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Understanding Portfolio Performance Statistics

Statistics are a useful way to summarize complex information in a single, convenient number. But a single risk or return number cannot convey everything an investor should know about their investments. There are many concepts (and statistics) that are important to understand when assessing portfolio performance. We would like to focus on three:

Return

How can an investor decide what benchmark offers an appropriate comparison for their portfolio?

What are common mistakes investors make—like evaluating their portfolio return against a popular benchmark like the S&P 500 Index?

Risk

What metrics can help investors better understand the level of risk they are taking?

How can an investor tell if the risk they are taking in their portfolio is appropriate given their investment objective and risk tolerance?

Alignment With Investment Plan

How can an investor tell how closely aligned their current asset allocation is with the right asset allocation for their investment objective?

How will they know if it is time to rebalance their portfolio?

How can Statistics Help Explain Portfolio Performance?

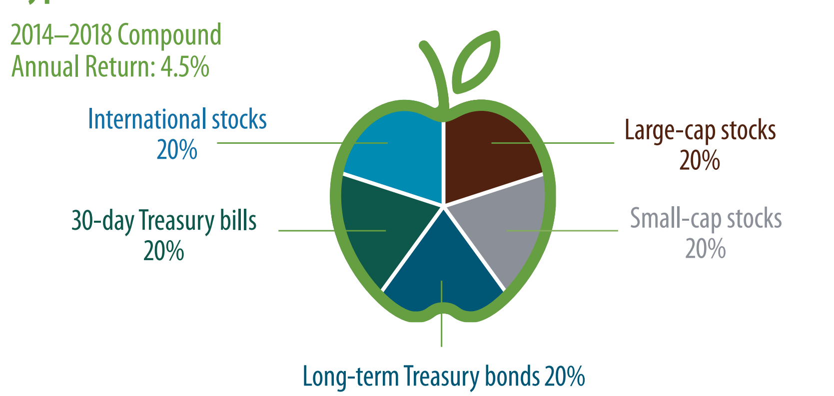
Key Takeaways

- Certain statistics may help to evaluate how a portfolio is performing vs. a benchmark.
- Comparing a portfolio against the wrong benchmark may cause an investor to take risks that are inappropriate for their circumstances.
- We recommend that investors monitor their portfolios regularly to make sure they are implementing the appropriate asset allocation to help meet their personal investment goals.

Comparing Apples and Oranges Does Not Work

One mistake investors can make is to measure their portfolio's performance over a relatively short period of time against a simple benchmark, like the S&P 500 Index. For example, in the graphic below the hypothetical diversified portfolio returned 4.5% over the 2014–2018 period. Comparing that return against the 8.5% return of large-capitalization stocks (one asset group in the diversified portfolio) over the same period, an investor might conclude that the diversified portfolio didn't do very well. However, if it were measured against international stocks or Treasury bills, which are also in the diversified portfolio, an investor might determine that the diversified portfolio did well—even great. What's important to remember is that none of these comparisons is truly valid because it is really comparing apples (a diversified portfolio) and oranges (a single asset class).

Hypothetical Portfolio



Asset-Class Benchmarks Returns

Sources: Morningstar Direct and Wells Fargo Investment Institute, as of December 31, 2018.

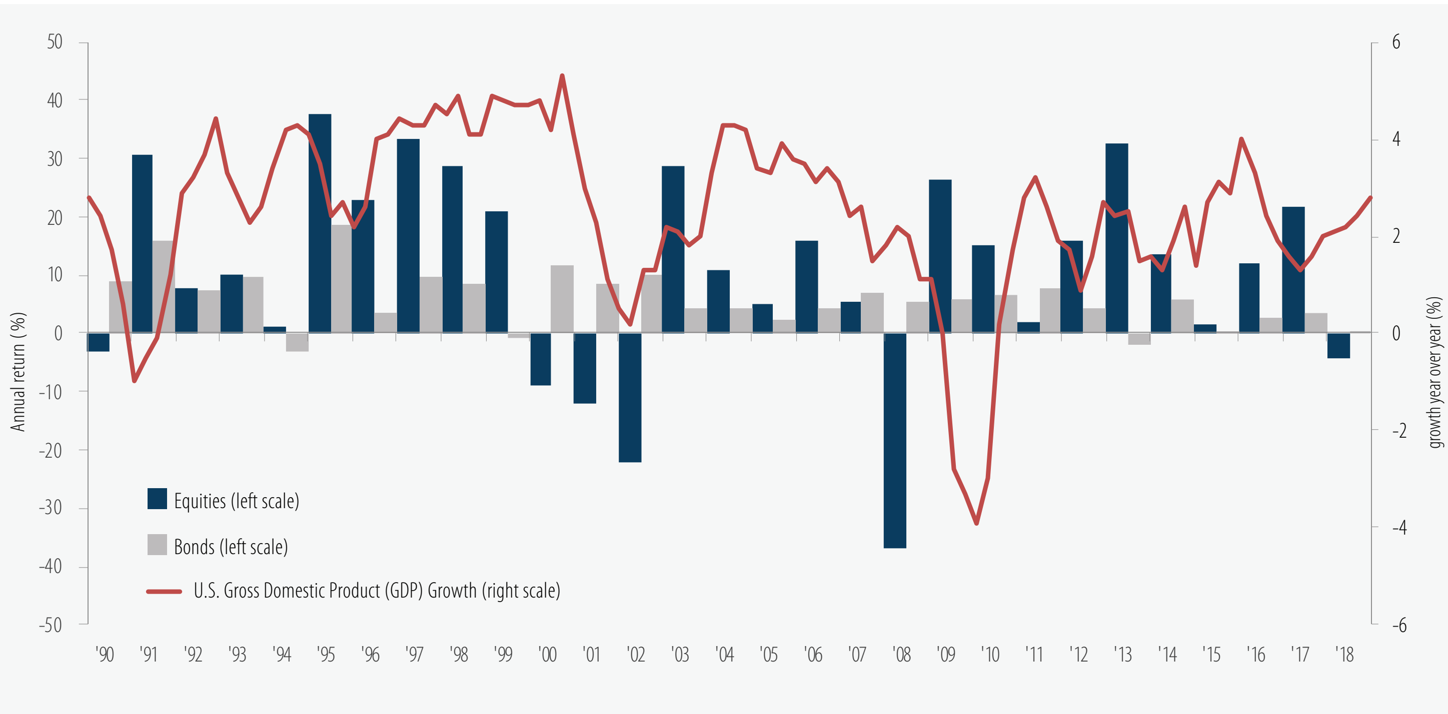
Performance results for the diversified portfolio are hypothetical and for illustrative purposes only. Hypothetical results do not represent actual trading, and the results achieved do not represent the experience of any individual investor. In addition, hypothetical results do not reflect the impact of any fees, expenses, or taxes applicable to an actual investment. The indices reflect the historical performance of the represented assets and assume the reinvestment of dividends and other distributions. An index is unmanaged and not available for direct investment. ***Hypothetical and past performance do not guarantee future results.*** Please see page 5 for definitions of the indices used as proxies for the asset classes in the chart and the risks associated with each asset class.

How Can an Investor Evaluate Portfolio Returns?

Return is usually the most discussed investment metric regarding investments. The financial media often report the performance of "the market" when they are actually referring to just a fairly narrow slice of the market, such as U.S. large-cap stocks. Looking at "the market" from such a narrow perspective is like judging an iceberg only by its tip. There are many different "markets" that can perform quite differently under varying economic conditions. For example, many bonds perform well in a weaker economic environment while stocks generally perform better when the economy is strengthening.

Economic Cycles Impact U.S. Asset Class Returns

Performance of Stocks and Bonds Has Tended to Vary With the Economic Cycle



Sources: Bloomberg and Wells Fargo Investment Institute, as of December 31, 2018. Equities represented by the S&P 500 Index and bonds by the Bloomberg Barclays U.S. Aggregate Bond Index. Quarterly data (1Q 1990– 4Q 2018). Please see page 5 for index definitions and the risks associated with the asset classes. **Past performance is no guarantee of future results.** An index is unmanaged and not available for direct investment.

When evaluating the performance of a portfolio, the measure of success or failure should depend on personal financial goals. Consider the following questions:

- What are my goals for this investment portfolio? What is my time horizon?
- How much and what types of risk am I willing to assume for the possibility of a higher return?
- Am I comfortable with the risk that accompanies a concentrated portfolio? Or would I prefer to spread the risk around?
- What was the reason that I selected this specific asset allocation? Is that reason still valid?

An investor might ask themself: What is the best way to evaluate a portfolio given the answers to these questions? An appropriate benchmarking strategy can help an investor determine if their portfolio is positioned to help them meet their longer-term financial goals. The portfolio may be a simple U.S. large-cap stock portfolio. If so, then the S&P 500 Index may be an appropriate benchmark. If, however, the portfolio includes some U.S. bonds to potentially help reduce volatility, then a blended benchmark that has a similar allocation to a basket of U.S. stocks and U.S. bonds may be appropriate. If the portfolio has been further diversified in an attempt to balance risk and potential return, it may include global stocks, bonds, real assets, and alternative investments. If so, a blended benchmark that includes these other types of holdings may be appropriate.

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There are some additional statistics that can be used to help evaluate whether a portfolio is earning as much return as its level of risk suggests:

- **Beta:** A measure of a portfolio's sensitivity to movements in its blended benchmark when comparing a portfolio against the benchmark. The beta of the blended benchmark is, by definition, 1.00. If a portfolio has a beta of 1.10, for example, it performed 10 percent better than its blended benchmark in up markets and 10 percent worse in down markets, assuming all other factors remain constant.
- **Alpha:** A measure of the difference between a portfolio's actual returns and its expected performance given its level of risk (as measured by beta). It depicts a manager's added or subtracted value by providing information about the extent of the overperformance or underperformance of active management inside a portfolio in relation to a benchmark or blended benchmark. A positive alpha figure indicates the portfolio performed better than its beta would predict. In contrast, a negative alpha indicates the portfolio's underperformance given the expectations established by the portfolio's beta.
- **Downside Risk:** A measure that helps investors understand what is the minimum return that a portfolio can outperform in 95 percent of the years. Risk inside the context of an investment portfolio is the chance that the expected return will not turn out as expected. In other words, in 19 out of 20 years, performance would likely be better than the figure presented, and in year 20, it would likely be worse. However, there is no guarantee that any particular 20-year period would follow this pattern.
- **Downside/Upside Capture:** A ratio that shows whether a given portfolio has outperformed—gained more or lost less than—a broad benchmark during periods of market strength and weakness, and if so, by how much.
- **Standard Deviation:** A measure of dispersion in regard to an average. It depicts how widely a portfolio's returns varied over a certain period of time. Standard deviation of historical performance is used to try to predict the range of returns that are most likely for a given portfolio. When a portfolio has a high standard deviation, the predicted range of performance is wide, implying greater volatility. Of course, past performance is no guarantee of future results.

Benchmarks Should be Chosen Carefully

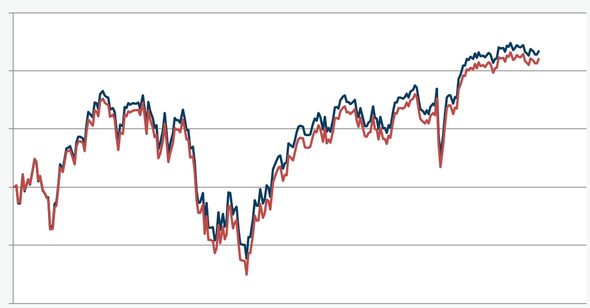
R-squared is a statistical measurement of the relationship between a portfolio and its benchmark. In theory, a portfolio with a high R-squared would move closely in conjunction with the benchmark. While a portfolio with a low R-squared would not move at all like the benchmark.

An R-squared of 100 indicates that all movements of a portfolio can be explained by movements in the benchmark. Thus, a portfolio that invests in a product that invests only in S&P 500 stocks, should have an R-squared very close to 100 in relation to the S&P 500 Index. Conversely, a low R-squared indicates that very few of the portfolio's movements can be explained by movements in its benchmark index.

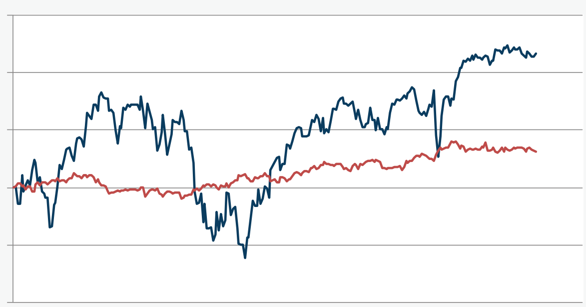
It is important to understand R-squared, especially when using a globally diversified portfolio and comparing performance against an equity-only benchmark like the S&P 500 Index. If that's the case, an investment professional can help determine a blended benchmark that may be more appropriate when evaluating the portfolio's performance.

Bear in mind that the investments included in a portfolio may differ significantly from the holdings, weightings, and asset allocation of an index and, unlike an index, a portfolio is subject to fees, expenses, taxes, transaction costs, and other charges typically associated with an investment account. Also, the performance and volatility of a portfolio may be materially different from the performance of an index and should not be relied upon as a measure of the performance a portfolio may achieve.

High R-Squared Example



Low R-Squared Example



Hypothetical Investment — Hypothetical Benchmark

Is the Portfolio Allocation On Track to Meet Investment Goals?

Designing an investment portfolio is not an easy task. Many variables come into play and must be considered to create an adequate portfolio, and this is just the beginning. Investment portfolios should be alive and evolve as economic, market, and personal dynamics change.

We believe that there are several basic steps investors should take when developing and maintaining an investment portfolio (as shown in the graphic). In an ideal world, an investor would begin at Step 1 and continue throughout the other steps in sequence, but this is rarely the case. Instead, investors may move between steps 1 and 4 repeatedly, but sometimes in a different order, as they establish their goals and asset allocation, build their portfolio, incorporate new investments to satisfy more efficient allocations, revisit goals, and monitor their portfolio.

It is this dynamic that can cause portfolios to have challenges in aligning with the established, strategic asset allocation (Step 2). This is what we refer to as "forecast tracking error" of the portfolio—the deviation of the current portfolio vs. a selected strategic asset allocation model. In the short run, this might not have a strong impact on an investor's goals, but in the long run, it can. That's why the rebalancing component in Step 4 can be helpful to investors. Rebalancing works best by adhering to a disciplined process in order to remove biases and emotions—since the basic premise involves selling more of the "winning" assets and buying more of the "losing" assets. This could feel counterintuitive, but it is actually sound investing of buying low and selling high.

This same behavior is what could cause some investors to focus more on historical performance and create resistance toward updating their current asset allocations in favor of a forward-looking strategic asset allocation. However, the main point to take away is for an investor to be conscious about their portfolio's "forecast tracking error" and begin implementing the recommendations they may have received from their investment professional that will bring them more in line with a strategic portfolio that can help them achieve their goals.

Misalignment to strategic asset allocation is what we refer to as forecast tracking error of a portfolio- the deviation of the current portfolio vs. a selected strategic asset allocation model. In the short run, this might not have a strong impact on an investor's goals, but in the long run, it can.

Each asset class has its own risk and return characteristics. Stock markets, especially foreign markets, are volatile and can decline in value in response to political, economic, market, and other risks. Foreign investing has additional risks including those associated with currency fluctuation, political and economic instability, and different accounting standards. These risks are heightened in emerging markets. Small-cap stocks are generally more volatile, subject to greater risks and are less liquid than large company stocks. Bonds are subject to interest rate, price, credit/default, inflation, and market risks. Bond prices tend to be inversely affected by changes in interest rates. Although Treasuries are considered free from credit risk they are subject to other types of risks. These risks include interest rate risk, which may cause the underlying value of the bond to fluctuate. Before investing, be sure you are aware of, and understand, all risks associated with a particular investment and asset class.

Bloomberg Barclays U.S. Aggregate Bond Index (proxy for bonds in chart on page 2) is a broad-based measure of the investment grade, US dollar-denominated, fixed-rate taxable bond market.

Bloomberg Barclays U.S. Treasury 20+ Year Bond Index (proxy for long-term Treasury bonds on page 1) measures US dollar-denominated, fixed-rate, nominal debt issued by the US Treasury with maturities of 20 years or more.

Ibbotson US 30 Day Treasury Bill Index (proxy for 30-day Treasury bills on page 1) measures the performance of one-month maturity U.S. Treasury Bills.

Russell 2000 Index (proxy for small-cap stocks in chart on page 1) measures the performance of the 2,000 smallest companies in the Russell 3000 Index, which represents approximately 8% of the total market capitalization of the Russell 3000 Index. Russell 3000 Index measures the performance of the 3,000 largest U.S. companies based on total market capitalization, which represents approximately 98% of the investable U.S. equity market.

MSCI EAFE Index (proxy for international stocks in chart on page 1) is designed to represent the performance of large and mid-cap securities across 21 developed markets, including countries in Europe, Australasia and the Far East, excluding the U.S. and Canada. MSCI makes no express or implied warranties or representations and shall have no liability whatsoever with respect to any MSCI data contained herein. The MSCI data may not be further redistributed or used as a basis for other indices or any securities or financial products. This report is not approved, reviewed, or produced by MSCI.

S&P 500 Index (proxy for large-cap stocks in charts on pages 1 and 2) is a market capitalization-weighted index composed of 500 widely held common stocks that is generally considered representative of the U.S. stock market.

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