# FIN 366: INVESTMENTS
# BRIEFING

## Chapter 6: Efficient Diversification

Firms are subject to both **firm-specific** and **market** risk. Through diversification, an investor can eliminate firm-specific risk, but not the market-wide **systematic risk**. When we evaluate the risk of a portfolio of securities, we must consider the degree to which portfolio securities move together. The **covariance** is a measure of the joint variability or risk between two assets, while the **correlation coefficient** is the measure that describes the degree to which they move together. The correlation coefficient ranges between -1 and 1, or from "always moving in opposite directions" to "always moving in the same direction". We need these comovement characteristics to determine the risky portfolio's risk and return. The **mean-variance criterion** states that a portfolio is better than another if it has *both* a greater expected return and a lower standard deviation. We develop a **complete portfolio**, now including two risky assets (a stock fund and a bond fund) as well as risk-free securities. We determine the **optimal risky portfolio** which consists of weights in the stock and bond fund to be held together with the risk-free asset. We will *calculate* the weights necessary for the stock and bond fund to create the optimal risky portfolio, but the complete portfolio is determined by risk aversion, or *choosing* how much of the risk-free asset to hold based on your preferences. This calculation of the optimal risky portfolio and the choice of how much to hold in the optimal risky portfolio relative to risk-free T-bills is known as the **separation property**. We can generalize the two-asset (stock fund and bond fund) approach to many assets to create an **efficient frontier** of optimal risky portfolios. This efficient frontier is several different portfolios consisting of varying weights in our many risky assets. Determining the efficient frontier is computationally intensive, so we can use the **Index Model** to relate stock returns to both *unique* and *systematic* risk factors. In doing so, we plot a security's return against the market, and draw a **Security Characteristic Line** through this plot. This line has a slope of **beta** and a y-intercept of **alpha**. We can similarly obtain these **beta** and **alpha** measures through linear regression.