

THE PERFORMANCE OF GLOBAL AND INTERNATIONAL MUTUAL FUNDS

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Abstract

This study examines the risk-adjusted returns using Sharpe's Index, Treynor's Index, and Jensen's Alpha for five portfolios of international mutual funds and for three time periods: 1985 through 1994, 1985-1989, and 1990-1994. The benchmarks for comparison were the U. S. market proxied by the Vanguard Index 500 mutual fund and a portfolio of funds that invest solely in U. S. stocks. The results show that for 1985 through 1994 the portfolios of international mutual funds outperformed the U. S. market and the portfolio of U. S. mutual funds under Sharpe's and Treynor's indices. During 1985-1989, the international fund portfolio outperformed both the U. S. market and the domestic fund portfolio, while the portfolio of Pacific Rim funds outperformed both benchmark portfolios. Returns declined below the stock market and domestic mutual funds during 1990-1994.

INTRODUCTION

The individual investor with limited capital, once constrained in achieving full diversification benefits, can now create mutual fund portfolios similar to portfolios of investors who purchase fixed income securities and equities directly. It is possible to structure a portfolio of mutual funds that invest in a diverse array of securities traded within the U. S. and abroad. One can choose among 1,500 or more equity funds in addition to bond funds. For international diversification benefits, alternatives include funds that invest in securities traded in countries outside the U. S., funds that buy U. S. securities and foreign securities, funds that invest in developing countries (emerging country funds), funds with holdings in specific countries (e.g., Korea or Japan), or funds that invest in specific continents (e.g., Europe or Asia).

A considerable body of literature on the financial performance of mutual funds has accumulated beginning with the study by Friend, Brown, Herman, and Vickers (1962). Within the past few years, the research has been extended to examine the behavior of international funds. The international funds have been compared to various market indexes. The results and conclusions of these studies tend to corroborate those concerning mutual funds that invest in U. S. securities only: international funds generally do not perform better than the U. S. indexes, and they do not outperform world indexes.

The work in international funds to date [specifically that of Droms and Walker (1994), Cumby and Glen (1990), and Eun, Kolodny, and Resnick (1991)] compared the risk-adjusted performance of international funds against market indexes such as the Standard and Poor's 500 and the Morgan Stanley World Index. The sample sizes ranged from 15 funds in the Cumby and Glen study to 30 funds in the Droms and Walker study. Previous studies, however, have not compared the returns of international mutual funds to another benchmark relevant to individual investors, that of U. S. mutual funds that invest solely in U. S. securities.

OBJECTIVE

Investors can choose to purchase shares in various domestic funds or further diversify their holdings by investing a portion of their portfolios in international and/or global mutual funds. The financial success of an internationally

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diversified mutual fund portfolio depends partly on the ability of the total portfolio to generate risk-adjusted returns equal to or greater than the domestic stock market. Success is also determined by the ability of the international funds within the portfolio to match or outperform market benchmarks. Additionally, advantageous diversification into international and global funds depends on the ability of those funds to generate returns better than those of domestic mutual funds. Otherwise, it will not be worthwhile for the investor to expend the time and effort necessary to select an international or global fund for portfolio inclusion.

The primary hypothesis to be examined in this study is whether or not the performance of international mutual funds as a group is superior to that of two benchmarks, the Vanguard Index 500 mutual fund and an equally-weighted portfolio of U.S. domestic mutual funds. That is, do international mutual funds afford investors diversification benefits in the form of superior risk-adjusted returns relative to both the U.S. stock market and domestic mutual funds? Previous research has not examined the risk-adjusted returns of international funds relative to those of domestic mutual funds.

A secondary hypothesis is that the risk-adjusted performance of separate groups of non-domestic funds are superior to the U. S. market and a portfolio of domestic mutual funds. The sample of international funds are categorized and grouped into subsamples according to fund objective and geographic investment specifications. For example, some funds invest only in securities issued in Pacific Rim countries and, as such, comprise a subsample.

This paper contributes to the existing literature in three ways: (1) by comparing the performance of international mutual funds to an additional benchmark--domestic mutual funds, (2) by employing a larger sample of mutual funds than earlier studies, and (3) by disaggregating the sample of international funds into specific categories defined by objective and geographic region for further analysis.

LITERATURE REVIEW

Friend, Brown, Herman, and Vickers (1962) offered the first empirical analysis of mutual funds performance. Treynor (1965), Sharpe (1966), and Jensen (1968) developed the standard indices to measure risk adjusted mutual fund returns. Grinblatt and Titman (1989b) constructed a positive period weighting measure of fund performance. Numerous studies have tested the mutual fund manager's market-timing ability [Treynor and Mazuy (1966), Kon and Jen (1979), Henriksson and Merton (1981), Merton (1981), Henriksson (1984), and Chang and Lewellen (1984)] and the diversification benefits and risk-adjusted performance of funds [Grinblatt and Titman (1989a), Ippolito (1989), Lehman and Modest (1987), and Logue and Rogalski (1989)].

Chang and Lewellen (1985), using a test procedure derived from arbitrage pricing theory, found that mutual fund portfolios did not outperform a passive buy-and-hold portfolio strategy. Ippolito (1989) examined the relation between mutual fund investment performance and other variables such as asset size, expenses, turnover, and load status. Domestic mutual fund risk-adjusted returns, net of fees and expenses, were comparable to returns of index funds. However, portfolio turnover was unrelated to fund performance.

In 1990, the literature was extended by Cumby and Glen to include international mutual funds. The performance of 15 U. S.-based internationally diversified funds was compared to the Morgan Stanley Index for the U. S., the Morgan Stanley World Index, and to a benchmark combining the world index and Eurocurrency deposits. The time period analyzed was 1982-1988. Both the Jensen index and the methodology developed by Grinblatt and Titman (1989b) were employed to measure portfolio performance. Cumby and Glen concluded the funds did not outperform the international equity index; however, there was some evidence of the funds outperforming the U.S. index.

Eun, Kolodny, and Resnick (1991) reported similar findings. The benchmarks used in their study were the Standard and Poor's 500 Index, the Morgan Stanley Capital International World Index, and a self-constructed index of U.S. multinational firms. For the period 1977-1986, the majority of international funds outperformed the U. S. market. However, most failed to outperform the world index. The sample consisted of 19 U. S.-based international funds, and the Sharpe measure was used to assess excess returns.

Droms and Walker (1994) used a cross-sectional/time series regression methodology. Four funds were examined over 20 years (1971-1990), and 30 funds were analyzed for a six-year period (1985-1990). The funds were compared to the Standard and Poor's 500 Index, the Morgan Stanley Europe, Australia, and Far East Index (EAFE) which proxies non-U. S. stock markets, and the World Index. Applying the Jensen, Sharpe, and Treynor indices of performance, they found that international funds have generally underperformed the U. S. market and the international market. Additionally, their results indicated that portfolio turnover, expense ratios, asset size, load status and fund size are unrelated to fund performance.

METHODOLOGY AND DATA

Three measures were used to evaluate the risk-adjusted performance of the mutual funds in the sample: Sharpe's Index, Treynor's Index, and Jensen's Alpha. The Sharpe's Index was computed by applying the following:

Equation 1

$$SI_p = (R_p - R_{rf}) / \hat{\sigma}_p$$

where,

$$\begin{aligned} SI_p &= \text{Sharpe's Index for portfolio p,} \\ R_p &= \text{return on portfolio p,} \\ R_{rf} &= \text{return on risk-free asset,} \\ \hat{\sigma}_p &= \text{standard deviation of portfolio p,} \end{aligned}$$

The numerator is the excess return above the risk-free return on a portfolio, and $\hat{\sigma}_p$ is the measure of total risk of the portfolio. Total risk is comprised of risk from any source -- systematic and unsystematic risks. A portfolio has performed better than the benchmark (usually taken as the stock market) if its Sharpe's Index is greater than that of the benchmark.

The Treynor Index is computed using the equation:

Equation 2

$$TI_p = (R_p - R_{rf}) / \hat{\alpha}_p$$

where:

$$\begin{aligned} TI_p &= \text{Treynor Index for portfolio p,} \\ \hat{\alpha}_p &= \text{beta for portfolio p,} \end{aligned}$$

and the remaining variables are as defined above. The numerator is the excess return on a portfolio, and the denominator is the average beta for the portfolio. If the Treynor Index is greater than that of the benchmark, the portfolio has performed better than the benchmark. The Treynor Index measures the ability of a portfolio to earn an excess return that has been adjusted for systematic risk.

Finally, the Jensen's Alpha is determined by applying the market model in difference form. In computing the Jensen's Alpha, the excess return of portfolio p is regressed against the excess return of the market portfolio:

Equation 3

$$(R_p - R_{rf}) = \hat{\alpha}_p + (R_m - R_{rf})\hat{\alpha}_p + e_t$$

where:

$$\begin{aligned} R_p &= \text{return on portfolio p,} \\ R_{rf} &= \text{risk-free return,} \\ \hat{\alpha}_p &= \text{intercept,} \\ \hat{\alpha}_p &= \text{beta for portfolio p,} \\ R_m &= \text{return on the market portfolio,} \\ e_t &= \text{error term.} \end{aligned}$$

The intercept, $\hat{\alpha}_p$, is Jensen's Alpha and is based on the excess return of a security or portfolio relative to that of the excess return of the market. The interpretation of Jensen's Alpha is based on the sign of $\hat{\alpha}_p$ and its statistical significance. For a portfolio to have a risk-adjusted return superior to the market, $\hat{\alpha}_p$ must be positive and statistically significant. A negative and significant $\hat{\alpha}_p$ indicates performance below that of the market portfolio. If $\hat{\alpha}_p$ is statistically insignificant, the portfolio has performed as well as the market.

The data for the estimation of Sharpe's Index, Treynor's Index and Jensen's Alpha came from the Morningstar OnDisc database for the years 1985 through 1994. For the analysis seven portfolios were constructed: five international portfolios, a U. S. equity portfolio, and a market portfolio. The international portfolios are based on the classification scheme of the Morningstar database and are all equally-weighted portfolios. The Morningstar database has return data for several thousand domestic and international mutual funds. The international mutual funds are divided into five categories: world, foreign, European, Pacific, and international. World funds are mutual funds that invest in securities issued by corporations in and out of the United States, and their investments in U. S. stocks comprise 25% to 53% of the portfolio. Foreign funds are those that invest exclusively in stocks issued by companies outside the United States. The European and Pacific funds invest in securities issued by corporations in those geographic areas. The international category includes funds in all four of the above mentioned areas, and it is the broadest category for the funds.

For each category of mutual funds, the Sharpe's Index, the Treynor Index, and Jensen's Alpha were computed over three time periods: 1985 through 1994, 1985 through 1989, and 1990 through 1994. The portfolios included all funds followed by Morningstar within the investment objective classifications that were in continuous existence over the period in question. The 1985-1989 period will capture the worldwide effects of the U.S. stock market crash in 1987. The period 1990 to 1994 also coincides with the world economic decline and recovery and allows us to compare performance over two cycles, thus isolating performance during an international recession. The number of funds within each portfolio varied with the time periods. The larger number of funds in 1990-1994 period reflects the increase in the number of funds in existence.

The benchmarks used to compare the risk-adjusted performance of the international funds were the U.S. market and the U. S. equity fund portfolio. As a proxy for the U.S. market, the Vanguard Index 500 mutual fund was chosen from the Morningstar OnDisc database. The U. S. equity fund portfolio is an equally-weighted index of mutual funds that invest solely in securities issued by companies in the United States and was constructed from the funds within the Morningstar database. The risk free return necessary to compute the SI, TI, and Jensen's Alpha is the reported 3-month Treasury bill yield compounded to generate an annualized yield. The annualized yield (y) was then used to compute the monthly equivalent return using the following equation:

Equation 4

$$R_{mf} = (1 + y)^{1/12} - 1$$

where:

R_{mf} = monthly equivalent risk-free return,
 y = effective annual yield on 3-month Treasury bills.

R_{mf} was then used in equations (1), (2) and (3) to compute the performance indices for each international portfolio, the U. S. equity portfolio, and the Vanguard Index fund. The returns for each portfolio (the five international portfolios, the U. S. equity portfolio, and the Vanguard Index fund) were also computed on a monthly basis.

RESULTS

Unadjusted Returns

Tables 1 and 2 show the unadjusted return characteristics for the seven portfolios for the three time periods. In each table the number of mutual funds in each portfolio is listed, and it can be seen that the number of mutual funds increased noticeably in the period 1990-94 from Table 1 to Table 2. Comparing the results shown in the two tables, the mean unadjusted monthly returns of the world, foreign, Europe, Pacific, and international portfolios declined substantially from the 10 year period to 1990-94 which may reflect the economic decline in the latter period. The mean monthly returns were 1.2727% for 1985-1994 in Table 1, 2.008% for 1985-1989 and 0.526% in 1990-94 as shown in Table 2, representing a 71% decrease from 1985-89 to 1990-94. The Europe and Pacific portfolios experienced declines of about 81% each, while the foreign portfolio declined 74% from the first to the second subperiod. By contrast, the U. S. equity portfolio suffered only a 43% decline in unadjusted mean monthly returns between 1985-1989 and the 1990-1994 period. The returns earned in 1985-1989 were two to four times greater than the subsequent period. Both the Vanguard Index 500 fund and the U. S. equity portfolio earned substantially greater returns during this period than 1990-1994, even with the crash of 1987.

TABLE 1
Summary Characteristics of Portfolios
1985 -1994

Portfolio (%)	Number of Funds in Portfolio (%)	Portfolio Mean Return* Beta	Standard Deviation of Returns*	Minimum Portfolio Returns* (%)	Maximum Portfolio Returns* (%)	Portfolio
World	16	1.1629	4.2722	-24.71	8.72	0.798** (15.948)
Foreign	18	1.3294	4.3754	-22.72	10.34	0.653** (9.529)
Europe	2	1.1517	5.4983	-21.19	25.87	0.719** (7.698)
Pacific	4	1.4559	5.3820	-24.36	14.95	0.542** (5.406)
International	38	1.2727	4.3151	-23.73	9.39	0.702** (11.265)
U.S. Equity	355	1.1078	4.3260	-22.36	11.61	0.949** (43.878)
Vanguard 500	---	1.2000	4.4304	-21.70	13.30	1.000

*Returns are computed and reported on monthly basis.

**Significant at the 0.01 level.

Mean monthly 3-month Treasury bill rate during 1985-1994 was 0.492%.

Numbers in parentheses are t-statistics.

The standard deviations of monthly returns for each portfolio are approximately four times the size of the mean monthly returns indicating rather substantial total risk exposure. From the 10 year period to the second 5 year period, the standard deviations, overall, changed very little. The range of returns, as shown by the minimum and maximum returns in Tables 1 and 2, declined between the two time subperiods. The portfolio betas, computed using equation 3, are all significant at the 1% level and are below 1.0. The betas computed in this study generally correspond to those found for individual international mutual funds in Eun, Kolodny and Resnick (1991), while Droms and Walker (1994) had 9 out of 15 betas for individual mutual funds greater than 1 for the period 1981 through 1990.

Risk-Adjusted Returns: 1985-1994

Tables 3 and 4 contain the risk-adjusted measures for each portfolio for the two time periods. From Table 3, for the period 1985-94, all the Sharpe's and Treynor's measures are positive. Both measures for the U. S. equity portfolio indicate that the portfolio underperformed the market. The international portfolio, for the SI and TI measures, outperformed both the market and the U. S. equity portfolio. The TI for the international portfolio is greater than one while the TIs for the Vanguard and the U. S. equity portfolios are well below one. Overall, the four specialized portfolios--world, foreign, Europe, and Pacific--outperformed both the stock market and the domestic mutual fund portfolio.

TABLE 2
Summary Characteristics of Portfolios
Two Subperiods

Portfolio	Number of Funds in Portfolio	Portfolio Mean Return* (%)	Standard Deviation of Returns* (%)	Minimum Portfolio Returns* (%)	Maximum Portfolio Returns* (%)	Portfolio Beta
World						
1985-89	16	1.809	4.632	-24.710	8.72	0.779** (12.782)
1990-94	37	0.517	3.809	-10.09	8.60	0.823** (9.334)
Foreign						
1985-94	18	2.077	4.582	-22.72	9.41	0.618** (7.236)
1990-94	51	0.543	4.055	-11.13	10.02	0.689** (5.859)
Europe						
1985-89	2	2.015	6.005	-21.19	25.87	0.713** (5.795)
1990-94	10	0.382	4.036	-10.48	7.81	0.667** (5.644)
Pacific						
1985-89	4	2.499	5.403	-24.36	12.82	0.506** (4.144)
1990-94	13	0.453	5.596	-13.98	15.97	0.593** (3.138)
International						
1985-89	38	2.008	4.546	-23.73	9.14	0.674** (8.826)
1990-94	111	0.526	3.981	-10.70	9.29	0.711** (6.366)
U.S. Equity						
1985-89	355	1.417	4.865	-22.36	11.61	0.930** (35.708)
1990-94	644	0.808	3.687	-9.17	10.61	0.980** (25.109)
Vanguard 500						
1985-89	-----	1.657	5.116	-21.70	13.30	1.000
1990-94	-----	0.743	3.604	-9.00	11.40	1.000

*Returns have been computed and reported on monthly basis.

**Significant at the 0.01 level.

Mean monthly 3-month Treasury bill rate during the period 1985-1989 is 0.582%.

Mean monthly 3-month Treasury bill rate during the period 1990-1994 is 0.401%.

Numbers in parentheses are t-statistics.

TABLE 3
Risk Adjusted Returns of Portfolios
1985 - 1994

Portfolio	Sharpe's Index	Treynor's Index	Jensen's Alpha	R ²	F-Value
World	0.157(4)	0.841(5)	0.106(5)	0.68	254.32*
Foreign	0.191(1)	1.284(2)	0.376(2)	0.43	90.81*
Europe	0.120(6)	0.918(4)	0.151(4)	0.33	59.26*
Pacific	0.179(3)	1.778(1)	0.580(1)	0.19	29.23*
International	0.181(2)	1.112(3)	0.284(3)	0.51	126.90*
U.S. Equity	0.142(5)	0.649(6)	-0.056(6)	0.94	1925.29*
Vanguard Index	0.160	0.708	-----	-----	-----

*Significant at the 0.01 level.

The numbers in parentheses are the rankings of each portfolio.

For the world portfolio, those funds that invest in stocks issued throughout the world, the SI indicates that it slightly underperformed the U.S. stock market while earning a risk-adjusted return better than that of the U. S. equity portfolio (0.157 and 0.142 SIs, respectively). However, looking at the TIs, the world portfolio outperformed both the U. S. equity and the stock market. The world portfolio generated a greater return relative to systematic risk than either the market or the portfolio of domestic mutual funds. In terms of total and systematic risk the world portfolio did better than that of the domestic funds. The foreign portfolio, those funds investing exclusively in non-U. S. stocks, outperformed both the U. S. equity portfolio and the market index in terms of total and systematic risk. The Pacific and the Europe portfolios, similar to that of the foreign portfolio, outperformed both benchmarks.

The Jensen's Alpha, in Table 3, for all the international funds are positive, and the alpha for the U. S. equity is slightly negative. However, all of the alphas are statistically insignificant indicating the lack of risk-adjusted excess returns. The R²s, like those in Eun, Kolodny and Resnick (1991) for the global portfolios are well below that of the U. S. equity. The R² for the U.S. equity portfolio indicates that the excess returns in the U. S. stock market explain 94% of the excess returns of the U. S. equity portfolio. That is, fluctuations in returns in the market explain almost all of that of domestic mutual funds which is to be expected given the nature of the U. S. equity portfolio. But, for all five portfolios, at best 68% of the excess returns can be explained by the market. The world portfolio had the highest R² because of the inclusion of U. S. securities in the individual funds' portfolios. For the Pacific portfolio, only 19% of its excess return is due to U. S. market returns. Other factors beyond the U. S. stock market contribute to the excess returns. Consequently, there are potential diversification benefits of combining global funds with that of domestic mutual funds. These results confirm those found by Eun, Kolodny and Resnick (1991) for the period 1977-1986 for nineteen international funds. The F-values for the regressions for equation 3 are all significant at the 1% level for 1985-1994. Each global portfolio and the U.S. equity portfolio, in Table 3, are ranked by performance with the rankings shown in parentheses. The U.S. equity portfolio, according to all three indices, ranked near or at the bottom for 1985-1994. The foreign portfolio is near the top (either ranked first or second). The Pacific portfolio is ranked at the top under TI and Jensen's Alpha, while the world and Europe portfolios are roughly in the middle. The rankings tend to be consistent across the indices.

Risk-Adjusted Returns: 1985-1989

Table 4 shows the risk-adjusted returns using the Sharpe' Index, the Treynor's Index, and Jensen's Alpha. The results for 1985-89 period are reported in the first column under each index. The numbers in each column are the performance rankings of each portfolio relative the the Vanguard Index. Under both the Sharpe's and Treynor's indices, each of the international portfolios outperformed both the Vanguard Index and the U. S. equity portfolio. The TIs for each portfolio are at least 50% greater than the Vanguard TI, with the Pacific portfolio TI more than

triple that of the Vanguard. The Europe portfolio is ranked at or near the bottom, while the Pacific portfolio is ranked at the top under SI and TI measures. Overall, the international portfolios substantially outperformed the domestic market, possibly due to the adverse impact of the crash of 1987.

TABLE 4
Risk Adjusted Returns of Portfolios
Two Subperiods

Portfolio	Sharpe's Index		Treyner's Index		Jensen's Alpha		R ²	
	1985-89	1990-94	1985-89	1990-94	1985-89	1990-94	1985-89	1990-94
World	0.265 (4)	0.030 (4)	1.575 (5)	0.141 (5)	0.390 (5)	-0.165 (5)	0.73 [163.39]*	0.59 [87.12]*
Foreign	0.326 (2)	0.035 (2)	2.419 (2)	0.205 (3)	0.830*** (2) {1.877}	-0.094 (2)	0.47 [52.36]*	0.37 [34.33]*
Europe	0.239 (5)	-0.005 (6)	2.010 (4)	-0.029 (6)	0.667 (4)	-0.248 (6)	0.36 [33.58]*	0.34 [31.85]*
Pacific	0.355 (1)	0.009 (5)	3.788 (1)	0.862 (1)	1.373** (1) {2.169}	-0.152 (4)	0.22 [17.17]*	0.13 [9.85]*
International	0.314 (3)	0.031 (3)	2.116 (3)	0.175 (4)	0.702*** (3) {1.774}	-0.119 (3)	0.57 [77.90]*	0.40 [40.53]*
U.S. Equity	0.172 (6)	0.110 (1)	0.898 (6)	0.415 (2)	-0.165 (6)	0.072 (1)	0.96 [1275.05]*	0.91 [630.45]*
Vanguard Index	0.210	0.095	1.075	0.342	----	----	----	----

*Significant at the 0.01 level.

**Significant at the 0.05 level

***Significant at the 0.10 level

The numbers in parentheses are the rankings of the portfolios relative to the Vanguard Index 500 mutual fund.

The numbers in brackets under R² are the F-statistics for each regression.

{ } denotes t-statistics

The results under Jensen's Alpha for 1985-1989 show some statistical significance in that period. While the alphas for the U.S. equity portfolio, the World portfolio, and the Europe portfolio are not significant, the alphas for the international and foreign portfolios are positive and significant at the 10% level. Overall, the portfolios outperformed the U.S. market and, more specifically, the funds investing exclusively outside the United States earned returns superior to that of the U.S. stock market. Additionally, since the alpha for the U. S. equity portfolio is not significant, the foreign funds as a group outperformed domestic mutual funds. The alpha for the Pacific portfolio is also positive and significant at the 5% level, with its alpha at least 50% greater than those of the other portfolios. Overall, during 1985-1989 the international funds outperformed the U. S. market and domestic mutual funds, with the performance due to that of the foreign funds, generally, and the Pacific mutual funds specifically.

Risk-Adjusted Returns: 1990-1994

Table 4 also contains the risk-adjusted return measures for the seven portfolios for the period 1990-1994. Unlike the 1985-1994 and the 1985-1989 period, the U. S. equity portfolio earned risk-adjusted returns superior to that of the market in terms of both the TI and the SI. All of the global portfolios underperformed both the U. S. equity portfolio and the market index in terms of the SI, with the Europe portfolio having a small negative SI and TI. The world, foreign, Europe, and the international portfolios had TIs below that of the U. S. equity portfolio and the Vanguard Index 500. Only the Pacific portfolio had a superior TI, 0.862 compared to 0.415 for U. S. equity and 0.342 for Vanguard. The world portfolio outperformed Pacific and Europe under SI, but underperformed the Pacific in terms of TI. The world portfolio earned superior returns in terms of total risk compared to the Pacific and Europe

portfolios, but underperformed the Pacific portfolio in terms of systematic risk. For all of the global portfolios the alphas are negative, but not statistically significant. The R^2 s compared to 1985-94 are slightly smaller for the global portfolios indicating that a smaller proportion of the excess returns of the portfolios are explained by U. S. stock market fluctuations. The benefits of diversification may have increased slightly during the 1990-1994 period relative to 1985-1989, but the risk-adjusted returns declined. All of the F-values for equation 3 for the portfolios are significant at the 1% level. In general, global mutual funds underperformed both the U. S. stock market and a portfolio of domestic funds, with only the Pacific funds earning superior risk-adjusted returns relative to systematic risk for the period. The relative performance of U.S. and international equities are dependent on the study period. The rankings of the portfolios reported in Table 4 are shown in parentheses. The U.S. equity portfolio, opposite of 1985-1994, is ranked at the top under SI and Jensen's Alpha. The foreign portfolio is ranked in the upper third (either second or third), while the Pacific and world portfolios are ranked in the lower third according to the SI and Jensen's Alpha. The Europe portfolio is consistently at the bottom for all three indices.

Comparison of Results

Table 5 compares selected results of this study with two previous studies: Eun, Kolodny, and Resnick (1991) and Droms and Walker (1994). The results shown for Eun, Kolodny, and Resnick were computed by the authors and presented in their article. The results for Droms and Walker were computed from those in their article. Droms and Walker data was limited to the Jensen's Alpha, the beta, and the R^2 for each of the international funds relative to the Standard and Poor's 500 index. The results listed for this study are the results for the international portfolio shown in Tables 1 through 4.

TABLE 5
Comparative Results of Current Study With Selected Previous Studies

Study	Mean Monthly Return	Mean Beta	Mean R^2	Mean Sharpe	Mean Treynor	Mean Jensen
Redman, Gullett & Manakyan						
1985-1994	1.27	0.70	0.51	0.18	1.11	0.284
1985-1989	2.01	0.67	0.57	0.31	2.12	0.702*
1990-1994	0.53	0.71	0.40	0.03	0.17	-0.119
Eun, Kolodny & Resnick (1991)						
1977-1986	1.58	0.69	0.39	0.15	1.23	0.608
Droms & Walker (1994)						
1971-1990	-----	1.05	0.60	-----	-----	-0.385

*significant at the 0.10 level

For the period 1985 to 1994 and the first 5-year period, the mean returns, and the Sharpe's Index, the Treynor's Index, and the Jensen's Alpha in this study are generally close to the means for the Eun, Kolodny, and Resnick sample over 10 years from 1977 to 1986, with the mean Jensen's Alpha lower than that in the Eun, Kolodny, and Resnick study. However, there is a noticeable deterioration in average results for the second five-year period in this study, especially in the Jensen's Alpha which became negative in that period. The R^2 and the average beta for this study and for that of Eun, Kolodny, and Resnick are similar in all periods. For both studies, the U. S. stock market explains only a small percentage of the excess returns on global mutual funds. By contrast, the mean beta for the

funds in the Droms and Walker study is above 1.0, and the R^2 is almost twice as large. However, the mean Jensen's Alpha in Droms and Walker is smaller compared to those for this study and Eun, Kolodny, and Resnick. Most of the alphas in Eun, Kolodny, and Resnick, like those in this study, were not statistically significant. In general, the results of this study are consistent with those of Eun, Kolodny, and Resnick for the longer period, and are substantially worse for 1990 to 1994. Both studies found that the U. S. stock market statistically explains a small proportion of the excess returns of global funds indicating the potential diversification benefits of including global funds in a portfolio of mutual funds, at least over the long run.

SUMMARY

Small investors can invest their money in a wide array of mutual funds that invest in U. S. stocks or bonds exclusively, in foreign stocks, in stocks issued by companies in selected geographical areas in the world or in a combination of stocks issued by U. S. and foreign companies. With such a broad range of choices, investors have the potential for achieving an internationally diversified portfolio. Recent studies have examined the risk-adjusted returns of a small sample of international mutual funds finding that these funds at different periods have earned returns superior to the Standard and Poor's Index or tended to earn returns consistent with their risk exposure.

This study examined the risk-adjusted returns of international mutual funds over three time periods: 1985 through 1994, 1985 through 1989, and 1990 through 1994. Sharpe's Index, Treynor's Index, and Jensen's Alpha were computed for five portfolios of global mutual funds: world, foreign, Europe, Pacific, and international. The performance of the five portfolios was compared to that of a proxy for the stock market (the Vanguard Index 500 mutual fund) and a portfolio composed of mutual funds that invest in U.S. issued stocks (domestic mutual funds). During the 1985 through 1994 period, the portfolios of global funds generally earned risk-adjusted returns superior to that of the U.S. stock market and the portfolio of domestic mutual funds under the Sharpe' and Treynor's indices. The exception is the Europe portfolio of funds which had a Sharpe's Index below that of both the domestic fund portfolio and the U.S. stock market. The Jensen's Alphas were generally positive (domestic portfolio of funds was negative), but were not significantly different from zero during 1985-1994. The R^2 s for the Jensen regressions were generally below 60% indicating that excess returns in the U. S. stock market explained a small proportion of the excess returns of the global portfolios of funds. Consequently, there is the potential for benefits through diversification for investors by adding global mutual funds to their portfolios.

For 1985 through 1989, all the international portfolios outperformed both the U. S. stock market and domestic mutual funds according to the Sharpe's and Treynor's indices. The international funds as a group had a Jensen's Alpha that was significant and positive indicating superior risk-adjusted returns relative to the stock market. Specifically, the portfolio of Pacific Rim mutual funds had an alpha that was positive, statistically significant, and substantially larger than those of the other portfolios. The R^2 s for the period were significant at the 1% level and below 1.00 revealing the possibility of diversification benefits of including global funds in a portfolio of domestic mutual funds.

For the period 1990 through 1994, the risk-adjusted returns of global portfolios were lower than those of the domestic fund portfolio and the stock market under the Sharpe's and Treynor's indices, except for the Pacific portfolio which had a Treynor index above both the Vanguard and domestic portfolio. The domestic fund portfolio had greater Sharpe's and Treynor's indices and outperformed the U. S. stock market. However, the Jensen's Alphas were negative for all of the global portfolios, while the alphas for the domestic portfolio was small and positive. Similar to the longer time period, the alphas were not statistically significant. Excess returns in the U. S. market during the 1990 to 1994 period explained a smaller proportion of the variations in excess returns in the global portfolios than during 1985-1994.

Generally, we find that there are potential diversification benefits to adding global funds to portfolios of domestic mutual funds. Mutual funds that invest solely in foreign securities or in combinations of U. S. stocks outperformed the U. S. market over the past ten years. A portfolio of funds investing in Pacific Rim issued stocks tended to have greater risk-adjusted returns compared to a portfolio of funds investing in European stocks and only a small relationship to returns in the U.S. stock market. It is also interesting to note that the relative risk-adjusted performance of U.S. and international equity funds may differ substantially depending on the period examined.

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