

THE RISK-RETURN TRADE-OFF OF INVESTING IN LATIN AMERICAN EMERGING STOCK MARKETS

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ABSTRACT

In this paper we examine risk-return trade-off of investing in Latin American emerging stock markets. In particular, the study seeks to examine whether equities from Latin American emerging markets might have offered the Canadian investor high returns for a relatively low level of risk when combined into a portfolio of Canadian shares. Optimal portfolios were derived based on historic (ex-post) observations and evaluated utilizing the mean return per unit of risk (MRPUR) performance measure. In particular, the performance of the MRPUR-optimal emerging market portfolio was compared with the MRPUR of a portfolio consisting solely of Canadian shares to determine whether any benefits resulted from diversifying into the emerging stock markets over the ten-year periods. The results revealed substantial differences in the risk-return characteristics of the MRPUR-optimal portfolios.

JEL: G11, G15

KEY WORDS: Emerging Stock Market, Optimal Portfolio, Risk-Return Characteristics, Equity Portfolio, Portfolio Diversification

INTRODUCTION

In this paper, we examine the risk-return trade-off of investing in Latin American emerging stock markets. In the past decade, Canada's Foreign Direct Investment in South and Central America grew almost 6-fold (583%). Canada's international investment position in 2001 totaled \$13.6 billion, (ECLAC, 2003). International capital markets have seen the gradual removal of restrictions on capital flows, starting with the developed economies and moving on to the developing economies. This worldwide trend initiated a degree of international capital mobility, particularly towards emerging market countries. In particular, this deregulation combined with structural change over the years has resulted in the development and technological advancement of the Toronto Stock Exchange (TSX), making it one of the leading capital markets in the world and Canada's principal market for equity trading. Its market trading activity, consistent growth and ongoing development increasingly attributed to foreign investors who, in an effort to diversify their portfolios more effectively, are tapping into foreign capital markets and buying foreign securities characterizes the TSX. As such, technology and globalization are increasingly becoming an integral part of the world's equity and debt markets, especially those in Canada.

De Jong and De Roon (2005), Donadelli and Prosperi (2012), suggest that financial and real market openness increase, ex-post, expected excess returns in emerging stock markets. In line with Donadelli and Prosperi (2012), Karadagli (2012) finds that the overall level of globalization significantly improves firm performance in emerging countries. The emerging markets have become more integrated into the global financial system (Bekaert, 1995; Bekaert and Harvey, 1995; Harvey, 1995; Barari, 2003; Bekaert et al., 2003), implying a diminution in the benefits from diversifying into Latin American emerging stock markets. Most emerging markets have now undergone various degrees of financial liberalization.

As emerging markets grow and develop greater financial and trade links with each other and with developed markets, they become more correlated; some of the potential gains associated with investment in emerging stock markets, namely, risk reduction via international diversification are therefore likely to

fade away. This may reduce the appetite of international investors for emerging market equities. However, despite the increasing integration of emerging markets with the rest of the world, this does not imply that the diversification benefits of investing in emerging markets have disappeared; their correlations with developed markets have remained low (Drummen and Zimmermann, 1992; Speidell and Sappenfield, 1992). Investing in emerging markets also enables international investors to diversify risk, thereby achieving more effective insurance than purely domestic arrangements would provide. In addition, the existence of perceived barriers to investment in these markets restricts the inclusion of emerging market equities in diversified portfolios, and hence, also limits the integration of these markets in the global market (Derrabi and Leseure, 2003).

In order to shed more lights on this issue, an investigation into the risk-return trade-off of investment, in Latin American emerging markets is undertaken in this study. This study provides an analysis on whether Latin American emerging markets have continued to offer substantial diversification benefits to Canadian investors despite having become more closely integrated with world financial markets in recent years. Second, this analysis considers the viability of Latin American emerging market equities as effective tools for diversification during times of financial crisis, several of which spanned the period of this study. The Canadian economy can be characterized by its growth, stability, and trade relationships. Rodriguez (2007) find that in the aggregate, Latin American fund managers demonstrate forecasting ability as evidenced by a positive and statistically significant attribution return.

The remainder of this paper is organized as follows: The related literature and the scope of this research study. The research method and methodology are outlined and data are described. Finally the results of the study and conclusions are presented.

LITERATURE REVIEW

Research into cross-border links in emerging stock markets was boosted by the growth and increasing openness of these markets, as well as the speed and virulence with which past financial crises in emerging market economies (EMEs) spread to other countries. Bekaert, Harvey and Ng (2003) analyze the implications of growing integration with global markets for local returns, volatility, and cross-country correlations, covering a diverse set of EMEs in, Latin America, in particular, Chen, Firth and Rui (2002) look at evidence of regional linkages among Latin American stock markets. This study provides a review of the existing literature regarding the potential benefits of international portfolio diversification. The case for international diversification is even stronger when emerging equity markets are included as part of the investor's investment strategy. Such emerging markets have been shown to provide investors with excellent opportunities for high returns as well as risk reduction and risk diversifications in emerging economies can be decreased (Abumustafa, 2007; Jain and Sehgal, 2013).

Kumar and Thenmozhi (2012) find that the volume does not influence stock returns and volatility incorporated by market participants in their trading strategies. Global stock markets are more correlated than ever as international capital markets become more integrated (Longin and Solnik, 1995; De Jong and De Roon, 2005; Goetzmann et al., 2005; Carrieri et al., 2007; Pukthuanthong and Roll, 2009). Eun et al. (2008) reveal that benefits from diversified international investments have eroded and thus investors can benefit from investing in foreign countries. Emerging markets have also attracted attention due to their high growth and high volatility and the changes in volatility behavior have indeed been induced by financial liberalization of emerging markets (Cunado et.al (2009); Dobano (2013). However, although emerging market returns are more volatile than the returns of their industrialized counterparts, they are relatively uncorrelated with each other and with developed markets. By holding well-diversified portfolios, these low return correlations can reduce risk and potentially yield high returns that are not

available developed markets. Muga and Santamaria (2007) pointed out that momentum strategies yield profit in the Latin American emerging markets. While a substantial body of research has shown the risk reduction advantages associated with investing in countries with low returns correlations, the perceived risks and difficulties of investing in some of these emerging markets is a notable drawback which may discourage global investors from investing in emerging market equities as much as portfolio theory would recommend (Errunza and Losq, 1987; Chuhan, 1994). Hence, investor’s portfolios demonstrate strikingly high weightings towards home country equities. Notably, emerging market returns appear to be driven primarily by country factors, which provide opportunities for diversification benefits and as such equity prices, credit and leading rate play a relevant role of investment in emerging market (Peltonen et.al (2012).

DATA AND METHODOLOGY

This study examines the risk-return trade-off of investing in Latin American emerging stock markets from the perspective of a Canadian investor. In particular, optimal portfolios of Latin American emerging market firms were constructed and compared with portfolios consisting of Canadian shares only. This analysis was based on historic (*ex-post*) observations over (i) the whole ten-year period ending 2007 (ii) each one-year period; (iii) each two-year period; and (iv) each five-year period, based on weekly observations, to determine whether any potential benefits from diversifying into Latin American emerging markets existed for Canadian investors. Following the Markowitz framework (1952), these portfolios were then evaluated using a measure of portfolio performance. In particular, portfolios were evaluated using the ratio of mean return to standard deviation of return (MRPUR). The mean return of a portfolio was calculated according to the formula:

$$R_p = \sum_{i=1}^N Y_i R_i \tag{1}$$

where R_p is the return on the portfolio, Y_i is the proportion of the portfolio invested in share i , and R_i is the return on share i . Similarly, the standard deviation of a portfolio return was computed according to the formula:

$$Std.Dev_p = \sqrt{\sum_{j=1}^N Y_j^2 \sigma_j^2 + \sum_{j=1}^N \sum_{k=1, k \neq j}^N Y_j Y_k \sigma_{jk}} \tag{2}$$

where $Std.Dev_p$ is the standard deviation of the portfolio, Y_j and Y_k is the proportion of the portfolio invested in share j and k , σ_j^2 is the variance of share j , and σ_{jk}^2 is the covariance between shares j and k .

Employing a selective technique, the optimal MRPUR portfolios were identified; the initial portfolio chosen was the best single firm. Subsequent firms were added to the portfolio, resulting in the highest MRPUR possible, until all 204 emerging market firms were included in the portfolio. The performance of the maximum MRPUR portfolio of emerging market equities was then compared against the MRPUR of a portfolio consisting solely of Canadian shares, as represented by the S&P TSX (Toronto Stock Exchange) Composite index to determine whether any benefits resulted from diversification into these emerging market equities over the specific period considered. Specifically, the maximum MRPUR portfolio is the set of equities, which has achieved the highest MRPUR ratio possible. Consequently, a set of equities may not be included in the equally weighted maximum MRPUR portfolio. The optimal MRPUR portfolio is the one, which has achieved the highest value according to the formula:

$$S_{opt} = \frac{\text{Mean Return for Equally-Weighted Portfolios } (S_j)}{\text{Standard Deviation of Return for Equally Weighted Portfolio } (S_j)} \tag{3}$$

Where S_{opt} is the equally weighted optimal portfolio based on the set of equities S_j , where $j=1,N$.

The construction of these overall optimal portfolios reflects the maximum diversification benefits possible from investing in the Latin American market countries over a particular time period. Specifically, it is assumed that a risk-averse investor wishes to maximize the portfolio's expected return while minimizing the variance of returns. Such a portfolio is considered optimal because it identifies the best risk/return combination from a financial point of view.

RESULTS AND DISCUSSION

The results from the study confirm the previous findings reported by Sinclair et al. (1997) and Fifield (1999), which revealed the presence of a very important time factor in explaining the returns of emerging market shares. More specifically, the results have suggested that there is significant variation in the Latin American emerging market share returns from one year to the next and from one month to the next. This strong time effect suggests that fund managers and active investors in Latin American emerging market countries should be alert to changes in share returns over time and review their portfolios regularly. Thus, the findings imply that share returns in the Latin American emerging markets considered may be difficult to forecast.

The analysis conducted in this study has demonstrated that on an *ex-post* basis, Latin American emerging market equities offered the Canadian investor excellent opportunities for increasing portfolios returns while simultaneously reducing portfolio risk. On average, the portfolios comprised of emerging market firms had a substantially lower standard deviation of return and a higher mean return than the portfolios made up of Canadian companies. Thus, a portfolio which included Latin American emerging market shares could have offered the Canadian investor a considerably greater MRPUR ratio than a similar investment strategy in which the choice was limited to include only Canadian equities in all test periods examined. The growing linkages of emerging stock markets into the global financial market due to the relaxation of barriers to entry in emerging markets, increased financial and trade links, improved access to global information, and globalization in general, have all contributed to an increase in the share return correlations between this particular grouping of emerging markets and Canada. Yet, the results from the analysis have shown that diversification efforts which include equities from Latin American emerging markets have continued to result in sizeable benefits to the international investor even in recent years; their return correlations have remained sufficiently low to attract global investors despite their integration into the global financial system.

Furthermore, the construction of various sub-optimal emerging market portfolios displayed reward-to-risk ratios that were far greater than the optimal reward-to-risk ratios of the Canadian-only portfolios in all test periods examined, despite the financial crisis and their contagion effects on Latin American financial markets. Third, in order to reap the full benefits from portfolio diversification, the optimal emerging market portfolio consisted of at minimum, five companies spread over four Latin American emerging markets. However, in most test periods over the ten-years, 25 to 29 firms were required to capture the optimal-MRPUR benefits associated with risk diversification in Latin American emerging market equities. The results from this analysis are consistent with Poon et al. (1992) and Newbould and Poon (1993), and contradict the results documented by Evans and Archer (1968) and Wagner and Lau (1971). The evidence strongly suggested that diversification across country is a much more effective tool for risk reduction than diversification across industry.

The tables show the risk-return characteristics of the MRPUR-optimal and sub-optimal portfolios over (i) each one-year sub-period; (ii) each two-year sub-period; (iii) each five-year sub-period and (iv) over the whole sample period. More specifically, Table 1 details the portfolio mean return, the portfolio standard deviation of return, and the MRPUR ratio of the optimal portfolio over the various test periods. The

MRPUR ratio of the optimal portfolio comprised of equities from the Latin American emerging markets considered is evaluated against the corresponding figure for the MRPUR portfolio comprised of only Canadian shares to determine whether any potential diversification benefits existed for the Canadian investor. Table 2 details the size and MRPUR of portfolios that attained 95, 90, 85, 80, 75, 70, 65 and 60 per cent of the MRPUR-optimal emerging markets portfolio in the various test periods in order to determine the extent to which the portfolios comprised of emerging market shares exceeded the MRPUR-optimal portfolios comprised of only Canadian shares.

In assessing the risk-return characteristics of the portfolios detailed in Table 1, it is clear that the performance of the Latin American emerging market MRPUR-optimal portfolios was considerably better than that of the Canadian-only MRPUR-optimal portfolios in each test period. The Latin American emerging market portfolio recorded the highest MRPUR-optimal portfolio in the one-year test period, where a reward-to-risk ratio of 4.2190 was achieved, primarily because of the low standard deviation of emerging market returns (0.0007). On the other hand, Canadian shares earned a reward-to-risk ratio of only 0.3908 in the same year; this is the highest MRPUR ratio achieved among all test periods for a portfolio comprised of Canadian-only equities, albeit, a value almost one-eleventh the size of the reward-to-risk ratio of its less developed counterpart. More impressively, the MRPUR ratio of the Latin American emerging market portfolio in the five-year period (0.3000) was a staggering 214 times that of the Canadian-only portfolio (0.0014). The equities from Latin American emerging markets recorded the lowest MRPUR-optimal portfolio in period 6 (0.1950), chiefly as a result of a high-risk level (0.0238). Nevertheless, this ratio compares favorably with the MRPUR ratio of the Canadian-only portfolio (-0.0047). One final point to note is that the Canadian-only portfolios recorded a negative MRPUR in some periods. For example, the negative MRPUR ratio of -0.1195 for a portfolio comprised of Canadian-only securities provided the domestic investor with the lowest reward-to-risk ratio over all test periods; a portfolio return of -0.0028 was earned in this period.

Table 1: Risk-Return Characteristics of the MRPUR-Optimal Portfolio

Period	Latin America			Canada		
	Return	Std.Dev	MRPUR	Return	Std.Dev	MRPUR
1	0.0032	0.0007	4.219	0.0049	0.0126	0.3908
2	0.0021	0.0012	1.647	0.0006	0.0171	-0.0336
3	0.0121	0.015	0.81	0.0021	0.0134	0.1577
4	0.0189	0.0199	0.951	0.0043	0.0126	0.3432
5	0.0100	0.0141	0.7111	0.0021	0.0176	0.1185
6	0.0046	0.0238	0.195	0.0002	0.0329	-0.0047
7	0.0226	0.0159	1.4218	0.005	0.0215	0.2315
8	0.0073	0.0104	0.7068	0.001	0.034	0.0308
9	0.0104	0.0118	0.88	0.0029	0.0274	-0.1044
10	0.002	0.001	1.937	0.0028	0.0235	-0.1195

The table summarizes the risk-return characteristics of the MRPUR-optimal portfolio of Latin American emerging market Equities in various sub-periods and over the whole sample period. The risk-return characteristics of the Canadian-only MRPUR-optimal portfolio in each test period are included in the table in order to facilitate a comparison.

In exploring the potential gains from diversification in Latin American emerging markets, the results from this mean-variance analysis clearly suggest that a portfolio, which included Latin American emerging market shares, could have offered the Canadian investor a considerably higher MRPUR than a parallel investment strategy in which the choice was restricted to Canadian equities only.

Table 2, which highlights the risk-return characteristics of the MRPUR sub-optimal portfolios over various test periods, confirms the dominance of the Latin American emerging market portfolios over their developed market counterpart. In particular, the Table 2 displays the size and MRPUR ratio of the portfolios that attained 95, 90, 85, 80, 75, 70, 65 and 60 per cent of the optimal portfolio value in each test period. In all cases, the sub-optimal portfolios achieved an MRPUR that was greater than the MRPUR of the Canadian-only portfolios. For example, even at 60 per cent of the MRPUR-optimal portfolio, the emerging market portfolio was considerably greater than the optimal portfolio comprised of Canadian companies in every test period. For instance, over the five years, the MRPUR of the portfolio at this level was an astounding 129 times that of the Canadian-only portfolio. Clearly, an examination of tables 1 and 2 suggests that investors who diversified their portfolios internationally to include equities from Latin American emerging market countries would have achieved a significantly greater reward-per-unit-of-risk than investors who diversified within a single nation, such as Canada.

The results from this analysis therefore support the findings of De Santis (1993), Islam and Rodriguez (2007), Shachmurove (1998) and Susmel (1998), which are unanimous in their conclusion that diversification among developing countries in Latin America can yield substantial gains in portfolio performance. Moreover, although the integration process has increased correlation values between this particular grouping of emerging markets and Canada, the results from this analysis show that diversification efforts, which include equities from Latin American emerging markets, have resulted in sizeable benefits for the international investor in more recent years. The results also reveal the diversification value of Latin American emerging markets during times of financial crisis.

Table 2: Risk-Return Characteristics of the MRPUR Sub-Optimal Portfolio

Portfolio	100%		95%		90%		85%		80%	
	Size	MRPUR	Size	MRPUR	Size	MRPUR	Size	MRPUR	Size	MRPUR
1	44	4.219	50	4.0081	55	3.7971	81	3.5862	89	3.3752
2	29	1.647	47	1.5647	57	1.4823	64	1.4	8	1.3176
3	14	0.81	26	0.7695	32	0.729	37	0.6885	41	0.648
4	25	0.951	14	0.9035	43	0.8559	50	0.8084	58	0.7608
5	8	0.7111	18	0.6755	31	0.64	36	0.6044	42	0.5689
6	5	0.195	8	0.1853	10	0.1755	12	0.1658	14	0.156
7	37	1.4218	44	1.3507	49	1.2796	54	1.2085	13	1.1374
8	7	0.7068	11	0.6715	17	0.6361	20	0.6008	23	0.5654
9	30	0.88	38	0.836	42	0.792	9	0.748	6	0.704
10	27	1.937	33	1.8402	50	1.7433	18	1.6465	61	1.5496

The majority of the test periods examined required between 25 to 29 emerging market firms to capture the optimal MRPUR benefits associated with diversification in Latin American emerging market equities. This is shown graphically in Table 3, which depicts the results of the MRPUR-optimal portfolio for the whole ten-year sample period. The Table 3 shows that increasing the number of equities in the portfolio beyond 27 reduces the overall benefits from diversifying into the shares from Latin American emerging markets. This finding contradicts the widely accepted notion that the benefits of diversification are virtually exhausted when a portfolio contains approximately 10 shares. For example, Evans and Archer (1968) concluded that a portfolio consisting of 10 different shares was sufficiently diversified, stating that the results of their study ‘raise doubts concerning the economic justification of increasing portfolio sizes beyond 10 or so securities. However, the results reported here are consistent with those of Wagner and

Lau (1971), Solnik (1974), and Poon et al. (1992), who indicated that there are considerable opportunities for reducing risk by expanding the portfolio size well beyond 10 shares.

Table 2: Risk-Return Characteristics of the MRPUR Sub-Optimal Portfolio

Portfolio	75%		70%		65%		60%	
	Size	MRPUR	Size	MRPUR	Size	MRPUR	Size	MRPUR
1	104	3.1643	115	2.9533	126	2.7424	138	2.5314
2	83	1.2353	94	1.1529	106	1.0706	121	0.9882
3	45	0.6075	50	0.567	2	0.5265	60	0.486
4	67	0.7133	76	0.6657	86	0.6182	97	0.5706
5	48	0.5333	55	0.4978	62	0.4622	71	0.4267
6	16	0.1463	18	0.1365	21	0.1268	24	0.117
7	66	1.0664	74	0.9953	85	0.9242	99	0.8531
8	29	0.5301	35	0.4948	41	0.4594	46	0.4241
9	57	0.66	63	0.616	3	0.572	77	0.528
10	67	1.4528	71	1.3559	77	1.2591	81	1.1622

The table summarises the risk-return characteristics of the Latin American emerging market portfolio.

The table details the size and mean return per unit of risk (MRPUR) of portfolios that attained various percent of the MRPUR-optimal portfolio in the various test periods.

Furthermore, although Newbould and Poon (1993) do not state a specific number of shares that constitutes a well-diversified portfolio, they do suggest that the number should be greater than 20. An analysis of the tables also suggests that companies from some Latin American countries appeared more often in the optimal MRPUR portfolio than companies from other Latin American countries. This is confirmed by a chi-squared test of homogeneity, which was performed for each test period. In particular, this test rejected the homogeneity of frequency of occurrence for the 1-year, 2-year and 5-year sub-periods.

For example, over the ten one-year sub-periods (p-value of 0.000), Brazilian firms (59) and Chilean firms (93) were included most frequently in the optimal portfolio, while firms in Argentina (4) and Venezuela (6) appeared least often. Columbian, Mexican and Peruvian firms appeared 18, 29 and 17 times, respectively. Similar results were obtained for the five two-year sub-periods (p-value of 0.000) and the two five-year sub-periods (p-value of 0.000). In particular, firms in Brazil (35) and Chile (45) appeared quite frequently in the 2-year MRPUR-optimal portfolios, while firms in Argentina (1), Columbia (7), Mexico (12), Peru (12) and Venezuela (3) appeared less often than average.

Similarly, firms in Brazil (12) and Chile (13) appeared most often in the 5-year MRPUR-optimal portfolio, while firms in Columbia (3), Mexico (5), Peru (3) and Venezuela (1) appeared less often than average. In fact, Argentinean firms failed to make a single appearance in the 5-year optimal portfolios. These results therefore indicate that there is a propensity for firms situated in some Latin American countries to appear more often in the MRPUR-optimal portfolio than firms from other Latin American countries. The results from this analysis are consistent with Fifield (1999); Fifield et al., (2001) who concluded that the inclination of firms in some countries to appear quite frequently in the optimal portfolio suggests some element of persistence in the country-specific composition of the optimal portfolio.

Table 3: Number of Companies That Make Up the MRPUR-Optimal Portfolio in Each One-Year Sub-Period

Year	1	2	3	4	5	6	7	8	9	10	Total
ARG	2	0	0	0	0	0	0	0	1	1	4
BRA	13	8	2	8	0	1	13	2	7	5	59
CHI	15	14	5	7	3	2	15	3	16	13	93
COL	4	2	1	1	1	1	1	0	3	4	18
MEX	4	4	4	6	3	1	4	2	1	0	29
PER	5	1	0	1	1	0	3	0	2	4	17
VEN	1	0	2	2	0	0	1	0	0	0	6
Total	44	29	14	25	8	5	37	7	30	27	226

The table summarizes the composition of the MRPUR-optimal portfolios in each one-year sub-period. In particular, the table details the number of companies in each market that are included in the MRPUR-optimal portfolio in each one-year sub-period.

CONCLUSION

This study has tested the risk-return trade-off of investing in Latin American emerging stock markets over the ten-year period. Optimal portfolios were derived based on historic (*ex-post*) observations and evaluated utilizing the mean return per unit of risk (MRPUR) performance measure. In particular, the performance of the MRPUR-optimal emerging market portfolio was compared with the MRPUR of a portfolio consisting solely of Canadian shares to determine whether any benefits resulted from diversifying into the emerging stock markets over the various periods considered. The results revealed substantial differences in the risk-return characteristics of the MRPUR-optimal portfolios.

On average, the portfolios comprised of emerging market firms had a substantially lower standard deviation of weekly returns and a higher mean weekly return than the portfolios made up of Canadian shares; a portfolio which included Latin American emerging market shares could have offered the Canadian investor a significantly greater MRPUR than a similar investment strategy in which the choice was limited to include only Canadian equities. This finding is consistent with previous studies which have concluded that there are benefits to including Latin American emerging market assets in a globally diversified portfolio in the form of higher portfolio returns and/or a reduction in portfolio risk (De Santis, 1993; Islam and Rodriguez, 1998; Shachmurove, 1998; Susmel, 1998). Impressively, despite the growing integration of emerging stock markets into the global financial market, the results from this analysis continue to support the rationale for diversification, even in recent years. Moreover, these markets were shown to provide diversification value during times of financial crisis when diversification is most valuable.

This study has followed the mean-variance Markowitz (1952) framework, which assumes normally distributed data. However, it is necessary to note that one limitation of this study is that the data are, in fact, not normally distributed. Nonetheless, this study attempts to overcome the non-normality of the data by using log returns, which more closely follow a normal distribution. Furthermore, the methodology follows those of previous studies; scholars have acknowledged that emerging market returns deviate from the standard distributional assumption (Harvey, 1995; Bekaert et al, 1998). In spite of this criticism, they have used Markowitz methodology. Additionally, even if the data are non-normal, the resulting outcome from the data in this study will still provide the optimal risk-return trade-off as measured by MRPUR criteria.

There is growing conviction amongst the investment community that as both developed and emerging markets have become more integrated with the rest of the world, the role of industrial effects are playing an increasingly important role in explaining return variation at the expense of country-specific factors.

Managers interested in investing in the emerging markets of Latin American countries should give great consideration to their country allocation process; the industry factor appears to play an inferior role as part of a diversification strategy. This finding is consistent with the results of previous academic studies, which have also documented the presence of a dominant country component in the share returns of emerging and developed markets. However, it has been established that ignoring industrial factors will lead to an important loss of diversification benefits; investors should consider both cross-country and cross-industry diversification as a way to improve portfolio performance. There is growing conviction amongst the investment community that as both developed and emerging markets have become more integrated with the rest of the world, the role of industrial effects are playing an increasingly important role in explaining return variation at the expense of country-specific factors. However, an examination of the structure of Latin American emerging market returns over a recent time period has indicated that country selection, rather than industry selection, is still the more important determinant in explaining the cross-sectional share return variation in portfolio returns for emerging market investment strategies in the Latin American region over the decade. However, an examination of the structure of Latin American emerging market returns over a recent time period has indicated that country selection, rather than industry selection, is still the more important determinant in explaining the cross-sectional share return variation in portfolio returns for emerging market investment strategies in the Latin American region over the decade.

REFERENCES

- Abumustafa, N. I (2007) "Risk Diversifications in Emerging Economies," *Risk Management*, 9, p.36-43
- Barari, M (2003) "Measuring Equity Market Integration Using Time-Varying Integration Score: The Case of Latin America", Department of Economics, Southwest Missouri State University, *Prepared for presentation hosted by Institute for International Studies*, Trinity College, Dublin, Ireland, May, p.1-29.
- Bekaert, G (1995) "Market Integration and Investment Barriers in Emerging Equity Markets," *The World Bank Economic Review*, Vol.9, No.1., January, p.75-107.
- Bekaert, G. & Harvey, C.R (1995): "Time-Varying World Market Integration," *Journal of Finance*, Vol.50, No.2, June, p403-444.
- Bekaert, G., Harvey, C.R. & Ng, A., (2003): "Market integration and contagion," *NBER Working Paper*, February, No.9510.
- Bekaert, G., Erb, C.B., Harvey, C.R., & Viskanta, T.E (1998): "Distributional Characteristics of Emerging Market Returns and Asset Allocation," *Journal of Portfolio Management*, Vol.24, No.2, Winter, p.102-116.
- Carrieri, F., V. Errunza and K. Hogan (2007) "Characterizing World Market Integration through time," *Journal of Financial and Quantitative Analysis* 42, p.915-940
- Chen, G.-M., Firth, M., Rui, O. M (2002) "Stock market linkages: evidence from Latin America," *Journal of Banking and Finance* 26, p.1113-1141.

Chuhan, P (1994): “Are Institutional Investors an Important Source of Portfolio Investment in Emerging Markets?,” *Policy Research Working Paper 1243*, The World Bank, International Economics Department, Debt and International Finance Division, January, p.1-35.

Cunado E.J., Gomez B. J., & Perez F (2009) “Financial Liberalization, Stock Market Volatility and Outliers in Emerging Economies,” *Applied Financial Economics*, 19 (10) p.809-823.

De Jong, F. and F.A. De Roon (2005) “Time-varying market integration and expected returns in emerging markets,” *Journal of Financial Economics* 78, p.583-613.

De Santis, G (1993) “Asset Pricing and Portfolio Diversification: Evidence from Emerging Financial Markets,” in S.Claessens & S.Gooptu, (eds.), *Portfolio Investment in Developing Countries*, World Bank Discussion Paper 228, September, p.145-168.

Derrabi, M. & Leseure, M (2003) “Global Asset Allocation: Risk and Return on Emerging Stock Markets,” *Association Française de Finance - AFFI*, International Meeting Tunisia, March, p.1-25.

Dobano, L (2013) “Emerging Economies: Stock Markets after the Financial Crisis” *Journal of American Academy of Business*, Cambridge, 18(2), 98.

Donadelli, M. and L. Prosperi, (2012) “The equity premium puzzle: Pitfalls in estimating the coefficient of relative risk aversion,” *Journal of Applied Finance & Banking*, 2(2) p.177-213.

Drummen, M. & Zimmermann, Z (1992) “The Structure of European Stock Returns,” *Financial Analysts Journal*, Vol.48, No.4, July/August, p.15-26.

ECLAC, (2003) “Canada’s Trade and Investment with Latin America and the Caribbean,” Washington Office, United Nations (Economic Commission for Latin America and the Caribbean)

Errunza, V.R. & Losq, E (1987) “How Risky are Emerging Markets?,” *Journal of Portfolio Management*, Vol.14, No.1, Fall, p.62-67.

Eun, C.S., W. Huang and S. Lai (2008) “International Diversification with Large- and Small-Cap Stocks,” *Journal of Financial and Quantitative Analysis* 43, p.489-524.

Evans, J.L. & Archer, S.H (1968) “Diversification and the Reduction of Dispersion: An Empirical Analysis,” *Journal of Finance*, Vol.23, No.5, December, pp.761-767.

Fifield, S.G.M (1999) “Portfolio Investment in Emerging Stock Markets: An Empirical Analysis of the Gains From Diversification,” *University of Dundee PhD Thesis*, September, p.99.

Fifield, S.G.M., Lonie, A.A., Power, D.M. & Sinclair, D.C (2001) “An Analysis of Country, Industry and Company Influences on Returns of Equities from Emerging Stock Markets,” in E.Meric and G.Meric (eds.), *Global Financial Markets at the Turn of the Century*, Elsevier Science, p.197-212.

Goetzmann, W., L. Li and K. Rouwenhorst (2005) “Long-Term Global Market Correlations,” *Journal of Business* 78, p.1-38.

Harvey, C.R (1995) “Predictable Risk and Returns in Emerging Markets,” *Review of Financial Studies*, Vol.8, No.3, Fall, p.773-816

Islam, M.M. & Rodriguez, A.J (1998) "Evidence on the Benefits of Portfolio Investment In Emerging Capital Markets in Latin America," in J.C. Baker, (ed.), *Selected International Investment Portfolios*, Elsevier Science Ltd., p.75-89.

Jain, S., & Sehgal, S. (2013) "Long-Term Prior Return Patterns in Stock Returns: Evidence from Emerging Markets," *The International Journal of Business and Finance Research*, 7 (2), p.53-78

Karadagli, E.C (2012) "The Effect of Working Capital Management on the Profitability of Turkish SMEs," *British Journal of Economics, Finance and Management Sciences*. Vol. 5 (2), p.36-44

Kumar M, Thenmozhi M (2012) "Casual effect of volume on stock returns and conditional volatility in developed and emerging market," *American J. of Finance and Accounting*. Vol.2, No.4, p.346-362.

Muga, L. & Santamaria, R (2007) "The Momentum effect in Latin American Emerging Markets," *Emerging Markets Finance and Trade*, 43 (4), P.24-45

Longin, F. and Solnik, B (1995) "Is the Correlation in International Equity Returns Constant: 1960-1990?," *Journal of International Money and Finance* 14, p.3-26.

Markowitz, H.M (1952) "Portfolio Selection," *Journal of Finance*, Vol.7, No.3, p.77-91.

Newbould, G.D. & Poon, P.S (1993) "The Minimum Number of Stocks Needed for Diversification," *Financial Practice and Education*, Vol.3, Fall, p.85-97.

Peltonen, T., Sousa, R., & Vansteenkiste, I (2012) "Investment in Emerging Market Economies," *Empirical Economics*, 43(1), 97-119.

Poon, S., Taylor, S.J. & Ward, C.W.R (1992) "Portfolio Diversification: A Pictorial Analysis of the UK Stock Market," *Journal of Business Finance & Accounting*, Vol.19, No.1, January, p.87-101.

Rodriguez, J (2007) A Portfolio's Country Exposure Management. *Emerging Markets Finance & Trade*. Vol 43. No 2. P.5-18.

Pukthuanthong, K. and R. Roll (2009) "Global market integration: An alternative measure and Its application," *Journal of Financial Economics* 94, 214-232.

Shachmurove, Y (1998) "Portfolio Analysis of South American Stock Markets," *Applied Financial Economics*, Vol.8, p.315-327.

Sinclair, C.D., Power, D.M., Lonie, A.A. & Avgoustinos, P.A (1997) "A Note on the Stability of Relationships Between Returns from Emerging Stock Markets," *Applied Financial Economics*, Vol.7, p.273-280.

Speidell, L.S., & Sappenfield, R (1992) "Global Diversification in a Shrinking World," *Journal of Portfolio Management*, Vol.18, No.1, Fall, p.57-67.

Susmel, R (1998) "Extreme Observations and Diversification in Latin American Emerging Equity Markets," Department of Finance, University of Houston, *CEMA Working Paper 138*, p.1-24.

Solnik, B.H (1974) "Why Not Diversify Internationally Rather Than Domestically?," *Financial Analysts Journal*, July/August, p.48-54

Wagner, W.H. & Lau, S.C (1971) “The Effect of Diversification on Risk,” *Financial Analysts Journal*, Vol.27, No.6, November/December, p.48-53.

ACKNOWLEDGMENTS

We would like to thank the journal editors, Terrance Jalbert and Mercedes Jalbert, two anonymous referees, and participants at the Global Conference on Business and Finance, The Institute for Business and Finance Research, San Jose, Costa Rica. May 2013.

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