

Performance and Risk Exposure of International Mutual Funds

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This study examined whether internationally diversified mutual funds increase a U.S. investor's risk-adjusted return above that on a domestic benchmark mutual fund. Average returns on about one-half of the international funds exceeded the domestic benchmark fund's return. The risk-adjusted returns on the international mutual funds were not significantly different from that on the domestic benchmark fund. These results differ from earlier studies which generally found superior returns on international mutual funds. The benefits for the U.S. investor of holding an internationally diversified mutual fund appear to be limited for the period studied.

I. INTRODUCTION

Over the past several years both business periodicals and the popular press have carried articles extolling the virtues of investing outside the United States. Not only has the number of articles increased, but the target audience also has expanded. The typical article often concludes that there are likely to be potential benefits from investing in firms that have the majority of their operations outside the United States. Many articles urge investors to consider the possible gains that might come from investing outside the domestic market. While both fixed return investments and common stocks are covered in the literature, the latter receive much more coverage and emphasis.

With the proposed increased integration of the major economies of Europe at the end of 1992, integration of financial markets also will likely increase. Freer capital flows among the markets of the world is likely to be one outcome. Even before Europe 1992 was proposed, European investors considered external investing the norm rather than the exception. More limited domestic financial markets, coupled with a willingness to consider external financial markets, may explain part

of this more global investment horizon. Until recently, however, such a trend has been much less evident in the United States. Only in the past several years have small investors expanded their investment horizon beyond the domestic area to channel funds into external markets. Domestic markets that not only are large, but also offer a wide array of options, have likely discouraged some small investors in the United States from seeking international investment options. At the same time, until recently the range of investment options that would allow small investors to participate in foreign markets has been somewhat limited. But the past several years have brought a rapid expansion in available international investment vehicles. Current indications are that this growth will continue. The combination of the broadened array of international choices, and the increased awareness of the potential benefits from investing on an international scale, has encouraged small investors to expand beyond the domestic area into the broader international financial markets. At the same time the willingness of small investors to do this has encouraged financial intermediaries and service firms to develop still more international investment vehicles.

Benefits from Investing in Financial Markets Other than the United States

Some earlier work (Grubel, 1968; Levy, 1970; Swanson, 1979; Eun, 1985, 1987; Grauer, 1987) found that the rates of return on selected major equity markets outside the United States often were greater than the return on the United States' market. During periods in the late 1970s and early 1980s the returns in major foreign markets often were higher than those in the domestic market. Risk exposure results from those same studies tended to be more mixed. While risk in some markets was lower than in the United States' domestic market, in a considerable number it was higher. The findings suggest that investors might be able both to enhance their returns and to lower risk by investing outside the United States.

International Mutual Funds: An Ideal Vehicle for Small Investors

Investors with modest resources are likely to find that a mutual fund is the ideal vehicle for accessing the world's major equity markets. First, the mutual fund should have better access to essential financial and economic data on individual firms, on the industries where those firms operate, and on those economies that have a pivotal role in the firm's operations. Further, the fund's professional management group is more likely to have the expertise to interpret that data. At the same time, a moderate to large fund will be able to spread the costs of acquiring this data over its sizable investor base. Combined, these factors should help to overcome one challenge to investing in international markets—obtaining and interpreting financial data. Clearly, most small investors would be hard pressed to duplicate the fund's access and interpretation expertise.

Second, because the mutual fund's typical transaction will entail a much larger amount, economies of scale may allow it to reduce transaction costs. At the same time, volume purchases and sales may allow it to access some wholesale markets to further lower costs. One or both should drop a fund's transaction costs below what small investors would pay to invest a modest amount directly in the foreign equity market. These cost savings can help to overcome a second challenge to investing in international markets—high transaction costs.

Finally, the mutual fund may be better able to offset the reduced liquidity that characterizes some foreign equity markets. With its diversified list of holdings, it will have a wide range of financial assets that might be liquidated to raise needed cash. Also, assuming that investors continue an ongoing series of deposits, that cash inflow could meet ordinary redemption requests. Overall, mutual funds appear to be an attractive way for small investors to access foreign equity markets.

Growth in the Number of Internationally Diversified Mutual Funds

Over the past five years the number of internationally diversified mutual funds offered by United States based fund groups has expanded by nearly 50 percent. Clearly, small investors now have many more options to expand their investment horizon beyond the United States. Recent developments suggest that while the introduction rate for new funds has slowed, an investor's choice is continuing to expand. Since a broad international perspective is our concern, we exclude the rapid growth in highly specialized international funds such as those that concentrate either on a limited geographic area or on a single industry.

Performance of International Mutual Funds: Earlier Studies

In an earlier study, McDonald (1973) examined the performance of French mutual funds to determine if investing on an international scale was beneficial. For the period studied, he concluded that investing in financial markets other than the domestic one did offer definite benefits to a fund's shareholders. Not only was performance lowest for funds concentrating exclusively on French firms, but performance also rose with the level of investment in non-domestic markets. A later study by Proffitt and Seitz (1983) concentrated on internationally diversified mutual funds based in the United States. Their results suggest that from 1974 to 1982, each international mutual fund in the sample outperformed the Standard & Poor's 500 Index during the period 1974 to 1982. Furthermore, when those returns were adjusted for risk, the differences were statistically significant at a reasonable level of confidence. Both studies suggest that investors would do well to consider internationally diversified mutual funds because their past superior risk-adjusted return may continue in the future.

II. PURPOSE OF THIS STUDY

This study examines whether U.S. investors could have improved their rate of return by purchasing an internationally diversified mutual fund to expand outside the domestic market. The study expands and extends on the earlier works by McDonald (1973) and Proffitt and Seitz (1983). First, it covers an expanded and refined sample of international mutual funds. Second, it extends the earlier works by examining the investment performance during the period of 1986 to 1990. If, indeed, financial markets are becoming more integrated, this recent period may reflect that. Third, it overcomes a limitation of the earlier studies that forced the inclusion of some international funds that concentrated on a limited geographical area or on a single industry or product. Fourth, the study uses a benchmark that is far more representative of domestic equity mutual funds to judge the performance of the international funds. The results will help answer the question: Have internationally diversified mutual funds improved the returns of small U.S. investors by allowing them to expand outside the domestic market?

Research Design

The empirical portion of the study selected a sample of United States based internationally diversified mutual funds and compared their performance to that of a domestic benchmark mutual fund. The sections that follow discuss the sample criteria, return measures, mutual fund benchmark, overall market benchmarks, time period, and performance measures.

Sample of Internationally Diversified Mutual Funds Used in Study

To be included in the sample, a mutual fund's investment objective had to include a commitment to invest a significant fraction of its portfolio in the marketable securities of foreign-based firms. Since the emphasis was on funds that small investors could readily purchase, only funds offered by U.S. based mutual fund groups were candidates. As a further restriction, only mutual funds with more than 50 percent equities in their portfolio of securities were included. A qualifying fund had to have been readily available to potential investors during the entire study period from January 1986 through December 1990. It also had to have published data on net asset value as well as dividend and capital gains distributions.

Several groups of funds were specifically excluded because they lacked broad international diversification: 1) single country funds (e.g., the Japan Fund, the United Kingdom Fund); 2) funds that concentrated on a narrow geographic area such as Europe, or the Pacific basin; 3) funds that limit themselves to a single industry, product, or service (e.g., gold funds); 4) funds that held primarily U.S. equities with only a token portfolio of foreign-based firms.

The resulting sample included mutual funds with an investment objective that permitted a significant fraction of the fund's portfolio to be invested in foreign-based

EXHIBIT 1.
Internationally Diversified Mutual Funds

Global Mutual Funds in Sample

Dean Witter Worldwide	Putnam International Equities
First Investors Global	SoGen International
Keystone International	Templeton Global
New Perspective	Templeton Growth
Paine Weber Classic Atlas	Templeton World

International Mutual Funds in Sample

Alliance International	Scudder International
EuroPacific Growth	Templeton Foreign
Kemper International	Trustees' Commingled
Kleinwort Benson International	United International Growth
T. Rowe Price International Stock	

marketable securities. The sample funds did not confine themselves to a narrow spectrum of foreign markets or to a specific industry. Qualifying mutual funds were stratified into two major groups: global mutual funds and international mutual funds.

Global mutual funds. Global mutual funds included those where the investment objective permitted them to purchase securities in any of the major world markets, including the United States. Funds were classified based on the summary of each fund's investment objective as published in Wiesenberger's *Investment Companies Service* and in Morningstar's *Mutual Fund Values*. To qualify, it was not necessary for the fund's actual holdings of United States-issued securities to have been any prescribed fraction of the portfolio during the study period. All that was needed was that the fund's investment objective permitted a significant fraction of U.S.-based equities in the portfolio. The top section of Exhibit 1 lists the funds in the global sample.

International mutual funds. International mutual funds included those where the investment objective specifically restricted their holdings to marketable securities of non-United States issuers. Again, the summary of each fund's investment objective published in Wiesenberger and Morningstar was used to classify it as part of the international group. While a typical objective restricted the holding of U.S. equities, most allowed the fund to hold its cash reserve in domestic money market instruments. The lower section of Exhibit 1 lists the funds in the international sample. None of the mutual funds changed its investment objective during the period, so none had to be dropped or reclassified to a different group.

Holding Period Returns

Paralleling earlier work, the study computed each fund's rate of return using monthly holding periods. Holding period returns (HPR) were computed using:

$$\text{HPR} = \frac{(\text{NAV}_{end} - \text{NAV}_{beg}) + \text{DIV}_{dis} + \text{CAPGAN}_{dis}}{\text{NAV}_{beg}}$$

where:

- NAV_{beg} = the net asset value of the fund's shares at the beginning of the period;
 NAV_{end} = the net asset value of the fund's shares at the end of the period;
 DIV_{dis} = dividend distribution on each fund share for the period; and
 $CAPGAN_{dis}$ = capital gain distribution per period for each fund share.

A similar measure has been widely used in other mutual fund performance studies. The principal source of NAV's was Wiesenberger's *Investment Companies Service*; the *Wall Street Journal* was a secondary source for a limited number of situations. *Moody's Dividend Record* and *Standard and Poor's Quarterly Dividend Record* provided data on each fund's dividend and capital gains distributions, with Moody's being the primary source.

Total Investment Return

All holding period returns computed in the study are expressed in dollars, since U.S. based mutual funds convert all results to dollars. Those returns reflect not only the fund's investment performance but also its currency exchange gains and losses. When a fund marks its portfolio to market each day its NAV will include potential capital gains and losses on the underlying securities plus currency gains and losses when the value of those securities is converted to dollars. Since this study focused on small U.S. investors who would not likely be hedging in currency markets, total investment return was the appropriate measure.

Benchmark for Domestic Mutual Funds

To judge the performance of internationally diversified mutual funds, the study required a benchmark that was indicative of a mutual fund operating in the domestic market. Rather than using a domestic market index such as the S&P 500 as others have, we wanted to use a benchmark that was representative of a domestic mutual fund. This would show an investor's return after deducting management fees and other administrative costs. While an index like the S&P 500 may capture the performance of the overall market, it is likely to overstate the return because the fees and costs for operating a mutual fund are not considered. Rather than adjust an index with some "average" or "typical" costs, the study selected the Vanguard Index 500 mutual fund as the representative benchmark for domestic mutual funds. That fund's investment objective specifically states that it seeks performance that parallels the return on the S&P 500 index. A review of the fund's performance during the study period suggests that after allowing for the fees and operating costs, the fund was a reasonable proxy for an "adjusted" S&P 500. Since many domestic mutual funds failed to match the return of the Vanguard Index 500, its use as the

domestic benchmark certainly does not understate the performance achieved by domestic funds.

Benchmarks for the Overall Market

Two different indices were used as performance benchmarks for the major international equity markets. For the global mutual fund group, the study used the Morgan Stanley Capital International World Index. This index is denominated in U.S. dollars and includes equities traded on stock exchanges in 21 different countries. This market weighted index includes companies which encompass approximately 60 percent of the market value of the common stocks traded in those 21 countries. The U.S. market is included along with 20 others. It was considered the appropriate benchmark because an internationally diversified mutual fund can invest in both the U.S. and foreign markets. A recent study by Cumby and Glen (1990) suggests that this Morgan Stanley index is a reasonably efficient benchmark for the world portfolio of equities.

Because funds in the international category cannot invest in marketable securities, other than money market instruments, of United States issuers, that group needed a different benchmark. The widely quoted Morgan Stanley Capital International Europe, Australia, and the Far East (EAFE) index was chosen. This dollar denominated index includes common stocks that are traded on the exchanges of 18 different countries, excluding the United States. Again, this market value weighted index includes companies which encompass approximately 60 percent of the total market value of shares for those 18 countries.

Based in part on the work by Adler and Dumas (1983), the rate on 90-day United States Treasury bills was used as the riskless rate for purchasers of the internationally diversified mutual funds. The excess return for each of the funds was computed using this riskless rate.

Time Period of the Study

The study covered the period from January 1986 through December 1990. Selecting the period required balancing the need for acquiring a reasonably large sample of internationally diversified funds and the goal of covering a representative period. Because many international funds have a relatively short operating history, launching the study prior to the mid-1980's sharply reduced the sample size. One distinct advantage of the five year period chosen is that it includes considerable volatility in the exchange rate of the U.S. dollar. Unfortunately, it was also a period of limited declines in the United States equity market. It does include the sharp reversals of October 1987, the lesser correction of October 1989, and the general drop of late 1990. Overall, however, it was a period of generally rising prices in the United States' equity market.

Returns and Performance Measures

The main question examined in this paper is whether recent performance results suggest to a U.S. investor that investing in U.S. based international mutual funds can increase risk-adjusted returns. The global and international mutual funds included in this study were tested using both the Sharpe and Treynor measures to rank fund performance. Performance of each fund's management was also examined using the Jensen measure.

Sharpe measure. As its first performance measure, the study used the Sharpe Index (1966) to rank the funds. That measure uses each fund's total risk, as measured by the standard deviation of its returns, to adjust the fund's HPR. Values for the Sharpe measure (S) were determined for each fund using

$$S = (\text{HPR}_i - \text{RF})/\text{SD}_i$$

where:

$$\begin{aligned} \text{HPR}_i &= \text{average monthly return for fund } i; \\ \text{RF} &= \text{average risk-free return; and} \\ \text{SD}_i &= \text{standard deviation of HPR}_i. \end{aligned}$$

This is an appropriate consideration for an investor whose holdings are limited to a single fund or a small number of funds. Total risk is the appropriate emphasis.

Treynor measure. The Treynor (1965) measure also was used to rank the performance of each of the global and international funds. Treynor's measure assumes an investor holds a well-diversified portfolio which eliminates unsystematic risk and leaves only systematic risk. As such, the appropriate risk measure becomes the fund's beta. Values for the Treynor measure (T) were determined using

$$T = (\text{HPR}_i - \text{RF})/b_i$$

where:

$$\begin{aligned} \text{HPR}_i &= \text{average monthly return for fund } i; \\ \text{RF} &= \text{average risk-free return; and} \\ b_i &= \text{the beta for fund } i. \end{aligned}$$

Jensen measure. To examine the performance of each fund's management, the study used Jensen's (1968) alpha measure. That measure is used to indicate whether management has earned any excess risk-adjusted return for the fund. Jensen's measure of excess risk-adjusted return assumes a well-diversified portfolio, and thus considers only systematic risk. A significant positive excess risk-adjusted return could be due to management's ability to take advantage of favorable timing decisions to improve the fund's return or to management's ability to select undervalued assets. Therefore, either positive or negative excess risk-

adjusted returns can be used to indicate the superior or inferior ability of fund management.

Jensen's alpha measure is computed using a regression equation which allows for a nonzero intercept. The equation used in this study is

$$\text{HPR}_{it} - \text{RF}_t = a_i + b_i(\text{HPR}_{mt} - \text{RF}_t) + U_{it}$$

where:

- HPR_{it} = monthly return for fund i in period t ;
- RF_t = risk-free return in period t ;
- a_i = intercept measuring abnormal return for fund i ;
- b_i = beta for fund i ;
- HPR_{mt} = monthly return for the market index in period t ; and
- U_{it} = error term for fund i in period t .

III. RESEARCH RESULTS

Exhibit 2 presents the returns, risk, and performance measures for the global funds included in this study. Average monthly returns for three of the 10 global funds were higher than for the domestic benchmark mutual fund, Vanguard Index 500. Monthly returns for the Vanguard Index 500 fund and four of the 10 global funds exceeded that of the market index, Morgan Stanley World Index. On strictly monthly returns, the global funds present a mixed picture relative to the domestic benchmark fund.

The two risk measures, standard deviation and beta, for the global funds cover a wide range of values. Standard deviations of average monthly returns for six of the 10 funds exceeded that for the domestic benchmark fund. Global fund standard deviations ranged from 4.796% to 10.870%; the domestic benchmark fund standard

EXHIBIT 2.
Monthly Performance Measures for Ten Global Mutual Funds 1986–1990

<i>Mutual Fund</i>	<i>Monthly Return</i>	<i>Standard Deviation</i>	<i>Beta</i>	<i>R²</i>	<i>Treynor Measure</i>	<i>Sharpe Measure</i>	<i>Jensen Measure</i>
Dean Witter Worldwide	0.689	4.796	0.827	0.821	0.158	0.027	-0.0002
First Investors Global	1.564	6.428	1.009	0.679	0.997	0.156	0.0088
Keystone International	0.761	5.737	0.985	0.814	0.206	0.035	0.0019
New Perspective	1.126	10.870	0.944	0.208	0.602	0.052	0.0082
Pain Web Classic Atlas	1.649	6.154	0.919	0.616	1.186	0.177	0.0098
Putnam Intl. Equities	0.966	6.885	0.894	0.465	0.456	0.059	0.0027
SoGen International	1.052	6.337	0.547	0.205	0.902	0.078	0.0048
Templeton Global	0.493	5.544	0.725	0.471	-0.091	-0.012	-0.0031
Templeton Growth	0.834	5.025	0.705	0.543	0.391	0.055	0.0010
Templeton World	0.691	5.104	0.724	0.554	0.183	0.026	-0.0001
Vanguard Index 500	1.111	5.618	0.758	0.502	0.729	0.098	
Morg.Stan.World Index	0.984	5.252	1.000	1.000	0.425	0.081	
Treasury Bills-90 day	0.559	0.102	-0.006				

EXHIBIT 3.

Monthly Performance Measures for Nine International Mutual Funds 1986-1990

<i>Mutual Fund</i>	<i>Monthly Return</i>	<i>Standard Deviation</i>	<i>Beta</i>	<i>R²</i>	<i>Treynor Measure</i>	<i>Sharpe Measure</i>	<i>Jensen Measure</i>
Alliance International	1.041	6.048	0.676	0.506	0.714	0.080	0.0008
EuroPacific Growth	1.353	5.073	0.581	0.531	1.368	0.157	0.0022
Kemper International	1.140	5.342	0.669	0.636	0.869	0.109	0.0008
Kleinwort Benson Intl	1.153	12.784	0.791	0.155	0.752	0.046	0.0035
T. Rowe Price Intl Stk	1.265	10.447	0.752	0.210	0.939	0.068	0.0029
Scudder International	1.237	6.000	0.705	0.559	0.962	0.113	0.0002
Templeton Foreign	1.661	4.965	0.522	0.448	2.111	0.222	0.0059
Trustees' Commingled	1.564	10.952	0.666	0.150	1.509	0.092	0.0081
United Intl Growth	0.795	4.613	0.586	0.654	0.403	0.051	-0.0025
Vanguard Index 500	1.111	5.618	0.417	0.223	1.324	0.098	
Morgan Stanley EAFE	1.296	6.363	1.000	1.000	0.738	0.116	
Treasury Bills-90 day	0.559	0.102	-0.002				

deviation was 5.618%; and the Morgan Stanley World Index standard deviation was 5.252%, which was lower than the domestic benchmark fund. Global fund betas ranged from .547 to 1.009, with six of the 10 funds having betas greater than the domestic benchmark fund. Only one global fund had a beta greater than or equal to 1.0. Betas were determined for global funds by regressing the fund return on the Morgan Stanley World Index.

Exhibit 3 presents the returns, risk, and performance measures for the international mutual funds included in this study. Average monthly returns for seven of the nine international funds were higher than for the domestic benchmark fund. The average monthly return on the market index used for international funds, Morgan Stanley EAFE, also was greater than the return on the domestic benchmark fund. Three of the international funds had average returns greater than that of the EAFE index. On a straight return basis, the sample of international mutual funds appears to have outperformed the domestic benchmark. Standard deviations of returns for the nine international funds ranged from 4.613% to 12.784%. Five of those nine funds had standard deviations greater than the benchmark fund's 5.618%. The average return on the Morgan Stanley EAFE index had a standard deviation of 6.363%, which is greater than that of the domestic benchmark fund. Only three of the nine funds had standard deviations greater than that of EAFE.

Betas for the international funds were determined using the Morgan Stanley EAFE market index. International fund betas ranged from .522 to .791. All nine of the international funds had a beta coefficient greater than the domestic benchmark fund beta.

Risk-Adjusted Returns on Internationally Diversified Mutual Funds

Results shown in Exhibits 2 and 3 indicate that unadjusted returns on internationally diversified funds compare favorably with the return on a well-diversified

domestic fund, the Vanguard Index 500. The risk level of each fund varies widely, with some below the domestic benchmark and some above. The study then compared the risk-adjusted returns for internationally diversified mutual funds with the risk-adjusted return for a well-diversified domestic mutual fund. The following hypothesis was formed:

- H₀: The risk-adjusted performance of internationally diversified mutual funds is not significantly different from the performance of well-diversified domestic mutual funds.
- H_a: The risk-adjusted performance of internationally diversified mutual funds varies significantly from the performance of well-diversified domestic mutual funds.

Sharpe and Treynor performance measures are presented in columns 6 and 7 of Exhibits 2 and 3 for each of the global and international mutual funds in the study.

Global funds. Values of the Sharpe measure for the global funds ranged from $-.012$ to $.177$ (Exhibit 2). Only two of the 10 global funds had a risk-adjusted measure greater than that of the domestic benchmark fund. The domestic benchmark fund had a Sharpe measure greater than that of the Morgan Stanley World Index. This indicates that the domestic benchmark fund provides a greater premium per unit of risk than does the market index.

Treynor measures for the global funds ranged from $-.091$ to 1.186 . Only three of the 10 global funds had Treynor measures greater than that of the domestic benchmark fund. As with the Sharpe measure, the domestic benchmark fund had a Treynor measure greater than that of the market index. Five of the 10 global funds had Treynor measures which exceeded that of the market index.

International funds. Values of the Sharpe measure for the international funds ranged from $.046$ to $.222$ (Exhibit 3). Four of the nine international funds had a risk-adjusted measure greater than that of the domestic benchmark fund. The market index, EAFE, had a Sharpe measure greater than that of the domestic benchmark fund. Only two funds had Sharpe measures which exceeded that of EAFE.

Three of the nine international funds had Treynor measures greater than that of the benchmark mutual fund. The Treynor measure of the domestic benchmark fund was greater than that of the Morgan Stanley EAFE index.

Wilcoxon Matched Pairs Sign Test

Assumptions about the distribution of the Sharpe and Treynor measures cannot be made, thereby making it necessary to test the null hypothesis using a nonparametric test. The Wilcoxon Matched Pairs Sign Test, a nonparametric test appropriate for testing differences in matched sample pairs, was applied using a $.05$ significance level. Results of this test for the Sharpe and Treynor measures for both global and international mutual funds are presented in Exhibit 4.

EXHIBIT 4.
Comparison of Internationally Diversified Fund with Domestic Benchmark Mutual Fund: Wilcoxon Matched Pair Sign Test

	<i>Treynor</i>		<i>Sharpe</i>	
	<i>Wilcoxon Statistic</i>	<i>P-Value</i>	<i>Wilcoxon Statistic</i>	<i>P-Value</i>
Global funds	-1.6004	0.1095	-1.6004	0.1095
International funds	-1.3624	0.1731	-0.0592	0.9528

The Wilcoxon Matched Pairs Sign Test does not indicate a significant difference at a reasonable level between the risk-adjusted Sharpe and Treynor performance measures of either the global or the international mutual funds and the domestic benchmark mutual fund measure. Thus, the null hypothesis that the risk-adjusted performance of internationally diversified mutual funds does not differ significantly from that of domestic mutual funds cannot be rejected at any reasonable level of significance.

Abnormal Fund Returns by Management

The existence of excess risk-adjusted returns on each of the global and international funds in this study was examined using the following hypothesis:

- H_0 : The excess risk-adjusted return on the internationally diversified mutual funds is not significantly different from zero.
- H_a : The excess risk-adjusted return on the internationally diversified mutual funds varies significantly from zero.

Jensen's measure was used to test for the existence of excess risk-adjusted returns on internationally diversified mutual funds. To determine whether managers of these internationally diversified funds are superior or inferior in their performance, Jensen's alpha was computed for each fund. The excess risk-adjusted fund returns were regressed on the excess risk-adjusted benchmark return. It was expected that funds with superior managers would consistently have significantly positive alphas. Similarly, significantly negative alphas would indicate inferior fund management performance.

Examination of the Jensen measures shows that seven of the 10 global funds had a positive intercept (Exhibit 2) while eight of the nine international funds had a positive intercept (Exhibit 3). A t-ratio was used to test whether the computed Jensen alphas differed significantly from zero. The t-ratios ranged from -0.46 to 1.30 for the global funds, and from -0.70 to 1.23 for the international funds. However, none of the alphas are statistically significant at a reasonable level. The null hypothesis is not rejected, indicating that managers of internationally diversified mutual funds do not significantly outperform those of the benchmark index domestic fund.

Diversification of Funds

The efficiency with which a portfolio is diversified can be measured by the coefficient of determination, R^2 , with the market fund. The closer this measure is to 1.00, the closer the diversification of the portfolio is to the market index. The only relevant risk for a well-diversified portfolio is the systematic risk which remains. Some funds may decide not to diversify completely but instead to retain a portion of nonsystematic risk as part of the fund's investment objective. Because of these differing objectives, it could be expected that the funds might display a range of R^2 values. Low R^2 values would identify funds which have elected to retain nonsystematic risk.

R^2 values for the global mutual funds (Exhibit 2) were based upon the Morgan Stanley World Index as the market measure, and ranged from .821 to .205. Low R^2 values suggests that some funds elected to retain a sizable unsystematic risk component.

R^2 values for the international funds (Exhibit 3) were computed using the Morgan Stanley EAFE index, and ranged from .150 to .654. Again, the low R^2 values and their wide range suggests that some funds elected to retain a sizable unsystematic risk component.

IV. CONCLUSIONS

This study addressed whether internationally diversified mutual funds can be expected to increase a U.S. investor's risk-adjusted return above the risk-adjusted return available on a domestic benchmark mutual fund.

An inspection of the monthly returns presented in Exhibits 2 and 3 shows that the average return on about one-half of the internationally diversified funds does exceed the average return on the domestic benchmark fund. When the returns are risk-adjusted using either the Sharpe or the Treynor measure, the internationally diversified mutual funds do not provide a risk-adjusted return that is significantly different at a reasonable level from the domestic benchmark mutual fund. These results differ from McDonald's (1973) conclusions that investing in an external market provides superior return performance. The results of this study also differ from those of Proffitt and Seitz (1983) who found universally that international funds significantly outperformed the S&P 500, a domestic market index. At least for the time period of this study, the benefits for the U.S. citizen of investing through an international or global mutual fund appear to be limited.

The coefficients of determination for the global and international mutual funds in this study are generally quite low, with R^2 values for the global funds generally greater than those for the international funds. The range of values among the various funds may be due to each fund's pursuing a different investment objective. Given the low R^2 values for the internationally diversified mutual funds, we believe that funds do not diversify away the unsystematic risk in their portfolios. Investors in these funds therefore must be concerned with the total risk of the fund, not just the

systematic or market risk, when selecting a performance measure. Consequently, using either the Treynor or the Jensen performance measure, which assume that the fund is well-diversified and that the only relevant risk is the market risk as measured by the fund's beta, may not be appropriate for many investors.

We expect that U.S. investors, many of whom have only recently diversified on an international scale, are unlikely to hold a large number of internationally diversified funds. As such they are not likely to diversify away the unsystematic risk of their holdings. Given this retention of unsystematic risk by the fund and by the investors, a fund's total risk is likely to be a more appropriate risk adjustment measure. Sharpe's performance measure, which uses the fund's standard deviation, would consider total risk rather than just the market risk component. In our opinion, the Sharpe performance measure is appropriate for use by the typical small investor.

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