

International Index Investing during the Financial Crisis

C. Edward Chang, H. Doug Witte, and Tsu-Hong Yen

Abstract

Conventional wisdom suggests that active portfolio management should be beneficial in international markets, given the relative inefficiency of these markets compared to the U.S. market. Also, recent empirical evidence for U.S. mutual funds suggests that active portfolio management beats indexing during bear markets. Whether this result holds for international mutual funds is an open question. The performance of international mutual funds over the last 15 years as well as during the financial crisis of 2007-2009 offers the most recent timeframes in which to examine these two issues. We compare the performance of international index funds relative to all U.S.-based international mutual funds. Our results show that international index funds, including both index mutual funds and exchange-traded funds, appear to provide *higher* returns and similar risk when compared with category averages and thus most actively managed international mutual funds. These results hold over the 2007-2009 timeframe as well as over the past 15 years.

I. Introduction

As the number of U.S.-based international index funds grows, investors in the U.S. will need to evaluate the merits of indexing relative to actively managed international funds and the higher costs that go along with them. Conventional wisdom suggests that active management may provide an edge in less-efficient overseas markets. However, recent data on some of the top actively managed international funds and their index rivals call the conventional wisdom into question. A survey from Standard & Poor's in July 2006 found that most actively managed international mutual funds did not perform as well as their benchmark indexes. Over five years, the Citigroup/S&P PMI (Primary Market Index) World ex-U.S. benchmark outpaced 62.5% of international funds and the S&P/Citigroup EMI (Extended Market Index) World ex-U.S. outperformed 63.3% of international small-company funds (Kollmeyer 2006).

Recent empirical evidence from the U.S. mutual fund industry suggests that active management is most beneficial when the markets are performing poorly. Consumption-based asset-pricing theory posits that investors will pay more for assets that have relatively good payoffs during bear markets; marginal utility of consumption is high during these times. Thus, investors may be willing to accept the unconditionally inferior returns to actively managed portfolios if, conditional on bear markets, these same portfolios deliver superior returns. This finding may explain why there continues to be demand for actively managed funds despite evidence that, after expenses, these funds deliver returns that are generally inferior to index funds.

If we couple together the evidence suggesting active management may be better in bear markets with the conventional wisdom that active management is most likely to be beneficial in

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less-efficient international markets, two interesting predictions emerge. First, international index funds in bear market times should perform poorly relative to their actively-managed counterparts. Both the international setting and a bear market bode ill for indexing. Second, in bullish markets, the generally superior returns to indexing during these times will be offset to some extent by the (conventionally assumed) inferiority of indexing in an international setting. Our paper addresses these predictions.

Investors considering international index fund investing also need to be aware that some self-identified international index funds do not behave as such. In our sample of 241 international index funds and indexing ETFs, one-sixth of these funds have expense ratios greater than their category average of all funds. We call these funds “non-ideal”. Since not all self-identified international index funds behave as such, this paper differentiates “ideal” international index funds with low expense ratios and turnover rates from their “non-ideal” counterparts that have expenses and turnover more in line with actively managed funds. We find that the existence of “non-ideal” international index funds understates the returns and overstates the risks of international index funds as a group.

In addressing the issues raised above, we examine the operating characteristics, risk and performance measures of all available vehicles for index investing in U.S.-based international stock funds during the fifteen-year period from April, 1994 to March, 2009. In this study, international index funds include not only index mutual funds (hereafter “IMFs”), but also their recently emerging close substitutes - exchange-traded funds (hereafter “ETFs”). Operating characteristics include expense ratios, annual turnover rates, and tax cost ratios. Performance measures include average annual returns and return percentile ranks in category, and risks (measured by standard deviations). Our results help shed light on two issues: First, how did international index funds perform relative to the average of all U.S.-based international mutual funds (hereafter “AMFs”) over the last 15 years as well as, more narrowly, during the financial crisis of 2007-2009? Second, do “ideal” international index funds perform differently from all international index funds?

Our paper adds to the literature by addressing the issue of whether actively managed U.S.-based international mutual funds deliver performance superior to the alternative offered by investible international index funds in times of economic crisis. The choice of data ending on March 31, 2009 provides an ideal point in which to observe the performance of these international investment funds, as the trough of market prices occurred in March 2009. Our paper also addresses the issue of whether “ideal” international index funds with low expense ratios and turnover rates deliver superior performance relative to their “non-ideal” counterparts with high expenses and portfolio turnover.

II. Literature Review

Investors in the U.S. are becoming increasingly aware of the benefits of international equities in their portfolios. For example, foreign markets can give U.S. investors more exposure to growth opportunities. Since the U.S. encompasses only about half (and declining) of the world’s market capitalization, U.S. investors who confine themselves to only domestic issues are missing out on important overseas companies and economies in which more and more of the world’s economic growth is occurring. Moreover, not all overseas markets have experienced the same degree of volatility that has recently beset the U.S. markets. Adding low correlation

international investments to the asset mix can be an effective diversification strategy (Olienyk, Schwebach, and Zumwalt 1999). Investors in the U.S. who add international funds to their portfolios may well see reduced return volatility.

Conventional wisdom suggests that active portfolio management may be beneficial to U.S. investors considering investment in international equity markets given that these markets are presumably less efficient than the U.S. market. Information on international firms may be sparse and more difficult to interpret. Additionally, foreign firms can be less transparent than their U.S. counterparts, giving rise to greater informational asymmetries. Active portfolio managers may be better able to evaluate the quality of management, corporate governance structures, future growth prospects, etc., and take advantage of mispricings.

Empirical evidence on international active portfolio management generally contradicts the conventional wisdom. The three most widely cited studies are Droms and Walker (1996), Cumby and Glen (1990), and Eun, Kolodny, and Resnick (1991). Droms and Walker (1996) find that the Jensen's alpha for international mutual funds are not significantly different from 0. Cumby and Glen (1990) find that actively managed international funds yield superior performance relative to a U.S. index but not superior to an international equity index. This suggests that the main benefit of the international funds they studied is diversification and not security selection or market-timing ability. Additionally, Cumby and Glen find that the funds performed particularly poorly during the crash of October 1987. Eun, Kolodny, and Resnick (1991) find that international funds performed well relative to the S&P 500 index, but only matched the performance of the MSCI World index.

Proffitt and Seitz (1983) report that international funds outperform the S&P 500 index on a risk-adjusted basis over 1974 to 1982. Aiello and Chieffe (1999) find that international indexing does not offer superior returns relative to the S&P 500 index, but diversification benefits do exist. Lang and Niendorf (1993) did not find any significant return difference in the risk-adjusted performance of global and international (ex-U.S.) funds when compared to either a passive U.S. index or two MSCI international indexes. Taken as a whole, these papers suggest that active portfolio management in international markets is generally superior to the performance of passive U.S. indexes, but not superior to passive international indexes.

Malkiel (2010, p. 125) compares the investment returns earned by 414 global equity managers to the MSCI World Index, and finds that well over half of the active managers failed to outperform the passive benchmark. Even in emerging markets, many of which are far less efficient than markets in developed countries, passive management appears to be a winning strategy. Malkiel (2010, p. 126) also finds about two-thirds of the active managers of emerging-market funds were beaten by the index. He concludes that the very inefficiency of the trading in many emerging markets, with relatively large bid-ask spreads and a variety of transaction costs, makes it difficult for active managers to outperform a passive benchmark.

Our paper adds to the literature by addressing the issue of whether actively managed U.S.-based international mutual funds deliver performance superior to the alternative offered by *investible* international index funds. Thus, our study differs from those cited which compare international funds to an index in which investors cannot directly invest. In addition to the fact

that indexes are not directly investible, indexes often do not accurately reflect the return investors can earn in trying to match them. Elton, Gruber, and Busse (2004) find that S&P 500 index funds average returns about .5% below the S&P 500 index itself. Our study provides a more accurate analysis of the merits of actively managed international fund investing given that we benchmark these funds to an alternative passive investment rather than an index.

Some empirical evidence does support active portfolio investment in international markets. Eling and Faust (2010) find that emerging market hedge fund returns and alphas are much higher than traditional mutual funds that focus on emerging markets. It should be noted, however, that the hedge funds are compared to traditional actively managed funds. Fortin and Michelson (2002) report that indexing compares favorably to active funds in most equity categories, except in the small company and international equity categories. These two equity categories are likely to be relatively less efficient and this evidence supports the notion that active management is most beneficial in less efficient markets. Gallo and Swanson (1996) use a two-factor international arbitrage pricing model and find that their sample of U.S.-based international mutual funds generates superior investment performance over the 1985-1993 period. Tkac (2001) reports that well-diversified international funds do outperform passive MSCI benchmarks, but regional and country funds do not show the same ability to outperform.

Dentzler and Wiggins (1997) find that actively managed international funds beat a world index, but find that the world index is not mean-variance efficient. They contend that if the world index is inefficient, fund managers can demonstrate spurious superior performance. Relative to a 12-country benchmark, the Jensen measures of the funds in the Dentzler and Wiggins study are overwhelmingly negative, suggesting that active portfolio managers may have country selectivity, but no security selectivity.

A benefit of active management more generally may be that performance is relatively better in down markets. Kosowski (2006) studies domestic U.S. mutual funds and finds that active portfolio management is most beneficial when markets are down. He suggests that investors accept lower average fund performance because the funds perform particularly well in recession times when investors care most about returns. However, Kosowski's results for domestic U.S. funds contrast Cumby and Glen's (1990) finding that international funds performed poorly in October of 1987. We study whether the results Kosowski documents for domestic U.S. mutual funds carries over to U.S.-based international mutual funds by examining the performance of these funds relative to international index funds during the financial crisis of 2007-2009.

The last issue we address is whether "ideal" international index funds with low expense ratios and turnover rates deliver superior performance relative to their "non-ideal" counterparts with high expenses and portfolio turnover. This issue is motivated by Elton, Gruber, and Busse's (2004) finding that not all S&P 500 index funds behave as true index funds. They find that expense ratios vary from .06% to 1.35% (average is 44 basis points) for their sample 52 open-end index funds. The difference between the best performing and worst performing funds averages over 2% per year. Importantly, Elton, Gruber, and Busse find that past expenses predict future differential returns well. Buying the funds with low expenses results in nearly 1% extra return per year relative to the funds with high expenses. This implies that a sorting of

funds into an ideal and non-ideal category based on expense ratios is likely to provide investors with better returns going forward if they invest in only ideal funds.

Elton, Gruber, and Busse (2004) also find that past tax efficiency is a good predictor of future tax efficiency. Index funds with historically good tax efficiency have about one-sixth the amount of capital gains as index funds with historically poor tax efficiency, presumably because of lesser turnover. This implies that turnover may be a beneficial sorting criterion to use along with expenses when forming ideal and non-ideal index fund categories.

III. Data and Methodology

Data for IMFs, ETFs, and AMFs were obtained from Morningstar Principia for the fifteen-year periods ending on March 31, 2009. Results were computed for up to five investment periods (1-, 3-, 5-, 10-, and 15-year). Table I shows the breakdown of all 241 available international index funds, including 106 IMFs and 135 ETFs, in up to 12 Morningstar international stock categories.

Not all self-identified index funds behave like an index fund with low expense ratio and turnover rate. Appendix A lists all non-ideal index funds that charge expense ratios higher than their category average in March 2009. These non-ideal index funds behave more like actively managed funds and were included in “all” international index funds,” but not “ideal” international index funds for our analysis. Table I also shows the breakdown of all 201 “ideal” international index funds, including 72 IMFs and 129 ETFs, in up to 12 Morningstar international stock categories.

This paper empirically compares operating characteristics and performance measures of international index funds relative to category averages in the U.S. mutual fund industry. Operating characteristics collected, averaged, and reported include expense ratios, annual turnover rates, and tax cost ratios.

Expense ratio is the annual fee all mutual funds or ETFs charge investors. Expense ratio is expressed as the percentage of assets deducted each fiscal year for fund expenses, including 12b-1 fees, management fees, administrative fees, operating costs, and all other asset-based costs incurred by the fund.

Turnover rate or ratio is a measure of the fund’s trading activity. Turnover ratio is computed by taking the lesser of purchases or sales (excluding all securities with maturities of less than one year) and dividing by average monthly net assets. A turnover ratio of 100% does not necessarily suggest all securities in the portfolio have been traded. For example, the fund could have held 50% of all positions for the past five years and turned over the other 50% of all positions twice throughout the year. A low turnover rate tends to be more indicate a buy-and-hold strategy. High turnover suggests a more active investment strategy involving more frequent buying and selling of securities. The turnover figure is culled directly from the financial highlights of the fund’s annual report and is not calculated by Morningstar.

Morningstar’s tax cost ratio measures how much a fund’s annualized return is reduced by the taxes investors pay on distributions. Funds regularly distribute dividends and capital gains to

their investors. Investors then must pay taxes on those distributions during the year they are received. Like an expense ratio, the tax cost ratio is usually concentrated in the range between 0% and 5%. A tax cost ratio of 0% indicates the fund had no taxable distributions. A higher tax cost ratio indicates the fund was less tax efficient.

Performance measures include conventional return and risk measures as suggested by Bodie, Kane and Marcus (2007). Annual average returns are measured by mutual funds' net asset value (NAV) returns and ETFs' market returns. Return percentile rank in category represents the percentile rank the fund's return had in its Morningstar category over the designated time frame. Returns are ranked from highest to lowest, with the best return having a 1% ranking and the worst a 100% ranking. These relative figures are a good way to identify funds that out- or underperformed their peers during a certain time period.

Standard deviation (a statistical measurement of dispersion about an average) depicts how widely a fund's returns varied over a certain period of time. Investors use the standard deviation of historical performance to predict a range of returns most likely for a given fund. When a fund has a high standard deviation, the predicted range of future return is wide, implying greater volatility. Morningstar computes the standard deviation by using the trailing monthly total returns for the appropriate time period. All monthly standard deviations are then annualized.

IV. Results

Expense ratios, annual turnover rates, and tax cost ratios are summarized in Table II. International index funds as a whole appear to have lower expense ratios (0.94% vs. 1.74%), lower turnover rates (73.59% vs. 92.75%), and lower tax cost ratios (0.84% vs. 1.58%) than the averages of all international mutual funds in the same Morningstar category. However, IMFs display inconclusive results for expense ratios and higher turnover rates (235.44% vs. 101.25%).

When non-ideal index funds were excluded, "ideal" international index funds in the analysis also have lower expense ratios (0.57% vs. 1.74%), lower turnover rates (29.95% vs. 92.75%), and lower tax cost ratios (0.83% vs. 1.58%) than the averages of all international mutual funds in the same Morningstar category. The statistical significance for turnover rates has been enhanced from 0.10 level to 0.01 level. "Ideal" IMFs display lower expense ratios (0.52% vs. 1.73%) and lower turnover rates (28.54% vs. 102.40%). The statistical significance for all three operating characteristics also has been enhanced.

Table III shows results of average annual returns over the one-, three-, five-, ten-, and fifteen-year period ending on March 31, 2009. The results show all IMFs provided lower returns than category averages (-21.08% vs. -18.28%) whereas "ideal" IMFs provided higher returns than category averages (-13.54% vs. -14.60%). All ETFs exhibit higher returns than category averages (-17.64% vs. -18.54%) and "ideal" ETFs also provided higher returns than category averages (-17.57% vs. -18.54%). Together, while all international index funds display inconclusive results for return performance, "ideal" international index funds appear to perform better than category averages (-15.08% vs. -15.99%). These results contradict the conventional wisdom that active portfolio management is beneficial in international markets.

Specifically, “ideal” IMFs exhibit consistently higher returns in the categories of diversified emerging markets and Japan stock funds. All and “ideal” ETFs exhibit consistently higher returns in the categories of diversified emerging markets and foreign large growth funds. Together, all and “ideal” international index funds exhibit consistently higher returns in the categories of diversified emerging markets, foreign large growth, and Japan stock funds.

Three-year return data is available for ten of the twelve fund categories in Table III. This data coincides with the financial crisis of 2007-2009. In seven of the ten categories, “ideal” international index funds have had better returns than category averages. This direct evidence is inconsistent with actively managed funds doing better in bear markets. Our results suggest Kosowski’s (2006) results for the U.S. market do not carry over to international markets.

Table IV shows results of return percentile rank in category over the one-, three-, five-, ten-, and fifteen-year period ending on March 31, 2009. The results show that while all IMFs display inconclusive results for returns, “ideal” IMFs exhibit higher returns than category averages (39.80% vs. 50.00%). There are no data available for ETFs.

Specifically, all and “ideal” IMFs exhibit consistently higher returns in the categories of diversified emerging markets and Japan stock funds. All four of the categories which have data for the three-year period ending March 31, 2009 show that IMFs have had better returns than category averages. This bear market data again demonstrates that actively managed funds do not have better returns in down markets. These results are similar to what we have found from Table III for IMFs. We find little evidence that active management is superior to indexing in international markets.

Table V shows results of standard deviations (stand-alone or total risk) over the three-, five-, and ten-year period ending on March 31, 2009. The results show all IMFs exhibit higher standard deviations than category averages (22.83% vs. 21.62%) whereas “ideal” IMFs exhibit lower standard deviations than category averages (21.31% vs. 22.08%). All and “ideal” ETFs in general exhibit inconclusive results of standard deviations. Together, all international index funds appear to exhibit higher standard deviations than category averages (24.12% vs. 23.18%) whereas “ideal” international index funds display inconclusive results for risks.

Specifically, unlike all IMFs, “ideal” IMFs exhibit consistently lower standard deviations in the categories of Europe stock, foreign large blend, and Japan stock funds. All and “ideal” ETFs exhibit consistently lower standard deviations in the categories of foreign large growth, Japan stock, and world stock funds. Together, while all international index funds exhibit consistently lower standard deviations only in the category of foreign large funds, “ideal” international index funds exhibit consistently lower standard deviations in the categories foreign large blend, foreign large growth, Japan stock, and world stock funds.

V. Conclusion

Investors in the U.S. can benefit from international diversification by adding international equity funds in their portfolios. Mixing a broad domestic portfolio with some broad international funds can enhance return while reducing risk for a global investor. However, we report empirical evidence suggesting investors are not likely to benefit if they direct their international

investment to actively managed funds as opposed to indexing. The conventional wisdom that indexing may not be competitive in international markets does not hold. Further, we find that indexing is more than competitive with active management during bear markets. During the financial crisis of 2007-2009, indexes provided higher returns. Finally, we caution that investors need to be aware that some self-identified international index funds do not behave like an index fund. About 17% of the international index funds we study in this paper charge higher expense ratios and incur higher turnover rates than category averages. Investors should regard these funds as actively managed funds. The existence of “non-ideal” international index funds understates the returns and overstates the risks of international index funds as a group.

More generally, our results show that both index mutual funds and exchange-traded funds exhibit lower expense ratios, lower turnover rates, and lower tax cost ratios than category averages. Index mutual funds exhibit higher returns and lower risks than category averages. Exchange-traded funds exhibit higher returns than category averages, and display inconclusive results for risk measures. Taken as a whole, international index funds, including both index mutual funds and exchange-traded funds, appear to provide higher returns and similar risks compared with category average and thus most actively managed international mutual funds.

Table I. Numbers of Available International Stock Funds as of March 31, 2009

Morningstar Category	All International Index Funds			“Ideal” International Index Funds			All MFs
	IMFs	ETFs	IIFs	IMFs	ETFs	IIFs	
Diversified Emerging Mkts	10	25	35	5	25	30	318
Diversified Pacific/Asia		3	3		3	3	41
Europe Stock	9	25	34	4	24	28	117
Foreign Large Blend	65	19	84	53	18	71	789
Foreign Large Growth		1	1		1	1	261
Foreign Large Value		5	5		4	4	311
Foreign Small/Mid Growth	4	4	8	1	4	5	135
Foreign Small/Mid Value		4	4		4	4	77
Japan Stock	6	10	16	4	10	14	50
Latin America Stock	2	5	7		5	5	26
Pacific/Asia ex-Japan Stk	2	22	24		21	21	145
World Stock	8	12	20	5	10	15	682
Total	106	135	241	72	129	201	2,952

IMFs: International Index Mutual Funds
IIFs: International Index Funds

ETFs: International Exchange-Traded Funds
All MFs: All International Mutual Funds

Table II. Expense Ratio (%), Annual Turnover (%), and Three-Year Tax Cost Ratio (%)

Panel A. Expense Ratio (%)												
Morningstar Category	All International Index Funds vs. Category Average						"Ideal" International Index Funds vs. Category Average					
	IMFs	AMFs	ETFs	AMFs	IIFs	AMFs	IMFs	AMFs	ETFs	AMFs	IIFs	AMFs
Diversified Emerging Mkts	1.72	1.84	0.74	1.84	1.02	1.84	0.37	1.84	0.74	1.84	0.68	1.84
Diversified Pacific/Asia			0.51	1.85	0.51	1.85			0.51	1.85	0.51	1.85
Europe Stock	1.21	1.67	0.76	1.67	0.88	1.67	0.20	1.67	0.52	1.67	0.48	1.67
Foreign Large Blend	0.96	1.58	0.63	1.58	0.88	1.58	0.74	1.58	0.50	1.58	0.68	1.58
Foreign Large Growth			0.40	1.59	0.40	1.59			0.40	1.59	0.40	1.59
Foreign Large Value			0.94	1.47	0.94	1.47			0.46	1.47	0.46	1.47
Foreign Small/Mid Growth	3.66	1.71	0.66	1.71	2.16	1.71	0.60	1.71	0.66	1.71	0.65	1.71
Foreign Small/Mid Value			0.50	1.53	0.50	1.53			0.50	1.53	0.50	1.53
Japan Stock	0.85	1.81	0.52	1.81	0.64	1.81	0.20	1.81	0.52	1.81	0.43	1.81
Latin America Stock	2.16	1.79	0.57	1.79	1.03	1.79			0.57	1.79	0.57	1.79
Pacific/Asia ex-Japan Stk	2.03	2.29	0.78	2.29	0.88	2.29			0.66	2.29	0.66	2.29
World Stock	1.84	1.74	1.24	1.74	1.48	1.74	1.01	1.74	0.64	1.74	0.76	1.74
Average	1.80	1.80	0.69	1.74	0.94	1.74	0.52	1.73	0.56	1.74	0.57	1.74
T-test (probability)	0.500		0.000***		0.000***		0.000***		0.000***		0.000***	
Panel B. Annual Turnover (%)												
Morningstar Category	All International Index Funds vs. Category Average						"Ideal" International Index Funds vs. Category Average					
	IMFs	AMFs	ETFs	AMFs	IIFs	AMFs	IMFs	AMFs	ETFs	AMFs	IIFs	AMFs
Diversified Emerging Mkts	133.00	89.00	27.30	89.00	62.53	89.00	18.20	89.00	27.30	89.00	25.48	89.00
Diversified Pacific/Asia			52.67	89.00	52.67	89.00			52.67	89.00	52.67	89.00
Europe Stock	511.33	113.00	29.28	113.00	156.88	113.00	15.00	113.00	27.17	113.00	25.43	113.00
Foreign Large Blend	24.17	90.00	42.24	90.00	28.01	90.00	22.72	90.00	41.69	90.00	27.12	90.00
Foreign Large Growth			37.00	99.00	37.00	99.00			37.00	99.00	37.00	99.00
Foreign Large Value			60.20	49.00	60.20	49.00			46.75	49.00	46.75	49.00
Foreign Small/Mid Growth	37.00	84.00	42.00	84.00	39.86	84.00			42.00	84.00	42.00	84.00
Foreign Small/Mid Value			17.25	66.00	17.25	66.00			17.25	66.00	17.25	66.00
Japan Stock	439.00	135.00	8.80	135.00	170.13	135.00	9.00	135.00	8.80	135.00	8.86	135.00
Latin America Stock	685.00	133.00	14.00	133.00	205.71	133.00			14.00	133.00	14.00	133.00
Pacific/Asia ex-Japan Stk	5.00	81.00	22.90	81.00	21.27	81.00			24.05	81.00	24.05	81.00
World Stock	49.00	85.00	16.00	85.00	31.53	85.00	77.80	85.00	10.86	85.00	38.75	85.00
Average	235.44	101.25	30.80	92.75	73.59	92.75	28.54	102.40	29.13	92.75	29.95	92.75
T-test (probability)	0.084*		0.000***		0.094*		0.010**		0.000***		0.000***	
Panel C. Three-Year Tax Cost Ratio (%)												
Morningstar Category	All International Index Funds vs. Category Average						"Ideal" International Index Funds vs. Category Average					
	IMFs	AMFs	ETFs	AMFs	IIFs	AMFs	IMFs	AMFs	ETFs	AMFs	IIFs	AMFs
Diversified Emerging Mkts	0.52	2.36	0.75	2.36	0.67	2.36	0.52	2.36	0.75	2.36	0.67	2.36
Diversified Pacific/Asia			0.95	1.52	0.95	1.52			0.95	1.52	0.95	1.52
Europe Stock	0.71	1.84	1.11	1.84	0.97	1.84	0.82	1.84	1.11	1.84	1.06	1.84
Foreign Large Blend	1.24	1.52	1.04	1.52	1.23	1.52	1.23	1.52	1.04	1.52	1.22	1.52
Foreign Large Growth			0.48	1.29	0.48	1.29			0.48	1.29	0.48	1.29
Foreign Large Value			0.89	2.07	0.89	2.07			0.89	2.07	0.89	2.07
Foreign Small/Mid Growth												
Foreign Small/Mid Value												
Japan Stock	1.55	0.98	0.44	0.98	1.14	0.98	0.41	0.98	0.44	0.98	0.43	0.98
Latin America Stock			0.76	1.22	0.76	1.22			0.76	1.22	0.76	1.22
Pacific/Asia ex-Japan Stk			1.01	1.68	1.01	1.68			1.01	1.68	1.01	1.68
World Stock	0.00	1.27	0.83	1.27	0.33	1.27			0.83	1.27	0.83	1.27
Average	0.80	1.59	0.83	1.58	0.84	1.58	0.75	1.68	0.83	1.58	0.83	1.58
T-test (probability)	0.067*		0.000***		0.001***		0.035**		0.000***		0.000***	

IMFs: International Index Mutual Funds
 IIFs: International Index Funds
 ***, **, *: Significant at the 0.01, 0.05, 0.10 level

ETFs: International Exchange-Traded Funds
 AMFs: (Category) Average of International Mutual Funds

Table III. Average Annual Return (%)

Morningstar Category	All International Index Funds vs. Category Average						"Ideal" International Index Funds vs. Category Average					
	IMFs	AMFs	ETFs	AMFs	IIFs	AMFs	IMFs	AMFs	ETFs	AMFs	IIFs	AMFs
Diversified Emerging Mkts												
1-Year	-52.53	-49.59	-43.36	-49.59	-46.89	-49.59	-47.30	-49.59	-43.36	-49.59	-44.30	-49.59
3-Year	-8.54	-10.41	-7.60	-10.41	-8.07	-10.41	-8.54	-10.41	-7.60	-10.41	-8.07	-10.41
5-Year	5.63	4.05	7.76	4.05	6.54	4.05	5.63	4.05	7.76	4.05	6.54	4.05
10-Year	7.83	7.78			7.83	7.78	7.83	7.78			7.83	7.78
Diversified Pacific/Asia												
1-Year			-41.98	-42.64	-41.98	-42.64			-41.98	-42.64	-41.98	-42.64
3-Year			-13.31	-12.75	-13.31	-12.75			-13.31	-12.75	-13.31	-12.75
5-Year			-2.73	-0.61	-2.73	-0.61			-2.73	-0.61	-2.73	-0.61
Europe Stock												
1-Year	-53.26	-51.19	-53.32	-51.19	-53.30	-51.19	-49.67	-51.19	-52.88	-51.19	-52.42	-51.19
3-Year	-18.19	-15.75	-15.16	-15.75	-16.25	-15.75	-14.14	-15.75	-15.16	-15.75	-14.95	-15.75
5-Year	-5.38	-1.77	-1.94	-1.77	-3.23	-1.77	-1.70	-1.77	-1.94	-1.77	-1.89	-1.77
10-Year	-3.45	3.19	-0.48	3.19	-1.59	3.19	-0.83	3.19	-0.48	3.19	-0.58	3.19
15-Year	5.48	5.32			5.48	5.32	5.48	5.32			5.48	5.32
Foreign Large Blend												
1-Year	-48.47	-46.46	-48.71	-46.46	-48.52	-46.46	-47.07	-46.46	-48.53	-46.46	-47.41	-46.46
3-Year	-15.41	-14.74	-14.53	-14.74	-15.38	-14.74	-14.96	-14.74	-14.53	-14.74	-14.94	-14.74
5-Year	-3.04	-2.48	-2.77	-2.48	-3.02	-2.48	-2.68	-2.48	-2.77	-2.48	-2.69	-2.48
10-Year	-1.12	-0.77			-1.12	-0.77	-1.02	-0.77			-1.02	-0.77
15-Year	2.30	2.22			2.30	2.22	2.57	2.22			2.57	2.22
Foreign Large Growth												
1-Year			-45.23	-46.86	-45.23	-46.86			-45.23	-46.86	-45.23	-46.86
3-Year			-13.16	-14.15	-13.16	-14.15			-13.16	-14.15	-13.16	-14.15
Foreign Large Value												
1-Year			-47.66	-45.71	-47.66	-45.71			-47.42	-45.71	-47.42	-45.71
3-Year			-13.96	-14.74	-13.96	-14.74			-13.96	-14.74	-13.96	-14.74
5-Year			3.77	-2.41	3.77	-2.41			3.77	-2.41	3.77	-2.41
10-Year			7.19	1.39	7.19	1.39			7.19	1.39	7.19	1.39
Foreign Small/Mid Growth												
1-Year	-44.43	-49.31	-52.08	-49.31	-48.80	-49.31			-52.08	-49.31	-52.08	-49.31
Foreign Small/Mid Value												
1-Year			-48.43	-48.51	-48.43	-48.51			-48.43	-48.51	-48.43	-48.51
Japan Stock												
1-Year	-48.63	-42.74	-32.07	-42.74	-38.28	-42.74	-38.32	-42.74	-32.07	-42.74	-33.86	-42.74
3-Year	-24.91	-23.44	-16.37	-23.44	-22.07	-23.44	-14.53	-23.44	-16.37	-23.44	-15.32	-23.44
5-Year	-8.86	-8.77	-5.51	-8.77	-8.02	-8.77	-2.95	-8.77	-5.51	-8.77	-3.80	-8.77
10-Year	-0.57	-2.02	-2.90	-2.02	-1.03	-2.02	-0.57	-2.02	-2.90	-2.02	-1.03	-2.02
15-Year	-1.53	-2.69			-1.53	-2.69	-1.53	-2.69			-1.53	-2.69
Latin America Stock												
1-Year	-85.88	-57.11	-46.41	-57.11	-57.69	-57.11			-46.41	-57.11	-46.41	-57.11
3-Year			-3.02	-6.91	-3.02	-6.91			-3.02	-6.91	-3.02	-6.91
5-Year			15.11	13.36	15.11	13.36			15.11	13.36	15.11	13.36
10-Year			9.46	11.89	9.46	11.89			9.46	11.89	9.46	11.89
Pacific/Asia ex-Japan Stk												
1-Year	-77.55	-42.18	-43.77	-42.18	-46.84	-42.18			-44.14	-42.18	-44.14	-42.18
3-Year			-5.46	-3.66	-5.46	-3.66			-5.46	-3.66	-5.46	-3.66
5-Year			1.42	4.62	1.42	4.62			1.42	4.62	1.42	4.62
10-Year			6.15	8.99	6.15	8.99			6.15	8.99	6.15	8.99
World Stock												
1-Year	-41.18	-41.70	-47.25	-41.70	-44.22	-41.70	-46.42	-41.70	-45.04	-41.70	-45.65	-41.70
3-Year	-5.80	-13.38	-12.22	-13.38	-8.37	-13.38			-12.22	-13.38	-12.22	-13.38
5-Year	0.60	-3.06	-4.64	-3.06	-1.50	-3.06			-4.64	-3.06	-4.64	-3.06
Average	-21.08	-18.28	-17.64	-18.54	-15.74	-15.99	-13.54	-14.60	-17.57	-18.54	-15.08	-15.99
T-test (probability)		0.074*		0.085*		0.267		0.064*		0.064*		0.047**

IMFs: International Index Mutual Funds

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AMFs: (Category) Average of International Mutual Funds

***, **, *: Significant at the 0.01, 0.05, 0.10 level

Table IV. Return Percentile Rank in Category

Morningstar Category	All International Index Funds vs. Category Average						"Ideal" International Index Funds vs. Category Average					
	IMFs	AMFs	ETFs	AMFs	IIFs	AMFs	IMFs	AMFs	ETFs	AMFs	IIFs	AMFs
Diversified Emerging Mkts												
1-Year	40.00	50.00			40.00	50.00	32.20	50.00			32.20	50.00
3-Year	29.50	50.00			29.50	50.00	29.50	50.00			29.50	50.00
5-Year	23.50	50.00			23.50	50.00	23.50	50.00			23.50	50.00
10-Year	44.50	50.00			44.50	50.00	44.50	50.00			44.50	50.00
Europe Stock												
1-Year	57.44	50.00			57.44	50.00	54.00	50.00			54.00	50.00
3-Year	61.67	50.00			61.67	50.00	33.25	50.00			33.25	50.00
5-Year	72.56	50.00			72.56	50.00	44.25	50.00			44.25	50.00
10-Year	85.17	50.00			85.17	50.00	78.50	50.00			78.50	50.00
15-Year	40.00	50.00			40.00	50.00	40.00	50.00			40.00	50.00
Foreign Large Blend												
1-Year	55.83	50.00			55.83	50.00	50.92	50.00			50.92	50.00
3-Year	53.15	50.00			53.15	50.00	47.80	50.00			47.80	50.00
5-Year	54.61	50.00			54.61	50.00	49.21	50.00			49.21	50.00
10-Year	51.44	50.00			51.44	50.00	49.65	50.00			49.65	50.00
15-Year	49.27	50.00			49.27	50.00	39.43	50.00			39.43	50.00
Japan Stock												
1-Year	46.83	50.00			46.83	50.00	21.00	50.00			21.00	50.00
3-Year	35.83	50.00			35.83	50.00	4.75	50.00			4.75	50.00
5-Year	36.50	50.00			36.50	50.00	6.00	50.00			6.00	50.00
10-Year	29.50	50.00			29.50	50.00	29.50	50.00			29.50	50.00
15-Year	40.00	50.00			40.00	50.00	40.00	50.00			40.00	50.00
World Stock												
1-Year	49.00	50.00			49.00	50.00	78.00	50.00			78.00	50.00
Average	47.82	50.00			47.82	50.00	39.80	50.00			39.80	50.00
T-test (probability)	0.259				0.259		0.013**				0.013**	

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***, **, *: Significant at the 0.01, 0.05, 0.10 level

Table V. Standard Deviation (%)

Morningstar Category	All International Index Funds vs. Category Average						"Ideal" International Index Funds vs. Category Average					
	IMFs	AMFs	ETFs	AMFs	IIFs	AMFs	IMFs	AMFs	ETFs	AMFs	IIFs	AMFs
Diversified Emerging Mkts												
3-Year	30.09	29.53	30.49	29.53	30.29	29.53	30.09	29.53	30.49	29.53	30.29	29.53
5-Year	26.38	25.68	28.22	25.68	27.17	25.68	26.38	25.68	28.22	25.68	27.17	25.68
10-Year	24.84	24.96			24.84	24.96	24.84	24.96			24.84	24.96
Diversified Pacific/Asia												
3-Year			24.06	23.37	24.06	23.37			24.06	23.37	24.06	23.37
5-Year			20.73	20.69	20.73	20.69			20.73	20.69	20.73	20.69
Europe Stock												
3-Year	24.17	23.35	25.42	23.35	24.97	23.35	22.81	23.35	25.42	23.35	24.90	23.35
5-Year	20.44	20.39	21.68	20.39	21.22	20.39	19.21	20.39	21.68	20.39	21.16	20.39
10-Year	20.41	20.89	22.37	20.89	21.63	20.89	18.67	20.89	22.37	20.89	21.31	20.89
Foreign Large Blend												
3-Year	21.72	21.71	21.73	21.71	21.72	21.71	21.67	21.71	21.73	21.71	21.67	21.71
5-Year	18.51	18.65	18.50	18.65	18.51	18.65	18.44	18.65	18.50	18.65	18.44	18.65
10-Year	17.57	18.15			17.57	18.15	17.53	18.15			17.53	18.15
Foreign Large Growth												
3-Year			21.52	22.69	21.52	22.69			21.52	22.69	21.52	22.69
Foreign Large Value												
3-Year			24.00	21.23	24.00	21.23			24.00	21.23	24.00	21.23
5-Year			23.51	18.16	23.51	18.16			23.51	18.16	23.51	18.16
10-Year			22.22	17.37	22.22	17.37			22.22	17.37	22.22	17.37
Japan Stock												
3-Year	28.29	20.11	19.54	20.11	25.37	20.11	19.79	20.11	19.54	20.11	19.68	20.11
5-Year	25.99	20.03	18.15	20.03	24.03	20.03	18.00	20.03	18.15	20.03	18.05	20.03
10-Year	18.25	21.49	19.40	21.49	18.48	21.49	18.25	21.49	19.40	21.49	18.48	21.49
Latin America Stock												
3-Year			33.84	33.88	33.84	33.88			33.84	33.88	33.84	33.88
5-Year			30.90	30.86	30.90	30.86			30.90	30.86	30.90	30.86
10-Year			27.83	29.39	27.83	29.39			27.83	29.39	27.83	29.39
Pacific/Asia ex-Japan Stk												
3-Year			30.64	30.94	30.64	30.94			30.64	30.94	30.64	30.94
5-Year			24.25	25.63	24.25	25.63			24.25	25.63	24.25	25.63
10-Year			29.09	25.62	29.09	25.62			29.09	25.62	29.09	25.62
World Stock												
3-Year	22.67	20.29	17.98	20.29	20.79	20.29			17.98	20.29	17.98	20.29
5-Year	20.24	17.50	14.78	17.50	18.05	17.50			14.78	17.50	14.78	17.50
Average	22.83	21.62	23.79	23.31	24.12	23.18	21.31	22.08	23.79	23.31	23.42	23.18
T-test (probability)	0.071*		0.148		0.017**		0.023**		0.148		0.279	

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Appendix A. Non-Ideal International Index Funds

Morningstar Category	Fund Type	Fund Name	Ticker	Expense Ratio	Turnover Rate
Diversified Emerging Mkts	IMF	Schb Fdm EmgMkt Idx Ins	SFENX	4.08	159.00
Diversified Emerging Mkts	IMF	Schb Fdm EmgMkt Idx Inv	SFEMX	3.99	159.00
Diversified Emerging Mkts	IMF	Schb Fdm EmgMkt Idx Sel	SFESX	3.35	159.00
Diversified Emerging Mkts	IMF	ProFunds UltraEm Mkt Svc	UUPSX	2.44	381.00
Diversified Emerging Mkts	IMF	ProFunds UltraEm Mkt Inv	UUPIX	1.44	381.00
Europe Stock	ETF	First Trust DJ STOXX 30	FDD	6.43	80.00
Europe Stock	IMF	ProFunds Europe 30 Svc	UEPSX	2.67	1,791.00
Europe Stock	IMF	Rydex Europe Str C	RYCEX	2.40	320.00
Europe Stock	IMF	Rydex Europe Str A	RYAEX	1.69	320.00
Europe Stock	IMF	ProFunds Europe 30 Inv	UEPIX	1.67	1,791.00
Europe Stock	IMF	Rydex Europe Str H	RYEUX	1.67	320.00
Foreign Large Blend	ETF	Claymore/Zacks Country Ro	CRO	2.98	51.00
Foreign Large Blend	IMF	ProFunds Ultra Intl Svc	UNPSX	2.58	
Foreign Large Blend	IMF	AllianceBer Intl C	AIZCX	2.12	53.00
Foreign Large Blend	IMF	AllianceBer Intl B	AIZBX	2.11	53.00
Foreign Large Blend	IMF	AllianceBer TMgd Intl B	ABXBX	2.09	70.00
Foreign Large Blend	IMF	AllianceBer TMgd Intl C	ABXCX	2.09	70.00
Foreign Large Blend	IMF	State Farm Intl Idx B	NFSBX	1.98	8.00
Foreign Large Blend	IMF	JPMorgan Intl Eq Idx B	OGEBX	1.77	18.00
Foreign Large Blend	IMF	JPMorgan Intl Eq Idx C	OIICX	1.77	18.00
Foreign Large Blend	IMF	State Farm Intl Idx B Leg	SIIBX	1.67	8.00
Foreign Large Blend	IMF	RidgeWorth Intl Eq Idx C	SIIFX	1.60	13.00
Foreign Large Blend	IMF	State Farm Intl Index R1	RIIOX	1.60	8.00
Foreign Large Blend	IMF	ProFunds Ultra Intl Inv	UNPIX	1.58	
Foreign Large Value	ETF	Claymore/Zacks InMltA Inc	HGI	2.85	114.00
Foreign Small/Mid Growth	IMF	Schb Fdm IntS/MCIdx Ins	SFILX	5.45	37.00
Foreign Small/Mid Growth	IMF	Schb Fdm IntS/MCIdx Inv	SFIVX	4.52	37.00
Foreign Small/Mid Growth	IMF	Schb Fdm IntS/MCIdx Sel	SFSMX	4.08	37.00
Japan Stock	IMF	ProFunds UltraJapan Svc	UJPSX	2.66	1,299.00
Japan Stock	IMF	ProFunds UltraJapan Inv	UJPIX	1.66	1,299.00
Latin America Stock	IMF	ProFunds Ultra Lt Am Svc	UBPSX	2.66	685.00
Latin America Stock	IMF	ProFunds Ultra Lt Am Inv	UBPIX	1.66	685.00
Pacific/Asia ex-Japan Stk	ETF	Claymore/Alpha China SmCp	HAO	3.16	1.00
Pacific/Asia ex-Japan Stk	IMF	Profds UltraChina Svc	UGPSX	2.53	5.00
Pacific/Asia ex-Japan Stk	IMF	Profds UltraChina Inv	UGPIX	1.53	5.00
World Stock	ETF	First Trust DJ Gbl SelDiv	FGD	4.69	42.00
World Stock	ETF	Claymore/Robb Report Gbl	ROB	3.81	26.00
World Stock	IMF	AMIDEX35 Israel C	AMDCX	3.71	1.00
World Stock	IMF	AMIDEX35 Israel	AMDEX	2.96	1.00
World Stock	IMF	AMIDEX35 Israel A	AMDAX	2.95	1.00

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ETF: International Exchange-Traded Fund

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