

Wilshire Consulting

***Examining the Home-Country Bias:
There's No Place Like Home. There's No Place Like Home...
Or Is There?***

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Introduction

The Bias: “There’s no place like home”

The geographical mix of assets represented in institutional investment portfolios seems consistent with the famous mantra, “There’s no place like home. There’s no place like home. There’s no place like home.” repeated by Dorothy in the classic movie “The Wizard of Oz.” Despite economic globalization and a measurable increase in foreign equity exposure in recent decades, the portfolio holdings of U.S. and international investors alike continue to demonstrate a very strong preference for local investments relative to what would be suggested by the aggregate mix of global assets.

In “The Wizard of Oz” adventure, Dorothy had very compelling reasons to favor the safety of home over the assortment of strange and dangerous characters she and her loyal companion Toto encountered during their travels. Despite the proximity of our Santa Monica headquarters to the creative world of Hollywood, we cannot claim artistic interpretation as a strong suit. Nevertheless, it was not lost on us that all of Dorothy’s fears of the outside world were purely figments of her imagination. Every aspect of Dorothy’s precarious adventure took place in her head as she lay ill, but completely safe, at home. Turning from the Land of Oz to the world of non-fiction, institutional investors face a variety of risks when constructing global portfolios; some are real, others perceived; some are investment related, others are operational. This paper from Wilshire Consulting will examine the long measured underexposure to international equities relative to the global opportunity set – the so called ‘home-country bias’ - and will explore the factors driving the mix of domestic and international securities.

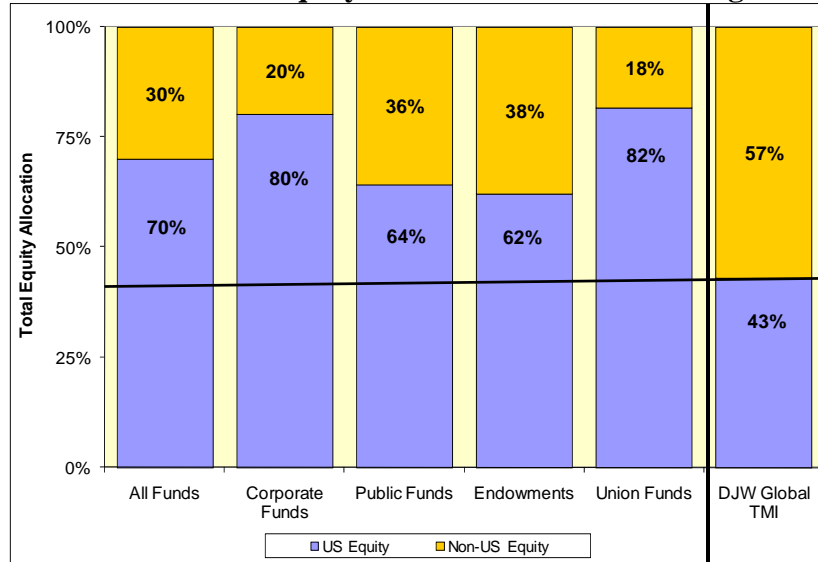
Investing Abroad: “Toto, we’re not in Kansas anymore”

The pace of globalization has been accelerating rapidly. Regions of the globe that not so long ago isolated themselves from the outside world have recently opened up to international trade. The spread of capitalism has meant freedom and prosperity for millions of individuals and has expanded the array of opportunities for the institutional investor. For example, the amount of non-U.S. equities held as a percentage of total equities by U.S. institutions has grown from 19% in 2003 to 30% in 2007.¹ Despite this notable shift in assets, U.S. institutions remain significantly underweight to foreign equities in the aggregate. Exhibit 1 contrasts the aggregate mix of assets for several groupings of U.S. institutions against the market weighted world stock market as represented by the Dow Jones Wilshire Global Total Market IndexSM.

¹ Greenwich Associates



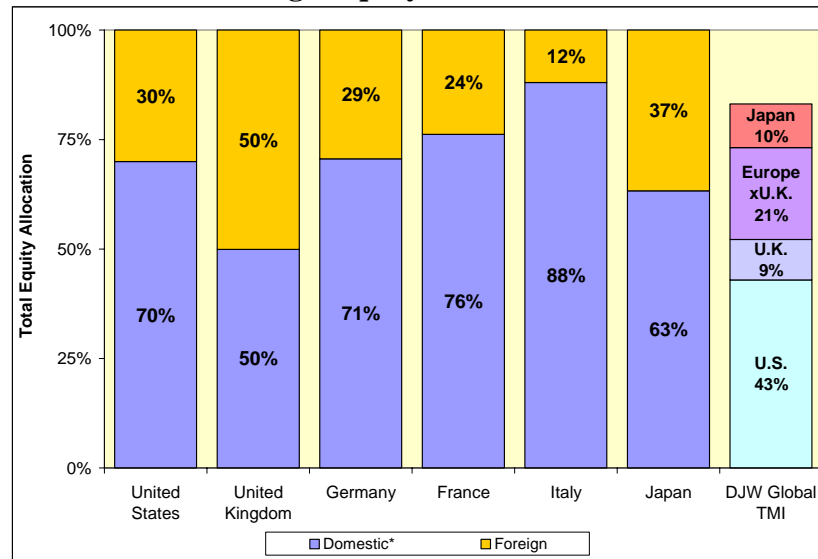
Exhibit 1
US vs. Non-US Equity Allocation vs. Market Weights



Source: Greenwich Associates (2007), DJ Indexes (June 30, 2007)

The tendency to invest close to home is not unique to U.S. investors. Exhibit 2 below shows the mix of domestic versus foreign equity investments for several developed market countries; the last column depicts each country's weight in the DJ Wilshire Global Total Market Index.

Exhibit 2
Domestic vs. Foreign Equity Allocation across Countries



* The 'Domestic' market for Germany, France and Italy is all of Europe.
 Source: Greenwich Associates (2007, DJ Indexes (June 30, 2007)



Exhibit 2 illustrates that the overweight to local investments relative to the global equity market is more pronounced for some smaller components of the overall world market. Japan, for example, has a 63% domestic investment in absolute terms, which is actually less than the U.S. at 70% but translates to a larger 53% relative home-country overweight versus a 27% local overweight among U.S. investors. This relative overweight in markets outside the U.S. should come as no surprise and is essentially a mathematical requirement that serves as a counterbalance to square worldwide investment equilibrium. In the following section, we will put forth some of the factors driving the home-country bias.

Rationale for the Home-Country Bias

Institutional investment portfolios are typically constructed with the objective of achieving the highest level of return at an acceptable level of risk. To achieve such efficiency, investors combine a variety of asset classes and categories based on projections of their future return, risk and correlation potential. By examining the home-country bias within the framework of this starting point, one can quickly identify two potential investment rationales for an underweight to foreign markets: inferior returns and/or greater risk. We will examine each separately in the following sections.

Inferior Returns: “Are you hinting my apples aren't what they ought to be?”

Famed investor Warren Buffett has made the concept of investing in what you know mainstream. The data seem to suggest that the “invest in what you know” philosophy, while specifically directed at the objective of identifying attractive businesses or securities, seems to apply across broad geographic market investments. Beyond the relative overweight to local country markets displayed earlier (Exhibits 1 & 2) studies have shown such biases persist across geographic areas within the same country. Coval and Moskowitz, for example, found that U.S. investment managers exhibit a strong preference for locally headquartered firms.² However, does this philosophy that is targeted at identifying individual market-beating investments have a relative return justification when comparing a broad local-country market to the global opportunity set? The expectation of a long-term local market premium is not supported by the historical track record of returns or by capital market theory.

First, from a purely mathematical standpoint, it is impossible for all local country returns to outpace the global market. The world market return is simply the market-capitalization weighted sum of all the country returns in the market. As such, one half of all countries by market capitalization will outperform the global market while the remaining half will necessarily underperform. Therefore, when considering all regions collectively, while an expectation of local outperformance may be universally shared, the validity of such a collective expectation is clearly unsubstantiated. However, is the

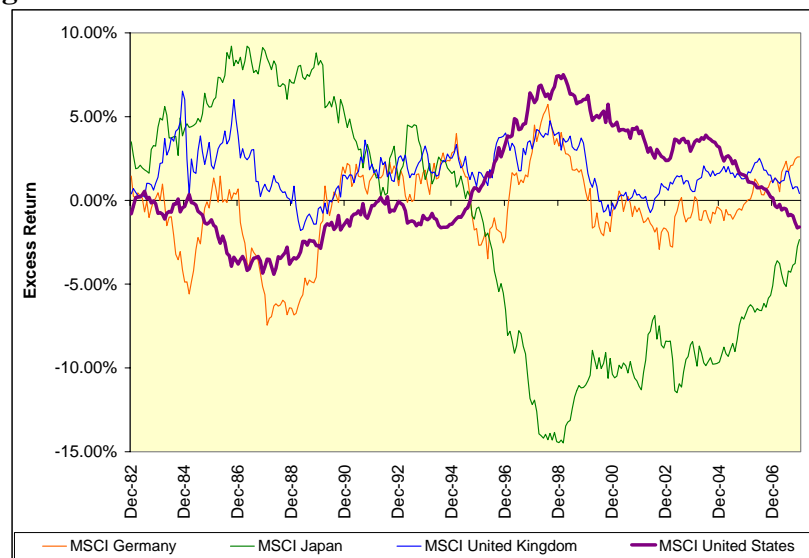
² Coval, Joshua & Moskowitz, Tobias. *Home Bias at Home: Local Equity Preferences in Domestic Portfolios*. Journal of Finance, December 1999



expectation of superior long-term local returns in individual markets, such as the U.S., reasonable? The historical track-record does not lend credence to this view.

Exhibit 3 below compares the long-term returns of various MSCI single-country indexes to that of the MSCI World Index during the past 25 years. While investors are primarily interested in market returns expressed in terms of their local currency, Exhibit 3 is reported in U.S. dollars so that the World Index is measured in a single currency. An example of the relative performance of an individual market can be seen by the bold, purple line, which represents the performance of the MSCI U.S. Index. For roughly half of the period shown, from 1983 through part of 1995, the ten-year return on the index trailed the developed, global index. Starting in 1995 until 2007, the U.S. market outpaced the basket of developed countries. The other three lines also exhibit periods of over and under relative performance for the individual markets that are shown.

Exhibit 3
Rolling 10-Year Excess Return versus MSCI World Index in U.S. Dollars



Source: Wilshire Compass

Foreign Market Risk: "Lions and tigers and bears! Oh, my!"

While there are a variety of factors that may contribute to U.S. investors maintaining a relative market underweight to foreign securities, the primary drivers are undoubtedly related to risk. These risks can be segmented into four broad categories: political risks, operational risks, economic risks and investment risks.

Political Risks

Investing money in a growing number of countries exposes U.S. institutional investors to an increasing array of political risks. These risks can manifest themselves in a variety of forms including, but certainly not limited to, government instability, limited investor



rights, restricted human rights and narrow property right protection. Markets within countries that experience frequent or material changes in regimes are subject to wild potential swings in asset values as investors quickly re-price securities in response to the latest government reality and risk landscape. During Brazil's 2002 election, it became apparent that a Workers' Party founding member, Lula da Silva, would become the country's next president. Investors were concerned that the country would move far to the left, politically, driven by Lula's promise of socio-economic change. The value of the Brazilian real suffered dramatically moving from 0.43 U.S. dollars per real at the beginning of 2002 to 0.28 by the end of October, a drop of 35%.

Hugo Chavez's recent nationalization of Venezuela's energy assets demonstrates a potential consequence of investing in countries run by regimes with little respect for investor rights. The action effectively transferred wealth from individual and institutional shareholders to the government. While the likelihood of such government confiscations becomes less likely in a global economy that makes the prospects of isolationism bleak, the potential losses to investors from even partial nationalization can be substantial. A lack of protection for copywriters can also contribute negatively to investment returns. Countries that implicitly allow pirating to occur prevent an innovative firm from reaching its full market value and ultimately discourage future creativity in general.

Though obvious from a social perspective, the detrimental impact on investors in countries with limited human rights may not be immediately clear. In fact, at the surface, one might suppose that companies operating in a region with sub-standard rights for workers could exploit such conditions to generate greater profits for shareholders. This is a myopic view at best and certainly unsustainable over the long run. There have been many examples of investors paying a financial penalty for operating in countries with dubious human rights. The Apartheid era in South Africa and the current situation in the Darfur region of Sudan should serve as clear examples to investors of the political risks inherent in placing assets in or near regions with questionable respect for human rights and dignity. Wealth can be squandered in several ways in such situations. First, companies within the country can have their products or services boycotted as the result of public attention and outcry. Further losses can occur as investors attempt to stimulate change through divestment. All shareholders suffer during divestment as downward pressure is exerted on share prices, while investors who participate in the divestment also incur trading and transaction costs from liquidating positions, not to mention the economic costs associated with monitoring and implementing the divestment process.

Operational Risks

Security exchanges around the world are varied and adhere to differing business and regulatory standards in their daily operation. Not all exchanges are created equally and few operate at the high standards of stalwart markets such as the NYSE (New York Stock Exchange), NASDAQ (National Association of Securities Dealers Automated Quotation system) or the LSE (London Stock Exchange). Operational inefficiencies can represent



risks to investors in the form of illiquidity, wide bid-ask spreads, ambiguous regulations and limited transparency to name a few. Beyond detracting from investor wealth upon each market transaction, these operational risks create uncertainty regarding future opportunities. Technology and competition among exchanges have lowered costs over the years both in the U.S. and abroad. Both of these factors are likely to continue to improve efficiency as large institutional U.S. investors move a greater proportion of their portfolios overseas, further weakening the rationale for a home-country bias.

Economic Risks

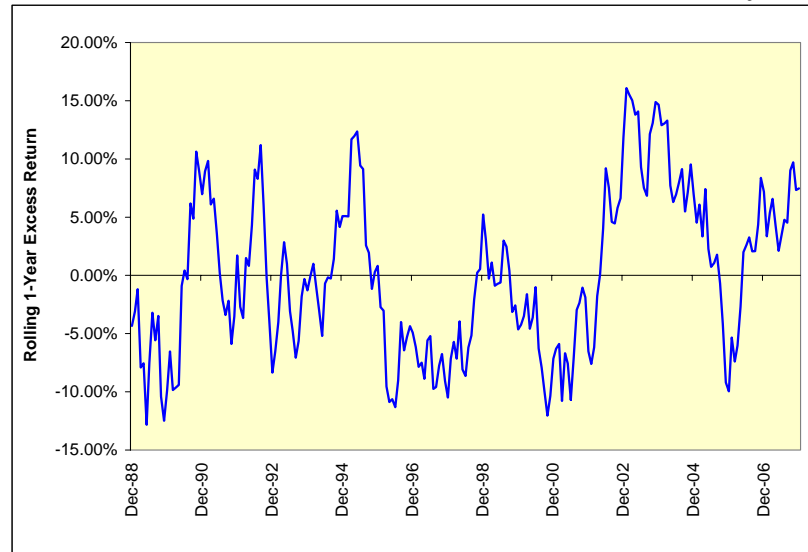
Despite being interconnected through a global economy, individual regional and country markets are uniquely impacted by idiosyncratic factors that are specific to their underlying economies. Therefore, investors placing assets in foreign markets are exposed to an expanded list of micro-economies, each facing its own set of potential economic risks such as recession, inflation, interest rate volatility, and tax burdens, to name a few. Investors who are acute to the risks inherent in maintaining exposure to a growing number of economies should note that, while the likelihood of being invested in a market that encounters economic hardship increases, the exposure and subsequent vulnerability to a narrow concentration of economies has been diversified globally. This diversification is analogous to a stock portfolio. By building out a broad portfolio, the chances of being invested in a company that faces hardship increases – most seriously, one that engages in corporate malfeasance such as Enron or Worldcom – however, as dollars are diverted to other stocks, the ability of any one stock to seriously damage the overall portfolio decreases. Broad market returns, which will be discussed below, reflect the impact of local economic conditions and reveal a historical track-record of risk consistent with that of U.S. markets.

Investment Risks

The most common statistical representation of investment risk is volatility, which is typically expressed as the standard deviation of returns. U.S. based investors face two primary contributors to return volatility when purchasing foreign assets. The first is the volatility of the underlying securities as traded on the local foreign market. The second is currency risk, which comes from the necessity to convert U.S. dollars into foreign currencies to buy the non-dollar denominated securities. As currency prices fluctuate, the level of local market volatility is compounded. The effect of changes in currency prices can be seen in Exhibit 4. The excess return analyzed in the exhibit is for a single index measured against itself in U.S. dollar versus local currency – local to the respective markets. As the market, and underlying equity, returns are identical, the difference is due to changes in currency.



Exhibit 4 MSCI AC World ex-U.S. Index: U.S. \$ vs. Local Currency Return

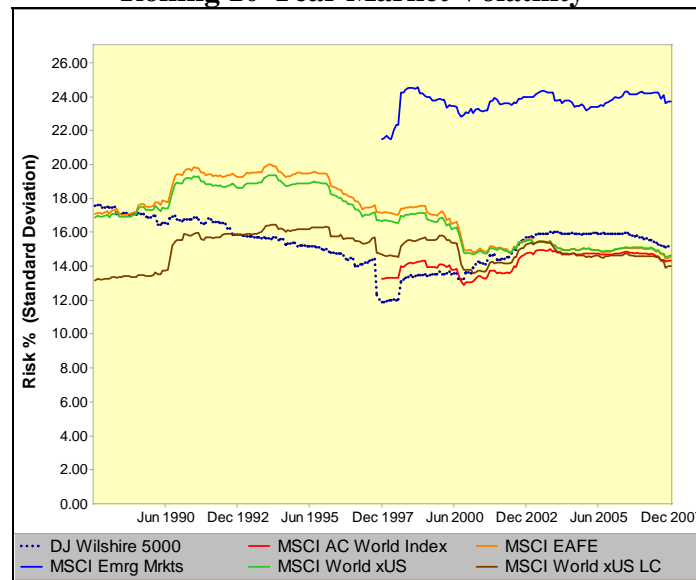


Source: Wilshire Compass

The difference in return between the two indexes clearly highlights the significant effect of changes in currency prices to U.S.-based investors. However, it is worth noting that the cumulative excess return during the time period represented is very close to zero, with the local currency return leading by 0.28%. Stock price and currency risks, which are directly measurable, along with the other “non-investment” risks described above materially impact security prices and are therefore reflected, to some extent, in the historical data. Exhibit 5 charts the ten-year rolling standard deviation of U.S. stock returns (represented by the dotted blue line) and various regional indexes to help understand the relative risk impact on U.S. investors considering expanding to a global mix of equities. As the graph reveals, risk levels outside the U.S., even for regional markets that benefit from multi-country diversification, have exhibited greater levels of volatility versus the U.S. equity market. However, because of the impact of currency fluctuations, the comparison is somewhat skewed against foreign investment.



Exhibit 5 Rolling 10-Year Market Volatility



Source: Wilshire Compass

There are two main points regarding the effects of currency changes that are worth mentioning. First, the difference in volatility attributable to currency has been decreasing. The spread between the brown and green colored lines in Exhibit 5 represents the contribution to risk from currencies, which has increased risk by an average of 1.85% for the MSCI World ex-U.S. Index during the period charted above. Second, though it is outside the scope of this report, U.S. investors with large exposures to non-dollar denominated currency can hedge all or part of their foreign exchange risk relatively inexpensively, which brings the volatility of the non-U.S. equity market in line with U.S. stock market risk levels.³ It is worth noting that the global equity market that includes U.S. stocks, as represented by the red line in Exhibit 5, has exhibited a similar and often lower risk pattern as the U.S. equity market.

In summarizing the myriad risks there are several points worth mentioning. First, the segmentation of risks into broad categories was merely used for convenience in helping to understand the scope of risks and is not meant to suggest that these are distinct or unrelated forms of risk. The various risk factors are fluent and interact with one another in ways that can trigger, compound or offset other risks. Further, though the risks discussed above are often magnified when investing abroad, especially within the emerging markets, few are unique to foreign investments. Finally, it is important to remember that investors' responses to risk, which are driven by individual tolerance for or aversion to the particular form of risk, are heterogeneous. No effort to understand the motivations for combining local and foreign investments should conclude with absolute declarations of an optimal mix that is universally appropriate. Optimality is based on

³ Wilshire Associates, Inc.: Currency Risk Management, 2004: Foresti and Yang

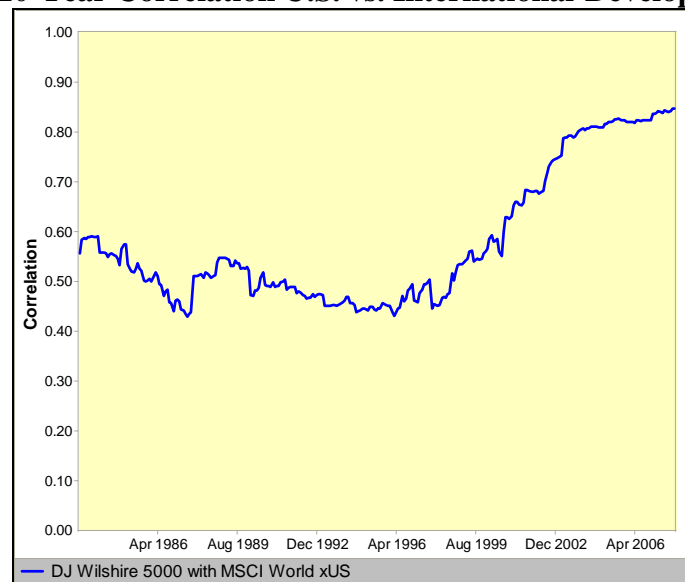


maximizing return at a given level of risk; an investor's views on risk (political, operational, economic, and investment) will play a key role in reaching the appropriate combination of assets.

Going Global by Default: "Pay no attention to the man behind the curtain"

One additional rationale behind the home-country bias is that the very expansion of globalization magnifies the level of global diversification embedded in U.S. based assets. As such, by simply holding a broad portfolio of U.S. domiciled stocks, investors are achieving growing levels of global diversification. This trend can be observed through various metrics. First, as multinational firms make up a growing percentage of the U.S. equity market, investors in the U.S. market naturally gain increased exposure to the global economy. For example, an estimated 44% of the revenues of S&P 500 companies were derived overseas in 2006, compared to only 32% in 2001⁴. An alternative way to understand the impact of such natural diversification is to observe whether the relationship of U.S. stock market returns to international returns has strengthened over time. Exhibit 6 graphs the ten-year rolling correlation between U.S. stocks and developed ex-U.S. stocks.

Exhibit 6
Rolling 10-Year Correlation U.S. vs. International-Developed Stocks



Source: Wilshire Compass

The trend in Exhibit 6 is clear; the relationship between U.S. and international equity market returns has strengthened in recent years. While globalization of the world economy is surely a significant contributor to this statistical trend, its precise impact is impossible to disaggregate from other contributing factors. Such uncertainty regarding

⁴ Standard & Poor's



the contribution from globalization makes the extrapolation of the trend into the future a dubious approach to forecasting. We will discuss in the next section how, even if the current trend holds, there is still a significant diversification benefit that can be gained through broader geographic equity exposure.

There are two points worth making on the correlation statistic before proceeding. First, correlation represents direction more than magnitude. Two assets that go up in price at the same time can still provide desirable diversification. For example, the DJ Wilshire 5000 was up 5.6% during 2007. While the MSCI World ex-U.S. Index also was up, it returned more than twice the U.S. market at 12.9%. This relative performance was during a year when both markets moved in the same direction for nine out of 12 months. The second point concerns correlation during down markets. Investors can see from the occasional headline that equity markets across the globe can turn south at the same time. However, the data suggest that these could be short-term phenomena. The 20-year correlation statistic for the two indexes in Exhibit 6, above, is 0.64. The correlation during only months when the U.S. equity market was down is nearly identical at 0.62. The correlation does fall, though, during up markets, to 0.42.

Beyond the statistical significance of globalization, there are some interesting company-specific examples of where allowing a home-country bias to persist can have an arbitrary effect on the stocks an investor owns. The first example is with commercial aircraft manufacturers. Every airline across the globe is a potential customer of the only two players in the space, Boeing (a U.S. company) and Airbus (headquartered in France). In 2007, roughly half of each company's sales were outside their home market. A home-country bias exhibited by a U.S.-based investor means a relative overweight to Boeing and a persistent bet that they will be more profitable than their European counterpart. Another example is the automobile manufacturer Chrysler. Prior to 1998, Chrysler was a U.S.-headquartered company. From 1998 to 2007, it was part of the German based DaimlerChrysler. Currently, the company is privately owned by U.S.-based private equity firm Cerberus Capital Management. If and when the company is once again made public, an investor with a home-country bias would have gone from a relative overweight of Chrysler within the automobile group (until 1998) to a relative underweight and then back to an overweight. However, all that really changed (ignoring management activity) was the address of the company's headquarters. There are other examples like these, both big and small, where a home-country bias can affect an investor's portfolio for non-investment reasons.

Addressing the Home-Country Bias

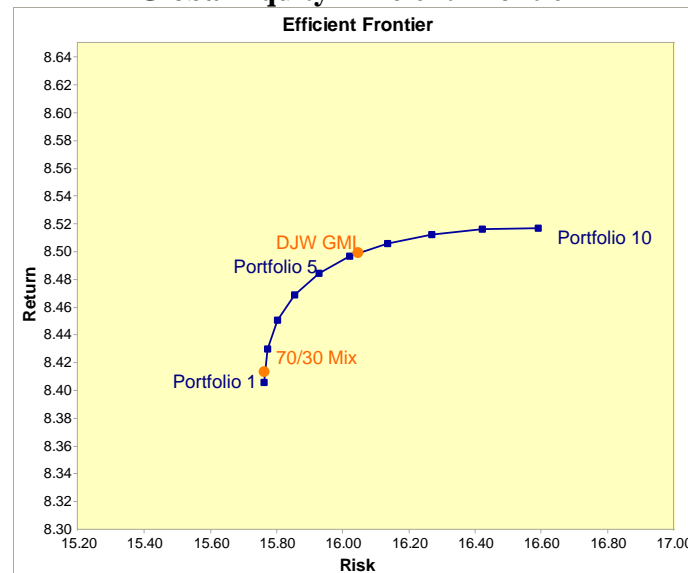
Choosing a Course: "Follow the yellow brick road"

As the section above discussed, there are a variety of potential risks associated with investing internationally, but purely from an investment perspective, there is little rationale to support the magnitude of the home-country bias that is expressed in



aggregate allocations. Exhibit 7 below, for example, identifies ten specific equity mixes along an efficient frontier derived with Wilshire Consulting's 2008 asset class forecasts for the U.S. and non-U.S. (developed non-U.S. plus emerging) equity markets. At the 16% risk level, which is approximately our expected level of risk for the global equity market (between Portfolios 5 & 6 in Exhibit 7), the efficient mix of U.S. and non-U.S. equity is 44% and 56%, respectively. This blend is much closer to the 41%/59% weights in the DJ Wilshire Global Total Market Index (as of December, 31 2007), suggesting that reasonable regional market forecasts lead one closer to the relative weights implied by the global market capitalization opportunity set rather than the 70%/30% U.S./non-U.S. mix reflected in aggregate allocations (Exhibit 1). Aversion to some of the non-investment risks discussed above contributes to this dispersion.

Exhibit 7 Global Equity Efficient Frontier



Source: Wilshire Compass

As should be the case with all asset allocation decisions, institutional investors must understand and acknowledge the factors driving the level of international exposure in their policy portfolios. Though a universal approach to eliminate the home-country bias would be inappropriate, as it ignores the individual risk tolerances of different institutions, each investor should be able to articulate the rationale for their particular asset mix. There are additional subtleties beyond the purely quantitative that should be considered and are worth mentioning. First, there is an often unrealized consequence to favoring the domestic economy. Corporate plan-sponsors, and in some ways public funds, that prefer focusing their economic exposure on the domestic market are actually increasing their reliance on the domestic economy. During downturns, their domestic equity assets are likely to decline. This could then increase the annual contribution that is required by the plan sponsor. Unfortunately, the sponsor could be facing the effects of the same economic downturn in the form of decreased revenues or tax income.



The improved investment opportunity set that is achieved through global equity is another consideration. Viewing the entire global equity market as a single market increases the number of stocks and/or the amount that is invested outside of the domestic market. This, in turn, may improve an investor's prospects for identifying stocks that can outperform the broad market. Sector diversification also is improved through a global opportunity set. Exhibit 8 summarizes this relationship from the point-of-view of a U.S. investor. While there are more investment opportunities in the Health Care and Technology sectors within the U.S., the international Telecom sector is nearly double the size of the U.S. and the Materials sector is almost three times as big.

Exhibit 8
Sector Weights of the DJ Wilshire Global Market Index (12/31/07)

Sectors	Non-U.S.	U.S.	Difference
Consumer Durables	10.1%	9.4%	0.7%
Consumer Staples	7.1%	8.9%	-1.8%
Energy	10.5%	12.3%	-1.8%
Financials	26.3%	18.2%	8.1%
Health Care	4.9%	12.0%	-7.1%
Industrials	12.4%	11.7%	0.7%
Technology	6.5%	16.5%	-10.0%
Materials	11.2%	3.8%	7.4%
Telecom	5.9%	3.3%	2.7%
Utilities	4.9%	3.8%	1.1%
	100.0%	100.0%	0.0%

Source: Wilshire Atlas

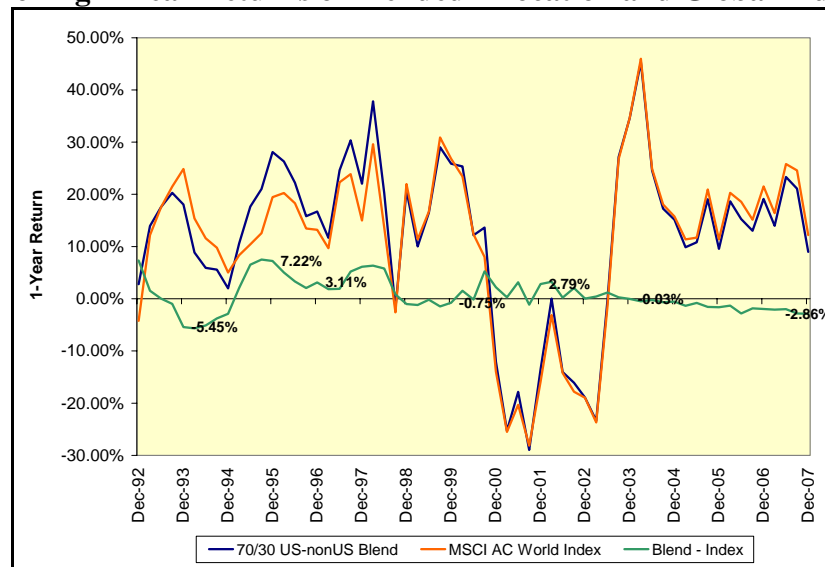
In the section ‘*Going Global by Default*’, we discussed how globalization has naturally given investors a greater exposure to the global marketplace by investing in companies with a growing proportion of overseas sales. Former Federal Reserve Chairman Alan Greenspan often defined globalization as “the extension of the division of labor and specialization beyond national borders.” This concept along with the “invisible hand” theory pioneered by Adam Smith, a still-relevant economist from the 1700’s, would conclude that the natural expansion of the global labor force leads to a more productive global economy. Therefore, the global sector distribution as detailed in Exhibit 8 is a result of the natural distribution of specialization. To be sure, a home-country bias that alters this natural allocation prevents an investor from fully benefiting from any efficiency that is created globally. Appendix A, “Tracking the Global Market with U.S. Stocks,” attempts to measure an investor’s ability to track global market exposure without investing outside the U.S.

Investors who determine that a more globally diverse portfolio is appropriate must carefully consider the implementation details of a rebalancing transition. A material rebalance of assets should never allow the choice of a single transition date to trump the strategic decision of reallocating assets to the long-term risk-return profile of the desired policy portfolio. Spreading a transition over an extended time period, which is appropriate for the underlying shift in allocation, can mitigate the concern of a timing



decision overwhelming a strategic decision. The trade required to reduce a home-country bias dictates selling out of U.S. equities and into non-U.S. equities and swapping out of the U.S. dollar into a market weighted mix of foreign currencies. The green line in Exhibit 9 below shows the value impact of these relative trades over rolling 1-year intervals. By dollar-cost-averaging the exposure transition, the peaks and troughs evident in the chart can be avoided during implementation.

Exhibit 9
Rolling 1-Year Returns of Blended Allocation and Global Index



Source: Wilshire Compass

Recognizing market cycles after the fact is simple; attempting to project the level or timing of their tops and bottoms accurately in the future is a virtual impossibility. Investors interested in unwinding a home-country bias can dampen the impact of market timing in their move to a more globally diverse portfolio.

Conclusion

“Somewhere over the rainbow”

Anyone viewing Dorothy’s original pair of ruby slippers at the Smithsonian’s National Museum of American History would regrettably have to use their imagination to envision how they sparkled on the silver screen. A close inspection reveals that the rubies are not real and that the shoes’ edges are fraying. It is prudent for investors to look closely at where their own treasures lay and evaluate the opportunities and risks in those lions and tigers and bears across their home borders.

Asset allocation is an evolutionary process that responds through time to the dynamic nature of capital market developments and alternative market innovation. Through



developments in international markets and an evolving understanding of global market opportunities, U.S. institutions have materially increased their non-U.S. market based exposure over the past two decades. As this report discussed, there are a variety of considerations that contribute to the optimal mix of local and foreign assets. In the aggregate, these factors have yielded portfolios that demonstrate a bias for home-country investments. This phenomenon is neither right nor wrong in absolute terms, but rather requires a thoughtful understanding by all institutions regarding the decision factors driving their respective allocations. While there is no need for all institutional investors to mirror the global opportunity set, each should understand and be comfortable articulating the rationale supporting their target policy portfolio decisions.



Appendix A: Tracking the Global Market with U.S. Stocks

U.S.-based investors who recognize the value of gaining global market exposure, yet have a strong aversion to the risks involved in investing abroad (political, operational, economic and investment), may ask the question: Is it possible to construct a portfolio of U.S.-only securities that closely tracks the global equity market return pattern? Below we use Wilshire's GR6 equity risk model to evaluate such a prospect quantitatively, by optimizing the mix of stocks in the DJ Wilshire 5000 Composite Index (U.S.) to minimize the expected tracking error against the DJ Wilshire Global Index (Global).

As a starting point of reference, using Wilshire's GR6 equity risk model with 2007 year-end holdings, the expected annual tracking error (standard deviation of excess return) between the U.S. and global indexes is 4.48%. One interpretation of such an estimation is that an investor can expect the annual return of the U.S. market to fall in a range of 4.48% above or below the return of the global market approximately 68% of the time (and +/-8.96% 95% of the time, +/-13.44% >99% of the time).

As the following exhibit shows, optimally rebalancing the mix of U.S. securities can be expected to lower tracking error to the global market from 4.48% to 3.94%, or a 12% reduction in anticipated risk.

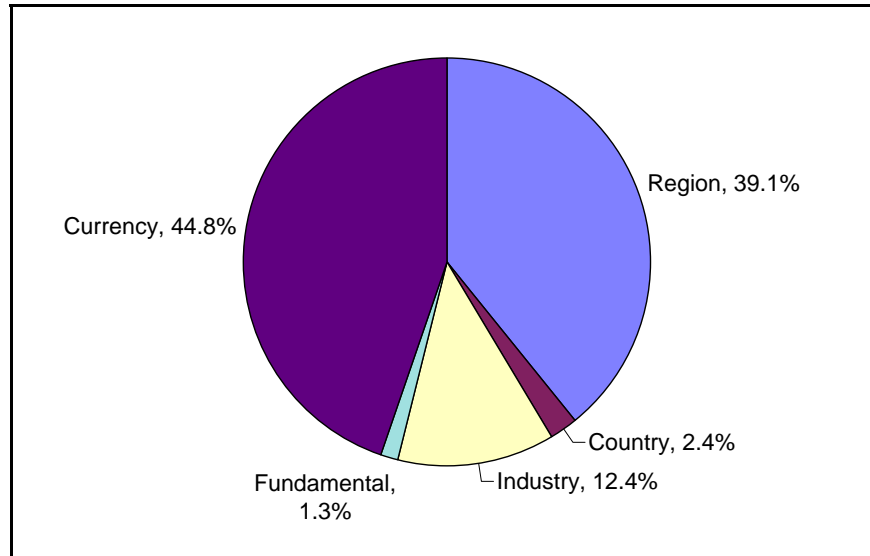
OPTIMIZATION REPORT		
Portfolio : W5000F INDEX Benchmark : DWG INDEX		
Date : 12/31/2007		
Risk Model : Wilshire GR6 (Matrix : Monthly-Equal)		
Total Risk Characteristics (Annualized) :		
Statistic	Starting	Optimized
Number of Securities	4843	839
Tracking Error	4.482	3.942
R-squared	0.776	0.825
<u>Contribution to TE</u>		
Factor Risk	4.438	3.764
Region	3.346	2.961
Country	0.635	0.731
Industry	1.134	1.668
Fundamental	0.69	0.531
Currency	3.168	3.168
Covariance	-1.922	-2.869
Specific Risk	0.627	1.172

Source: Wilshire Atlas

The ability to reduce relative risk against the global equity market is substantially limited by the large contributions to risk that stem from global factors such as region, country and currency. This result is intuitive as there is little that a U.S.-centric approach can do to hedge against these global factors. The following pie chart shows the percentage



contribution to risk for the optimized U.S. portfolio, revealing that nearly three-fourths of the expected factor risk is contributed by regions and currencies.



While there is little a U.S. centric investor can do to mitigate the remaining relative risk contributed by the regional factors, currency risk could be somewhat controlled through the derivatives markets. Measuring the optimized portfolio described above against a currency-hedged version of the global equity market results in an expected tracking error of 3.45%. This serves as a proxy for the level of risk improvement that could be achieved by introducing currency management and suggests a 23% reduction in risk from the starting U.S. versus global tracking error estimate of 4.48%.

For the reasons discussed in this report, this analysis supports the case that, despite continued globalization in recent decades, a U.S.-based investor's ability to mimic the return pattern of the global market by holding only U.S.-based securities is rather limited. Risks compared to the capitalization-weighted global market can be reduced, but the expected reduction is relatively small, from 12% to 23%, depending on the treatment of currency. In addition, an expected tracking error of 3.45% is still meaningful as this would be considered "structural" risk – meaning risk even if passive management is utilized – as opposed to active management risk where excess return is expected.



Important Information

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