Risk vs. returns: The investor's eternal dilemma

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Recent stock market volatility has highlighted the importance of being able to understand risk in assessing your fund manager's performance.

One of the most vexing challenges in the investment world is how to assess your fund manager's performance. The answer may seem simple: If Conservative Colin earns 10 percent and Risky Robert earns 20 percent, then Robert did better for his clients, right?

Not necessarily so, because perhaps Robert took outsize risks to earn those returns — risks his clients would not usually bear if given the choice. Without knowing the risk of the two portfolios, such comparisons would be virtually meaningless.

Unfortunately, the most commonly used model to estimate investment returns, the capital asset pricing model (CAPM), often fails to assess an investment manager's exposure to risk in a comprehensive way.

To help fill this gap, IESE's Javier Estrada proposes using the three-factor model, an improved methodology for connecting risk with returns. His findings were published in the spring 2011 issue of the *Journal of Applied Corporate Finance.*

Before examining the three-factor model, one must first understand CAPM, one of the foundations of modern finance. Corporate finance practitioners use CAPM, developed in the 1960s by Treynor, Sharpe, Lintner and Mossin, to calculate the required return on an asset needed to estimate cost of capital.

What makes up the return on an asset?

Before examining CAPM, let's take a look at what goes into determining the return on an asset. The return on an asset comprises two components:

- the risk-free return, to compensate for the expected loss of purchasing power.
- the risk premium, which is the additional compensation investors require to invest their money in risky securities.

The total return is the sum of the two factors. The first part, the risk-free return, is easy to estimate: usually it is the return on 10-year government bonds. The risk premium is the product between the market risk premium (the extra return required from an investor for investing in risky assets rather than in risk-free assets) and beta (which measures exposure to market risk).

A stock with a beta of one fluctuates just as much as the market. If the stock's beta is greater than one, the stock magnifies market fluctuations, and if it is below one it mitigates market fluctuations.

Limitations of CAPM

CAPM has drawn criticism because the only determinant of return for equities it offers is how they move relative to the overall market. In other words, CAPM oversimplifies the risks of investing because it fails to account for the factors driving returns. According to Estrada's article, two of the major drivers of the returns on equities are:

- *Size:* small capitalization stocks outperform large capitalization stocks in the long run, creating a size premium.
- *Value:* value stocks, measured by the book-to-market ratio, outperform growth stocks, giving rise to a value premium.

The three-factor model

The three-factor model measures return by adding the value premium and the size premium to the return of CAPM. This result shows how a portfolio performs relative to the overall market, allowing investors to see if their portfolio outperformed or underperformed the market on a risk-adjusted basis.

Positive alpha occurs when a portfolio outperforms its expected return, which accounts for

risk. Negative alpha occurs when the portfolio underperforms its expected return. More often than not, the performance of mutual funds is nowadays assessed by using this three-factor model.

For example, the author uses the three-factor model to analyze Warren Buffett's performance through Berkshire Hathaway's stock, concluding that Buffett outperformed the market by over 14 percentage points per year from 1977 to 2009.

Which model to use?

The decision to use one model or the other really depends on what you are using them for. Estrada employed both models to analyze the returns on the component companies of the Dow Jones Industrial Average from 1990 to 2009, using CAPM and the three-factor model to determine required returns on equity.

Estrada's analysis of the Dow Jones Industrial Average showed that CAPM and the three-factor model performed roughly the same in determining the cost of capital. As such, corporate financiers may just as well use CAPM, as it is easier to use and they are probably already familiar with it.

However, when it comes to assessing mutual fund returns and seeking to determine whether they have generated alpha — i.e., returns exceeding the risk involved — then the three-factor model currently seems to offer the better alternative.

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