors, brokers and the regulators.

OBJECTIVES: Objectives of stock exchange are to create an efficient securities market in the country, regulate stock market practices, protect the interest of investors. control illegitimate speculation, manipulation and other undesirable trade practices**.**

FUNCTIONS: The functions of stock exchange are Capital Formation, Economic Growth, continuous and ready market for securities, rational allocation of resources to the various sectors, Liquidity, evaluation of securities and better control over corporate sector.

SEXSEX: Sensitive Index or Sensex is the stock market app index indicator for the BSE. It is also sometimes referred to as BSE Sensex. It was first published in 1986 and is based on the market-weighted stock index of 30 companies based on the financial performance. The large, established companies that represent various industrial sectors are a part of this.

NIFTY: National Stock Exchange Fifty or Nifty is the market indicator of NSE. It ideally is a collection of 50 stocks but presently has 51 listed in it. It is also referred to as Nifty 50 and CNX Nifty by some as it is owned and managed by India Index Services and Products Ltd. (IISL).

18.13 SELF-ASSESSMENT QUESTIONS:

1. Define Stock Exchange? Explain the characteristics of Stock Exchange?
2. Discuss the functions of Stock Exchange in detail?
3. Discuss the role of stock exchanges in secondary market?
4. Briefly describe the Bombay Stock Exchange?
5. Write a short note on National Stock Exchange?

18.14. SUGGESTED READINGS:

1. S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
2. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
3. J.C.Francis: Investments analysis and management
4. R.J Fuller and J.L.Farrel: Modern Investments and Security Analysis
5. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
6. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance

Dr. Ch.V.Rama Krishna Rao

LESSON 19
BOMBAY STOCK EXCHANGE (BSE) & NATIONAL STOCK EXCHANGE (NSE)

OBJECTIVES

After studying this lesson, you should be able to:

- Study Origin & Growth of Bombay Stock Exchange.
- Understand the classification of securities.
- Observe the functioning of National Stock Exchange.

STRUCTURE

19.1. BOMBAY STOCK EXCHANGE

Introduction: The Stock Exchanges in India as elsewhere have a vital role to play in the development of the country. It helps the Government to raise internal resources for the implementation of various development programmes in the public sector. It performs an important function in mobilising and channelizing resources which remain otherwise unutilized. Stock Exchange is a vital organ in a developing economy like India.

Bombay Stock Exchange (BSE) is the oldest and the largest stock exchange in Asia. Bombay Stock Exchange traces its history to the 1980s, when a dozen stockbrokers gathered under a banyan tree in front of Mumbai's Town Hall. As the number of brokers kept increasing this location kept changed and finally they moved to Dalal Street in 1874.

These stock brokers then organised an informal association in 1875 known as 'The Native Share and Stock Brokers Association' Bombay. The Bombay Stock Exchange was recognised in May 1927 under the Bombay Securities Contracts Control Act of 1925. BSE is the first stock exchange in the country to secure permanent recognition from the Government of India in 1956 under the Securities Contracts (Regulation) Act of 1956. In 2002, the name "The Stock Exchange, Mumbai" was changed to 'Bombay Stock Exchange.' Subsequently on August 19, 2005, the turned into a corporate entity (Corporatisation and Demutualisation

Scheme 2005) from an Association of Persons (AoP) and renamed as Bombay Stock Exchange Limited.

Bombay Stock Exchange is the largest of 25 exchanges in India. According to The World Federation of Exchanges, as on December 2011, BSE was the 14th largest stock exchange in the world and 6th largest in Asia with a market capitalisation of US$ 1 trillion. BSE is also world's number one exchange in terms of number of listed companies. BSE has a nation-wide reach with a presence in 417 cities and towns. 5, 133 companies were listed with the stock exchange and over 9, 275 scrips were being traded as in April 2012.

BSE was migrated from the open outcry system to an online screen based order driven trading system in 1995. BSE is the first exchange in India and the second in the world to obtain an ISO 9001:2000 certifications. It was also the first exchange in the country and second in the world to receive Information Security Management System Standard BS 7792-2-2002 certification for its BSE On-Line Trading System (BOLT). It is undeniable from its history that majority of the corporates in India raised capital through utilising services of BSE. The BSE was the first exchange in India to list derivatives, such as futures, options etc. The BSE is also actively involved in the development of the retail debt market.

The Department of Investor Services of BSE redresses grievances of investors. BSE is the first exchange in the country to provide an amount of Rs. 1 million towards the investor protection fund and this amount is higher than that of any exchange in the country. BSE also launched a nationwide investor awareness programme 'Safe Investing in the Stock Market' under which 264 programmers were held in more than 200 cities.

19.1.1. Board of Directors: From an Association of Persons (AoP), BSE has become a corporatized and demutualised entity which is incorporated under the provisions of the Companies Act of 1956. The Exchange is managed professionally under the overall supervision of Board of Directors. The Governing Board of BSE comprises 20 directors which exercises complete control and formulates policy issues. Its Board of Directors comprises of eminent professionals, representatives of trading members and of SEBI. Among these 20 Directors, 9 97 members are elected Directors of which one third retire every year by rotation. Three members are nominees of Securities and Exchange Board of India, 6 are from public representatives and a Managing Director and Chief Operating Officer. The routine operations of BSE are managed by the Managing Director and are assisted by the professional management team. 3

19.1.2 .Membership of BSE: Individuals and corporate entities can apply for membership in BSE. Membership in BSE can be obtained in the following two ways: i) Nomination by existing members or legal heirs in case of deceased member. Ii) New membership.

19.1.3. Conditions for Eligibility for Becoming a Member: The selection criteria for individual members and directors in case of corporate members are same.

1. Minimum age or 21 years.
2. Not been adjudged bankrupt or insolvent.
3. Not compounded with his creditors.
4. Not been convicted of an offence involving fraud or dishonesty.
5. Not engaged as principal or employee in any business other than of securities.
6. Not been at any time expelled or declared a defaulter by any other Stock Exchange.

7. Either matriculates or has the 10 plus 2 years qualification. Generally, preference is given to professionally qualified persons.
8. Minimum 2 years' experience as a partner or authorised clerk or apprentice with a member or in other connected areas in capital market.
9. Minimum net worth requirement for individual members Rs. 30 lakh and for corporate members Rs. 50 lakhs.

19.1.4. Monitoring Business of Members: With the help of various markets monitoring reports BSE closely monitors the outstanding positions of the members on a daily basis.

These reports are scrutinized by officials of the Surveillance Department to ascertain the excessive purchase or sale position compared to normal level of business of each member. It also helps to examine the scrip-wise concentration of securities, quality and liquidity of scrips, margins already paid, capital deposited, pay-in position etc. of the members. Capital for BSE Membership the trading members of BSE are required to maintain three types of capital with the Exchange.

i. **Base Minimum Capital:**All trading members of BSE are required to keep Rs. 10 lakh as base capital with the Exchange, which is not available for adjustment towards margin obligations.
ii. **Trade Guarantee Fund:**Trading members are also required to deposit with the Exchange a sum of Rs. 10 lakhs towards his contribution to the Trade Guarantee Fund (TGF). Trading members are allowed to deposit cash, fixed deposit receipts, bank guarantee (i.e Cash and Cash Equivalent) towards their contribution to TGF. Trade Guarantee Fund will be available for adjustment towards margins.
iii. **Additional Capital:** For availing higher trading limits, trading members can deposit additional capital in the form of cash and non-cash equivalents. Additional capital will be available for adjustment towards margins. In addition to the above, a person becoming a member of BSE has to pay an admission fee of Rs. 2, 50, 000 brokers capital fund Rs. 2, 50, 000 and annual subscription amounting to Rs. 70, 000. 99 5

19.2. CLASSIFICATIONS OF SECURITIES

During the past three decades, the BSE had been facilitating the growth of the Indian corporate sector by providing it with an efficient and ready access to resources. The securities traded in BSE have been classified into various groups based on certain qualitative and quantitative parameters. Following are the classifications in the equity segment:

a) 'A' Group or 'Specified' is a category in which there is a facility for carry forward (Badla) for a period not exceeding 90 days. It contains the shares of the companies which have fairly a good growth and track record in terms of dividend and capital appreciation. The scrips included in this group are on the basis of equity capital, market capitalisation, number of years of listing on the exchange, public share-holding, floating stock, trading volume etc.

b) 'B1' Group is a subset of the other listed equity shares that enjoy a higher market capitalisation and liquidity than the rest. 'B2' Group of shares comprises those shares which are not covered by the above two categories.

c) 'Z' Group was introduced by BSE in July 1999. 'Z' Group category comprises of shares of the companies which does not comply with the rules and regulations of the BSE. It

includes companies which failed to comply with its listing requirements, failed to resolve investor complaints, not made the required arrangements with the depositories for dematerialisation of their securities etc.

d) 'F' Group represents the fixed income securities (debt market) segment. Debentures and bonds issued by companies are listed under F Group (i.e fixed income securities). Trading in Government Securities by the retail investors is done under the 'G' Group. The 'T' Group represents scrips which are settled on a trade-to-trade basis as surveillance measure. The 'S' Group represents scrips forming part of the BSE-Indonext segment. The 'TS' Group consists of scrips in BSE-Indonext segment, which are settled on a trade-to-trade basis as a surveillance measure. BSE also provides a facility to the market participants for on-line trading of odd-lot securities in physical form in 'A', 'B', 'T', 'S', 'TS' and 'Z' groups and in rights renunciations in all groups of scrips in the equity segment.

19.3. ROLLING SEGMENT

All transactions in all groups of securities in the equity segment and fixed income securities listed on BSE are settled on T+2 bases. Under rolling settlement, the trade done on a particular day is settled after a given number of business days. A+2 settlement cycle means that the final settlement of transactions done on T, i.e trade day by exchange of money and securities between the buyers and sellers respectively take place on second business day after the trade day (excluding Saturdays, Sundays, Bank and Exchange trading holidays).

However, a transaction in securities of companies, which are in 'Z' Group, are settled only on a gross basis and the facility of netting of buy and sell transactions in such scrips is not available.

19.4. NATIONAL STOCK EXCHANGE OF INDIA –

Introduction: The 1991-92 securities scam revealed the inadequacies and inefficiencies in the Indian financial system. It was scam, which prompted a reform of the equity market. The 1990s will go down as the most important decade in the history of the capital market of India. Liberalization and globalization were the new terms coined and marketed during this decade.

The Capital Issues (Control) Act of 1947 was repealed in May 1992. The decade was also characterized by a new industrial policy, emergence of SEBI as a regulator of capital market, advent of foreign institutional investors, euro-issues, free pricing, new trading practices new stock exchanges, entry of new players such as private sector mutual funds and private sector banks.

NSE was established to provide a fair, efficient and transparent securities market in India. The conventional stock exchanges in India are failed to prevent price rigging, insider trading, unfair trade practices, market manipulations and lack sophisticated infrastructural facilities at par with international standards. The settlement period in conventional stock exchanges was also very long. Hence, a Higher Power Study Group (Pherwani Committee) was appointed by the Government of India to recommend suitable measures for overcoming the defects of conventional stock exchanges. NSE was the outcome of the recommendations of a Higher Power Study Group. The Higher Power Study Group recommended for the promotion of NSE by financial institutions to provide access to investors from all over the country on an equal footing. Based on the recommendations, NSE was promoted by leading

public sector financial institutions, Indian commercial banks and insurance companies at the behest of the Government of India. NSE was incorporated in November 1992. It was registered as a limited company under the Companies Act of 1956 with an equity capital of Rs. 25 crore. NSE was given recognition as a stock exchange in April 1993 under Securities Contracts (Regulation) Act, 1956. The NSE is situated in Mumbai.

19.5. PROMOTERS OF NSE

The National Stock Exchange was promoted by the following financial institutions:

1. Industrial Development Bank of India (IDBI).
2. Industrial Credit and Investment Corporation of India (ICICI).
3. Industrial Finance Corporation of India (IFCI).
4. All Insurance Corporations.
5. Select Commercial Banks and other Financial Institutions.

19.6. OBJECTIVES OF NSE

NSE was set up with the following specific objectives:

1. To provide a nationwide trading facility for equities, derivatives, debt and hybrid instruments.
2. To ensure equal access to all investors all over the country through appropriate communication network.
3. To provide a fair, efficient and transparent securities market to investors using electronic trading system.
4. To reduce settlement period through book entry settlement system.
5. To ensure timely delivery of documents.
6. To protect members from default risk.
7. To meet the international benchmarks and standards.

Within a short span of operation, the above objectives have been attained and the exchange has played a leading role in transforming India capital markets to its present form.

NSE has set up an infrastructure that serves as a role model for the security industry in terms of trading system, clearing and settlement practices and procedures. The standards set by NSE in terms of market practices, products, technology and service standards have become industry benchmarks and are being emulated by other market participants. More than a mere market facilitator NSE is a force which guide the industry towards new horizons and greater opportunities. NSE is the most advanced exchange with 1611 companies listed as on April 30, 2012.

The National Stock Exchange of India has stringent requirements and criteria for the companies listed on the Exchange. Minimum capital requirements, project appraisal, and company's track record are just some of the criteria. In addition, listed companies pay variable listing fees based on their corporate capital size.

19.7. MANAGEMENT OF NSE

NSE is one of the first demutualised stock exchanges in India. As a demutualised stock exchange, the ownership, management and trading rights of NSE are in the hands of three different sets of people. NSE is owned by a set of leading financial institutions and is

managed by professionals, who do not directly or indirectly trade on the exchange. Only qualified traders can be involved in the securities trading.

NSE is different from other exchanges where membership automatically implies ownership of the exchange. However, the ownership and management of NSE have been totally delinked from the right of trading members. Since broker owned stock exchanges are also broker managed there is clear conflicts of interest. Demutualisation completely eliminates any conflict of interest helped NSE in aggressively pursuing policies and practices within a public interest framework.

The Board of Directors of NSE comprises of senior executives from promoter institutions, eminent professionals in the fields of law, economics, accountancy, finance, taxation, public representatives, nominees of SEBI and one full time Executive of the Exchange. Its Board of Directors does not have any representative of brokers. However, the Executive Committee, which is concerned with the management of the exchange, has four brokers nominated by the Board to reflect different types of interests in the market. NSE has benefitted from the experience and expertise of trading members in their advisory capacities. The exchange has also appointed different committees to advice in areas such as best market practices, settlement procedures and risk containment systems.

19.7.1. Screen Based Trading System:

The trading in stock exchanges in India used to take place through open outcry without use of information technology for immediate matching or recording of trades. This was time consuming and inefficient. NSE is the first stock exchange in the country to be set up as a national exchange having a nation-wide access and with fully automated screen based trading system. In order to ensure efficiency, liquidity and transparency, NSE introduced a nationwide, on-line, fully automated screen based trading system (SBTS). The main advantages of trading in NSE are that an investor can transact from any part of the country at uniform prices. The prices at which the buyer and seller are willing to transact will be displayed on the screen. When the prices match, the transaction will be completed.

19.8. MEMBERSHIP IN NSE

There are no entry or exit barriers to the membership in NSE. The members are admitted to the different segments of the Exchange subject to the provisions of the Securities Contracts (Regulation) Act of 1956, the Securities and Exchange Board of India Act of 1992, the Rules, circulars, notifications, guidelines etc., issued there under and the Bye laws, Rules and Regulations of the Exchange. The following persons are eligible to becoming trading members in NSE: 1. Individuals, 2. Partnership firms registered under the Indian Partnership Act of 1932, 3) Institutions including subsidiaries of banks engaged in financial services. 4) Body corporate including companies as defined in the Companies Act of 1956.

19.8.1. Eligibility Criteria for Trading Membership:

The types of securities trading in NSE are divided into three segments: 1. Wholesale Debt Market Segment. 2. Capital Market Segment. 3. Futures and Options (F&O) Market (Derivatives Market).The NSE is one of the few exchanges in the world trading in all types of securities on a single platform. In June 1994, NSE commenced its operations in the

Wholesale Debt Market (WDM), In November, the same year; the Capital Market (Equities) segment also commenced operations and the Derivatives segment in June 2000.

The minimum standards stipulated by NSE for membership are in excess of those laid down by the SEBI. The standards for admission of members laid down by the Exchange stress on factors such as corporate structure, capital adequacy, track record, education, experience etc. and reflect a conscious effort on the part of NSE to ensure quality broking services so as to build and sustain confidence among investors in the Exchange's operations.

NSE has been encouraging corporatization of the broking industry. As a result, a number of brokers-proprietor firms and partnership firms have converted themselves into corporate.

19.8.2. Conditions for Membership: No person shall be admitted as a trading member if:

1. He has been an adjudged bankrupt.
2. He has compounded with his creditors for less than full discharge of debts.
3. He has been convicted of an offence involving a fraud or dishonesty.
4. He is engaged as a principal or employee in any business other than that of securities, except as a broker or agent not involving any personal financial liability or for providing merchant banking, underwriting or corporate or investment advisory services, unless he undertakes to severe its connections with such business on admission, if admitted.
5. He has been at any time expelled or declared a defaulter by any other Stock Exchange or he has been debarred from trading in securities by any Regulatory Authorities like SEBI, RBI etc.
6. He has been previously refused admission to trading membership by NSE unless a period of one year has elapsed since the date of such rejection.
7. He incurs such disqualification under the provisions of the Securities Contract (Regulations) Act, 1956 or Rules made there under so as to disentitle him from seeking membership of a stock exchange.

19.8.3. Education and Experience:

Where an applicant is a corporate, not less than two directors of the company (in case of a sole proprietorship, individual and in case of a partnership firm, two partners) should satisfy the following criteria. They should be at least graduates and each of them should possess at least two years' experience in an activity related to broker, sub-broker, authorised agent or authorised clerk or authorised representative or remiser or apprentice to a member of a recognised stock exchange. Such experience will include working as a dealer jobber, market maker or in any other manner in the dealing in securities or clearing and settlement thereof, as portfolio manager or merchant bankers or as a researcher with any individual or organisation operating in the securities market. Minimum capital, net worth, deposits and fees payable by members in different market segment are given below.

19.8.4. Trading Membership in Wholesale Debt Market (WDM):

In wholesale debt market segment, applicants like companies and institutions are only eligible for membership. Individual and partnership firms are not eligible to apply for membership on wholesale debt market segment. Minimum net worth requirement for

members in debt market segment shall be Rs. 2 crore. The deposits and fees payable by members of wholesale debt market segment are the following:

1. Minimum paid up capital Rs. 30 lakh.
2. Minimum net worth Rs. 2 Crore.
3. Interest free security deposit Rs. 1.50 crore.
4. Annual subscription Rs. 1 lakh.

Trading Membership in Capital Market and Futures and Options Market: Individuals, partnership firms, institutions and corporations are eligible for membership in these segments and the deposits and fees payable by the members are the following:

1. Minimum paid up capital Rs. 30 lakh.
2. Minimum net worth Rs. 1 Crore.
3. Interest free security deposit Rs. 1.25 crore.
4. Annual subscription Rs. 1 lakh.
5. Collateral security deposit Rs. 2 Lakh.

19.8.5. Trading Membership in Capital Market, Futures and Options and Wholesale Debt Market: Corporate and institutions are only eligible for membership in these three segments and the deposits and fees payable by the members are the following:

1. Minimum paid up capital Rs. 30 lakh.
2. Minimum net worth Rs. 2 Crore.
3. Interest free security deposit Rs. 2.75 crore.
4. Annual subscription Rs. 2 lakh.
5. Collateral security deposit Rs. 25 Lakh.

NSE is one of the first exchanges in the world to use a satellite communication technology for its trading. The trading system of NSE called National Exchange for Automated Trading (NEAT), is a state of-the-art client-server-based application. At the server end, all trading information is stored in memory database to ensure minimum response time and maximum system availability for its users. For all trades entered into NEAT system, there is a uniform response time which is less than one second. It is one of the very few exchanges in the world to adopt an anonymous order matching system. The member punches in the NEAT system, the details of his order like the quantities and prices of securities on which he desires to transact. The transaction is executed as soon as it finds a matching sale or buys order from a counter party. All the orders are electronically matched on a price/time priority basis. This has resulted in reducing considerably the time spent, cost and risk of error as well as frauds thus ensuring improved operational 109 efficiency. Further, the system allows a large number of participants, irrespective of their geographical locations, to trade with one another simultaneously, improving the depth and liquidity of the market. A single consolidated order book for each stock displays, on a real time basis, buy and sell orders originating from all over the country. Thus, NEAT system provides an Open Electronic Consolidated Limit Order Book (OECLOB), which ensures full anonymity by accepting orders, big or small, from members without revealing their identity. The NEAT system also provides equal access to all the investors.

NSE carries the trading platform to the PCs at the residence of investors through the internet. NSE also allows using of internet facility for buying and selling of securities through

registered brokers. These brokers should obtain the permission of their respective stock exchanges. In February 2000, NSE become the first exchange in the country to provide web-based access to investors to trade directly in the exchange followed by BSE in March 2001.

The orders originating from PCs of investors are routed through the internet to the trading terminals of the designated brokers with whom they have relations and then further to the exchange. After these orders are matched, the transaction is executed and the investors get the conformation of the same directly on their PCs.

19.9. CIRCUIT BREAKERS

NSE implemented index-based market-wide circuit breakers in compulsory rolling settlement with effect from July 02. 2001. In addition to the circuit breakers, price bands are also applicable on individual securities.

19.9.1. Index-Based Circuit Breakers:

The index-based market-wide circuit breaker system applies at 3 stages of the index movement, either way viz. at 10 percent, 15 and 20 percent. These circuit breakers when triggered bring about a coordinated trading halt in all equity and equity derivative markets nationwide. The market-wide circuit breakers are triggered by movement of either as BSE Sensex or the NSE S&P CNX Nifty, whichever is breached earlier.

i) In case a 10 per cent movement of either of these indices, there would be a one-hour market halt if the movement takes place before 1.00 p.m. In case the movement takes place at or after 1.00 p.m. but before 2.30 p.m. there would be trading halt for ½ hour. In case movement takes place at or after 2.30 p.m. there 110 will be no trading halt at the 10 per cent level and market shall continue trading.
ii) In case of a 15 per cent movement of either index, there shall be a two-hour halt if the movement takes place before 1.00 p.m. If the 15 per cent trigger is reached on or after 1.00 p.m., but before 2.00 p.m., there shall be a none-hour halt. If the 15 per cent trigger is reached on or after 2.00 p.m. the trading shall halt for reminder of the day.
iii) In case of a 20 per cent movement of the index, trading shall be halted for the remainder of the day.

19.9.2. Price Bands: Daily price bands are applicable on securities as below:

1. Daily price bands of 2 per cent (either way) on securities as specified by the Exchange.
2. Daily price bands of 5 per cent (either way) on securities as specified by the Exchange.
3. Daily price bands of 10 per cent (either way) on securities as specified by the Exchange.
4. No price bands are applicable on scrips on which derivative products are available or scrips included in indices on which derivative products are available. In order to prevent members from entering orders at non-genuine prices in such securities, the Exchange has fixed operating range of 20 per cent for such securities.
5. Price bands of 20 per cent (either way) on all remaining scrips (including debentures, warrants, preference shares etc.)
6. For auction market the price bands of 20 per cent are applicable.

19.10. SUBSIDIARIES OF NSE:

The subsidiary operates the assets as part of its business and is referred to as the operating entity. The assets, which could include land, buildings, technology, intellectual property or equipment, are most often leased to the operating entity, and the holding company retains ownership of the assets at all times. In the corporate world, a subsidiary is a company that belongs to another company, which is usually referred to as the parent company or the holding company. The parent holds a controlling interest in the subsidiary company, meaning it has or controls more than half of its stock.

Subsidiaries of NSE: The National Securities Clearing Corporation Ltd. (NSCCL) is a wholly owned subsidiary of National Stock Exchange of India. It was incorporated in August 1995 and commenced its clearing operations in April 1996. The other subsidiaries are NSE IT Ltd., India Index Services and Products Ltd. etc., NSE Indices Limited; NSE Clearing Limited; NSE NSEIT; NSE InfoTech Services Limited; NSE Cogencis Information Services Ltd; NSE IFSC Clearing Corporation Limited (NICCL), or simply NSE International Clearing; NSE IFSC Limited, or simply NSE International Exchange; NSE Investments Limited; NSE Data & Analytics; NSE Academy Limited. Founded: 1992; 31 years ago; Type: Stock exchange; Currency: Indian rupee (₹)

19.10.1 National Securities Clearing Corporation Ltd. (NSCCL):

The National Securities Clearing Corporation Ltd. (NSCCL) is a wholly owned subsidiary of National Stock Exchange of India. It was incorporated in August 1995 and commenced its clearing operations in April 1996. It was formed to build confidence in clearing and settlement of securities and to promote and maintain the short and consistent settlement cycles. National Securities Clearing Corporation Ltd. (NSCCL) carries out the clearing and settlement of the trades executed in the Equities and Derivatives segments. It also operates Subsidiary General Ledger Account (SGL) for settlement of trades in government securities and undertakes settlement of transactions on other stock exchanges like the Over the Counter Exchange of India (OCTEI). The clearing corporation is responsible for post trade activities such as the risk management and the clearing and settlement of trades executed on a stock exchange. Clearing and settlement of trades and risk management are its central functions.

19.10.2. Objectives:

NSCCL was set up with the following specific objectives:

1. To build confidence in clearing and settlement of securities.
2. To promote and maintain short, consistent and well defined settlement cycles without any derivatives.
3. To provide counter-party risk guarantee.
4. To operate a tight risk containment system.

19.10.3 NSE IT Ltd.:

It is also a wholly owned subsidiary of NSE and is its IT arm. This arm of the NSE is uniquely positioned to provide products, services and solutions for the securities industry. NSE.IT primarily focuses on the area of trading, broker front-end and back-office, 112 clearing and settlement, web-based, insurance etc. Along with this, it also provides consultancy and implementation services in Data Warehousing, Business Continuity Plans,

Site Maintenance and Backups, Stratus Mainframe Facility management, Real Time Market Analysis & Financial News.

19.10.4. India Index Services And Products Ltd. (IISL):

It is a joint venture between NSE and CRISIL Ltd. to provide a variety of indices and index related services and products for the Indian Capital Market. It was set up in May 1998. IISL has a consulting and licensing agreement with the Standard and Poor's (S&P), which is the world's leading provider of investible equity indices, for co-branding equity indices.

19.10.5. National Securities Depository Ltd. (NSDL):

NSE joined hands with IDBI and UTI to promote dematerialisation of securities. This step was taken to solve problems related to trading in physical securities. It commenced its operations in November 1996.

19.10.6. Dot Ex International Limited:

DotEx was formed to provide a well-structured inter trading platform for the members to further offer on-line trading facilities to their customers. With this facility, the members can serve big customers with the use of automated risk management features and thus increase the volume of trade. The investors also get comprehensive, relevant and updated information through it.

19.10.7 Over the Counter Exchange of India:

OTCEI was set up in 199- as Section 25 Company under the Companies Act 1956 and is recognised as a Stock Exchange under Section 4 of Securities Contracts Regulation Act, 1956. It was set up to provide small and medium sized enterprises access to the capital markets and to investors a convenient mode of investments. It is a ring less electronic national exchange listing entirely new companies, which will not be listed on any other exchange. Companies engaged in investment, leasing, finance, hire purchase, amusement parks etc. and the companies listed on any other stock exchange are not eligible for getting listed on OTCEI. Also, listing is granted only if the issue is fully subscribed to by the public and sponsor.

19.11. PROMOTERS OF THE EXCHANGE

OTCEI was promoted by a consortium of leading Financial Institutions of India, such as:

1. Unit Trust of India (UTI)
2. ICICI
3. Industrial Development Bank of India (IBRD)
4. SBI Capital Markets Limited
5. Industrial Finance Corporation of India (IFCI)
6. Life Insurance Corporation of India (LIC)
7. Canbank Financial Services Limited
8. General Insurance Corporation of India & its subsidiaries.

Members on the exchange are responsible for getting companies on the exchange through the mechanism of sponsorship. Dealers may perform the dual roles of broker and the market maker, and along with members, are responsible for trading of securities on the exchange.

The Custodian/Settler is responsible for validation of trading documents, storage of trading documents, and share certificates as also clearing of daily transactions and giving each member/dealer his net monetary position with respect to the market as a whole. Registrars and the transfer agents are responsible for share transfers, allotment and keeping shareholders informed of all developments in the companies concerned.

19.12 SUMMARY

The Stock Exchanges in India as elsewhere have a vital role to play in the development of the country. It performs an important function in mobilising and channelizing resources which remain otherwise unutilized. Stock Exchange is a vital organ in a developing economy like India. Bombay Stock Exchange (BSE) is the oldest and the largest stock exchange in Asia. NSE was established to provide a fair, efficient and transparent securities market in India. The conventional stock exchanges in India are failed to prevent price rigging, insider trading, unfair trade practices, market manipulations and lack sophisticated infrastructural facilities at par with international standards.

19.13 TECHNICAL TERMS

Bombay Stock Exchange: Bombay Stock Exchange (BSE) is the oldest and the largest stock exchange in Asia. Bombay Stock Exchange traces its history to the 1980s, when a dozen stockbrokers gathered under a banyan tree in front of Mumbai's Town Hall. As the number of brokers kept increasing this location kept changed and finally they moved to Dalal Street in 1874.

Member: Individuals and corporate entities can apply for membership in BSE. Membership in BSE can be obtained in the following two ways i.e Nomination by existing members or legal heirs in case of deceased member and New membership. The selection criteria for individual members and directors in case of corporate members are same.

Rolling Settlement: All transactions in all groups of securities in the equity segment and fixed income securities listed on BSE are settled on T+2 basis. Under rolling settlement, the trade done on a particular day are settled after a given number of business days. A+2 settlement cycle means that the final settlement of transactions done on T, i.e trade day by exchange of money and securities between the buyers and sellers respectively take place on second business day after the trade day (excluding Saturdays, Sundays, Bank and Exchange trading holidays).

National Stock Exchange: NSE was established to provide a fair, efficient and transparent securities market in India. The conventional stock exchanges in India are failed to prevent price rigging, insider trading, unfair trade practices, market manipulations and lack sophisticated infrastructural facilities at par with international standards. The settlement period in conventional stock exchanges was also very long. Hence, a Higher Power Study Group (Pherwani Committee) was appointed by the Government of India to recommend suitable measures for overcoming the defects of conventional stock exchanges.

Subsidiaries of NSE: The National Securities Clearing Corporation Ltd. (NSCCL) is a wholly owned subsidiary of National Stock Exchange of India. It was incorporated in August 1995 and commenced its clearing operations in April 1996. The other subsidiaries are NSE IT Ltd., India Index Services and Products Ltd. etc.,

Circuit Braker: The index-based market-wide circuit breaker system applies at 3 stages of the index movement, either way viz. at 10 percent, 15 and 20 percent. These circuit breakers when triggered bring about a coordinated trading halt in all equity and equity derivative markets nationwide. The market-wide circuit breakers are triggered by movement of either as BSE Sensex or the NSE S&P CNX Nifty, whichever is breached earlier.

19.14 SELF-ASSESSMENT QUESTIONS

1. Explain the growth & development of BSE?
2. Discuss the conditions to become a member in BSE?
3. BSE Securities are traded in different categories? Explain?
4. Explain the origin & objectives of NSE?
5. Discuss the eligibility criteria to become a member in NSE?
6. What is rolling settlement? Discuss?
7. What is subsidiary? Discuss the subsidiaries of NSE?

19.15 SUGGESTED READINGS

1. S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
2. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
3. J.C.Francis: Investments analysis and management
4. R.J Fuller and J.L.Farrel: Modern Investments and Security Analysis
5. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
6. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance

Dr. Ch.V. Rama Krishna Rao

LESSON 20
INVESTMENT STYLES

OBJECTIVES

After studying this lesson, you should be able to:

- Study the meaning & characteristics of Investment.
- Understand different investment strategies.
- Know the advantages & disadvantages of Active Investment.
- Know the advantages & disadvantages of Passive Investment.
- Apply the Neutral Strategy to maximise returns.

STRUCTURE

20.1. INTRODUCTION

Investment is the employment of funds on assets with the aim of earning income or capital appreciation Investment has two attributes namely time and risk. Present consumption is sacrificed to get a return in the future. The sacrifice that has to be borne is certain but the return in the future may be uncertain. This attribute of investment indicates the risk factor.

The risk is undertaken with a view to reap some return from the investment. For a layman, investment means some monetary commitment. A person's commitment to buy a flat or a house for his personal use may be an investment from his point of view. This cannot be considered as an actual investment as it involves sacrifice but does not yield any financial return. The act of investing has the goal of generating income and increasing value over time.

An investment can refer to any mechanism used for generating future income. This includes the purchase of bonds, stocks, or real estate property, among other examples. An investment is a plan to put money to work today in hopes of obtaining a greater amount of

money in the future. Though that plan may not always work out and investments can lose money, it is also the primary way people save for major purchases or retirement. An investment involves putting capital to use today in order to increase its value over time. An investment requires putting capital to work, in the form of time, money, effort, etc., in hopes of a greater payoff in the future than what was originally put in.

To the economist, investment is the net addition made to the nation's capital stock that consists of goods and services that are used in the production process. A net addition to the capital stock means an increase in the buildings, equipment's or inventories. These capital stocks are used to produce other goods and services. Financial investment is the allocation of money of assets that are expected to yield some gain over a period of time. It is an exchange of financial claims such as stocks and bonds for money. They are expected to yield returns and experience capital growth over the years. The financial and economic meanings are related to each other because the savings of the individual flow into the capital market as financial investments, to be used in economic investment. Even though they are related to each other, we are concerned only about the financial investment made on securities. Thus, investment may be defined as "a commitment of funds made in the expectation of some positive rate of return". Expectation of return is an essential element of investment. Since the return is expected to be realized in future, there is a possibility that the return actually realized is lower than the return expected to be realized. This possibility of variation in the actual return is known as investment risk. Thus, every investment involves return and risk.

20.2 CHARACTERISTICS OF INVESTMENT:

All investments are characterized by certain features. Let us analyse these characteristic features of investment.

20.2.1 Return: All investments are characterized by the expectation of a return. In fact, investments are made with the primary objective of deriving a return. The return may be received in the form of yield plus capital appreciation.

The difference between the sale price and the purchase price is capital appreciation. The dividend or interest received from the investment is the yield. Different types of investments promise different rates of return. The return from an investment depends upon the nature of the investment, the maturity period and a host of other factors.

20.2.2 Risk: Risk is inherent in any investment. This risk may relate to loss of capital, delay in repayment of capital, non-payment of interest, or variability of returns. While some investments like government securities and bank deposits are almost riskless, others are riskier. The risk of an investment depends on the following factors: 1.The longer the maturity period, the larger is the risk. 2. The lower the credit worthiness of the borrower, the higher is the risk. 3. The risk varies with the nature of investment. Investments in ownership securities like equity shares carry higher risk compared to investments in debt instruments like debentures and bonds. Risk and return of an investment are related. Normally, the higher the risk, the higher is the return.

20.2.3 Safety: The safety of on investment implies the certainty of return of capital without loss of money or time. Safety is another feature which an investor desires for his investments. Every investor expects to get back his capital on maturity without loss and without delay.

20.2.4 Liquidity: An investment which is easily saleable or marketable without loss of money and without loss of time is said to possess liquidity. Some investments like company deposits, bank deposits, P.O. Deposits, NSC, NSS, etc. are not marketable. Some investment instruments like preference shares and debentures are marketable, but there are no buyers in many cases and hence their liquidity is negligible. Equity shares of companies listed on stock exchanges are easily marketable through the stock exchanges. An investor generally prefers liquidity for his investments, safety of his funds, a good return with minimum risk or minimization of risk and maximization of return.

20.3. INVESTMENT STYLES

Investment style is the method and philosophy followed by an investor or money manager in selecting investments for a portfolio. Investment style is based on several factors and typically tends to be based on parameters such as risk preference, growth vs. value orientation, and/or market cap. The investment style of a mutual fund helps set expectations for risk and performance potential. Investment style is also an important aspect used by institutional managers in marketing and advertising the fund to investors looking for a specific type of market exposure. Investment style is the way that a portfolio's investments are chosen so that it meets a particular orientation. Common styles can be distinguished from one another based on risk tolerance, growth vs. value, and market capitalization. Mutual fund investment styles are important signals for investors, and can be visualized with a style box.

20.3.1. Understanding Investment Styles

Investment styles can range broadly across the market, with institutional investment managers offering investors a large selection of managed fund strategies for various allocations of a portfolio. Institutional investment styles can first be generally segregated by risk. Risk and the risk allocation fit for investors is typically a primary differentiator that helps mutual fund companies market to investors. Investors will typically begin their investing style choices by first considering their risk tolerance, which can be either conservative, moderate or aggressive. Among these categories, investment managers can offer both active and passive investment strategies that broaden the investment options even further for investors. In addition to risk tolerance, investment style can describe the type of investments that a portfolio has. For instance, investment style may be dictated by market capitalization (large-cap), mid-cap, small-cap) or whether a stock is growth vs. value.

Investment style is important for investors choosing a mutual fund. A style box is a graphical representation of a mutual fund's characteristics. The financial services research provider Morningstar, Inc. popularized this tool by placing it alongside its well-known mutual fund ratings system, which ranks mutual funds by assigning them between one and five stars. As a result, many mutual fund investors have become familiar with the style box and its use as a tool for evaluating mutual funds. At the same time, a style box is a tool with several other practical applications. Read on to find out how style boxes can be used to categorize mutual funds and individual securities and to help you understand money management and the asset allocation strategy of your portfolio.

20.3.2. Growth vs. Value:

Investment style is often distinguished by growth versus value. Growth stocks are considered stocks that have the potential to outperform the overall market over time because of their future potential, while value stocks are classified as stocks that are currently trading below what they are really worth and will, therefore, provide a superior return. The decision to invest in growth vs. value stocks is ultimately left to an individual investor's preference, as well as their personal risk tolerance, investment goals, and time horizon. It should be noted that over shorter periods, the performance of either growth or value will also depend in large part upon the point in the cycle that the market happens to be in.

20.4. RISK-BASED INVESTMENT STYLES

Investing styles will typically account for the investors' risk tolerance, their investment time horizon, ethical values, and other considerations. Investing style refers to the specific strategies used to meet one's investment goals. At this more granular level, "style" often refers to groups within a broad category (such as equities or fixed income) that display unique characteristics. Risk-based style investing gives investors the flexibility to choose from an array of opportunities within their ratios.

20.4.1. Conservative:

Conservative funds will often have investment styles focused around income and fixed income investments. Investments in this category can include money market funds, loan funds and bond funds. Conservative funds are generally good as income investments as well, with many paying interest distributions or reinvesting in capital appreciation growth. In the fixed income category, managers will focus on offering funds by duration and credit quality. While fixed income credit investments are generally considered conservative, higher yielding lower-credit-quality investments would be the most aggressive style of funds offered for investors with conservative to moderate risk tolerance.

20.4.2. Moderate:

Many moderate risk investors will be attracted to managed funds with large-cap, blue chip securities or a value investment style. Large-cap, blue chip stocks can attract income investors since they are mature businesses with committed dividend payout ratios and steady dividends. Value funds may offer income as well. Generally value stocks have moderate risk with fundamental characteristics that show their market values discounted from their intrinsic value. Based on deep fundamental analysis and long-term assumptions, value investments can be a good core holding for all types of investors and are especially attractive in the moderate risk category.

20.4.3. Aggressive:

Growth funds, aggressive growth funds, capital opportunity funds and alternative hedge fund investment styles that have broader flexibility to utilize leverage and derivatives are some of the most appealing managed fund investment styles for aggressive investors. These funds are typically actively managed funds that seek to outperform market benchmarks. Aggressive funds may also encompass broad investment universes for greater return potential. In some cases this can include global securities or international securities actively managed and focused on high growth regions of the world, such as the emerging markets, BRIC countries or Asia ex-Japan.

20.5. EXAMPLES OF INVESTING STYLES

Most investors will base their investment decisions based on their own perceptions of market risk and their individual investment goals. The following are some common investing styles, although most investors will combine these strategies into a unique investing style.

20.5.1. Value Investing: Value investing is a strategy that seeks companies or assets that are temporarily undervalued by the market, due to volatility, bad news, or other concerns. These are companies or shares whose market price is below their intrinsic value, determined from objective factors like income and assets. Based on the belief that the market will ultimately reflect the true value of these companies, value investors seek underpriced assets in the expectation of a price increase.

20.5.2. Growth Investing: Growth investors seek companies or assets with a high potential to gain value, based on perceived market trends and price trajectories. Growth investors typically seek small companies in young industries that they believe are likely to gain value in the long run. Technology stocks and emerging markets are common targets for growth investors, based on the expectation of high average returns.

20.5.3. Income Investing: Income investing is a strategy that seeks to provide a steady income for the investor, rather than prioritizing capital growth. These investors will typically seek stocks with high dividends, in addition to fixed-income securities.

20.5.4. Due Diligence: Each investor will have their own investing style and methods for managing investments. Do-it-yourself investors take a more independent approach, while investors using full-service financial advisory platforms tend to rely on professional advice to shape their investing styles. Regardless of the investing style one follows, due diligence is important for ensuring that an investment meets an investor's style. Choosing funds with clearly followed investment style objectives can help investors manage a targeted portfolio. Working with a financial advisor or investment service that deploys regular rebalancing can also help investors to avoid style drift and ensure their investments are maintained according to their investing style preferences.

20.6. MANAGED ACCOUNTS AND FUNDS

Financial service providers and investment managers across the industry provide both managed accounts and managed funds that can support style or thematic investing.

20.6.1. Managed Accounts: Robo advisors, wrap accounts and separately managed accounts are all options for investors seeking support in managing to a certain investing style. Robo advisors and wrap accounts often base style investing on an investor’s risk profile, with active management also offering customized investing style options.

20.6.2. Managed Funds: Investing in managed funds can be one of the best ways to invest for style while also receiving the benefits of professional diversification. Most mutual funds and exchange-traded funds (ETFs) will employ a consistent investment style. Under the Investment Company Act of 1940, a manager's investment policies must be disclosed to investors in the fund’s prospectus, which is filed with its registration. In the managed fund

investment industry, investors will find all types of investment style options that generally fall into risk tolerance categories.

20.6.3. Passive vs. Active Funds: Among all risk categories, investors will also find passive versus active funds. Some investors may choose a passive investing style that offers exposure to various segments of the market often with lower costs and lower risk.

20.7. INVESTMENT STRATEGIES

Investment strategies are strategies that help investors choose where and how to invest as per their expected return, risk appetite, corpus amount, long-term, short-term holdings, retirement age, choice of industry, etc. Investors can strategies their investment plans as per the objectives and goals they want to achieve.

20.7.1 Passive and Active Strategies: The passive strategy involves buying and holding stocks and not frequently dealing in them to avoid higher transaction costs. They believe they cannot outperform the market due to its volatility; hence passive strategies tend to be less risky. On the other hand, active strategies involve frequent buying and selling. They believe they can outperform the market and can gain more returns than an average investor would.

20.7.2 Growth Investing (Short-Term and Long-Term Investments): Investors chose the holding period based on the value they want to create in their portfolio. If investors believe that a company will grow in the coming years and the intrinsic value of a stock will go up, they will invest in such companies to build their corpus value. This is also known as growth investing. On the other hand, if investors believe that a company will deliver good value in a year or two, they will go for short term holding. The holding period also depends upon the preference of investors. For example, how soon they want money to buy a house, school education for kids, retirement plans, etc.

20.7.3 Value Investing: Value investing strategy involves investing in the company by looking at its intrinsic value because such companies are undervalued by the stock market. The idea behind investing in such companies is that when the market goes for correction, it will correct the value for such undervalued companies, and the price will then shoot up, leaving investors with high returns when they sell. This strategy is used by the very famous Warren Buffet.

20.7.4 Income Investing: This type of strategy focuses on generating cash income from stocks rather than investing in stocks that only increase the value of your portfolio. There are two types of cash income which an investor can earn – (1) Dividend and (2) Fixed interest income from bonds. Investors who are looking for steady income from investments opt for such a strategy.

20.7.5 Dividend Growth Investing: In this type of investment strategy, the investor looks out for companies that consistently paid a dividend every year. Companies that have a track record of paying dividends consistently are stable and less volatile compared to other companies and aim to increase their dividend payout every year. The investors reinvest such dividends and benefit from **c**ompounding over the long term.

20.7.6 Contrarian Investing: This type of strategy allows investors to buy stocks of companies at the time of the down market. This strategy focuses on buying at low and selling at high. The downtime in the stock market is usually at the time of recession, wartime, calamity, etc. However, investors shouldn't just buy stocks of any company during downtime. They should look out for companies that have the capacity to build up value and have a branding that prevents access to their competition.

20.7.7 Indexing: This type of investment strategy allows investors to invest a small portion of stocks in a market index. These can be S&P 500, mutual funds, exchange-traded funds.

20.8. INVESTING TIPS

Here are a few investing tips for beginners, which should be kept in mind before investing.

i) **Set Goals:** Set goals on how much money is required by you in the coming period. This will allow you to set your mind straight whether you need to invest in long-term or short-term investments and how much return is to be expected.

ii) **Research and Trend Analysis:** Get your research right in terms of understanding how the stock market works and how different types of instruments work (equity, bonds, options, derivatives, mutual funds, etc.). Also, research and follow the price and return trends of stocks you chose to invest.

iii) **Portfolio Optimization:** Select the best portfolio out of the set of portfolios which meet your objective. The portfolio which gives maximum return at the lowest possible risk is an ideal portfolio. iv) **Best Advisor/Consultancy:** Find yourself a good consulting firm or brokerage firm. They will guide and give consultation regarding where and how to invest so that you meet your investment objectives.

iv) **Risk Tolerance:** Know how much risk you are willing to tolerate to get the desired return. This also depends on your short term and long-term goals. If you are looking for a higher return in a short period of time, the risk would be higher and vice versa.

v) **Diversify Risk:** Create a portfolio that is a mix of debt, equity, and derivatives so that the risk is diversified. Also, ensure that the two securities are not perfectly correlated to each other.

20.9. ADVANTAGES/ LIMITATIONS OF INVESTMENT STRATEGIES

Some of the advantages of investment strategies are as follows:

- Investment strategies allow for diversification of risk in the portfolio by investing in different types of investments and industry based on timing and expected returns.

- A portfolio can be made of a single strategy or a combination of strategies to accommodate the preferences and needs of the investors.
- Investing strategically allows investors to gain maximum out of their investments.
- Investment strategies help reduce transaction costs and pay less tax.

20.9.1. Limitations of Investment Strategies

Some of the limitations of investment strategies are as follows:

- Average investors find it difficult to outperform the market. To earn an average return from investments, it may take them years, whereas professional investors would earn the same return in weeks or months.
- Even though a lot of research, analysis, and historical data are considered before investing, most of the decisions are taken on a predictive basis. Sometimes, the results and returns may not be as it was anticipated, and it may delay the investors from achieving their goals.

20.10. ACTIVE VS. PASSIVE INVESTING

An active investor is someone who buys stocks or other investments regularly. These investors search for and buy investments that are performing or that they believe will perform. If they hold stocks that are not living up to their standards, they sell them. A passive investor rarely buys individual investments, preferring to hold an investment over a long period or purchase shares of a mutual or exchange-traded fund. These investors tend to rely on fund managers to ensure the investments held in the funds are performing and expect them to replace declining holdings. Fund managers can be active or passive investors.

While passive investing is more prevalent among retail investors, active investing has a prominent place in the market for several reasons. Active investing requires a hands-on approach, typically by a portfolio manager or other active participant. Passive investing involves less buying and selling, often resulting in investors buying indexed or other mutual funds. Although both investing styles are beneficial, passive investments have garnered more investment flows than active investments. Historically, passive investments have earned more money than active investments. Active investing has become more popular than it has in several years, particularly during market upheavals.

20.10.1 Active Investing

Active investing, as its name implies, takes a hands-on approach and requires that someone act as a portfolio manager—whether that person is managing their own portfolio or professionally managing one. Active money management aims to beat the stock market's average returns and take full advantage of short-term price fluctuations.

It involves a deeper analysis and the expertise to know when to pivot into or out of a particular stock, bond, or asset. A portfolio manager usually oversees a team of analysts who look at qualitative and quantitative factors and then utilizes established metrics and criteria to decide when and if to buy or sell.

Active investing requires analyzing an investment for price changes and returns. Familiarity with fundamental analysis, such as analyzing company financial statements, is also essential.

20.10.2. Passive Investing

If you're a passive investor, you invest for the long haul. Passive investors limit the amount of buying and selling within their portfolios, making this a very cost-effective way to invest.

The strategy requires a buy-and-hold mentality, which means selecting stocks or funds and resisting the temptation to react or anticipate the stock market's next move. The prime example of a passive approach is buying an index fund that follows a major index like the S&P 500 or Dow Jones Industrial Average (DJIA). Whenever these indices switch up their constituents, the index funds that track them automatically adjust their holdings by selling the stock that's leaving and buying the stock that's becoming part of the index. This is why it's such a big deal when a company becomes large enough to be included in one of the major indices: It guarantees that the stock will become a core holding in thousands of significant funds.

When you own fractions of thousands of shares, you earn your returns simply by participating in the upward trajectory of corporate profits over time via the overall stock market. Successful passive investors keep their eye on the prize and ignore short-term setbacks—even sharp downturns.

20.10.3. Passive Investing Advantages

Some of the key benefits of passive investing are:

- **Ultra-low fees:** No one picks stocks, so oversight is much less expensive. Passive funds simply follow the index they use as their benchmark.
- **Transparency:** Its always clear which assets are in an index fund.
- **Tax efficiency:** Their buy-and-hold strategy doesn't typically result in a massive capital gains tax for the year.

20.10.4. Passive Investing Disadvantages

Proponents of active investing would say that passive strategies have these weaknesses:

- **Too limited:** Passive funds are limited to a specific index or predetermined set of investments with little to no variance; thus, investors are locked into those holdings, no matter what happens in the market.
- **Small returns:** By definition, passive funds will pretty much never beat the market, even during times of turmoil, as their core holdings are locked in to track the market. Sometimes, a passive fund may beat the market by a little, but it will never post the significant returns active managers crave unless the market itself booms.
- **Reliance on others:** Because passive investors generally rely on fund managers to make decisions, they don't specifically get to say in what they're invested in.

20.10.5. Active Investing Advantages

Advantages to active investing:

- **Flexibility:** Active managers aren't required to follow a specific index. They can buy those "diamond in the rough" stocks they believe they've found.

- **Hedging:** Active managers can also hedge their bets using various techniques, such as short sales or put options, and they can exit specific stocks or sectors when the risks become too big.
- **Tax management:** Even though this strategy could trigger a capital gains tax, advisors can tailor tax management strategies to individual investors, such as by selling investments that are losing money to offset the taxes on the big winners.

20.10.6. ACTIVE INVESTING DISADVANTAGES: But active strategies have these shortcomings:

- **Very expensive:** The Investment Company Institute pegs the average expense ratio at 0.168% for an actively managed equity fund, compared to only 0.016% for the average passive equity fund.1 Fees are higher because all that active buying and selling triggers transaction costs, and you're paying the salaries of the analyst team researching equity picks. All those fees over decades of investing can kill returns.
- **Active risk:** Active managers are free to buy any investment they believe meets their criteria
- **Management risk:** Fund managers are human, so they can make costly investing mistakes.

20.10.7. IS PASSIVE OR ACTIVE BETTER? So, which of these strategies makes investors more money? You'd think a professional money managers capability would trump a basic index fund. But they don't. If we look at superficial performance results, passive investing works best for most investors. Study after study (over decades) shows disappointing results for active managers. Active mutual fund managers, both in the United States and abroad, consistently underperform their benchmark index. For instance, research from S&P Global found that over the 20-year period ended 2022, only about 4.1% of professionally managed portfolios in the U.S. consistently outperformed their benchmarks.

All this evidence that passive beats active investing may be oversimplifying something much more complex, however, because active and passive strategies are just two sides of the same coin. While passive funds still dominate overall due to lower fees, some investors are willing to put up with the higher fees in exchange for the expertise of an active manager to help guide them amid all the volatility or wild market price fluctuations. So which do you choose? Many professionals blend these strategies to take advantage of the strengths of both.

20.10.8. ACTIVE AND PASSIVE BLENDING: Many investment advisors believe the best strategy is a blend of active and passive styles, which can help minimize the wild swings in stock prices during volatile periods. Passive vs. active management doesn't have to be an either/or choice for advisors. Combining the two can further diversify a portfolio and actually help manage overall risk. Clients who have large cash positions may want to actively look for opportunities to invest in ETFs just after the market has pulled back.

Retirees who care most about income may actively choose specific stocks for dividend growth while still maintaining a buy-and-hold mentality. Dividends are cash payments from companies to investors as a reward for owning the stock.

Moreover, it isn't just the returns that matter, but risk-adjusted returns. A risk-adjusted return represents the profit from an investment while considering the risk level taken to achieve that return. Controlling the amount of money that goes into certain sectors

or even specific companies when conditions are changing quickly can actually protect the client.

For most people, there's a time and a place for active and passive investing over a lifetime of saving for major milestones like retirement. More advisors wind up combining the two strategies—despite the grief each side gives the other over their strategy.

20.11. MARKET NEUTRAL STRATEGY

20.11.1 Introduction: A Market-Neutral Strategy Is A Type Of Investment Strategy Undertaken By An Investor Or An Investment Manager That Seeks To Profit From Both Increasing And Decreasing Prices In One Or More Markets While Attempting To Completely Avoid Some Specific Form Of Market Risk. Market-Neutral Strategies Are Often Attained By Taking Matching Long And Short Positions In Different Stocks To Increase The Return From Making Good Stock Selections And Decreasing The Return From Broad Market Movements.

20.11.2 Concept of Market Neutral: There Is No Single Accepted Method Of Employing A Market-Neutral Strategy. Beyond The Method Mentioned Above, Market-Neutral Strategists May Also Use Other Tools Such As Merger Arbitrage, Shorting Sectors, And So On. Managers Who Hold A Market-Neutral Position Are Able To Exploit Any Momentum In The Market. Hedge Funds Commonly Take A Market-Neutral Position Because They Are Focused On Absolute As Opposed To Relative Returns. A Market-Neutral Position May Involve Taking A 50% Long And A 50% Short Position In A Particular Industry, Such As Oil And Gas, Or Taking The Same Position In The Broader Market. Often, Market-Neutral Strategies Are Likened To Long/Short Equity Funds, Though They Are Distinctly Different.

Long/Short Funds Simply Aim To Vary Their Long And Short Stock Exposures Across Industries, Taking Advantage Of Undervalued And Overvalued Opportunities. Market-Neutral Strategies, On The Other Hand, Focus On Making Concentrated Bets Based On Pricing Discrepancies With The Main Goal Of Achieving A Zero Beta Versus Its Appropriate Market Index To Hedge Out Systematic Risk.

20.11.3. Types of Market-Neutral Strategies: There are two main market-neutral strategies that fund managers employ: i) Fundamental arbitrage and ii) Statistical arbitrage.

i) *Fundamental market-neutral investors* use fundamental analysis, rather than quantitative algorithms, to project a company's path forward and to make trades based on predicted stock price convergences.
ii) *Statistical arbitrage* market-neutral funds use algorithms and quantitative methods to uncover price discrepancies in stocks based on historical data. Then, based on these quantitative results, the managers will place trades on stocks that are likely to revert to their price means.

A great benefit and advantage of market-neutral funds is their big emphasis on constructing portfolios to mitigate market risk. In times of high market volatility, historical results have shown that market-neutral funds are likely to outperform funds using other certain strategies.

Except for pure short-selling strategies, market-neutral strategies historically have the lowest positive correlations to the market specifically because they place specific bets on stock price convergences while hedging away the general market risk.

Example: Market-neutral strategy, the Vanguard Market Neutral Investor Shares Fund (VMNFX) uses long and short-selling strategies, unlike the firm's other mutual funds, which only buy and sell long positions. The fund's strategy aims to minimize the impact of the stock market on its returns, meaning the fund's returns may vary widely from those of the market. Although most funds that short stocks, such as hedge funds, do not disclose their short holdings because SEC rules do not require them to, the Vanguard Market Neutral Investor Shares does publish its shorts. It chooses short positions by evaluating companies in five categories: growth, quality, management decisions, sentiment, and valuation. Then, it creates a composite expected return for all of the stocks in its universe and shorts those with the lowest scores.

20.11.4. Performance of Market-Neutral Strategies: Market-neutral strategies strive to take advantage of variations among stock returns. By shorting stocks, they consider unattractive and taking long positions in stocks they consider attractive, managers seek to capture the spread in performance between the strongest and the weakest stocks. This works best when there is a significant gap, or dispersion, between the best- and worst-performing stocks. Conversely, when stocks move together in lockstep, which tends to happen at the extremes of both “irrational exuberance” and macroeconomic angst, it doesn’t matter much whether one owns the best stocks or the worst ones. All boats are caught in the overpowering tide. So, opportunities for market-neutral strategies—indeed, for any strategy that relies on stock-picking are curtailed when stock returns cluster together in tight correlation. Periods of high correlation among stocks are generally periods of extreme risk-seeking or risk aversion.

At these times, it is generally a stock’s perceived riskiness (or lack thereof), rather than its fundamental attractiveness, that tends to determine returns. The degree to which stock returns have been correlated has varied significantly over time, with spikes around market crises. Generally, those spikes favor top-down directional investment strategies, while periods of low-to-medium correlation favor bottom-up approaches based on stock-specific fundamental or quantitative characteristics.

20.12. SUMMARY

Investment is the employment of funds on assets with the aim of earning income or capital appreciation Investment has two attributes namely time and risk. Investor has to apply investor has to follow based on his objective. Strategies like Passive, Active, Value investing, Contrarian investing, Growth Investing and other investment strategies helps in profit maximization. Active investors are those who takes the advantage of investing in both increasing and decreasing the prices of securities. Passive investors are those who limits their amount of buying and selling within their portfolio. Funds managed by all types of investment managers in the investment industry include investment documents that provide in-depth details on a fund’s investment style. Registered funds are more transparent, as directed by the Securities Act of 1933 and the Investment Company Act of 1940. Hedge funds and other alternative funds will also provide investment style disclosures in various forms for their investors. In the registered universe, funds must file a prospectus and statement of additional information with their registration. A fund’s prospectus is typically the primary source of information for investors seeking to understand a fund’s investment

style. Along with investment style, the prospectus will also disclose details about the levels of risk an investor can expect with the fund and the types of investors who would find the fund to be the best fit.

20.13. TECHNICAL TERMS

Investment: Investment is the employment of funds on assets with the aim of earning income or capital appreciation. Investment has two attributes namely time and risk. For a layman, investment means some monetary commitment. A person's commitment to buy a flat or a house for his personal use may be an investment from his point of view.

Investing tips: Investing tips helps beginners while investing. An investor shouldhavegoal, define his portfolio, do research and trend study, understand his / her risk tolerance level, try to diversify the risk and meet best consultancy. By following these tips, the investor may reach his objectives. These tips help in understanding customer needs and to make profits.

Active investing: Active investing, as its name implies, takes a hands-on approach and requires that someone act as a portfolio manager who aims to beat the stock market's average returns and take full advantage of short-term price fluctuations.

Passive investors: Passive investors limit the amount of buying and selling within their portfolios, making this a very cost-effective way to invest. The strategy requires a buy-and-hold mentality, which means selecting stocks or funds and resisting the temptation to react or anticipate the stock market's next move.

Neutral strategy: A market-neutral strategy is a type of investment strategy undertaken by an investor or an investment manager that seeks to profit from both increasing and decreasing prices in one or more markets while attempting to completely avoid some specific form of market risk. Market-neutral strategies are often attained by taking matching long and short positions in different stocks to increase the return from making good stock selections and decreasing the return from broad market movements.

20.14. SELF-ASSESSMENT QUESTIONS

1. How do you select an investment strategy? Discuss?
2. Define Investment Strategy? Discuss different types of investment strategy?
3. What is Passive Investment? Explain its features?
4. Active Investment vs. Passive Investment? Discuss?
5. Discuss the advantages & disadvantages of Active Investment?
6. Explain different types of neutral strategies?

20.15. SUGGESTED READINGS

1. S.K.Barua, V.Raghunathan and J.R. Varma : Portfolio Management
2. Donals E, Fischer and Ronald: Security Analysis and Portfolio management
3. E.J. Elton and M.J. Gruber: Modern Portfolio and Investment Analysis
4. Dan Nevins: Goal-based Investing: Integrating Traditional and Behavioral Finance
5. JAMES CHEN Updated June 21, 2022, Reviewed by AKHILESH GANTI

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MODEL QUESTION PAPER
M.Com., DEGREE EXAMINATION
Fourth Semester
Banking
Paper II — Portfolio Management

Time : Three hours **Maximum : 70 marks**

SECTION A (Total: 5x3=15 Marks)
(Answer the following questions. Each answer carries 3 marks)

1. a) Investment Process (OR) b) Pension funds
2. a) Psychological Traps (OR) b) Economic analysis
3. a) Portfolio Return (OR) b) EMH
4. a) Portfolio Evaluation (OR) b) portfolio Revision
5. a) Equity Indices (OR) b) Investment styles

SECTION B (Total: 5x8 = 40 Marks)
(Answer the following questions. Each answer carries 8 marks)

1. a) Explain about Constraints of the different groups of investors in portfolio management.
. (or)
b) Discuss briefly about Private Investors, Pension funds & Insurance companies.

2. a) Briefly discuss about Limitations of economic data and analysis methods
(or)
b) What is Assessment? Explain regarding the Assessment of market expectations.

3. a) Discuss about Capital Asset Pricing Model(CAPM) & Arbitrage Pricing Theory(APT)
(or)
b) Discuss about the Modern Portfolio Theory.

4. a) Explain about different Methods of Portfolio Evaluation
(or)
b) What is the Need and importance of portfolio Revision?

5. a) Explain the Analysis of investment styles based on portfolio and income.
(or)
b) Briefly discussed about passive Management of a portfolio of stocks

SECTION C (Total: 1x15 =15 Marks)

6. a) Explain about Foundations and endowments, Banks under portfolio management.
(or)
b) Sharpe's and Jensen's measures of portfolio performance evaluation-Explain.