**Chapter Preview: Chapter 11**

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1. **Define covariance and correlation.**

Covariance is the expected product of the deviations of two returns from their means.

Correlation between two stock returns, defined as the covariance of the returns divided by the standard deviation of each return

1. **What is the efficient frontier?**

The efficient portfolios—those offering the highest possible expected return for a given level of volatility, which we call the efficient frontier.

construct the efficient frontier for all available risky investments showing the best possible risk and return combinations that we can obtain by optimal diversification.

1. **Define the tangent portfolio.**

The portfolio that generates this tangent line is known as the tangent portfolio.

Because the tangent portfolio has the highest Sharpe ratio of any portfolio in the economy, the tangent portfolio provides the biggest reward per unit of volatility of any portfolio available

1. **What are two assumptions used to derive the CAPM?**

1. Investors can buy and sell all securities at competitive market prices (without incurring taxes

or transactions costs) and can borrow and lend at the risk-free interest rate.

2. Investors hold only efficient portfolios of traded securities—portfolios that yield the maximum

expected return for a given level of volatility.

3. Investors have homogeneous expectations regarding the volatilities, correlations, and expected

returns of securities.

1. **What is the main purpose of the CAPM?**

The main purpose of the Capital Asset Pricing Model (CAPM) is to estimate the expected return of an investment based on its systematic risk or beta. It provides a framework for evaluating the required return on an investment by considering the risk-free rate of return, the market risk premium, and the asset's sensitivity to market movements.

1. **Define the capital market line (CML).**

When the tangent line goes through the market portfolio, it is called the capital market line (CML).

capital market line (CML), which is the line from the risk-free investment through the market portfolio, represents the highest-expected return available for any level of volatility.

1. **Explain the security market line (SML) using B.**

Under the CAPM assumptions, the security market line (SML) is the line along which all individual securities should lie when plotted according to their expected return and beta

1. **What do we know about the Sharpe ratio of the efficient portfolio?**

The goal of an investor who is seeking to earn the highest possible expected return for any level

of volatility is to find the portfolio that generates the steepest possible line when combined

with the risk-free investment. The slope of this line is called the Sharpe ratio of the portfolio.

The risky portfolio with the highest Sharpe ratio is called the efficient portfolio

1. **Explain the difference between active and passive portfolio investment.**

Active portfolio investment involves an investment strategy where portfolio managers or individual investors aim to outperform the market by actively buying and selling securities based on their research, market analysis, and timing.

Passive portfolio investment, on the other hand, involves a strategy of mirroring the performance of a specific market index or benchmark.

1. **Explain why indexing is an attractive investment strategy.**
2. By investing in an index fund, investors gain instant diversification across multiple companies and industries, which can help reduce individual stock risk.
3. Index funds typically have lower expense ratios compared to actively managed funds because they aim to replicate the performance of an index rather than relying on active management strategies.