PERFORMANCE OF EMERGING MARKET DIVERSIFIED EQUITY FUNDS

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─Abstract ─

This paper examines the performance of diversified emerging market funds during the period of January 2000 and November 2011. The emerging market funds provide U.S. investors an alternative to expose their portfolios. Emerging markets differs from developed markets on a wide range of market and economic characteristics, including size, liquidity, and regulation. The results show that diversified emerging market funds generate some significant alphas for their investors during the study period. An analysis of sub-period performance suggests that these funds do not consistently provide excess returns, showing great variations from one period to another.

Key Words: *Emerging Markets, Mutual Funds, Diversified Funds*
JEL Classification: G11, G15, G23

1. INTRODUCTION

The number of investments in emerging markets has grown substantially during the last two decades. Because of increased interest in investments in emerging markets, investment companies have created various emerging market equity and bond funds to meet the needs of investors. The popularity of these investment funds comes from their ability to provide diversification benefits as well as their impressive return performance in recent years. Since operating and economic environment in emerging markets are different from those of U.S., investing in emerging markets can provide opportunities for fund managers to obtain excess returns. On the other hand, the volatility in these markets are higher so additional risk should be included in the analysis.

The question of whether active portfolio management can produce positive alphas has received attention from both practitioners and academicians. The proponents in manager's ability to generate positive alphas believe alphas represent disequilibrium returns that can exist in complex financial markets. For example, Jarrow (2010) argues that persistent and frequent arbitrage opportunities are much rarer, even in complex markets and therefore positive alphas are more fantasy than fact. Roll (1992) shows such portfolios are suboptimal and risky because they do not belong to the mean-variance frontier. Alexander and Baptista (2010) propose a method to lessen sub-optimality that involves the objective of selecting a portfolio from the set of portfolios that have minimum tracking error variance. As persistent and frequent arbitrage opportunities are much rarer, even in complex markets, Jarrow (2010) argues that positive alphas are more fantasy than fact and unobservable factors can create false positive alphas.

Emerging market diversified funds provide an alternative to U.S. investors who want to expose their portfolios to these markets. These funds offer an inexpensive and convenient way of obtaining high returns from emerging markets while diversifying risk. The number of funds has increased sharply during the last decade.

Studies on performances of emerging market equity and bonds funds report mixed results. Among earlier studies, Cumby and Glen (1990) examine performance of a sample of 15 US-based, internationally diversified mutual funds for the period 1982-1988. Findings suggest that these funds did not over-perform a broad international equity index over the sample period. Eun, Kolodny, and Resnick (1991) report similar results while analyzing 19 international mutual funds during 1977-1986. The findings show that these funds have allowed U.S. investors to diversify risk internationally. While most funds studies outperformed S&P 500 Index during the study period, they underperformed the MSCI World Index. Chen and Jang (1994) examine managers' selection and timing abilities. Findings show that most of the internationally diversified mutual funds outperformed the domestic stock market index in both selectivity and timing. Droms and Walker (1994) find that alphas for international equity funds are not significantly different from zero. Kao, Cheng, and Chan (1998) examine the selectivity and market timing ability of international mutual fund managers and find international fund managers be poor market-timers. Managers of certain funds, including those of

Pacific, Foreign and World funds have good selectivity performance. Further there is negative correlation between the selection and timing ability of international fund managers and managers of European funds show weaker performance than those managing other groups. Lin (2006) show that Japanese managers outperform index returns during the period of 1981 to 2004. Gottesman and Morey (2007) examine various fund characteristics including expense ratio, portfolio turnover, and manager tenure on fund performance. Findings show that only expense ratio be influencing the fund performance, lower expense ratio funds are associated with higher fund performance.

Latif and Kazemi (2007) use a stochastic model to examine U.S.-based international mutual funds during 1990-2003 period. Sample funds are classified based on regions (such as Europe, Pacific, and World). Results show that global equity markets are well integrated. Fund managers can't consistently earn excess returns above a buy and hold strategy in U.S. equity market. Michelson, Philipova, and Srotova (2008) examine the benefits of investing in emerging markets mutual funds during the period of 1999 to 2005. The authors show the emerging market funds outperform the MSCI Index and the S&P 500 Index, but underperform the emerging market index. They further report a negative relation between emerging market fund returns and turnover, and a positive relation between fund returns and size. Lin, Hoffman, and Duncan (2009) argue that having a global view adds flexibility to asset allocation process as fund managers can shift their investments between U.S. and non-U.S. stocks. With skilled managers, a higher alpha can be achieved without adding more risk.

Overall, the literature on the performances of international equity reports mixed results with most studies outlining the benefit of international diversification benefits. This paper provides a comprehensive analysis of both emerging equity and bond fund performance.

This study provides an analysis of U.S. based diversified emerging market funds during the period of January 2000 and November 2011. The study examines the fund managers' efforts for searching alphas in their portfolios. Erb, Harvey, and Viskanta (1999, 2000) and Harvey (1995) argue that evaluating the performance of emerging capital markets is difficult as market conditions influence the return characteristics of the emerging market significantly. So it is important to have a

data set that would cover various market conditions. The period under study covers significant ups and downs in the financial markets. These include technology bubbles of U.S., one of the greatest expansions in U.S. markets during 2003 and 2007, and finally financial crises of 2007 and 2009. The sample includes 463 diversified emerging market and 138 emerging market bond funds. The findings show the diversified fund managers experience limited success in their search for alphas during the period of 2000 and 2011.

2. DATA AND METHODOLOGY

2.1. Data

Monthly diversified emerging market fund returns from March 2000 to November 2011 are from the *Morningstar Database*. The initial diversified emerging market fund sample includes 559 funds. We remove funds with fewer than twelve months of data. The net sample of diversified emerging market funds consists of 463 funds. Table 2 provides a descriptive statistics of both groups. Panel A outlines the descriptive statistics for diversified emerging market funds. The average mean return for 463 funds during the study period is 8.28 percent annually with the highest returns of 17.32 percent and with the lowest return of -24.11 percent.

Table 1 Summary Fund Characteristics and Portfolio Holdings
The sample consists of 463 Diversified Emerging Market Funds. Study period spans from January 2000 to November 2011.

Fund Characteristics	*Mean*	*Median*	*Std. Dev.*
Turnover (%)	55.18	40.00	54.24
Expense Ratio (%)	1.65	1.63	0.55
Load (%)	0.50	0.25	0.33
Price/Earnings Ratio	10.43	10.4	2.55
Price/Book Ratio	1.68	1.60	0.57
Front Load (%)	5.488	5.750	0.553
Net Assets ($ millions)	340.8	10.10	1214.5
Market Capitalization ($ millions)	14589.9	14649.0	6850.2
Manager Tenure	5.2	4.0	4.6
Morningstar Overall Star Rating	2.38	3.00	1.49

The panel further provides minimum, maximum, and quartiles distribution. Average standard deviation is 29.07 percent for this group. The data distribution is negatively skewed, indicating that the distribution is less than the median. This means the portfolio has a tendency to earn a return less than mean. The data has positive kurtosis, suggesting a peaked distribution. This would show the portfolio's returns cluster closer to the mean value than they would if they were normally distributed. The panel also provides common sample period mean values for each statistics. The mean values are higher for geometric and arithmetic averages (7.63 and 10.97 percent respectively).

Table 1 outlines various fund characteristics and portfolio holdings of diversified emerging equity funds. For example, the mean expense ratio is 1.65% for diversified emerging funds compared to 1.27% for bond funds. Net Assets ($ million) is higher for diversified equity funds (340.8) than bond funds (298.4). Other characteristics of funds include turnover, load, P/E ratio, P/B ratio, management tenure, Morningstar overall star ratings, and portfolio holdings.

Table 2 Descriptive Statistics of Fund Performance (January 2000- November 2011)

Diversified Emerging Market Funds *(n=463)*

	Geo. Mean (%)	*Arith. Mean (%)*	*Highest Return (%)*	*Lowest Return (%)*	*Std. Dev. (%)*	*Skewness*	*Kurtosis*
Mean	4.41	8.28	17.32	-24.38	29.07	-0.47	1.32
Minimum	-29.27	-24.11	5.14	-54.75	8.99	-1.20	-1.13
Maximum	30.83	36.47	32.97	-7.90	70.99	0.57	4.21
First quartile (25%)	-0.49	3.50	14.14	-28.26	25.95	-0.68	0.86
Second quartile (50%)	6.54	9.97	17.18	-27.20	28.36	-0.55	1.28
Third quartile (75%)	10.41	13.65	19.08	-17.57	32.21	-0.34	1.84
Common Sample Period (N=141 months)							
Mean	7.63	10.97	17.98	-27.76	27.30	-0.61	1.32

2.1. Methodology

We use several performance measures. First, we start with Sharpe ratio. The expected return minus the risk-free rate then is the portfolio's risk premium.

Dividing risk premium by standard deviation provides a relative gauge for portfolio comparison. Thus, given comparable portfolios, larger Sharpe ratio, better-off the investor is.

$$S = \frac{Ri - Rf}{\sigma} \quad (1)$$

Where R_i is the return on the fund, R_f= risk free rate (30-days U.S. treasury bill rate), and
σ=the standard deviation of fund returns. As the Sharpe ratio calculates the excess return above risk free rate and does not depend on a proxy for the market portfolio, it may be attractive for examining the performances of emerging market funds. A higher Sharpe ratio implies outperformance of the fund on a risk-adjusted basis.

Second, we use Treynor ratio. The risk measure here is Beta or systematic risk of the series, not total risk. This measure is also called reward-to-volatility ratio.
Finally, we use standard Jensen (1968, 1969) α coefficient. Jensen's alpha is the difference between a series' realized or expected rate of return and its expected position on the security market line given his risk level. If a series has a positive Jensen alpha, it then outperforms what the CAPM would predict. If a series has a negative Jensen alpha (i.e. it is below the security market line), then it underperforms what the CAPM would predict.

$$R_i - R_f = \alpha + \beta (R_M - R_f) + \varepsilon \quad (2)$$

Where R_i is the return on fund, α is Jensen's alpha, β is fund's systematic risk, R_f is risk free rate, and R_M is return on benchmark portfolio. We use 30-day Treasury bill rates to proxy risk free rate (R_f). We use the Morgan Stanley Capital International Emerging Markets Index (MSCI EMI) as proxy for the diversified emerging market index. The intercept, α, is a measure of the risk adjusted incremental return obtained by the fund manager. A statistically significant positive (negative) alpha indicates superior (inferior) investment performance for each fund. The t-test is used to examine the statistical significance of fund performance.

To summarize the performance of the sample funds, we use the equally-weighted portfolio of respective diversified emerging market funds. We further report number of positive (negative) alphas and their statistical levels.

3. EMPRICAL FINDINGS

Table 3 reports performances of diversified emerging market funds. Panel A of the table outlines top 15 performing funds by using Jensen's Alpha. The highest excess annual excess return is 0.91% and the coefficient is statistically significant. The mean Sharpe ratio, Jensen's alpha, and Treynor ratio are 0.07, 0.14, and 0.56 respectively. The Sharpe ratio ranges from 0.31 to -0.49 while Jensen's Alpha has maximum and minimum values of 0.91 and -1.55 respectively. When we compare performance of emerging market equity funds with various market indices, we find mixed results. Specifically, we note that these funds outperform S&P500,

Table 3: Risk Adjusted Performance Measures: Diversified Emerging Market Funds (January 2000- November 2011)

Panel A: Summary Sample Performance (n=463)

	Sharpe Ratio	*Treynor Ratio (%)*	*Jensen's (%)*	*Info. Ratio*	*Eff. Ratio*
Mean	0.07	0.56	0.14	0.30	0.09
Minimum	-0.49	-3.88	-1.55	-1.07	-0.48
Maximum	0.31	2.45	0.91	1.89	0.31
First quartile (25%)	0.05	0.40	0.04	-0.01	-0.26
Second quartile (50%)	0.09	0.71	0.16	0.37	-0.15
Third quartile (75%)	0.13	1.03	0.28	1.03	0.00

Panel B: Market Indices

	Sharp Ratio	*Arithmetic Mean (%)*	*Standard Deviation (%)*
MSCI World	-0.11	0.41	17.14
Wilshire Emerging Markets	0.51	17.27	29.67
MSCI Emerging Markets	0.24	8.78	27.10
S&P500	0.01	2.46	16.88

MSCI World index but underperform both emerging market indices (Wilshire and MSCI) on risk adjusted basis. For example, Sharpe ratio is 0.07 compare to those of S&P500 (0.01), MSCI World (-0.11), Wilshire Emerging Markets (0.51) and MSCI Emerging Market (0.24).

The market condition influence the return characteristic and performance of emerging markets greatly as pointed out by Erb, Harvey, and Viskanta (1999, 2000). We divide entire time period into four sub-periods, two involving recession and two involving expansion in the economy. The sub-period analysis of diversified emerging market funds shows the following (Table is not provided). First period is from March 2000 to March 2003. The Sharpe ratio for diversified emerging market funds is -0.20 while Sharpe ratios of S&P500, Wilshire Emerging Market, and MSCI Emerging market indices are -0.94, -0.70, and -0.98 respectively. So these funds seem to be experiencing lower negative returns (over-performing all indices under consideration). Similar patterns are reported during August 2007-February 2009 period. Although we observe negative Sharpe ratio for funds as well as all benchmarks, Sharpe ratio is lower for than those of indices (over-performance).

During the two expansion periods under consideration, emerging market equity funds underperform all the indices. For example, during April 2003 and July 2007 period, the average Sharpe ratio for diversified emerging market funds was 0.64, significantly lower than those of benchmark indices. During the same period, S&P500, MSCI EM, and Wilshire EM have Sharpe ratios of 1.34, 1.72, and 1.91. We see similar results during the March 2009-November 2011 period where Sharpe ratio for diversified emerging market group is 0.23 compare to those of S&P500 (1.18), MSCI EM (0.87), and Wilshire EM (1.16).

The summary performance of emerging market diversified funds shows that 359 of 463 diversified emerging market funds (78 percent) have positive alphas while only 87 of them are statistically significant (19 percent). Only 22 percent of these funds experience negative alpha (only 6 percent being statistically significant). Overall, the findings show that funds managers search for alpha in emerging markets are not successful. Only 20 percent of diversified emerging market funds can provide statistically significant excess returns to investors.

4. CONCLUSION

This study provides an analysis of U.S. based diversified emerging market funds and emerging bond funds during the period of January 2000 and November 2011. The study examines the fund managers' efforts for searching alphas in their portfolios. The emerging market funds provide U.S. investors an alternative to expose their portfolios. These markets differs from developed markets on wide range of market and economic characteristics, including size, liquidity, and regulation. The sample includes 463 diversified emerging market and 138 emerging market bond funds. The findings show the diversified fund managers experience limited success in their search for alphas during the period of 2000 and 2011, while emerging market bond fund managers fail to realize positive alphas in general. Most funds do not provide statistically significant alphas. While 20 percent of diversified equity funds provide statistically significant alphas to their investors, only three percent of emerging market bond funds provides statistically significant positive alphas.

The study further provides evidence on the sub-period performance of these funds. These sub-periods cover significant ups and downs in the financial markets, including technology bubbles of U.S., one of the greatest expansions in U.S. markets during 2003 and 2007, and finally financial crises of 2007 and 2009. The sub-period results suggest that while diversified emerging market funds experience negative returns during two of the four sub-periods, bond fund experience significant negative returns during 2007-2009 period. The study concludes that emerging market fund managers are unable to provide positive alphas to their clients consistently.

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