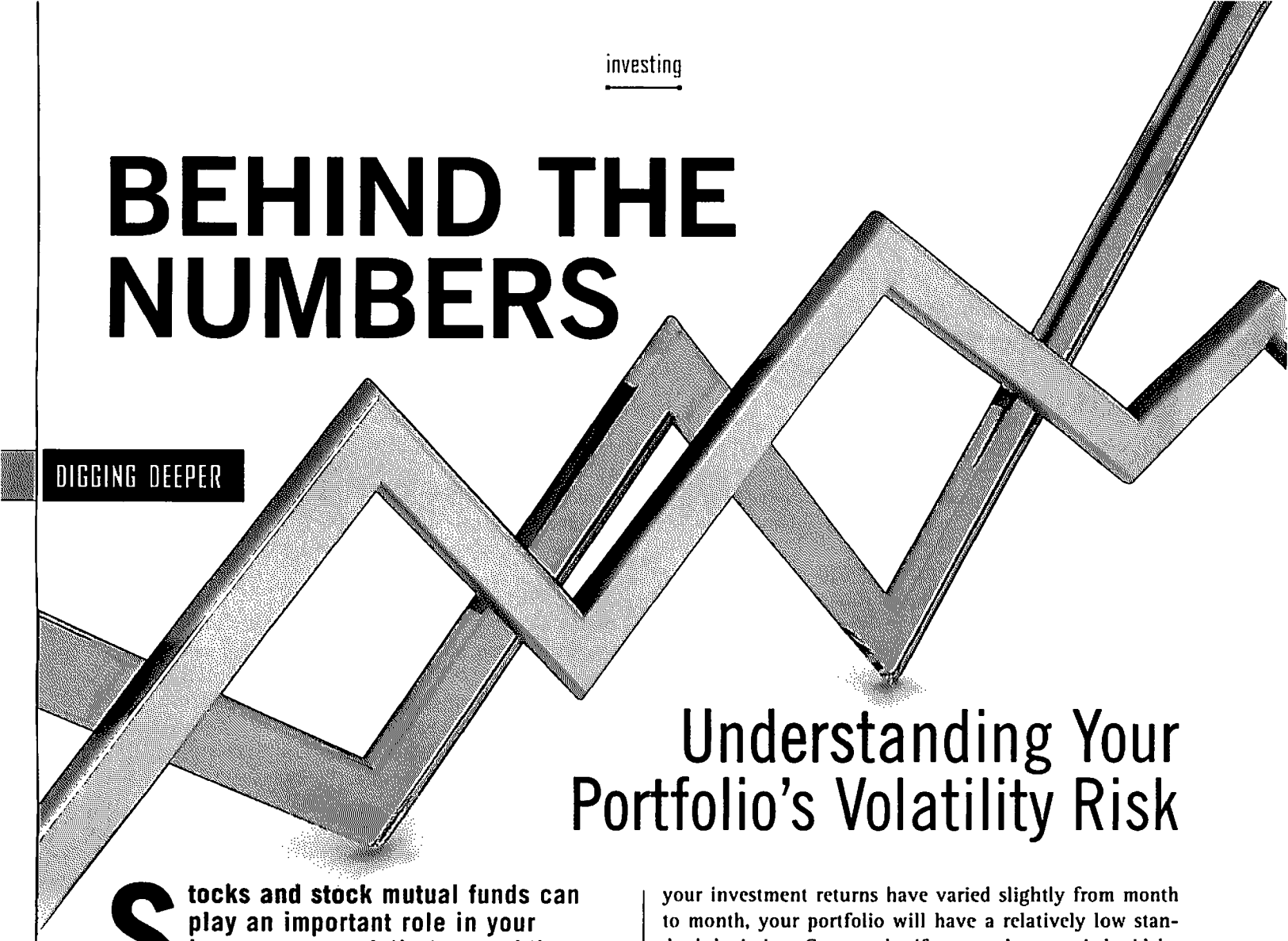
BEHIND THE NUMBERS



DIGGING DEEPER

Understanding Your Portfolio's Volatility Risk

Stocks and stock mutual funds can play an important role in your investment portfolio by providing growth potential and protecting your assets from 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 understanding of market risk may help you to maintain an appropriate long-term investment strategy, especially during short-term periods of volatility.

"To gain a clear perspective of your current market risk exposure, you'll need to measure the volatility of your individual investments, such as stocks and mutual funds, as well as your overall portfolio," notes Stuart Ritter, CFP®, a financial planner with T. Rowe Price. Two common measures of volatility—standard deviation and beta—can help.

STANDARD DEVIATION

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

Standard deviation also can be useful when comparing the investment risk of various mutual funds. "If two funds have similar average returns but different standard deviations, the fund with the higher standard deviation is the more volatile of the two," Ritter explains. For example, when evaluating mutual funds that invest in large-cap U.S. companies, you may want to consider the S&P 500 (a commonly used index), which has had a standard deviation of 17.99 over the three-year period ended June 2009. If the fund's standard deviation is higher than 17.99, then it's experienced more volatility than the market as a whole. If it's lower than 17.99, then it has been less volatile.

A good way to decrease the standard deviation of your portfolio is through diversification. By investing in 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," says Ritter, "adding a fund with a high standard deviation to your portfolio can sometimes lower the standard deviation of your overall portfolio."

For instance, adding an international fund to a portfolio heavily invested in U.S. stocks can help lower the portfolio's overall volatility. While there are cycles when

ILLUSTRATION BY ISTOCK

the U.S. and international stock markets have performed similarly, they have rarely moved in lockstep with 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. (See the Standard Deviation and Diversification chart at right.) Of course, diversification cannot assure a profit or protect against loss in a declining market.

BETA

Beta measures a mutual fund's volatility in relation to that of its appropriate index. A beta of 1.0 indicates that an investment's share price movement historically has been relatively similar to the value of its most relevant index. Accordingly, a beta of less than 1.0 indicates that an investment's share price historically has moved less than the index, and a beta greater than 1.0 means it has moved more. (Remember that you cannot invest directly in an index.)

INTERPRETING THE AVERAGES

Investments with higher average historical returns usually have greater short-term volatility, as measured by both standard deviation and beta. But keep in mind that the reverse isn't always true—higher volatility doesn't guarantee a higher return.

As you measure market volatility risk, you should take into account that both standard deviation and beta can only measure historical performance. However, by understanding their significance, you can align your exposure to volatility with your investment time horizon. (See the Investing by Time Horizon chart on page 21.) This can help you to balance short-term market risk with the potential for long-term growth—giving you a greater chance of meeting your investment objectives.

Standard Deviation and Diversification

The chart below illustrates how diversification can help to lower a portfolio's volatility. Historically, mid-/small-cap stocks and international stocks have had higher standard deviations than large-cap stocks. However, if the three types of stocks had been combined, the standard deviation of the resulting portfolio would have been lower than that of an exclusively large-cap portfolio.

1979–2008	Standard Deviation	Average Annual Returns
DIFFERENT TYPES OF STOCKS		
Large-Cap Stocks, represented by S&P 500 Index	16.98	10.99%
Mid-/Small-Cap Stocks, represented by Russell 2500 Index	20.66	12.00%
International Stocks, represented by MSCI EAFE Index	18.95	9.40%
DIVERSIFIED PORTFOLIO		
60% Large-Cap Stocks, 20% Mid-/Small-Cap Stocks, 20% International Stocks	16.52	11.12%

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 monthly data from Ibbotson Associates 1979–2008. Correlation of mid-/small- to large-cap stocks is 0.87, while correlations of international to mid-/small-cap stocks and international to large-cap stocks are 0.58 and 0.61, respectively.

Understanding Alpha

While beta measures volatility, alpha measures performance. In general terms, alpha illustrates how much of a fund's performance can be attributed to a fund manager's influence (through security selection and portfolio construction), as opposed to just a change in the general market. Alpha indicates whether a fund has performed better or worse than its benchmark after adjusting for the differences between the beta of the fund and that of the index. A positive alpha means that a fund has outperformed its benchmark; a negative alpha means that a fund has underperformed its benchmark. Consider a fund with a beta of 1.0. If the fund earns 12% and its benchmark generates an 8% return, its alpha would be 4.0.