

Investing in Global Equities: *An Alternative Approach to Structuring Equity Portfolios*

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Recently, the globalization of equity markets has prompted investors to show greater interest in global equity products.¹ This trend is a byproduct of the changing climate of global investing and a growing investor preference for equity portfolios over the past two decades.

About 20 years ago, investors demonstrated a strong home-country bias when building their equity portfolios. As a result, local investors had a stronger influence on equity prices than today, money managers employed regional research platforms, and companies focused on domestic resources and markets. Today, however, home-country bias has decreased due to greater mobility of portfolios, capital, and goods, as well as more efficient information flows. As a result, global investors exert greater influences on equity prices, money managers have shifted from regional to global research platforms, and companies have outsourced their production overseas and are competing globally.

Several studies have shown that sectors have had a growing influence on global equity risk and return since 1998, while the influence of countries has diminished.² In response to these changes in global markets, Russell's research analysts found that the number of global equity products more than doubled from 1995 to 2005. During the same time period, the home-country bias of investors declined.

Russell's consulting clients, on average, have increased their international equity exposure from 16% to 20% of their overall portfolios, and InterSec research reports that institutional cross-border assets have increased approximately from 10% to 17% of total assets.

Investors might be considering whether to add global equity managers to their existing manager line-up. To assist this decision, in this article we analyze the benefits and drawbacks of two approaches to global equity investing, discuss the benefits of introducing global equity managers into an existing set-up, and investigate the impact of various allocations to global equity managers on active returns and active risks for total equity portfolios.

GLOBAL EQUITY STRUCTURES: A COMPARISON

Historically, U.S. investors have structured their developed-market equity portfolios using dedicated U.S. and non-U.S. equity managers. In recent years, the use of global equity managers in the portfolios has increased. A global equity manager portfolio offers a broader mandate and a more generalist approach to global equity investing. Theoretically, this global approach has several advantages over the combined approach, which uses separate non-U.S. and U.S. equity managers (U.S.+non-U.S.). For example, global equity managers have greater freedom to select the

best ideas across world equity markets while the U.S. and non-U.S. managers are constrained to invest only in their assigned regions. With a broader research scope, global managers may have greater ability to evaluate stocks across both the U.S. and non-U.S. markets than do dedicated U.S. and non-U.S. managers. If global managers had the same level of skills across the full global opportunity set as the U.S. and non-U.S. managers have within their respective regions, the global approach may offer additional sources of alpha through stock selection.³ As many managers these days offer products in all three strategies (global, U.S., and non-U.S.), such an assumption may not be unreasonable.

Adding global equity managers to the existing manager line-up can introduce a modest element of tactical U.S.–non-U.S. tilt in the portfolio and minimize the timing risk of making tactical changes in the dedicated U.S. allocation in the overall portfolio. For the most part, this tactical bet results from bottom-up stock selection. Russell's analysts have observed, however, that some managers—specifically, quantitative managers—have developed separate country models or insights. These country views can provide a separate source of alpha or be incorporated into stock selection.

Advocates of the U.S.+non-U.S. approach may counter that, with a narrower breadth of focus, U.S. and non-U.S. equity managers may have the ability to conduct deeper research within their respective universes. This may lead them to choose less well-known, more local market-oriented companies that may have greater return potential. Examples may include local small companies or domestically focused companies that global equity managers may miss or know less well. Global equity managers have a broader investment opportunity set—the whole world—but they need greater research resources and analysts than local specialists do in order to research stocks and select those with the greatest prospects. But with advances in information technology, better quality of company fundamental data, broader coverage of sellside research, and improvements in financial disclosure, accounting standards, and corporate governance in non-U.S. developed markets, the research coverage gap between global equity managers and regional equity managers is narrowing. Skilled global managers can effectively use outside research and news flow or build quantitative screens to narrow the universe of stocks into a workable research universe. Therefore, even some boutique firms that lack

the resources of the large investment firms can utilize the various information or research sources to efficiently identify potential candidates for their funds.

PERFORMANCE OF GLOBAL VERSUS COMBINED U.S.+NON-U.S. EQUITY MANAGERS

To explore whether these arguments for comparing benefits of the global approach versus the U.S.+non-U.S. approach hold, we examined the performance of global equity managers relative to the combined U.S.+non-U.S. equity managers based on their excess returns, country allocation, stock selection, and U.S. timing ability, as well as the impact of size of active bets and investment styles on performance.

Data

The return and portfolio characteristics data for the universes of U.S., non-U.S., and global equity managers are from Mellon Analytical Solutions, LLC.⁴ For non-U.S. and global equity managers, all the results are based on universe mean returns, the equally weighted average returns of all managers in the universe. For U.S. managers, we used the equally weighted average of universe mean returns for U.S. large-cap growth, value, and market-oriented manager universes. To avoid survivorship bias, all of the accounts in the universes at any given quarter, whether terminated or still existing, are included. The data are quarterly from March 1990 to June 2008.

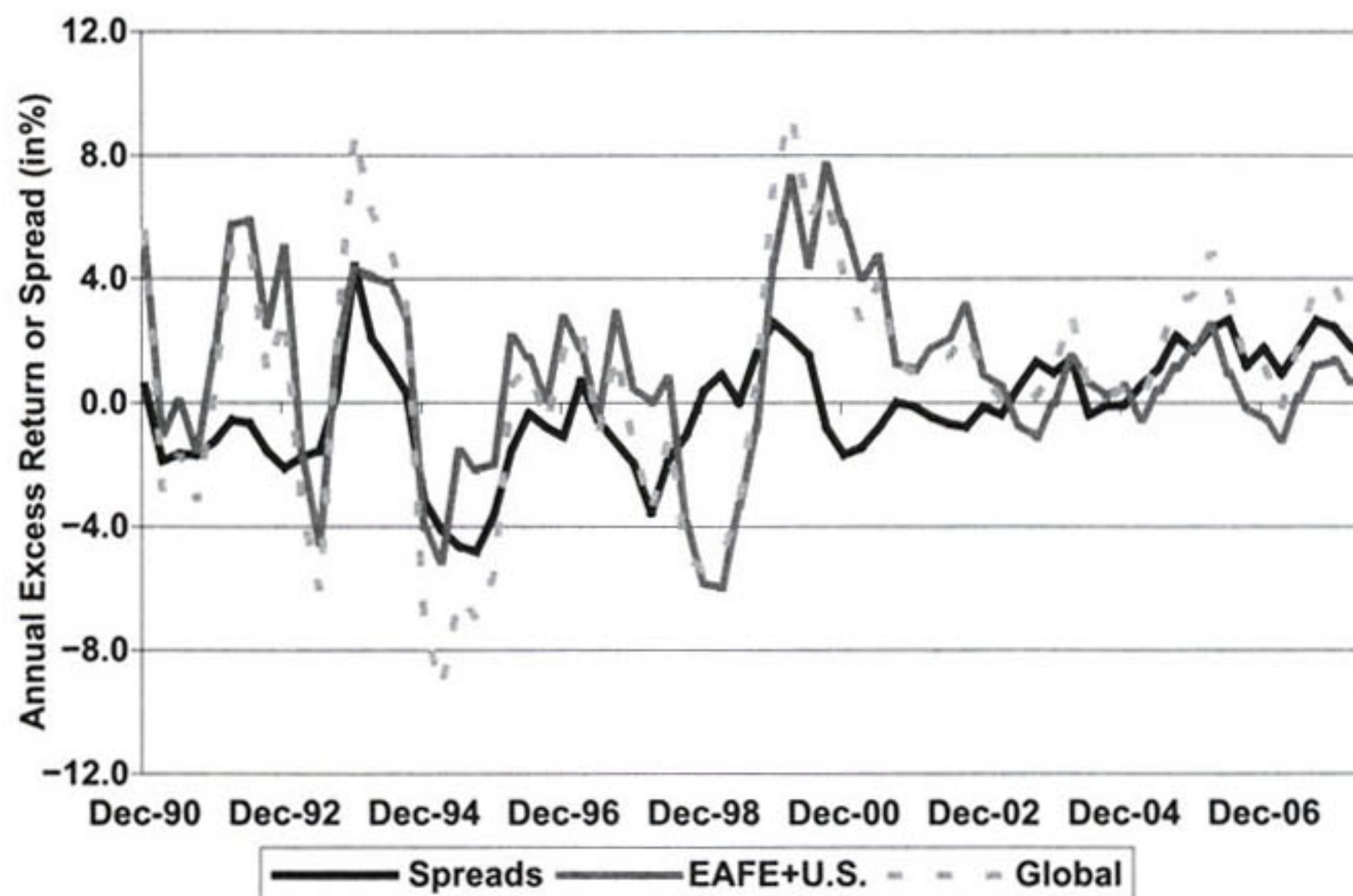
To conduct performance attribution, all annualized returns or excess returns are computed as the arithmetic average of quarterly numbers multiplied by four. Annualized active risk (or tracking error) is the standard deviation of quarterly excess returns multiplied by two.

Excess Returns

Exhibit 1 shows rolling one-year excess returns, relative to the MSCI World Index, for global equity managers and the combined U.S.+non-U.S. equity managers, as well as their excess return spreads.⁵ From March 1990 to December 1998, on average, the U.S.+non-U.S. approach outperformed the global approach by 95 basis points (bps) annually. But from March 1999 to June 2008, on average, the U.S.+non-U.S.

EXHIBIT 1

Rolling One-Year Excess Returns of Global Managers vs. Combined U.S.+Non-U.S. Equity Managers and the Excess Return Spread, March 1990–June 2008



approach underperformed the global approach by 68 bps annually. One possible reason for this shift is that many global managers underweighted U.S. equity when the U.S. equity market was performing better, on average, than most equity markets in the early 1990s.

Country Allocation versus Stock Selection

To better understand the sources of alpha, we decomposed excess returns for global and non-U.S. managers relative to the MSCI World and EAFE Indices, respectively, into country-allocation and stock-selection effects.⁶ A detailed description of the methodology we used to analyze these relative returns is included in the appendix. The stock selection effect for the combined U.S.+non-U.S. managers is the weighted average of the stock selection effect for non-U.S. managers and the excess returns for U.S. managers by using the MSCI U.S. weighting in the MSCI World Index. The excess return for U.S. managers is the average of the universe's mean excess returns for U.S. large-cap market-oriented, value, and growth equity managers. Because the weighting of the U.S. and non-U.S. managers has been kept at the index level, there is no allocation effect between U.S. and non-U.S. as there is from the non-U.S. managers.

The rising impact of sectors and the decrease in managers' country and sector bets can dramatically change the drivers for active returns and active risks. Exhibit 2 shows average annualized country allocation and stock selection effects from June 1990 to December 1998 and from March 1999 to June 2008. The results indicate that managers' stock selections became a major source of alpha and risk after March 1999, which implies that the rising influence of sector and style on equity returns exerted greater influence on managers' stock selection.

Before March 1999, the empirical results indicate that country risk was more, or at least equally, important than stock selection risk. Most non-U.S. managers underweighted Japan, an active bet that made a large positive impact on country allocation. Because most managers use a bottom-up process for stock selection, only a handful of managers have formed an investment committee or have delegated investment professionals to provide top-down views. Exhibit 2 shows that the non-U.S. and global equity managers can add value through country allocation, although this is often a byproduct of their bottom-up stock selection approach. When managers are skilled at cross-border stock evaluation, however, their bottom-up stock selection can lead to positive country allocation.

EXHIBIT 2

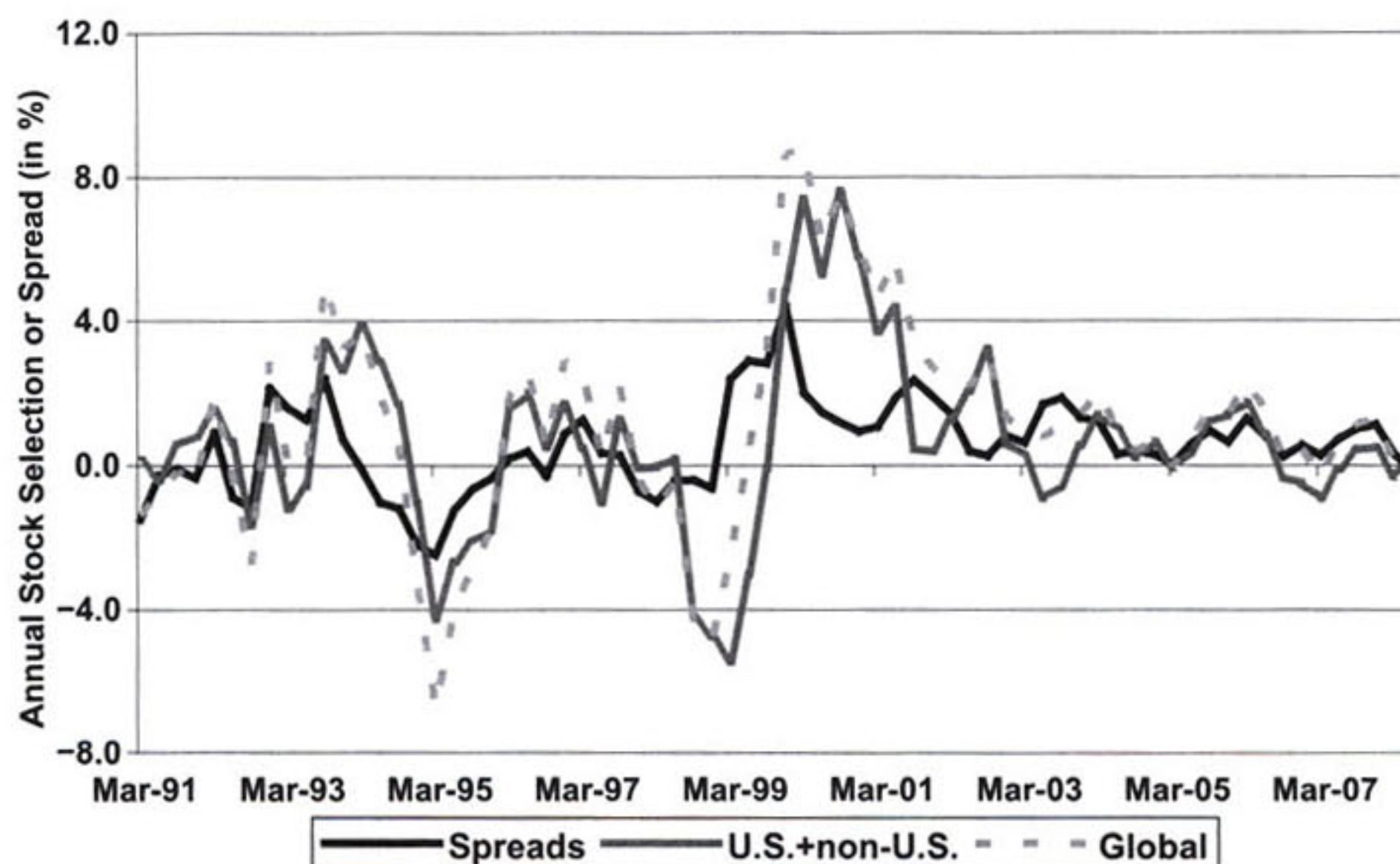
Country Allocation vs. Stock Selection Effects for Global and Non-U.S. Equity Managers, June 1990–June 2008

	Stock Selection Within Countries			Country Allocation		
	Average	Std. Dev.	IR	Average	Std. Dev.	IR
June 1990–December 1998						
Global	-0.43	3.36	-0.13	0.09	2.89	0.03
non-U.S.	0.41	2.93	0.14	1.85**	4.28	0.43
March 1999–June 2008						
Global	2.49**	1.94	1.29	1.01**	0.84	1.21
non-U.S.	1.30**	2.84	0.46	1.18**	1.14	1.04

Note: **indicates significance at a 5% level. Average is the annualized arithmetical average of stock selection or country allocation effects. Std. Dev. is the annualized standard deviation of country allocation or stock selection effects. IR is the information ratio.

EXHIBIT 3

Rolling One-Year Stock Selection Effects for Global vs. Combined U.S.+Non-U.S. Equity Managers and the Spread, June 1990–June 2008



Finally, Exhibit 3 reports the performance spreads based on stock-selection effects for the global approach versus the U.S.+non-U.S. approach. In terms of stock selection, global equity managers outperformed the combined U.S.+non-U.S. equity managers by an average of 100 bps per year after December 1998; before that, global equity managers underperformed by an average of about 16 bps per year. Therefore, in recent years, the outperformance of the global approach relative to the

U.S.+non-U.S. approach may have come largely from stock selection skills.

Increasing Influence of Manager Styles on Performance

Exhibit 4 shows the division of the historical distribution of spreads between MSCI World Value Index returns and MSCI Growth Index returns from March 1995 to June 2008 into three scenarios—high-, medium-,

EXHIBIT 4

Stock Selection Effects for Global vs. Non-U.S. Equity Managers in Two Style-Performing Scenarios, March 1995–June 2008

Panel A: Global Equity Managers

Scenario	Growth Outperforms Value				Value Outperforms Growth			
	MSCI World Value – Growth ≤ -79 bps				MSCI World Value – Growth ≥ 148 bps			
	Avg.	St. Dev	IR	Hit	Avg.	St. Dev	IR	Hit
Growth Managers	8.59	7.94	1.08	81%	-5.24	4.00	-1.31	19%
Value Managers	-5.24	4.00	-1.31	19%	12.24	5.42	2.26	100%

Panel B: Non-U.S. Equity Managers

Scenario	Growth Outperforms Value				Value Outperforms Growth			
	MSCI World Value – Growth ≤ -79 bps				MSCI World Value – Growth ≥ 148 bps			
	Avg.	Std. Dev.	IR	Hit	Avg.	Std. Dev.	IR	Hit
Growth Managers	6.66	10.65	0.63	63%	-3.39	3.96	-0.85	44%
Value Managers	-4.09	4.79	-0.85	38%	6.77	3.54	1.91	88%

Note: Avg. is the annualized arithmetical average of stock selection effects. Hit is the percentage of quarters that stock selection effects are positive. Data were calculated using 16 quarters of returns.

and low-return spread scenarios with 30%, 40%, and 30% of all sample quarters, respectively. The high-(low) return spread scenario indicates that the value style outperforms (underperforms) the growth style. We then analyzed the stock selection of growth and value managers for each style performance scenario. Exhibit 4 shows two interesting findings. First, investment styles have significantly influenced stock selection skills for both universes of managers and, second, growth managers tend to underperform when value stocks outperform, and vice versa. This finding confirms the increasing importance of investment style on the risk and alpha of multi-style, multi-manager global portfolios or non-U.S. equity portfolios (Lin et al. [2004]).

Managers with Large to Medium Active Bets versus Small Active Bets

Two reasons exist for introducing global equity managers to the U.S.+non-U.S. manager line-up—their higher alpha potential and their ability to assess the relative attractiveness between U.S. and non-U.S. stocks. Managers with high alpha potential are more likely to make larger tactical bets on countries, sectors, or stocks.

To analyze the relationship between managers' performance and the size of their country, sector, and stock bets, we classified managers into three groups based on the size of their respective active bets. The size of their active bets is calculated as the weighted average composite score of the peer-relative Z score—the characteristic relative to the average of the characteristic normalized by the standard deviation of the characteristic over the manager universes. We included four characteristics in computing the score—country deviation, sector deviation, number of stocks, and top-10 stock concentrations—putting one-third of the weight on each of the country and sector deviations, and one-sixth of the weight on the number of stocks and top-10 stock concentrations. Based on the composite score, about one-third of the managers are classified into small, medium, and large active-bet groups.

Exhibit 5 reports the performance of managers grouped by their size of active bets. The results indicate that managers with large country and sector bets had higher excess returns and tracking errors, but their information ratios were also higher.⁷

EXHIBIT 5

Excess Returns for Large, Median, and Small Active-Bet Managers, June 1990–June 2008

	Global Equity Manager Relative to MSCI World Index			Non-U.S. Equity Manager Relative to MSCI EAFE		
	Large Bet	Median Bet	Small Bet	Large Bet	Median Bet	Small Bet
Average Excess Return	3.44**	0.18	0.58**	3.47**	1.92**	0.59**
Tracking Error	5.33	4.69	2.72	7.31	5.06	2.53
Information Ratio	0.65	0.04	0.21	0.48	0.38	0.23
Stock Selection	2.69**	0.09	0.78**	1.11**	0.73**	0.51*
Country Allocation	1.11**	0.52**	0.09	2.77**	1.43**	0.31**

Note: **indicates significance at a 5% level and *indicates significance at a 10% level.

EXHIBIT 6

Test for U.S. Timing Ability of Global Equity Managers, March 1996–June 2008

Timing Ability Measured by Regression Coefficient			Quartile Distribution of Timing Coefficient	
	Number	Percent	Max	1.25
Positive Timing Coefficient	33	42%	75%	0.12
Significant Positive Coefficient	16	21%	50%	−0.03
Negative Timing Coefficient	45	58%	25%	−0.18
Significant Negative Coefficient	20	26%	Min	−1.31
Number of Managers	78		Avg. Number of Quarters	30.45

Note: One-sided t-test statistics with the significance level of 10% were used.

U.S. Timing Ability for Global Equity Managers

To gauge managers' timing ability, we conducted a regression test to examine whether a positive relationship exists between a manager's net cash flow into U.S. equities and the return spreads of future U.S. and EAFE indices. Timing ability implies that managers are able to forecast future U.S. market performance fairly well, which suggests that an increase in the U.S. weighting should be followed by outperformance in the U.S. market. If this is correct, we should expect a positive timing coefficient in the regression. (The appendix describes the testing procedure.)

Exhibit 6 shows that about 42% of these managers had positive coefficients. On average, 21% of these managers had positive timing skills when selecting between U.S. and non-U.S. stocks, whereas only 20% of them had negative timing skills.

HIRE THE RIGHT GLOBAL EQUITY MANAGERS

Generally, if investors have consciously decided to maintain a home-country bias, they should structure their equity portfolios using the U.S. and non-U.S. approach. But the empirical evidence suggests that introducing global managers into their existing manager line-up may enhance their alpha because some global managers have the ability to evaluate and select stocks globally. Typically, global equity managers most suitable for these assignments take large to medium active country, sector, and stock bets; conduct cross-border evaluation of stocks, especially across the U.S. and non-U.S. markets; and add value through active country, sector, and stock bets.

A stand-alone global manager approach may also be suitable for investors:

- in countries with small market capitalizations or with smaller home biases;
- who want to have separate accounts, but whose plan sizes are too small to accommodate the minimum account size or average fee level associated with using a large number of managers; and
- who want to avoid the complexity of fund administration and investment management.

These investors might adopt the global approach with country and sector restrictions as investment guidelines. Based on a stand-alone approach, investors generally select global equity managers from the entire spectrum of large, medium, and small active-bet groups to form a portfolio designed to meet their risk and alpha targets.

Additionally, from a risk perspective, Lin et al. [2004] asserted that the multi-manager global equity approach can lower risk for two reasons. First, the increasing impact of investment styles on performance and risk of global equity managers means that style has become a legitimate and powerful source of risk diversification. Second, the declining country bets across active global equity managers for the three largest countries—U.S., U.K., and Japan—and a decline in country risk in equity markets, over the last 10 years or so, have combined to reduce the relative importance of country bets as a source of risk in global equity portfolios.

Exhibit 7 quantifies the risk of the two approaches, reporting the active-risk distribution over two types of randomly simulated six-manager portfolios. One type of portfolio takes a global approach having two managers for

each of the growth, value, and market-oriented styles. The other type of portfolio takes an index-weighted U.S.+non-U.S. approach with one manager in each investment style for the U.S. and non-U.S. equity markets. Exhibit 7 shows that, over the various periods, medium active risk for simulated global equity portfolios is about 52–70 bps higher than that for simulated U.S.+non-U.S. equity portfolios. The differences in active risk increase as the levels of active risk increase. These results support the contention that active risk for the global multi-style, multi-manager approach is comparable to active risk for the combined U.S.+non-U.S. multi-manager approach.

The analysis indicates that adding global equity managers has been beneficial in terms of alpha, risk, and information ratio characteristics. Not every global product is suitable, however, for every investor's portfolio. The success of adding global equity to a portfolio depends heavily on the investor's ability to find the right products and to select skilled managers to implement the desired investment strategy.

HOW MUCH ALLOCATION TO GLOBAL EQUITY DO INVESTORS NEED IN THEIR PORTFOLIOS?

The global approach, as compared to the U.S.+non-U.S. approach, typically provides additional sources of alpha. The next question is how much to allocate to global equity managers in the portfolio. Investors can base their decisions on the trade-off between active risks and active returns among global, U.S., and non-U.S. equity portfolios

EXHIBIT 7

Tracking-Error Distribution: Global Equity Managers with Large to Median Active Bets vs. Combined U.S.+Non-U.S. Equity Managers

	June 1998–June 2003		Sept 2003–June 2008		June 1998–June 2008	
	Global	U.S.+ Non-U.S.	Global	U.S.+ Non-U.S.	Global	U.S.+ Non-U.S.
Max	9.70	5.92	5.69	4.00	7.95	4.76
75%	6.40	4.69	3.29	2.31	5.04	4.03
50%	5.35	4.65	2.73	2.19	4.33	3.81
25%	4.32	3.54	2.31	2.09	3.59	3.04
Min	3.03	3.21	1.16	0.98	2.46	2.72

Note: Calculated using 1,000 randomly selected six-manager balanced style portfolios.

and assign roughly an equal amount from the U.S. and non-U.S. equity managers to the global equity managers without altering the beta exposure to U.S. or non-U.S. equity.

As an illustration, consider the case study presented in this section. Exhibit 8 shows our input assumptions for various equity asset classes and their initial weight in each equity portfolio. The input assumptions were determined in three stages. First, we set the active-risk targets for multi-manager funds in various class assets. The target is set subjectively based on the medium tracking error of randomly simulated multi-manager funds using Mellon's representative manager universes. Second, we assumed the information ratio is about 0.5. Third, we set the active-return target equal to the information ratio multiplied by active risk. Excess return correlations between different asset classes are critical for diversification of active risk. We considered the three scenarios set forth in Exhibit 9—one with zero correlation of excess returns among asset classes, and two with positive correlations of 0.2 and 0.3.⁸

Exhibit 9 shows the efficient frontier curve for the trade-off between active return and active risk. Increasing the weight of global equity from 0% to about 9% causes a decline in active risk and an increase in active alpha. The decline is a result of the lower correlations among active global, U.S., and non-U.S. managers, which tends to diversify active risks among them. This diversification effect on the active risk of the total equity portfolio dampens the effect of higher active risk from global equity managers. Beyond about a 5% to 10% allocation, the effect of higher risk begins dominating the diversification

benefits. Thus, minimum active risk assumes a 5% to 10% allocation to global equity. Diversification benefits also tend to decline when the correlation of excess returns among asset classes increases.

Exhibit 9 is only an illustration and actual performance may differ from the targets for active return and active risk depending on manager selection and market conditions. Moreover, if investors have different assumptions about active returns and active risks as shown in Exhibit 8, the trade-off between active returns and active risks for various allocations to global equities will change (i.e., the efficient frontier curve will change). Investors should assess their assumptions of active risk and active return as well as their objective functions to determine the optimal allocation for their portfolio based on their own trade-off between active return and active risk.

CONCLUSION

With changes in demand, supply, and the driving forces in global equity markets, the addition of global managers to an existing U.S. and non-U.S. equity approach has become more compelling than ever before. Because global equity managers have broader and less-constrained mandates and opportunity sets, they can select what they believe are the best ideas from among the global universe of stocks. The global equity manager approach can add flexibility to asset allocation by tactically changing investment opportunities between U.S. and non-U.S. stocks.

With the right products and skilled managers, the multi-style, multi-manager global equity approach may offer

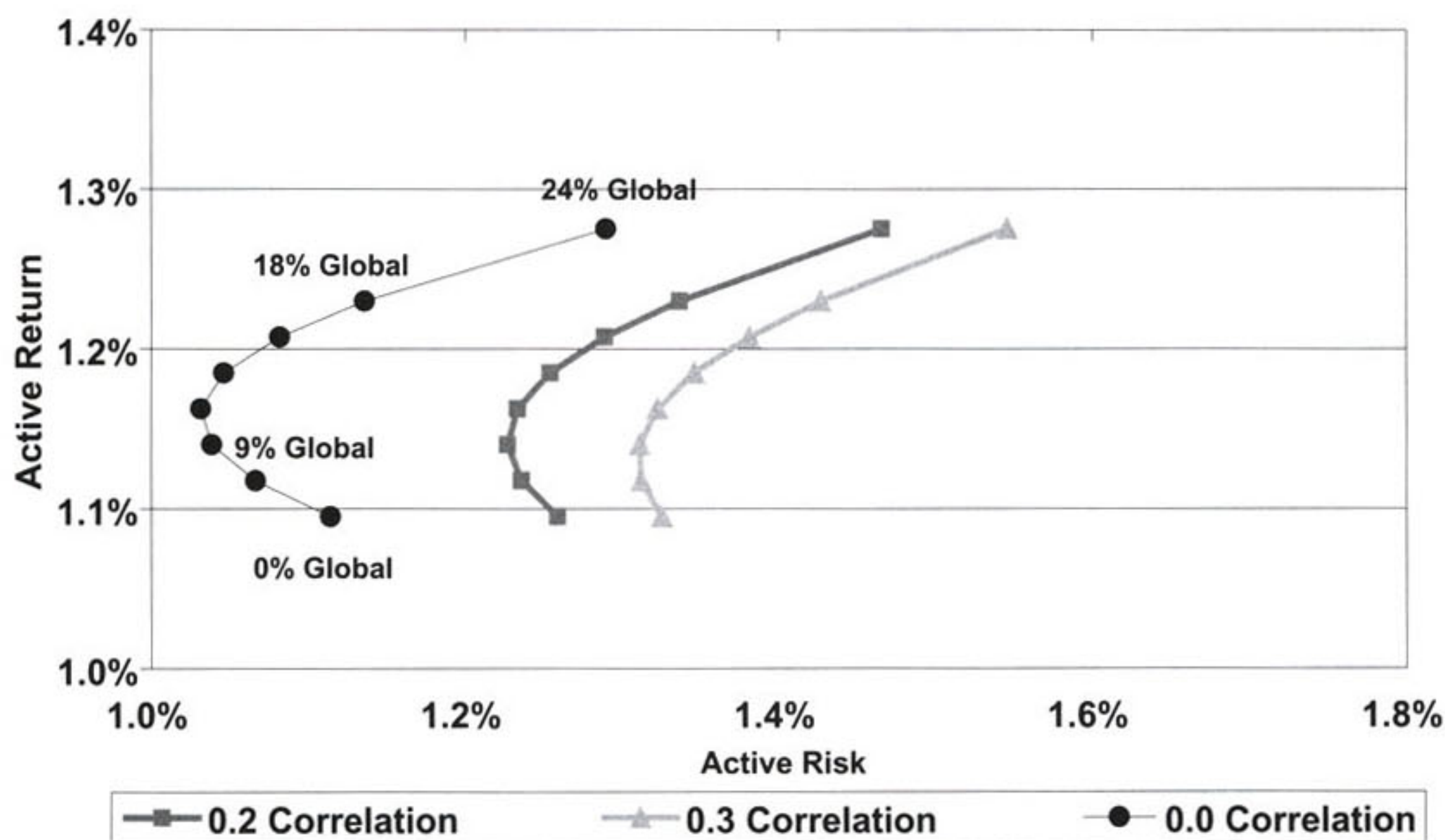
EXHIBIT 8

Active Return and Risk Assumptions for Various Asset Classes

Asset Class	Benchmark	Excess Return	Tracking Error	Initial Weight
U.S. Large-Cap Equity	Russell 1000	125	250	32%
U.S. Small-Cap Equity	Russell 2000	175	350	4%
International Equity	MSCI EAFE	175	350	18%
Emerging Market Equity	MSCI EMF	250	500	2%
Real Estate	FTSE NAREIT Equity REIT	150	300	4%
Global Equity	MSCI World	225	450	0%
Aggregate Bond	Lehman Brothers Aggregate Bonds	50	100	40%

EXHIBIT 9

Efficient Frontier Curve for Active Return and Active Risk



Note: Each data point in the curve reflects a 3% increment in allocation weight to global equity over the previous allocation weight.

a higher alpha potential without added risk. Because the lower correlations of excess returns with the other asset classes may offset potentially higher risks of global equity products, the resulting total equity portfolio may have lower overall risk and a higher information ratio. Depending on investors' risk tolerances and alpha targets and the maintenance of desired beta exposure to U.S. and non-U.S. equities in asset allocation, investors might want to consider some allocation of their equity position to global equity managers, financing the allocation roughly equally from U.S. and non-U.S. equity managers.

APPENDIX

Performance Attribution Analysis

We devised a simplified version of the performance attribution analysis. The principle is drawn from Ankrum and Hensel [1994] and Singer and Karnosky [1995]. The currency management effect will not be considered in this analysis, however, because most non-U.S. and global equity managers use an unhedged strategy.

Because managers generally hold cash, we considered the following performance attribution:

$$r - \bar{r} = w_c * (r_c - \bar{r}) + (1 - w_c) * (\text{Allocation} + \text{Selection}) \quad (\text{A1})$$

where r is the portfolio return; $\bar{r}$ is the benchmark return; w_c is the cash weight; and r_c is the cash return.

The allocation effect assesses how managers allocate money among different countries. It can be written as

$$\text{Allocation} = \sum_k (w_k - \bar{w}_k) * (\bar{r}_k - \bar{r}) \quad (\text{A2})$$

and

$$\text{Selection} = \sum_k w_k * (r_k - \bar{r}_k) \quad (\text{A3})$$

where w_k is the portfolio's country k weight; $\bar{w}_k$ is the benchmark's country k weight; $\bar{r}_k$ is the country k index return; and r_k is the portfolio's country k return.

Because we have only managers' country weights and excess returns, the stock selection effect is computed based on Equation (A1),

$$\text{Selection} = \{[r - \bar{r} - w_c * (r_c - \bar{r})] / (1 - w_c)\} - \text{Allocation} \quad (\text{A4})$$

Timing Test

To gauge managers' timing ability, we conducted a regression test to examine if a positive relation exists between managers' net cash flow into the U.S. and the return spreads of future U.S. and EAFE indices. We modeled the net cash flow into the U.S. as

$$w_t - \tilde{w}_t = a + b E_t(U.S._{t+1} - EAFE_{t+1}) + \varepsilon_t \quad (A5)$$

where w_t is the portfolio's U.S. weight in the quarter; $\tilde{w}_t$ is the U.S. weight if investors buy and hold their stocks from the last period; $U.S.$ is the MSCI U.S. index return; and $EAFE$ is the MSCI EAFE index return.

We used $\frac{w_{t-1}U.S._t}{w_{t-1}U.S._t + (1-w_{t-1})EAFE_t}$ as the proxy for $\tilde{w}_t$, and $\tilde{w}_t - \tilde{w}_{t-1}$ as the proxy for net cash flow into the U.S.

A manager's predicted U.S. and EAFE index return spreads can be written as

$$E_t(U.S._{t+1} - EAFE_{t+1}) = U.S._{t+1} - EAFE_{t+1} + \eta_{t+1} \quad (A6)$$

where η_{t+1} is the forecast error.

Substituting Equation (A6) into Equation (A5), we have

$$w_t - \tilde{w}_t = a + b(U.S._{t+1} - EAFE_{t+1}) + \eta_{t+1} + \varepsilon_t$$

To estimate this equation correctly, we used the Generalized Method of Moments with past U.S. and EAFE index return spreads as instrumental variables. If managers have timing ability, then regression coefficient b will be positive.

ENDNOTES

We would like to thank Grant Gardner, Steve Murray, Johann Schneider, and Mark Thurston for their helpful suggestions.

¹For more information, see Solnik [2002] and Cavaglia et al. [2004].

²For more information, see Baca, Garbe, and Weiss [2000], Cavaglia, Brightman, and Aked [2000], and Lin et al. [2004].

³In Grinold [1989], the information ratio—the ratio of active alpha to active risk—is positively related to the manager's skill and breadth of investment strategies. If global managers were to have the same level of skill as U.S. and non-U.S.

managers, then their information ratio would, in theory, be expected to be higher, because of the global equity managers' greater breadth of available investment strategies.

⁴The data from Mellon Analytical Solutions, LLC, is from representative manager universes. The non-U.S. equity manager universe is called REPEAFE. The global equity manager universe is called INTWORD. The U.S. equity universes for market-oriented, value, and growth managers are called MARKETOR, PRICE, and EARNINGS, respectively.

⁵MSCI 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.

⁶The cash holdings in the returns have been equitized before calculation. The detailed formula is in the Appendix.

⁷This conclusion is similar to the one reached by Kacperczyk, Sialm, and Zheng [2005] based on U.S. retail mutual fund research.

⁸Another source of active risk is the mismatch of benchmarks when the existing structure uses the combined Russell 1000 and MSCI EAFE indices and the global equity manager uses the MSCI World Index. We calibrated this mismatch with active risk in simulation by using the historical correlations and risks among the three indices.

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