REDWOOD
INVESTMENT MANAGEMENT

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Redwood AlphaFactor® Tactical International: An Asset Allocation Viewpoint on International Exposure Relevancy

Most Investors Are Underexposed To International Equities

As domestic equity markets continue to provide U.S. investors with satisfying returns, it isn't surprising that their investment portfolios do not have a lot of exposure in perceived "riskier" international equities. When it comes to investing, people often purchase what's familiar to them; in a sense, people prefer to stay close to home. This reflects a "home bias", which is the tendency for investors to overweight their investment portfolios to their own country relative to the global markets. This can mean missing an entire critical universe of international exposure that could, at times, add potential outperformance in a portfolio, in addition to adding a diversified return stream.

As of November 2017, only 29% of U.S. investments are allocated to international equities – and that includes institutional assets.

Despite the size of non-U.S. markets, U.S. mutual fund investors (excluding institutions) hold on average only 15.6% of their total equity allocation in overseas stocks, according to Morningstar.

Total U.S. Investments Exposure: International vs. Domestic

Since November 2017, data shows that the majority of allocated assets are in U.S. equities.

According to Morningstar, mutual fund investors in aggregate allocate even less.

Sources: Bloomberg, Morningstar. Data as of 11/30/17. For illustration purposes only. An investor cannot invest in an index. Please see the disclosures section at the end for additional information.

Exploring a Broader Opportunity Set

As economies continue to globalize and the investable market landscape expands, the equity return opportunity changes with it. U.S. stocks account for 53% of the total market capitalization in the MSCI World All Cap Index (MSCI World), while representing just 47% of the total number of stocks in the index (3,319 out of 7,079). Investors who limit their portfolio exclusively to U.S. securities automatically exclude more than one half of the opportunity set. Allocating to international strategies, investors can take advantage of a much larger universe.

Investable Universe: Opportunity Set of U.S. Domestic vs. International Markets

Source: Bloomberg. Data as of 11/30/17. For illustration purposes only. An investor cannot invest in an index. Please see the disclosures section at the end for additional information.

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A Fallacy of Underperformance

Despite the expansive opportunity set, many investors remain underweight in international equities. This could be attributed to the misconception that international equities tend to underperform over the long-term. After all, comparing historical annualized returns on a 3, 5, 7, 10, and even 20 year period ending 10/31/17, the S&P 500 Index outperformed the MSCI ACWI ex U.S. Index in every time period, by as much as 8.64% annualized. The primary flaw in this analysis is terminal point bias, or evaluating a set of returns that all include the same most recent periods (the 5 year returns include all of the 3 year returns, the 10 year returns include all of the 5 year and the 3 year returns, and so on). This gives little insight into the different cycles of relative under and overperformance between U.S. equities and international equities. Exacerbating this problem is the fact that many financial advisors and investors use asset allocation software in an attempt to create "optimal" portfolios, which often reinforces the terminal point bias.

Analyzing 3, 5, 7, 10 year annualized returns may lead an investor to think that internationals always underperform.

Annualized Returns as of October 31, 2017 – Illusion that Domestic outperforms International

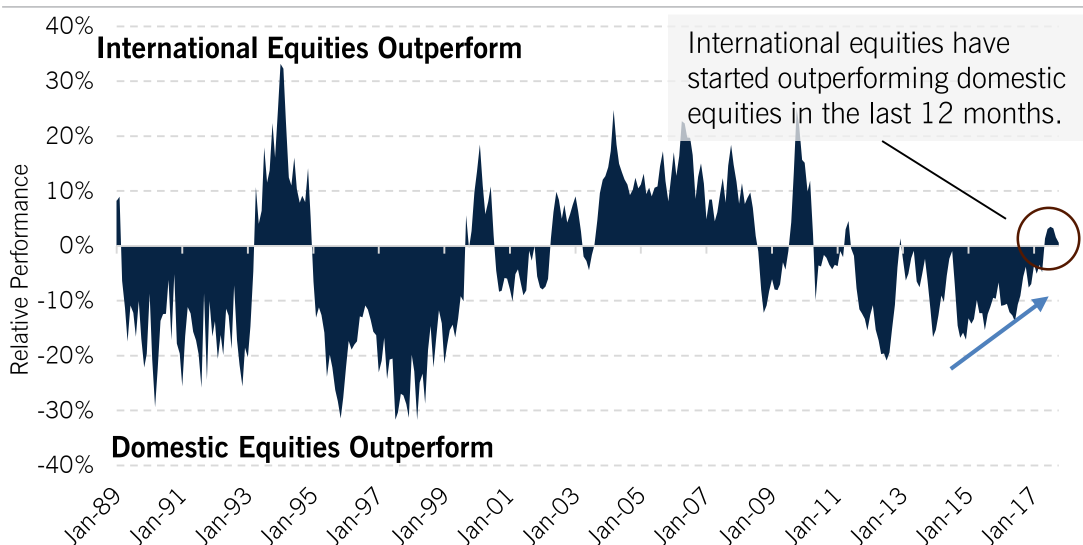
Annualized Return (%)	1	3	5	7	10	15	20
MSCI ACWI ex US Index	24.20	6.20	7.77	5.50	1.38	9.11	5.96
S&P 500 Index	23.63	10.77	15.18	14.14	7.51	9.60	7.31

Source: Zephyr. Dates: 1/1/1989 to 10/31/2017. For illustration purposes only. Numbers above returns are in years. An investor cannot invest in an index. Please see the disclosures section at the end for additional information.

Certainly, U.S. stocks have been a juggernaut in recent years allowing investors to enjoy their portfolios' overweight to domestic equities. However, relative outperformance between domestic and international equities has swung like a pendulum historically as opportunities shifted. The chart below illustrates the 12-month rolling return differences between domestic and international equities over the last 28 years. Incorporating the insight that international equities can have sustained periods of outperformance vs U.S. stocks into asset allocation decisions may be a key differentiator of returns between portfolios going forward.

Since 1970, international and U.S. equities have taken turns leading each other for multi-year periods. These trends of under and overperformance between international and domestic equities can create opportunities as environments change.

Changing Trends? Relative 12-month Rolling Return: MSCI ACWI ex US Index / S&P 500 Index



Source: Bloomberg. Dates: 1/1/1989 to 10/31/2017. For illustration purposes only. An investor cannot invest in an index. Please see the disclosures section at the end for additional information.

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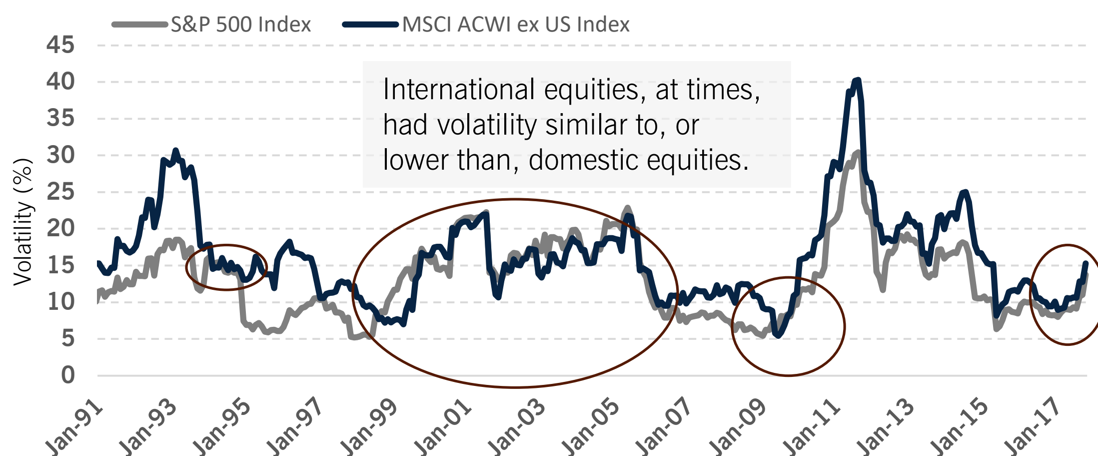
The Foreign Risk Bias

Another common misconception, and often cited argument why to massively underweight international equities, is that international equities have higher volatility and are therefore more risky than domestic equities. However, a 12-month rolling analysis of volatility (as measured by standard deviation) between the S&P 500 Index and the MSCI ACWI ex U.S. index, consistent with the return analysis on the previous page, demonstrates that volatility can also shift favorably toward internationals. The below volatility charts between the S&P 500 Index and MSCI ACWI ex U.S. Index show that there are times when international markets present less volatility.

International equities are commonly viewed as riskier investments than domestic equities. However, volatility can be more favorable for international equities in certain environments.

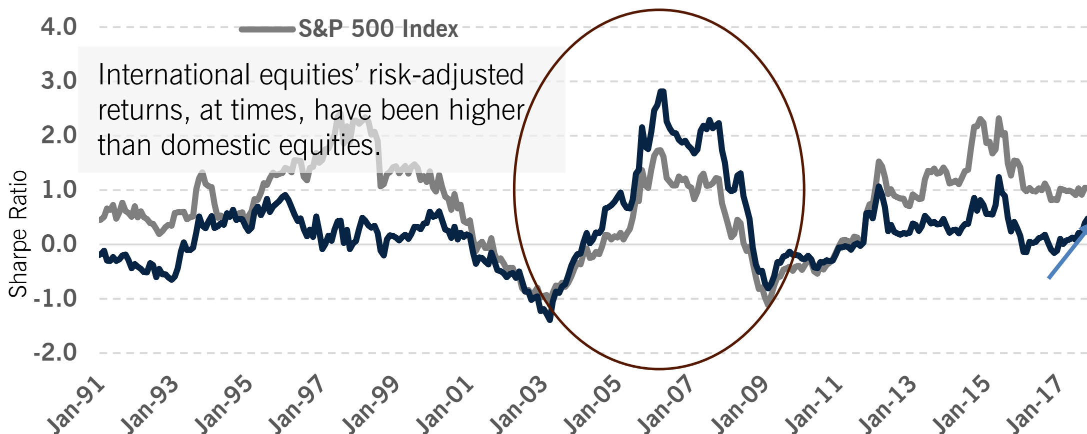
Relative 12-month Rolling Volatility: MSCI ACWI ex US Index vs. S&P 500 Index



Source: Zephyr. Dates: 1/1/1991 to 10/31/2017. For illustration purposes only. An investor cannot invest in an index. Please see the disclosures section at the end for additional information.

In fact, comparing the common Sharpe ratio using a 36-month rolling window to exaggerate trends, international markets, in some years, provide higher risk adjusted performance versus their domestic counterparts.

Relative 36-month Rolling Sharpe Ratio: MSCI ACWI ex US Index vs. S&P 500 Index



Source: Zephyr. Dates: 1/1/1991 to 10/31/2017. For illustration purposes only. An investor cannot invest in an index. Please see the disclosures section at the end for additional information.

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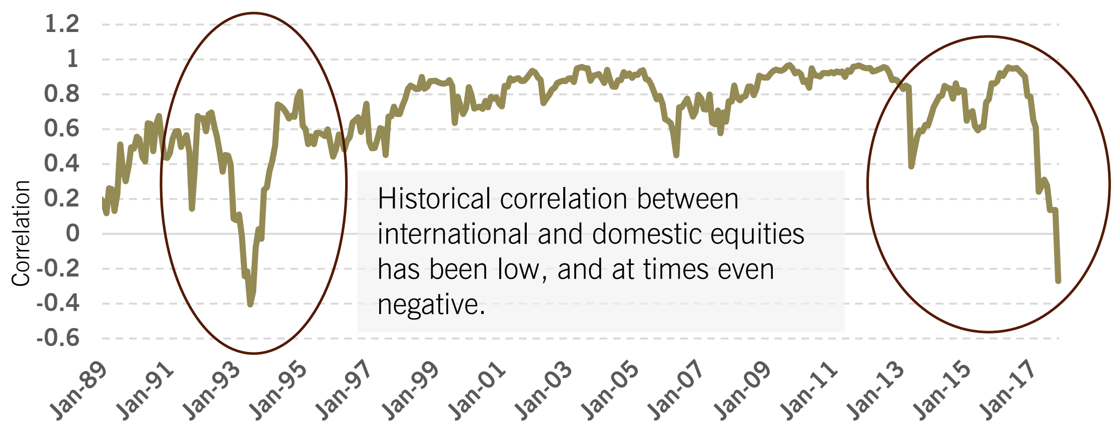
Diversifying with International Equities

International investing also offers broad diversification benefits across investment sizes and styles, geographies, and asset classes. Each country/region has its own unique set of attractive investment opportunities based on its stage of economic development, demographics, resources, and other factors. In addition, international equities have their own economic and political risks separate from the United States. All of these diversification contributors have led to international equities demonstrating negative, or very low, correlation with domestic equities historically.

International equities have their own economic and political risks separate from the United States. The low historical correlation of international equities to U.S. domestic equities can help diversify an equity portfolio.

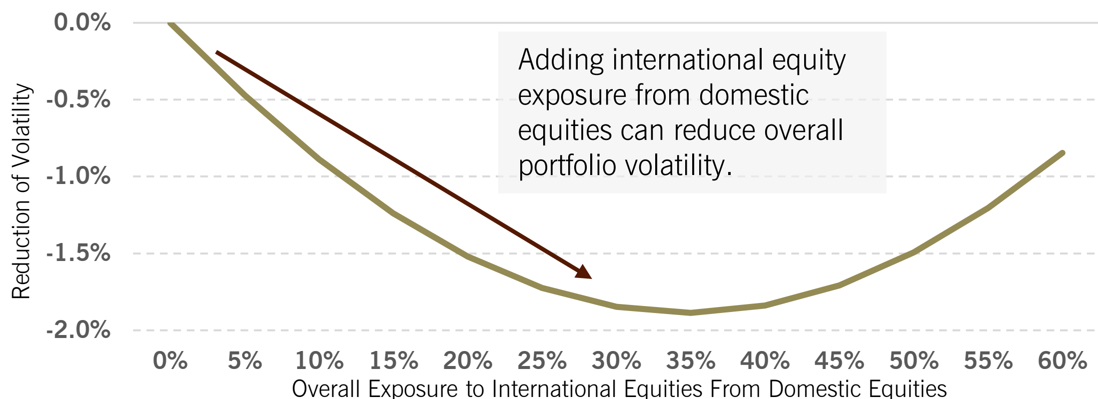
Correlation of MSCI ACWI ex US Index to S&P 500 Index (12-Month)



Source: Zephyr. Dates: 1/1/1989 to 10/31/2017. For illustration purposes only. An investor cannot invest in an index. Please see the disclosures section at the end for additional information.

The diversification benefits of having international equity exposure become evident when we analyze the different volatility levels of sample portfolios with varying degrees of international equities exposure. The downward-curving line in the chart below indicates that adding international equities to the equities allocation of a typical 60/40 (60% S&P 500 Index, 40% Barclays US Aggregate Bond Index) U.S. portfolio would have led to incrementally greater levels of diversification in the form of reduced portfolio volatility over the period.

Reduction of Portfolio Volatility When Adding To Internationals



Source: Zephyr. Dates: 1/1/1989 to 10/31/2017. For illustration purposes only. An investor cannot invest in an index. Please see the disclosures section at the end for additional information.

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The AlphaFactor® Edge

Redwood's Liquidity Theory offers investors a different approach than traditional fundamental stock-selection strategies. Rooted in the basic supply and demand relationship, it contends that all else being equal, if the same amount of money is chasing a smaller amount of shares, the share price should increase, and vice versa. Our AlphaFactor® stock selection strategies are based on this liquidity theory, having a quantitative focus on companies that overall do not continue to dilute investor shares. In addition, our liquidity theory also encompasses Free Cash Flow Growth and Free Cash Flow Yield factors, proven to further enhance the robustness of our quantitative selection process applied in the international markets.

Conclusion

Maximizing returns while minimizing risks is a hallmark of good investing. Even during a bull market where domestic equities have outperformed global assets, signs are pointing toward why it may be prudent to increase international exposures. Some additional things to consider are:

- **Valuation** – many fundamental investors believe that stock markets are all about earnings and the price investors pay for them. Relative to U.S. equities, international equites seem cheaper from a value (such as price-to-earnings) perspective. Source: Bloomberg. Data as of 11/30/17.
- **Monetary Policy** – While the Federal Reserve started raising rates in December of 2015 and effectively ended a nine-year economic stimulus package, the rest of the world's central banks are continuing their stimulus, fueling continued economic growth.
- **Non-Traditional Research** – Development and implementation of alpha seeking quantitative methodologies with tactical risk management overlays can further add value when taking international exposure.

Overall, the data makes a compelling case for why international equities could be a critical part of a portfolio going forward. In addition, an AlphaFactor® quantitative methodology can seek to take advantage of the non-correlation in the global sector, further seeking to outperform via a diversified portfolio of leading companies outside of the U.S. Finally, not all investor concerns on the international market are irrational. During periods of larger crises, downside pressure can be felt globally. The AlphaFactor® Tactical International strategy utilizes a quantitative tactical risk management overlay designed specifically for international exposure, that seeks to move assets into the safety of money market or short-term government bonds, to minimize the potential of greater loss.

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Disclosures

Definitions & Indices:
Annualized Return is the rate of return that is compounded year-over-year from the beginning to the end of the stated time period.
Domestic Equity (stock) refers to equity or stocks of companies that are domiciled in the United States**.** **International Equity (stock)** refers to equity or stocks of companies that are domiciled outside of the United States. **Market Capitalization** refers to the aggregate value of company stock that is traded on the stock market, calculated by multiplying the total number of shares by the present share price. **Annualized Return** is the geometric average amount of money earned by an investment each year over a given time period. It is calculated as a geometric average to show what an investor would earn over a period of time if the annual return was compounded. **Volatility** is a statistical measure of the dispersion of returns for a given security or market index. Volatility is usually measured by using the standard deviation between returns. **Standard Deviation** is a measurement of dispersion of a set of data from its mean, usually used as a measurement of risk. **Sharpe Ratio** is the average return earned in excess of the risk-free rate per unit of volatility or total risk, commonly used as a measurement of return per risk. **Correlation** is a statistic that measure the degree to which two securities move in relation to each other. **Liquidity Theory**, rooted in basic supply and demand relationship, contends that all else being equal, if the same amount of money is chasing a smaller amount of shares, the share price should increase, and vice versa. **Free Cash Flow** is the cash a firm produces through its operations, less the cost of expenditures on assets. **Free Cash Flow Growth** refers to consecutive periods where Free Cash Flow is rising. **Free Cash Flow Yield** is a representation of the income created by an investment based on market cap and free cash flow. A **Rolling Period** is a period of 12 consecutive months determined on a rolling basis with a new 12-month period beginning on the first day of each calendar month. **Tactical** is an asset allocation approach that is geared towards minimizing risk while taking advantage of opportunities, moving in and out of certain investments based on a risk/return evaluation. **Quantitative** refers to economic, business or financial analysis that aims to understand or predict behavior or events through the use of mathematical measurements and calculations, statistical modeling and research. **Bull Market** is a market in which share prices are rising, encouraging buying. **Price-to-earnings** is the Market Value per share divided by Earnings per Share, which in essence indicates the dollar amount an investor can expect to invest in a company in order to receive one dollar of that company's earnings. The **Federal Reserve** is the central bank of the United States and is responsible for monetary policy. A stimulus package is a package of economic measure put together by a government with the objective to reinvigorate the economy and prevent or reverse a recession by boosting employment and spending. **MSCI ACWI All Cap Index** captures large, mid, small, and micro cap representation across 23 Developed Market countries and large, mid and small cap representation across 24 Emerging Markets countries that seeks to cover approximately 99% of the global equity investment opportunity set. **Barclays US Aggregate Bond Index** is a broad based index that measures the investment grade, US dollar-denominated, fixed-rate taxable bond market and includes Treasuries, government-related and corporate securities, MBS (agency fixed-rate and hybrid ARM pass-throughs), ABS and CMBS (agency and non-agency). **MSCI ACWI ex US Index** refers to the Morgan Stanley Capital International All Country World Index, which is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed and emerging markets. The MSCI ACWI ex US excludes U.S. based companies. **S&P 500 Index** is a stock market index based on the market capitalizations of 500 leading companies publicly traded in the U.S. stock market, as determined by Standard & Poor's. UNLESS OTHERWISE NOTED, INDEX RETURNS REFLECT THE REINVESTMENT OF INCOME DIVIDENDS AND CAPITAL GAINS, IF ANY, BUT DO NOT REFLECT FEES, BROKERAGE COMMISSIONS OR OTHER EXPENSES OF INVESTING. INVESTORS MAY NOT MAKE DIRECT INVESTMENTS.

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