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| **SESSION** | **JUL - AUG 2024** |
| **PROGRAM** | **MASTER OF COMMERCE (M.COM)** |
| **SEMESTER** | **III** |
| **COURSE CODE & NAME** | **DCM7105 SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT**  |
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**Assignment Set – 1**

**1. Global Energy Corp. provides the following expected returns and probabilities for five states of the economy:**

**• State P: Probability = 0.15, Return = 5%**

**• State Q: Probability = 0.25, Return = 15%**

**• State R: Probability = 0.3, Return = 10%**

**• State S: Probability = 0.2, Return = 8%**

**• State T: Probability = 0.1, Return = 20% Calculate the average expected return and risk.**

### **Ans 1.**

### **Expected Return and Risk Calculation for Global Energy Corp.**

Security analysis and portfolio management involve evaluating risk and return for different investment opportunities. One of the key methods used to determine the performance of a stock or portfolio is by calculating the **expected return** and **risk (standard deviation)** based on different possible economic conditions.

In this case, Global Energy Corp. operates in five different states of the economy, each with a given probability and expected return. The data provided is as follows:

| **State** | **Probability (P)** | **Return (%) (R)** |
| --- | --- | --- |
| P | 0.15 | 5% |
| Q | 0.25 | 15% |
| R | 0.30 | 10% |
| S | 0.20 | 8% |
| T | 0.10 | 20% |

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**2. a) Consider a bond with a face value of €500, a 9% annual coupon rate, and 8 years to maturity. If the annual interest rate is 8%, calculate the bond's current value.**

**b) Discuss the concept of Moving Average Convergence Divergence (MACD)**

### **Ans 2.**

### **(a) Bond Valuation Calculation**

A bond's value is determined by the present value of its future cash flows, which include periodic coupon payments and the face value at maturity. Since the bondholder receives these payments over time, they must be discounted to their present value using the market interest rate.

The formula for bond valuation is:

$$P=∑\frac{C}{\left(1+r\right)^{t}}+\frac{F}{\left(1+r\right)^{n}}$$

Where:

* $P$ = Current price of the bond
* $C$ = Annual coupon payment (Coupon rate × Face value)
* $r$ = Market interest rate (discount rate)

 **(b) Moving Average Convergence Divergence (MACD)**

The **Moving Average Convergence Divergence (MACD)** is a popular technical indicator used in financial markets to analyze trends and momentum in stock prices. It helps traders identify potential buy and sell signals by comparing two different exponential moving averages (EMAs) of a stock’s price. The MACD is calculated by subtracting the 26-day EMA from the 12-day EMA, resulting in the **MACD line**, which represents the difference between short-term and long-term price movements.

**3. a) Assuming a risk-free rate of 6% and an expected market risk premium of 9%, what is the expected return on a stock with a beta of 1.0?**

**b) Discuss the principles and implications of the Efficient Market Hypothesis. 5+5**

### **Ans 3.**

###  **(a) Expected Return Using CAPM**

The **Capital Asset Pricing Model (CAPM)** determines the expected return on a stock based on its systematic risk (beta).

The formula is:

$$E\left(R\right)=R\_{f}+β\left(R\_{m}-R\_{f}\right)$$

Where:

* $E\left(R\right)$ = Expected return
* $R\_{f}$ = Risk-free rate = **6%**
* $R\_{m}-R\_{f}$ = Market risk premium = **9%**
* $β$ = Beta of the stock = **1.0**

Now, substituting the values:

The **Efficient Market Hypothesis (EMH)** is a financial theory that states that financial markets are

**Assignment Set – 2**

**4. a) Analyze the role of Global Depository Receipts (GDRs) as a global investment avenue.**

**b) Nancy invested 60% of her portfolio in Stock X, which has a return of 15%, and the remaining 40% in Stock Y, which has a return of 10%. Calculate the expected return of Nancy’s portfolio.**

**Ans 4.**

 **(a) Role of Global Depository Receipts (GDRs) as a Global Investment Avenue**

Global Depository Receipts (GDRs) play a crucial role in the international financial market by allowing companies to raise capital from foreign investors without directly listing on foreign stock exchanges. A GDR is a financial instrument issued by a depository bank and represents shares in a foreign company. These receipts are traded on international stock exchanges such as the **London Stock Exchange (LSE), Luxembourg Stock Exchange, and Singapore Exchange (SGX)**, providing investors with access to equities from different countries. GDRs enable companies,

**5. a) Describe the meaning and benefits of mutual funds.**

**b) Discuss the role of arbitrage in the Arbitrage Pricing Theory (APT).**

**Ans 5.**

 **(a) Meaning and Benefits of Mutual Funds**

A **mutual fund** is a pooled investment vehicle where money from multiple investors is collected and invested in a diversified portfolio of stocks, bonds, or other assets. These funds are managed by professional fund managers who allocate capital strategically to generate returns while minimizing risks. Mutual funds are categorized based on their investment objectives, such as **equity funds, debt funds, hybrid funds, and index funds**. Investors purchase units of the mutual fund, and the fund’s Net Asset Value (NAV) determines the value of their investment. Since mutual funds offer diversification and professional management, they are a popular choice for both individual and

**6. a) Distinguish between fundamental analysis and technical analysis.**

**b) What are the common mistakes made in investment management?**

**Ans 6.**

**(a) Distinction Between Fundamental Analysis and Technical Analysis**

Investors use two primary approaches to evaluate stocks and make investment decisions: **fundamental analysis** and **technical analysis**. While both methods aim to predict price movements, they differ significantly in their approach, tools, and assumptions about market behavior.

**Fundamental Analysis: Assessing Intrinsic Value**

**Fundamental analysis** focuses on evaluating a company's **financial health, earnings potential, and economic position** to determine its **intrinsic value**. Analysts examine factors such as **revenue, profit margins, earnings growth, financial ratios (P/E ratio, debt-to-equity ratio), and industry trends**. They also consider macroeconomic indicators like **GDP growth, inflation, and interest rates** to assess the broader economic impact on stock performance. The goal is to identify undervalued stocks that have strong long-term growth potential.

**Technical Analysis: Studying Price Trends and Patterns**

In contrast, **technical analysis** does not consider financial fundamentals but instead focuses on **price movements, trading volume, and chart patterns** to predict future price trends. Technical analysts use tools such as **moving averages, Relative Strength Index (RSI), Bollinger Bands, and**