Security Market Line (SML)

By WILL KENTON | Updated Apr 4, 2019

What Is the Security Market Line?

The security market line (SML) is a line drawn on a chart that serves as a graphical representation of the capital asset pricing model (CAPM), which shows different levels of systematic, or market, risk of various marketable securities plotted against the expected return of the entire market at a given point in time. Also known as the "characteristic line," the SML is a visual of the capital asset pricing model (CAPM), where the x-axis of the chart represents risk in terms of beta, and the y-axis of the chart represents expected return. The market risk premium of a given security is determined by where it is plotted on the chart in relation to the SML.


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Understanding the Security Market Line

The security market line is an investment evaluation tool derived from the CAPM, a model that describes risk-return relationships for securities, and is based on the assumptions that investors have to be compensated for both the time value of money and the corresponding level of risk associated with any investment, referred to as the risk premium.

The concept of beta is central to the capital asset pricing model and the security market line. The beta of a security is a measure of its systematic risk that cannot be eliminated by diversification. A beta value of one is considered as the overall market average. A beta value higher than one represents a risk level greater than the market average, while a beta value lower than one represents a level of risk below the market average.

The formula for plotting the security market line is as follows:

Required Return = Risk Free Rate of Return + Beta (Market Return - Risk Free Rate of Return)

Using the Security Market Line

The security market line is commonly used by investors in evaluating a security for inclusion in an investment portfolio in terms of whether the security offers a favorable expected return against its level of risk. When the security is plotted on the SML chart, if it appears above the SML, it is considered undervalued because the position on the chart indicates that the security market risk in relation to the expected return. The SML can also be used to compare securities of equal risk to see which one offers the highest expected return against that level of risk.

While the SML can be a valuable tool in equity evaluation and comparison, it should not be used in isolation, as the expected return of an investment over the risk-free rate of return is not the sole consideration when making investment choices.

Related Terms

Characteristic Line Definition

A characteristic line is a line formed using regression analysis that summarizes a particular security's risk and return profile. more

Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model is a model that describes the relationship between risk and expected return. more

International Capital Asset Pricing Model (CAPM)

The international capital asset pricing model (CAPM) is a financial model that extends the concept of the CAPM to international investments. more

Capital Market Line (CML) Definition

The capital market line (CML) represents portfolios that optimally combine risk and return. more

Market Risk Premium

Market risk premium is the difference between the expected return on a market portfolio and the risk-free rate. it is an important element of modern portfolio theory and discounted cash flow valuation. more

Risk-Free Return

Risk-free return is the theoretical return attributed to an investment that provides a guaranteed return with zero risk. The yield on U.S. Treasury securities is considered a good example of a risk-free return. more

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