

Portfolio Theory and Security Analysis – Assignment 1

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UNIT 2

Q1. D. NONE

Q2. D. All of the above

Q3. D. All of the above

Q4. C. Car insurance company

Q5. A. Endowment

Q6. C. Minimum total return requirement of 8%.

Q7. B. high within each asset class and low among asset classes.

Q8. B. Incorporate forecasts of future economic conditions.

Q9. Difference between Willingness and Ability to take risks-

- Willingness to take risk is an investor's distaste to take or include risk in their portfolio. Willingness is all about an investor's beliefs and uptake on the market. An investor that is not willing to take risk may sacrifice potential capital appreciation to achieve a low-risk investment.
- Ability to take risks on the other hand is purely scientific and is determined using numbers. It is calculated by taking into account the investor's assets. Furthermore, a bottom line of losses is decided in case the market falls indefinitely.

Q10. Components of an IPS include-

- Scope and Purpose- setting up of the basics of a portfolio. This may include setting up a contract between the manager and the investor, assessing the investor's wealth and source of income and objective of the investment.
- Governance- Setting of the duties/responsibilities of setting up and managing the IPS.
- Investment, Return and Risk Objectives- Determine the bearable risk, amount to be invested and the objective of the portfolio. Furthermore, factors like the investor's personal requirements are also incorporated in the portfolio.
- Risk Management- Establishing performance measurements and reporting accountabilities, deciding on the countermeasures to risks.

Q11.

- An IPS states the likely requirements required to withdraw funds from the portfolio. When a client has such a requirement, the manager should allocate part of the portfolio to cover the liability. This part of the portfolio will be invested in assets that are liquid—that is, easily converted to cash—and have low risk when the liquidity need is actually present so that their value is known with reasonable certainty.
- An IPS states the time horizon over which the investor invests. It might be the period over which the portfolio is accumulating before any assets need to be withdrawn; will affect the nature of investments used in the portfolio. Risky investments are not suitable for short time horizon as there is not much time to cover losses, if in case, for example.
- Tax status will differ between investors. Some investors will be subjected to taxes on investment returns while others may not. Gains may be subject to a lower rate of tax or part or all of the gain may be exempt from taxation. Furthermore, income may be taxed as it is earned, whereas gains may be taxed when they are realized. Hence, in such cases there is a time value of money benefit in the deferment of taxation of gains relative to income. The portfolio should reflect the tax status of the client.
- An IPS must state all regulatory and legal restrictions that constrain how the portfolio is invested. When an individual has access to material

nonpublic information about a particular security, this situation may also form a constraint. The IPS should note this constraint so that the portfolio manager does not inadvertently trade the stock on the client's behalf.

- A client's personal beliefs may interfere with their investment choices. Similarly, an investor may wish to avoid investments that he or she believes are inconsistent with their faith. Certain clients may be keen to avoid industries like tobacco and distilleries. These beliefs need to be kept in consideration while creating their portfolio.

Q12. ESG considerations may be put into effect into an investment policy by-

- exclusionary screening, best-in-class selection, active ownership, thematic and impact investing and ESG integration in security analysis.

Exclusionary screening- Excluding certain sectors or companies that deviate from accepted standards or norms. Exclusion based on values, such as exclusion of gambling, alcohol etc. Best-in-class selection- Investors seek to identify companies within an industry that rank (or score) most favorably based on ESG considerations. Here, investor portfolios would include only securities of those companies that exceed a certain threshold when evaluating ESG considerations. active ownership is the practice of entering into a dialogue with companies. Thematic and impact investing focus on investment in objectives, themes, and trends that relate positively to ESG issues. ESG integration refers to the integration of qualitative and quantitative ESG factors into traditional security and industry analysis. The focus of ESG integration is to identify risks and opportunities arising from ESG factors and to determine whether a company is properly managing its ESG resources in accordance with a sustainable business model.

Q13. Diversification Ratio- $\frac{\text{Standard Deviation of Equally Weighted Portfolio}}{\text{Standard Deviation of Average } n \text{ stocks}}$

$$= \left(\frac{324}{625} \right)^{\frac{1}{2}}$$

$$= 0.72 \text{ or } 72\%$$

Q14.

Investor	Risk Tolerance	Investment Horizon	Liquidity Needs	Income needs
Individuals	Low	Low	Medium	High
Banks	Low	High	High	Medium
Endowments	Medium	High	Low	Medium
Insurance	High	High	Low	High
Mutual Funds	High	Low	High	Low
Defined Benefit Pensions	Low	High	High	High

Q15. A pension plan in which an employer contributes with a guaranteed lump-sum on employee's retirement that is determined based on the employee's salary history, age, number of years of service and other various factors is called a defined benefit pension. Upon retirement, employees are entitled to receive the pension funds as a lump sum or a monthly payment upon discretion. A defined contribution pension is referred to as a savings and investment plan that provides income after an employee has ceased employment. It is a retirement plan in which both the employee and the employer make periodic contributions. These contributions are tax deferred until the withdrawals are being made. In defined contribution pension plans, there is no guaranteed fixed pension.

UNIT 4

Q1. D

Q2. D

Q3. A

Q4. D

Q5. B

Q6. B

Q7. C

Q8. C

Q9. A

Q10. C

Q11.

- Power of suppliers is the ability to raise prices or restrict the supply of key inputs to a company. For example, workers at a heavily unionized company may have greater bargaining power as suppliers of labor than workers at a comparable non-unionized company.
- Threat of entry is the difficulty faced by new competitors in order to enter the industry. Industries that are easy to enter will generally be more competitive than industries with high barriers to entry.
- Power of buyers affect the intensity of competition by exerting influence on suppliers regarding prices. For example, auto parts companies generally sell to a small number of auto manufacturers, which allows those customers, the auto manufacturers, to be tough negotiators when it comes to setting prices.
- Threat of substitutes negatively affect demand if customers choose other ways of satisfying their needs. For example, consumers may trade down from premium beers to discount brands during recessions.
- Rivalry among existing competitors exist in industries that are fragmented among many small competitors, have high fixed costs, provide undifferentiated products, or have high exit barriers usually experience more intense rivalry than industries without these characteristics.

Q12.

- Macroeconomic Influences include cyclical or structural trends that have significant effects on the demand for an industry's products or services. An industry's sales and profitability may be impacted by gross domestic product, interest rates, credit availability, and/or inflation.
- Technological Influences include new technologies that create new or improved products that can radically change an industry and change how other industries use the products to conduct their operations.
- Demographic Influences include changes in population size, the distribution of age and gender, and other demographic characteristics may have significant effects on economic growth and the amount and types of goods and services consumed.
- Governmental Influences may have a significant influence on industries through their ability to control tax rates and their status as major purchasers of goods and services from a range of industries. Governments may also exert their influence indirectly by empowering other regulatory or self-regulatory organizations to govern the affairs of an industry.
- Social Influences- Societal changes involving how people work, spend their money, enjoy their leisure time, and conduct other aspects of their lives can significantly affect the sales of various industries.

Q13.

- Stock Split- An increase in the number of shares outstanding and decrease in share price. Example: two-for-one stock split in which each shareholder is issued an additional share for each share currently owned.
- Reverse stock split- A reduction in the number of shares outstanding and increase in share price. In a one-for-two reverse stock split, each shareholder would receive one new share for every two old shares held.
- Share repurchases- A transaction in which a company uses cash to buy back its own shares. Shares that have been repurchased are not considered for dividends, voting, or computing earnings per share.
- Cash dividend- A cash distribution made to a company's shareholders is called as cash dividends.

- Extra dividend- Dividends which are not regularly paid or is an extra payment over the regular dividends.
- Stock dividend- Dividends is distributed as additional common shares outstanding instead of cash.

Q14. Free cashflow to equity is the degree of extent of cash available for the equity shareholders after all expenses, reinvestments and debts are paid. It is a measure of equity capital usage. It is composed of net income, working capital, debt and capital expenditures. It is most often used to determine the value of the company especially when the company does not pay out dividends. Free cashflow to equity can be used to determine if dividend payments and stock repurchases are paid for with free cash flow to equity or some other form of financing. Investors want to see a dividend payment and share repurchase that is fully paid by free cashflow to equity.

Q15.

Dividend paid in year 1 = $12 \times 1.12 = 13.44$

Dividend paid in year 2 = $13.44 \times 1.09 = 14.6496$

Dividend paid in year 3 = $14.6496 \times 1.09 = 15.968064$

Dividend paid in year 4 = $15.968064 \times 1.08 = 17.245509$

Dividend paid in year 5 = $17.245509 \times 1.05 = 18.107785$

Therefore, $V_4 = 18.107785 / 0.05 = 362.1557$

$$V_0 = \frac{\frac{\frac{362.15567}{1.08}}{1.09^2}}{1.12}$$

$V_0 = 252$

Q16. Enterprise value = MV of equity + MV of debt – Cash and marketable securities (Book value of other debt)

$$EV = (1,60,000 \times 50) + (7,00,000 + 10,00,000) - 2,00,000 = 96,00,000$$

$$EV/EBITDA = 95,00,000 / 10,00,000 = \underline{9.60}$$

Q17. $P/E = \text{Payout ratio} \times (1+g) / (k_e - g) = 0.4 \times (1+0.04) / (0.12 - 0.04) = 5.2$

UNIT 3

Q1. $W(P) = 0.2^2 - (0.5 \times 0.2 \times 0.25) / (0.2^2 + 0.25^2 + (2 \times 0.5 \times 0.2 \times 0.25)) = 28.57\%$

$$W(Q) = 1 - 28.57\% = 71.43\%$$

Q2. At minimum variance, $w = (\text{standard deviation of asset}) / (\text{total standard deviation})$

$$W(L) = 0.18 / 0.33 = 54.55\% \quad W(M) = 1 - (0.18 / 0.33) = 45.45\%$$

Q3. Return on Portfolio = $(1/3) \times (27 + 24 + 22) = 24.33$

$$\text{Risk} = ((1/3) \times 33)^2 + ((1/3) \times 28)^2 + ((1/3) \times 26)^2 + (2 \times (1/3) \times (1/3) \times 33 \times 28 \times 0.2) +$$

$$(2 \times (1/3) \times (1/3) \times 28 \times 26 \times 0.32) + (2 \times (1/3) \times (1/3) \times 33 \times 26 \times 0.5) = 471.39$$