R48 Portfolio Management Overview

Version 1.0

1. Introduction

In this reading, we will see the importance of the portfolio approach to investing, investment needs of different types of investors, steps in the portfolio management process, and how to compare various types of pooled investments.

2. Portfolio Perspective: Diversification and Risk Reduction

The portfolio approach means evaluating individual investments based on their contribution to the investment characteristics of the portfolio. Assume an investor's portfolio has three stocks A, B, and C. He is evaluating whether to add another stock, D, to the portfolio. In a portfolio approach, the investor will analyze what will happen to the risk and return of the portfolio with and without stock D; whereas, in an isolated approach, he will only look at the merits and demerits of the stock D.

Diversification helps investors avoid disastrous outcomes. For instance, many Enron employees held all of their retirement funds in Enron shares. When the share tumbled from $90 to zero between January 2001 and 2002, it completely ruined their financial wealth; this example emphasizes the need to diversify one's portfolio. Instead, if the Enron employees had held shares of other companies or other products, the consequence would not have been as bad.

Diversification also helps investors reduce risk without compromising their expected rate of return. A simple measure of diversification risk is the diversification ratio. Let us take the example of the same portfolio consisting of three stocks: A, B, and C with each stock belonging to a different industry. There is a high probability that the movements of A, B, and C are not correlated with each other, i.e., when A moves up, B may move down or C may move down. The benefit of diversification is that the movements of individual stocks cancel each other out to some extent.

The benefits of diversification in risk reduction for an equally weighted portfolio is measured by diversification ratio.

$$\text{Diversification ratio} = \frac{\text{Risk of equally weighted portfolio of n securities}}{\text{Risk of single security selected at random}}$$

3. Portfolio Perspective: Risk-Return Trade off, Downside Protection, Modern Portfolio Theory

The composition of the portfolios also matters for the risk-return trade-off. The table below shows two portfolios with different compositions of A, B, and C.

Two portfolios with same stocks but different compositions					
	Weight of each stock				
Portfolio	**Stock A**	**Stock B**	**Stock C**	**Expected Return**	**Standard Deviation**
Portfolio 1	33%	33%	33%	11%	13.1%

Portfolio 2	50%	25%	25%	11%	14%

As you can see both the portfolios have the same expected return, but Portfolio 1 has a better risk-return trade-off than Portfolio 2 as the risk assumed is lower for the same return.

However, an important point to note is that portfolios do not provide guaranteed downside protection. Although portfolio diversification reduces risk, the level of risk reduction is not the same at times of financial crises. The benefits of risk reduction from diversification are best seen under normal market conditions.

4. Steps in the Portfolio Management Process

The three steps in the portfolio management process are planning, execution, and feedback.

Step One: The Planning Step
In this step, the portfolio manager needs to understand a client's needs and develop an investment policy statement (IPS). IPS is a written document that states the client's objectives and constraints. Objectives are return and risk objectives which may be stated in absolute terms or relative terms. Constraints may include liquidity, unique circumstances, time horizon, legal, and taxes.

Step Two: The Execution Step
Based on the IPS, a portfolio is constructed in this step. Under execution, the first activity is asset allocation. Here the portfolio manager decides what asset classes must be included in the client's portfolio and in what proportion. Stocks, bonds, and alternative investments are examples of different asset classes. As an example, a client's asset allocation may consist of 60% equities, 30% fixed-income securities and 10% alternative investments.

Asset allocation is followed by security selection which is the analysis and selection of individual securities. In other words, the specific securities to be purchased are identified. For example, if 60% is allocated to equities, the analyst will identify what specific stocks to purchase.

Once the securities are selected, they are purchased through a broker or dealer. This is called portfolio construction.

Step Three: The Feedback Step
A portfolio manager's responsibility does not end with constructing a portfolio. The portfolio also needs to be monitored and rebalanced at regular intervals. For example, if the stock market performs very well in a particular period, the asset allocation drifts away from the intended levels. In this case the portfolio needs to be rebalanced. The frequency at which performance is measured is pre-decided – for instance, it could be on a monthly or quarterly basis.

The feedback step also involves performance measurement and reporting. Analysis must include how the portfolio performed over time, were the objectives met, what assets attributed to the good/poor performance, how the portfolio performed against the benchmark, and so on.

5. Types of Investors

The investment needs of different client types are given in the following table:

	Investment Horizon	Risk Tolerance	Income Needs	Liquidity Needs
Individual Investors	Depends on individual goals.	Depends on the ability and willingness to take risk.	Depends on rationale behind investment.	Depends on the individual.
Banks	Short	Low	Pay interest on deposits.	High, to meet the daily withdrawals.
DB pension plans	Long, depends on the employee profile.	High for longer investment horizon.	High for mature funds (payouts are closer), low for growing funds.	Low
Endowments and foundations	Long	High	Meet spending obligations.	Low
Insurance Companies (P&C)	Short	Low	Low	High
Insurance Companies (Life)	Long	Low (because of high liquidity needs).	Low	High
Mutual Funds	Varies by fund.	Varies by fund.	Varies by fund.	High, to meet redemptions.

Instructor's Note:

The two types of pension plans are:

Defined Contribution Plan: Company contributes an agreed-upon amount to the plan. The agreed-upon amount is recognized as a pension expense on the income statement and the contributed amount is treated as an operating cash outflow. In DC plan, the investment and inflation risk is borne by the employee.

Defined Benefit Plan: A company makes promises of future benefits to be paid to the employees. Since the employee's future benefits are defined, the employer assumes the investment risk.

6. The Asset Management Industry

The asset management industry is an integral component of the global financial services sector. At the end of 2017, the industry managed more than US$79 trillion of assets owned by a broad range of institutional and individual investors.

Asset managers are usually referred to as a buy-side firm since it uses (buys) the services of sell-side firms. A sell-side firm is a broker/dealer that sells securities and provides independent investment research and recommendations to buy-side firms.

Asset managers offer a wide variety of strategies (e.g., emerging market equities or quantitative investing). Some asset managers are "multi-boutique," in which a holding company owns several asset management firms that offer specialized investment strategies.

Active versus Passive Management

Asset managers can provide active or passive management or both.

- Active asset managers attempt to outperform a pre-determined performance benchmark.
- Passive asset managers attempt to match returns of a pre-determined benchmark.

Traditional versus Alternative Asset Managers

Asset managers are typically categorized as either traditional or alternative.

- Traditional asset managers focus on long-only equity, fixed-income, and multi-asset investment strategies. In traditional asset management, the management fee is based on asset under management.
- Alternative asset managers focus on hedge fund, private equity, and venture capital strategies, etc. Alternative asset managers' revenue is based on management fee and performance fees (or "carried interest").

Since many traditional managers are now offering higher-margin alternative products to clients, the line between traditional and alternative managers is becoming blurred.

Ownership Structure

The majority of asset management firms are privately owned and are structured as limited liability companies or limited partnerships. The publicly traded asset managers are not very common but they have substantial assets under management. Another prevalent ownership form of asset management is asset management divisions of large, diversified financial services companies that offer asset management alongside insurance and banking services.

Asset Management Industry Trends

The three key trends in the asset management industry include the following:

1) Growth of passive investing due to low cost for investors and difficulty for active managers to generate ex ante alpha in more-efficiently priced markets.

2) "Big data" in the investment process: Big data refers to massively large datasets and their analysis. These data include
    - Structured data i.e. order book data and security returns.
    - Unstructured data i.e. data generated by a vast number of activities on the

internet and elsewhere (e.g., compiled search information).

Advanced statistical and machine-learning techniques are being used by asset managers to help process and analyze these new sources of data. Third-party research vendors are supplying new sources of data, including social media data (i.e. data provided by Twitter and Facebook) and imagery and sensor data (e.g., weather conditions, cargo ship traffic patterns and company-specific considerations like retailer parking capacity/usage, tracking of retail customers).

3) Robo-advisers in the wealth management industry: It refers to use of automation and investment algorithms to provide several wealth management services, such as investment planning, asset allocation, tax loss harvesting, and investment strategy selection. They key drivers that are leading to rapid growth in robo-advisory assets include growing demand from "mass affluent" and young investors, lower fees, and new entrants' opportunities owing to low barriers to entry.

7. Pooled Interest - Mutual Funds

Pooled investments are where money is collected from several individual investors to be invested in a large portfolio. As the name implies, it is pooling money together for an investment. The funds where this collected money is invested could range from mutual funds to private equity depending on the risk, capital required, strategy, and how it is managed. The different types of investment products generally available to investors are listed below:

Investment Products by Minimum Investment	
Investment Product	**Minimum Investment**
Mutual Funds	$50 +
Exchange Traded Funds (ETFs)	$50 +
Separately Managed Accounts	$100,000 +
Hedge Funds	$1,000,000 +
Private Equity Funds	$1,000,000 +

In the rest of this section, we understand what a mutual fund is, the different types of mutual funds, and how other investment products are different from mutual funds.

7.1 Mutual Funds

A mutual fund is a comingled investment pool in which each investor has a pro-rata claim on the income and value of the fund.

Consider the following example: An investment firms raises $100,000 for a stock-based mutual fund from five investors and issues 10,000 shares. Each share has a value of $10. There are three individual investors and two institutional investors. The number of shares is based on the amount invested relative to the total amount.

Investor	**Amount Invested**	**% of Total**	**Number of Shares**

John	$4,000	4%	400
Jill	$6,000	6%	600
Joe	$10,000	10%	1,000
Jones Co.	$50,000	50%	5,000
Widget Co.	$30,000	30%	3,000

Assume the $100,000 is invested in various stocks and it grows to $150,000. The value of each share goes up by 50% to $15. The advantage of this structure is that the investment firm can have one or two managers managing this entire pool of money and each individual investor need not hire a manager to manage his relatively small amount of money. This is a cost-effective way of managing money.

Advantages of Mutual funds:

- Low investment minimums
- Diversified portfolios
- Daily liquidity
- Standardized performance and tax reporting.

In the context of mutual funds, it is important to understand the following terms:

- Net asset value**:** Net asset value = value of assets – liabilities. The value of a mutual fund is called the net asset value. It is calculated on a daily basis based on the closing price of the stocks held in the fund's portfolio. The NAV per share is calculated as: NAV/number of total shares. The NAV per share in our previous example was $100,000/10,000 = $10 per share
- Open-end fund**:** A mutual fund with no restrictions on when new shares can be issued or when funds can be withdrawn. The fund accepts new investment money and issues additional shares at a price equal to the net asset value at the time of investment. Similarly, when an investor redeems shares, the fund sells the underlying assets/securities to retire so many shares at the current net asset value. Because of this, an open-end fund trades close to NAV. NAV is based on closing prices. They can be bought/sold only once during the day. They are also called evergreen funds.
- Closed-end fund**:** Unlike open-end fund, in a closed-end fund, no new investment money is accepted. Shares of closed-end funds trade in the secondary market. A new investor may invest in the fund if an existing investor is willing to sell his shares. So, the outstanding shares stay the same. Since there is no liquidation of underlying assets and the share base is unchanged, the NAV may trade either at a premium or discount to net asset value based on the demand for shares. The units issued by closed-end funds trade like regular shares – they can be bought or sold on margin, shorted, etc.

Mutual funds can also be classified into:

- No-load fund**:** Most mutual funds have an annual fee for managing the fund, which is a percentage of the fund's net asset value. In a no-load fund, only an annual fee is charged, but there is no fee for investment or redemption.

- Load fund: A percentage is charged for investment or redemption or both (called entry and exit load) in addition to the annual fee.

8. Pooled Interest - Types of Mutual Funds

Funds can be categorized based on types of assets they invest in:

- Money market – taxable or non-taxable: They invest in high quality, short-term debt. Taxable money market bonds invest in corporate debt and federal government debt, while tax-free bonds invest in state and local government debt.
- Bond mutual funds – taxable or non-taxable: They invest in a portfolio of individual bonds and preference shares.
- Stock/index mutual funds – domestic or international: They invest in a portfolio of stocks or index funds.
- Hybrid/balanced funds – They invest in both stocks and bonds.

Funds can be categorized as actively managed or passively managed:

- With actively managed funds, the manager tries to identify securities which will outperform the market; these funds have high fees relative to passively managed funds.
- With passively managed funds, the manager purchases the same securities as a benchmark index. This helps ensure that the performance of the fund is similar to the performance of the benchmark.

9. Pooled Interest – Other Investment Products

Separately Managed Accounts

- A separately managed account (SMA) is an investment portfolio managed privately for an individual or institution by a brokerage firm or individual investment professional (financial advisor).
- Also called managed account, wrap account, and individually managed account.
- SMAs are managed exclusively for the benefit of a single individual or institution to meet their needs with respect to objectives, risk tolerance, and constraints.
- Unlike a mutual fund, the assets of an SMA are owned directly by the individual or institution.
- The required minimum investment in SMA is much higher than that for a mutual fund.

9.1 Exchange Traded Funds

Like mutual funds, ETFs are a pooled investment vehicle often based on an index. With index mutual funds, investors buy shares directly from the fund. With ETFs, investors buy shares from other investors.

How ETFs work

A fund manager creates the ETF by determining what assets the ETF will hold. Once the securities are decided, the fund sponsor contacts an institutional investor who owns those securities. The institutional investor deposits the basket of securities with the fund sponsor (held through a custodian), and in return, receives creation units for the deposited securities. The creation units typically represent 50,000 to100,000 ETF shares.

It is important to note that the weight of securities deposited is often in the proportion of what it is trying to represent. For example, the weight of Athena Health in iShares Russell 2000® Growth Index Fund is 0.61%, and it is roughly the same as in Russell 2000® Growth Index. The institutional investor then sells the creation units as ETF shares to the public; investors buy shares from other investors, so it works like a closed mutual fund. The institutional investor may redeem the original securities by returning the ETF creation units.

<u>How ETFs are Similar to Mutual Funds</u>

ETFs combine features of closed-end and open-end funds:

- Trade like closed-end mutual funds; can be shorted and bought on margin.
- Because of unique redemption procedure, their prices are close to net asset value like open-end funds.
- Expenses tend to be low relative to mutual funds but brokerage fee needs to be paid.
- Unlike mutual funds, ETFs do not have capital gains distributions and the minimum required investment in ETFs is usually smaller than that of mutual funds.

9.2 Hedge Funds

Hedge funds are private investment vehicles that typically use leverage, derivatives, and long and short investment strategies.

<u>Characteristics of hedge funds:</u>

a) *Short selling*: Many hedge funds use short-selling directly or synthetically using options, futures, and credit default swaps.

b) *Absolute return seeking:* Hedge funds seek an absolute, positive returns in all market environments.

c) *Leverage:* Most of the hedge funds use financial leverage (bank borrowing) or implicit leverage (using derivatives).

d) *Low correlation:* Some hedge funds tend to have low return correlations with traditional equity and/or fixed-income asset classes.

e) *Fee structures:* Hedge funds typically charge two distinct fees: a traditional asset-based management fee (AUM fee) and an incentive (or performance) fee.

9.3 Private Equity and Venture Capital Funds

Private equity and venture capital funds are privately held and actively managed equity positions. In such funds, a firm makes an investment in a company and then is actively involved in the management of that company. The equity they hold is private and not traded in public markets. The intention is to exit out of the investment in a few years. Like majority of alternative funds, private equity and venture capital funds are structured as limited partnerships between the fund manager, called the general partner (GP), and the fund's investors, called limited partners (LPs). The revenue of these funds comprises of:

- management fee (fees based on committed capital or net asset value or invested capital)
- Transaction fees
- *Carried interest:* GP's share of profits (typically 20%)
- *Investment income.* Profits generated on capital contributed to the fund by the GP.

Summary

LO.a: Describe the portfolio approach to investing.

The portfolio approach means evaluating individual investments by their contribution to the risk and return of an investor's portfolio.

Diversification helps investors reduce risk without compromising their expected rate of return. A simple measure of diversification risk is the diversification ratio. The lower the ratio, the better the diversification.

$$\text{Diversification ratio} = \frac{\text{Risk of equally weighted portfolio of n securities}}{\text{Risk of single security selected at random}}$$

LO.b: Describe the steps in the portfolio management process.

The three steps in the portfolio management process are:

1. Planning	• Understanding the client's needs. • Preparing an Investment policy statement.
2. Execution	• Asset allocation. • Security analysis. • Portfolio construction.
3. Feedback	• Portfolio monitoring and rebalancing. • Performance measurement and reporting.

LO.c: Describe types of investors and distinctive characteristics and needs of each.

The investment needs of each client type are given in the following table:

	Investment Horizon	**Risk Tolerance**	**Income Needs**	**Liquidity Needs**
Individual Investors	Depends on individual goals	Depends on the ability and willingness to take risk	Depends on rationale behind investment	Depends on individual
Banks	Short	Low	Pay interest on deposits	High, to meet the daily withdrawals
DB pension plans	Long, depends on the employee profile	High for longer investment horizon	High for mature funds (payouts are closer), low for growing funds	Low

Endowments and foundations	Long	High	Meeting spending obligations	Low
Insurance Companies (P&C)	Short	Low	Low	High
Insurance Companies (Life)	Long	Low (because of high liquidity needs)	Low	High
Mutual Funds	Varies by fund	Varies by fund	Varies by fund	High, to meet redemptions

LO.d: Describe defined contribution and defined benefit pension plans.

Defined Contribution Plan: Company contributes an agreed-upon amount to the plan. The agreed-upon amount is recognized as a pension expense on the income statement and the contributed amount is treated as an operating cash outflow.

Defined Benefit Plan: A company makes promises of future benefits to be paid to the employees.

LO. e. Describe aspects of the asset management industry.

An asset management industry is an integral component of the global financial services sector.

Asset managers are usually referred to as a buy-side firm as it uses (buys) the services of sell-side firms (broker/dealer that sells securities and provides independent investment research and recommendations to buy-side firms).

- Active asset managers attempt to outperform pre-determined performance benchmark.
- Passive asset managers attempt to match returns of a pre-determined benchmark.
- Traditional asset managers focus on long-only equity, fixed-income, and multi-asset investment strategies.
- Alternative asset managers focus on hedge fund, private equity, and venture capital strategies, etc.
- The majority of asset management firms are privately owned and are structured as limited liability companies or limited partnerships.
- The three key trends in the asset management industry include growth of passive investing, “Big data” in the investment process, and robo-advisers in the wealth management industry,

LO.f: Describe mutual funds and compare them with other pooled investment

products.

A mutual fund is a comingled investment pool in which each investor has a pro-rata claim on the income and value of the fund. In the context of mutual funds, it is important to understand the following terms:

<u>Net asset value</u>: Net asset value = value of assets – liabilities.

The value of a mutual fund is called the net asset value.

<u>Open-end fund</u>: A mutual fund with no restrictions on when new shares can be issued or when funds can be withdrawn.

<u>Closed-end fund</u>: Unlike an open-end fund, in a closed-end fund no new investment money is accepted.

<u>No-load fund</u>: Only an annual fee is charged, but there is no fee for investment or redemption.

<u>Load fund</u>: A percentage is charged for investment or redemption or both, in addition to the annual fee.

Funds can be categorized based on the types of investments (money market, bond mutual funds, stock mutual funds, index funds).

Like mutual funds, <u>exchange traded funds (ETFs)</u> are a pooled investment vehicle, often based on an index. With index mutual funds, investors buy shares directly from the fund. With ETFs, investors buy shares from other investors.

ETFs combine features of closed-end and open-end funds.

- Track NAV like open-end funds.
- Trade like close-end funds (continuously traded, can buy on margin, can short sell).
- Expenses are lower compared to mutual funds, but brokerage fee needs to be paid.
- Unlike mutual funds, ETFs do not have capital gains distributions.

<u>Separately Managed Accounts (SMA)</u>

- Also called “managed account”, “wrap account”, “individually managed account.”
- The investor owns individual (underlying) shares.
- Tax implications are considered when buying or selling.
- Requires high minimum investment.

<u>Hedge Funds</u>

- Hedge funds are private investment vehicles that typically use leverage, derivatives, and long and short investment strategies.

<u>Private Equity and Venture Capital Funds</u>

- Private Equity and Venture Capital Funds are privately held and actively managed equity positions. The equity they hold is private with the intention to exit out of the investment in a few years. Like majority of alternative funds, private equity and venture capital funds are structured as limited partnerships between the fund manager, called the general partner (GP), and the fund’s investors, called limited partners (LPs). The revenue of these funds comprises of management fee, transaction fee, carried interest and investment income.

Practice Questions

1. Which of the following portfolios is *most likely* appropriate for an investor that has a low-risk tolerance?

Portfolio	Fixed Income (%)	Equity (%)	Alternative Assets (%)
1	30	60	10
2	55	35	10
3	20	65	15

   A. Portfolio 1.
   B. Portfolio 2.
   C. Portfolio 3.

2. The institution that will have the highest risk tolerance for investments among the following is:
   A. Endowments.
   B. Banks.
   C. Non-life Insurance.

3. The institution that will *most likely* have the shortest investment horizon among the following is:
   A. Endowments.
   B. Life insurance.
   C. Non-life Insurance.

4. Which of the following statements about defined contribution plan is *most accurate*?
   A. The employee assumes the investment risk.
   B. The employer assumes the investment risk.
   C. The employer promises a predetermined retirement income to participants.

5. With respect to the portfolio management process, portfolio rebalancing decisions are made in the:
   A. planning step.
   B. execution step.
   C. feedback step.

6. Which of the following financial products is *most likely* to trade at their net asset value and *least likely* to have capital gain distribution?

	Trades at net asset value	Does not have capital gain distribution
A.	Open-end mutual funds	Exchange traded funds
B.	Exchange traded funds	Closed-end mutual funds

C. Closed-end mutual funds Open-end mutual funds

7. Which of the following is *least likely* correct with respect to separately managed accounts:
   A. The minimum investment required to open a separately managed account (SMA) is higher than that of a mutual fund.
   B. In a separately managed account (SMA) transactions can be tailored to the specific needs of the investor.
   C. In a separately managed account (SMA), no tax implications are considered when buying or selling as it meets the specific needs of the investor.

8. The key trends in the asset management industry *most likely* include:
   A. growth of traditional investing.
   B. growth of passive investing.
   C. growth of publicly traded asset management companies.

9. Which of the following regarding venture capital fund and a hedge fund is *most likely* correct?
   A. Both are structured as limited partnerships between the fund manager, called the general partner (GP), and the fund's investors, called limited partners (LPs).
   B. Both have short investment horizon, typically three to five years.
   C. Both use leverage to increase their returns.

Solutions

1. B is correct. Sorting asset classes by their risk profile: Fixed income < Equity < Alternative assets. Portfolio 2 has the highest proportion of fixed income and the lowest proportion of alternative assets and equity. Hence, it has the lowest risk profile. The portfolio that has the highest risk profile is Portfolio 3.

2. A is correct. Among the three, the institution that has the highest risk tolerance is Endowments. Banks have the lowest risk tolerance among the three.

3. C is correct. Among the three, the institution that has the shortest investment horizon is non-life insurance. Between life and non-life insurance firms, life insurance has a longer investment horizon as the claims or liabilities are typically longer in duration.

4. A is correct. In a defined contribution plan, the employer makes no promise regarding the future value of plan assets. The employer contributes a certain sum each period to the employee's retirement account. The employee assumes all the investment risk.

5. C is correct.
   Planning step: Client needs and circumstances are determined to form the investment policy statement (IPS). IPS is periodically reviewed and updated. IPS also needs to be changed whenever there is a major change in the client's objectives or constraints.
   Execution step: Suitable asset allocation is determined. Client portfolio is then constructed by selecting lucratively priced securities within an asset class.
   Feedback: Portfolio is monitored and rebalanced to adjust asset class allocations in response to the market performance.

6. A is correct. Open-end mutual funds trade at their net asset value per share, while closed-end mutual funds and exchange traded funds can trade at a premium or a discount to their net asset value.
   Exchange traded funds do not have capital gain distributions as they are passively managed.

7. C is correct. In a separately managed account (SMA), tax implications are considered when buying or selling as it meets the specific needs of the investor. A and B are correct statements. The minimum investment required to open an SMA is usually much higher than that of a mutual fund since in a mutual fund the investor is invests any amount into a pool of investments, while in a SMA the portfolio belongs solely to the individual investor. In an SMA, transactions can be tailored to the specific needs of the investor.

8. B is correct. The three key trends in the asset management industry include growth of

passive investing, "Big data" in the investment process, and robo-advisers in the wealth management industry.

9. A is correct. Both have limited liability structure. Hedge funds do not have any specific time horizon. They can invest in both short-term and long-term. VC funds avoid the use of leverage.

