Validating Your U.S. and Non-U.S. Equity Exposure

What do your allocations say about your return expectations?

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KEY INSIGHTS

- The relative performance of U.S. and non-U.S. equities has shifted over multiyear cycles. Investors may be tempted to tilt toward the recent outperformer.
- Assumptions about future relative returns are embedded in allocations to U.S. and non-U.S. stocks. These may not match an investor's explicit expectations.
- Investors should understand the expectations implied by their allocations. T. Rowe Price's capital market assumptions may be a useful point of comparison.

For most of the past 10 years, U.S. equities have meaningfully outperformed their non-U.S. counterparts. This extended period of relative outperformance has led some investors to increase their allocations to U.S. stocks or, at least, question whether they should do so.

In this paper, we consider portfolio allocations to U.S. and non-U.S. equities and determine what an allocation split between the two markets implies in terms of investors' forward-looking return expectations. We do not attempt to identify an optimal allocation between U.S. and non-U.S. stocks but do suggest that it is important for investors to recognize the degree of forward-looking return spread implied by their allocation decisions.

U.S. vs. Non-U.S. Equity Performance History

The latest period of U.S. equity market outperformance has been prolonged but not unprecedented. Viewed over rolling historical 10-year windows, we have seen multiple multiyear performance cycles for both U.S. and non-U.S. stocks (Figure 1).

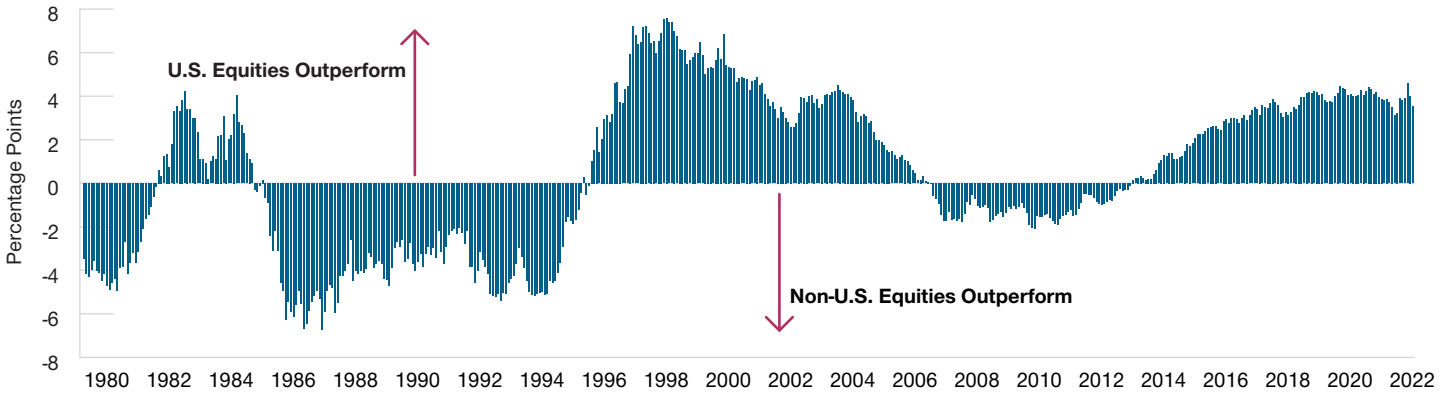
While it may be tempting to tilt a portfolio increasingly toward the outperforming region, this approach can carry considerable risk, in our view. Figure 2 compares the difference between U.S. and non-U.S. equity returns over rolling 10-year periods, rolled monthly, with relative returns over subsequent 10-year periods. We see a strong negative relationship, meaning that the outperforming market historically has tended to underperform over the following decade.

What Does Your Equity Allocation Imply?

Capitalization weights in broad market indexes essentially represent investors' consensus views about company valuation. Many investors, therefore, look to these indexes as reference points when designing their own portfolios.

Relative Performance of U.S. and Non-U.S. Equities Historically Has Run in Cycles

(Fig. 1) Rolling 10-year return spread for U.S. minus non-U.S. equities, annualized



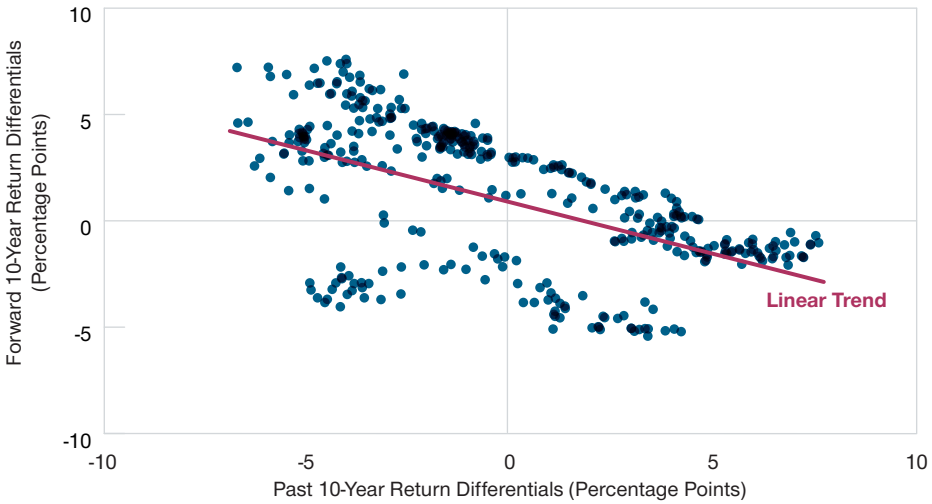
March 31, 1970, through December 31, 2022.
Past performance is not a reliable indicator of future performance.
Source: Bloomberg Finance L.P. U.S. equities represented by the Russell 3000 Index, non-U.S. equities represented by the MSCI All Country World Index ex USA.

For example, as of December 31, 2022, the country weights in the MSCI All Country World Index suggested that a "neutral" global equity allocation would have consisted of 60% U.S. equities and 40% non-U.S. equities.

There are reasons why investors' global equity allocations may deviate from the market benchmark. Some investors may wish to build a home country bias into their portfolio or tactically over- or underweight a region based on a forward-looking view of its relative prospects. Alternatively, some investors simply may fail to rebalance their allocations over time.

Past and Forward Relative Performance Have Been Negatively Correlated

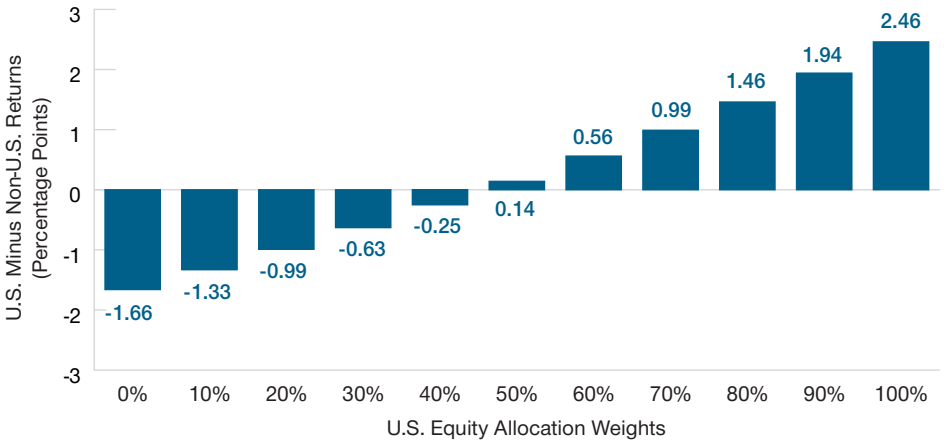
(Fig. 2) Rolling 10-year relative returns for U.S. and non-U.S. equities vs. subsequent 10-year relative returns



March 31, 1970, through December 31, 2022.
Past performance is not a reliable indicator of future performance.
Source: Bloomberg Finance L.P. U.S. equities represented by the Russell 3000 Index, non-U.S. equities represented by the MSCI All Country World Index ex USA.

Future Return Assumptions Are Embedded in Equity Allocation Weights

(Fig. 3) Expected relative annualized returns for U.S. and non-U.S. equities implied by U.S. equity allocation weights



As of December 31, 2022, based on covariance data from 1970 to 2022.
Actual outcomes may differ materially from estimates. Changing assumptions could result in materially different outcomes. See Appendix for additional important information.
Source: T. Rowe Price. U.S. equities represented by the Russell 3000 Index, non-U.S. equities represented by the MSCI All Country World Index ex USA.

> ...it is important to recognize that an investor's asset allocation embeds a future return expectation.

Whatever the reason, it is important to recognize that an investor's asset allocation embeds a future return expectation. For example, an investor who allocates 100% of their equity portfolio to U.S. stocks is positioned as if they believe that the U.S. market will meaningfully outperform over their investment time horizon. We can estimate this implied forward-looking return assumption using two pieces of information:

- An investor's current allocation between U.S. and non-U.S. equities and
- the historical covariance of those assets as measured by the joint variability between the two equity regions.[1]

We can use this information to solve for the return assumptions that would make an investor's portfolio optimal. Figure 3 shows the results of our analysis based on the above factors. For example, we can estimate that an investor who allocates 100% to U.S. equities implicitly assumes that U.S. stocks will outperform non-U.S. stocks by approximately 2.5 percentage points, annualized.

A 2.5 percentage point premium may or may not be consistent with an investor's forward-looking view. For this reason, we believe investors would be wise to compare the return differential implied by their U.S. equity allocation with other forward-looking estimates.

To do this, we compared the relative return expectation implied by a 100% U.S. equity allocation with T. Rowe Price's own estimate—as shown in the firm's current capital market assumptions (CMAs)—as well as with a valuation-implied premium based on the earnings differential between the Russell 3000 Index and the MSCI All Country World Index ex USA.

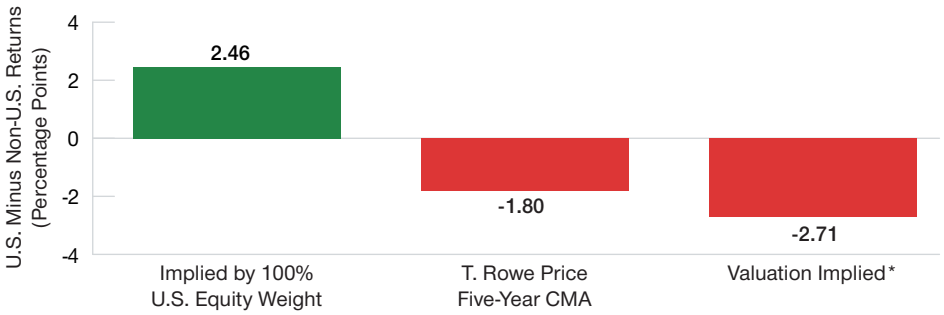
These comparisons revealed a significant discrepancy. As of January 2023, T. Rowe Price estimated that U.S. equities, as represented by the Russell 3000 Index, could underperform non-U.S. equities, represented by the MSCI All Country

[1] See Appendix for more detailed methodology.

> ...there may be a disconnect between an investor's explicit views and the implied return forecast embedded in their equity allocations.

Expectations Implied by Allocation Weights May Not Be Supported by Market Forecasts

(Fig. 4) Forward annualized relative return estimates for U.S. and non-U.S. equities



Implied estimate as of December 31, 2022. T. Rowe Price CMA as of January 10, 2023. Valuation Implied as of December 31, 2022. Implied estimate is over the expected investment time horizon of the investor selecting a 100% U.S. equity weight. T. Rowe Price CMA is over the following five years. Valuation-implied estimate is over the following one year.
Returns do not reflect management fees or other costs associated with an actual investment.
Actual outcomes may differ materially from estimates. Changing assumptions could result in materially different outcomes. See Appendix for additional important information.
Sources: FTSE/Russell, MSCI (see Additional Disclosures), and T. Rowe Price. All data analysis by T. Rowe Price.
*The valuation implied expected return is based on the 12-month forward earnings yield differential between the Russell 3000 Index and the MSCI All Country World Index ex USA.

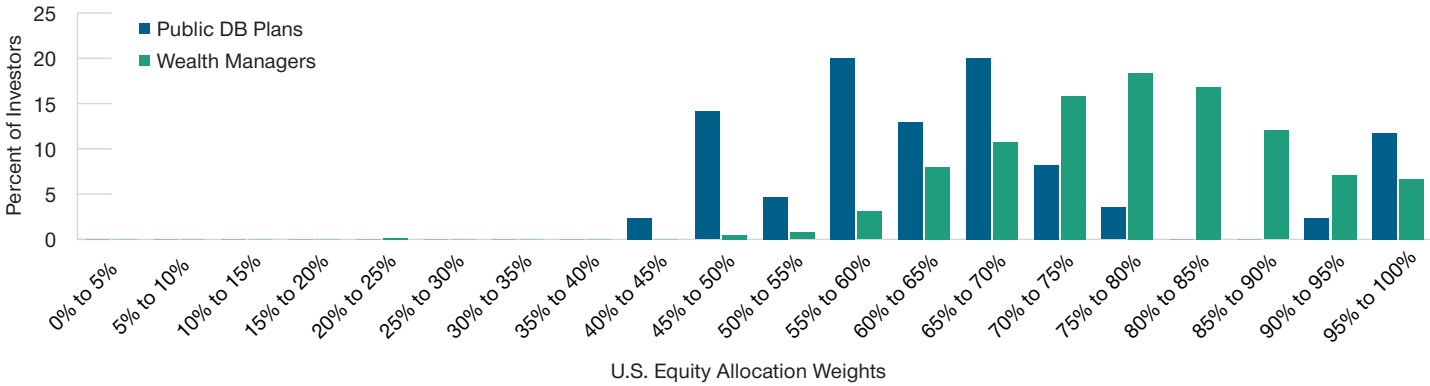
World Index ex USA, by 1.80 percentage points annualized over the five years ending in 2027. The forward one-year valuation-implied premium for U.S. stocks was even more negative: -2.71 percentage points (Figure 4).

While this return differential is only an estimate, we believe it is important for investors to recognize when there are potential variations across the return differentials implied by their own allocations, their explicit expectations for cross-market returns, and external return estimates.

A large spread between implied and forecasted returns could suggest that

There Is Considerable Dispersion in Home Country Bias Among U.S. Equity Investors

(Fig. 5) Distribution of U.S. equity allocations for U.S. wealth managers and public DB plans



As of June 30, 2022.
Sources: Wealth manager results based on 649 model portfolios submitted for review to T. Rowe Price's Client Investment Platform (CIP) service from June 30, 2021, through June 30, 2022. Public DB plan data from the Public Plans Data website of the Boston College Center for Retirement Research. On the web at https://crr.bc.edu/data/public-plans-database/.

78%

U.S. equity share of total equity allocations in the model portfolios of U.S. wealth managers.[2]

a reexamination of one's allocation would be prudent, as there may be a disconnect between an investor's explicit views and the implied return forecast embedded in their equity allocations.

Regional Allocations of U.S. Investors Vary Significantly

As noted, the capitalization weights in the MSCI All Country World Index suggested that a "neutral" equity portfolio would have had roughly a 60% allocation to the U.S. market as of December 31, 2022. But how were U.S. investors actually positioned?

To find out, we examined the U.S. equity allocations of two major groups of U.S. investors: wealth managers and public defined benefit (DB) plans (Figure 5). As can be seen, there was considerable dispersion in U.S. equity exposure among both investor groups. On average, wealth managers had 78% of the equity allocations in their model portfolios invested in U.S. stocks, while public DB plans averaged 67% in their plan portfolios.

Wealth managers also skewed more significantly toward a U.S. home country bias, with 76.7% of all wealth managers having 70% or more of the equity allocations in their model portfolios invested in U.S. stocks, compared with less than a third of public DB plans.

That said, there is no one "correct" level of U.S. equity exposure. The key, especially for investors with a significant U.S. equity bias, is to be sure that any tilt is intentional and well understood. Our analysis of the forward-looking return assumptions embedded in relative U.S. versus non-U.S. allocations highlights the potential for those assumptions to conflict with more explicit return expectations and may provide a starting point for investors who want to validate their allocation decisions.

Conclusion

Our results are not intended to prescribe a given level of U.S. or non-U.S. equity exposure. Rather, our aim has been to highlight the forward-looking return assumptions embedded in portfolio allocations and to advocate that investors be intentional in their portfolio positioning.

We believe that viewing the return differentials implied by allocation weights in the context of other forward-looking return estimates (such as T. Rowe Price's capital market assumptions) can be helpful and that a significant gap between a portfolio's embedded view and more explicit return estimates can warrant further assessment to revalidate positioning.

[2] As of June 30, 2022.

Appendix: Study Methodology

A standard portfolio optimization exercise begins with expected return estimates and the assumed covariance matrix of assets, plus a measure of investor risk aversion, then solves for the optimal portfolio weights.

Reverse optimization takes as inputs the covariance matrix, the risk aversion parameter, and the observed portfolio weights, then solves for expected returns. These expected returns are the returns "implied" by the portfolio weights, holding constant the covariance matrix and risk aversion.

We used the methodology of Herold (2005)[3] to compute implied returns for U.S. and non-U.S. equities by simultaneously calculating the risk aversion parameter and the returns under the constraint that the portfolio weights summed to 100%.

T. Rowe Price Capital Market Assumptions: The information presented herein is shown for illustrative, informational purposes only. Forecasts are based on subjective estimates about market environments that may never occur. This material does not reflect the actual returns of any portfolio/strategy and is not indicative of future results. The historical returns used as a basis for this analysis are based on information gathered by T. Rowe Price and from third- party sources and have not been independently verified. The asset classes referenced in our capital market assumptions are represented by broad-based indices, which have been selected because they are well known and are easily recognizable by investors. Indices have limitations due to materially different characteristics from an actual investment portfolio in terms of security holdings, sector weightings, volatility, and asset allocation. Therefore, returns and volatility of a portfolio may differ from those of the index. Management fees, transaction costs, taxes, and potential expenses are not considered and would reduce returns. Expected returns for each asset class can be conditional on economic scenarios; in the event a particular scenario comes to pass, actual returns could be significantly higher or lower than forecast.

T. Rowe Price's capital market assumptions are best understood as forecasts of the central tendency of forward returns. We do not seek to predict actual or realized returns, as there is bound to be material variation around this central tendency in any given historical or future period. For this reason, our approach to portfolio construction relies on multiple optimization methods and robustness checks. The foundation of our CMAs is a survey provided to a wide range of senior T. Rowe Price portfolio managers, economists, and analysts across our equity, fixed income, and multi-asset divisions. The survey requests forecasts for many inputs: GDP growth, inflation, commodity prices, equity valuations, earnings growth, fixed income yields, slopes of yield curves, and spread levels. Respondents are asked to offer insights for their respective areas of expertise and are invited to add thoughts for other categories. After all surveys are collected, baseline forecasts are developed for each asset class. The Capital Market Assumptions Governance and Investment Committee then reviews the results for internal consistency and reasonableness.

Hypothetical Portfolio

Analysis shown is based on the application of an investment model and is hypothetical. Hypothetical results were developed with the benefit of hindsight and have inherent limitations. Results do not reflect the effect of material economic and market factors on the decision-making process. Management fees, taxes, potential expenses, and the effects of inflation may not have been considered and would reduce results. Actual results experienced by investors may vary significantly from the results shown. All results are shown in USD currency.

[3] Herold, Ulf. "Computing implied returns in a meaningful way," *Journal of Asset Management*, 6(1): 53–64 (2005).

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