Managing Volatility Risk in Your Portfolio

Stocks and stock mutual funds can play an important role in your portfolio by providing growth potential and protecting your assets against inflation. At the same time, these investments are subject to market volatility risk—the chance that short-term fluctuations in share prices may reduce the value of your investments. Having a clear picture of the market risk in your portfolio may allow you to maintain an investment strategy that is appropriate for the long term, even when the short-term direction of the stock market is uncertain.

“You’ll need to measure volatility in both your individual investments, such as stocks and mutual funds, as well as in your portfolio as a whole, to gain a clear view of your current market risk exposure,” notes Stuart Ritter, CFP®, a financial planner with T. Rowe Price. Common measures of volatility include standard deviation and beta.

**Standard Deviation**

Generally speaking, standard deviation reports how much an investment’s returns have historically varied from its average. The statistical measure is usually computed using monthly returns for the most recent three-year period. If your portfolio returns have been fairly consistent from month to month, your holdings will have a low standard deviation. Conversely, if returns have varied widely, your portfolio will have a high standard deviation.

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**Standard Deviation and Diversification**

As shown in the chart below, a diversified portfolio can help lower volatility. For example, both mid-/small-cap stocks and international stocks have historically had higher standard deviations than large-cap stocks. However, if all three types of stocks were combined, the standard deviation of the resulting portfolio would have been lower than that of an exclusively large-cap portfolio.

<table>
<thead>
<tr>
<th>1979–2007</th>
<th>Standard Deviation</th>
<th>Average Annual Returns</th>
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<tbody>
<tr>
<td>DIFFERENT TYPES OF STOCKS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large-Cap Stocks, represented by S&amp;P 500 Stock Index</td>
<td>16.70</td>
<td>13.18%</td>
</tr>
<tr>
<td>Mid-/Small-Cap Stocks, represented by Russell 2500 Index</td>
<td>20.26</td>
<td>14.22%</td>
</tr>
<tr>
<td>International Stocks, represented by MSCI EAFE Index</td>
<td>18.48</td>
<td>11.89%</td>
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<tr>
<td>DIVERSIFIED PORTFOLIO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60% Large-Cap Stocks, 20% Mid-/Small-Cap Stocks, 20% International Stocks</td>
<td>16.06</td>
<td>13.38%</td>
</tr>
</tbody>
</table>

Figures shown are for illustrative purposes only and do not represent the performance of any T. Rowe Price fund. Past performance cannot guarantee future results.

Source: T. Rowe Price using data from Ibbotson 1979–2007. Correlation of mid-/small- to large-cap stocks is 0.86, while correlations of international to mid-/small-cap stocks and international to large-cap stocks are 0.57 and 0.54, respectively.
Standard deviation can also be useful when comparing the investment risk of various mutual funds. “If two funds have similar objectives but different standard deviations, the fund with the higher standard deviation is the more volatile of the two,” says Ritter. As a reference point, you may want to consider the S&P 500, which has had a standard deviation of 16.7% since 1979. If the standard deviation of your portfolio is higher than that, then you’ve had more volatility than the market as a whole. If it’s lower, then you’ve had less.

The key to lowering standard deviation in your overall portfolio is diversification. By combining different types of funds, you can minimize the impact that any one sub-asset class may have on your total holdings. “While it may seem counterintuitive, adding a fund to your portfolio that has a high standard deviation on its own can sometimes lower the standard deviation of your overall portfolio,” says Ritter.

For example, he notes that adding an international fund to a portfolio heavily invested in U.S. stocks can help lower the portfolio’s overall volatility over longer periods of time. While there are cycles when the U.S. and international stock markets have moved in the same direction, they have historically moved independently of each other over the long term. The net effect of including both types of stocks in your portfolio can be a lower total standard deviation.

Of course, diversification cannot assure a profit or protect against loss in a declining market.

**Beta**
Different investments are measured against different indexes. Beta measures whether a mutual fund has been more volatile or less volatile than its appropriate index. When measuring beta in large-cap stocks, for example, a commonly used index is the S&P 500. A beta of 1.0 indicates that an investment’s share price has historically moved by the same amount at the same time and in the same direction as the index. Accordingly, a beta of less than 1.0 indicates that an investment’s share price has historically moved less than the index, and a beta greater than 1.0 means it moved more. (Keep in mind that you cannot invest directly in an index.)

**Interpreting the Numbers**
Investments with higher average historical returns usually have higher short-term volatility, as measured by both standard deviation and beta. But higher volatility doesn’t guarantee a higher return, and investment risk tends to lessen over longer periods of time.

As you measure market volatility risk, keep in mind that both standard deviation and beta look backward, rather than forward. In other words, they measure historical market volatility risk rather than future market volatility risk.

Matching your exposure to volatility with your investment time horizon gives you a better chance of meeting both your short-term and long-term goals. For example, if you need to withdraw money from your portfolio within the next one to two years, focus on investments such as money market securities for the portion you plan to withdraw. These investments have lower short-term market volatility risk than stocks and less chance of loss.

On the other hand, if you’re saving for a long-term goal and don’t need to access your money for 10 years or more, you can allocate a greater portion of your portfolio to long-term investments—including stocks and stock funds—and maintain those holdings even during periods of short-term market volatility. Whatever your goals, understanding the significance of standard deviation and beta can help you make more informed choices to meet your investment objectives.