The Trend of International Risk Diversification

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Abstract: The goal of this paper is to analyze the international diversification of risk through portfolio diversification based on investments abroad, particularly by investing in currencies of emerging countries. The starting point of the analysis is the work of Harry Markowitz, *Portfolio selection*, a reference work for the global financial environment in which the author states that a portfolio is efficient if it provides the highest possible expected return for a given level of risk and the lowest possible level of risk for any expected rate of earnings. The information used for this study comes from numerous sources and of great importance to international financial markets. The results based on the used data and information provide a comprehensive scan of how Federal Reserve proposed a clustered index of currencies, the current trend of exchange, the emerging BRIC countries scenario for 2050 and sources of the volatile emerging markets. Thus, following the completion of this work, we consider it necessary to pay attention to the course of emerging markets whose economic development and openness plays a significant role in their penetration of international investors' investment plan.

Keywords: portfolio diversification; emerging countries; emerging currencies

JEL Classification: G11; G15

1. Introduction

Investors are always looking for new effective ways of diversifying its portfolio. Alongside derivative contracts, another means to control portfolio risk is diversification through investments made in a wide variety of national and international activities so that exposure to any type of risk is limited. Thus, paraphrasing James Tobin, by placing "eggs" in several baskets, overall portfolio risk may be lower than the risk of each asset individually analyzed (Boidie, Kane, Marcus, 2003, p. 162). In *Twenty Years of International Equity Investing* (1996), Richard Michaud, Gary Bergstrom, Ronald Frashure and Brian Wolahan present portfolio diversification as a concept now accepted by all investors from around the world. However, in 1975, when the concept was proposed by Gary Bergstrom in

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the *Journal of Portfolio Management*, portfolio diversification was a new term and regarded as unusually risky. Since 1975 and until now many economists and financiers have written about reducing risk and increasing efficiency through portfolio diversification in different international capital markets, the current global environment increasingly creating stronger reasons for rising diversification of investment portfolio outside home countries, and we refer particularly to foreign portfolio diversification.

2. Portfolio Theory: the Impact on Investors

Arguments for global diversification of the portfolio are focused on reducing portfolio risk and increasing the expected return of the portfolio. The core argument is Harry Markowitz's work on portfolio efficiency, *Portfolio Selection* (1952). A prudent investor is focused on portfolio expected return and the risk involved. The expected return on a portfolio of n assets is a weighted average expected return for each asset: $E(r_p)=\sum_{i=1}^{n} w_i E(r_i)$, where $E(r_p)$ is the portfolio expected return, $E(r_i)$ represents the expected benefit on asset i from the portfolio, n designates the number of assets in the portfolio, and w_i indicates assets i weight in the portfolio, and the relation $\sum_{i=1}^{n} w_i = 1$ is always true. The widely used measure for the portfolio risk is *dispersion*. Portfolio risk measured by dispersion is given by the following formula: $\sigma^2(r_p)=\sum_{i=1}^{n}\sum_{j=1}^{n} w_i w_j \operatorname{cov}(r_i, r_j)$, where $\sigma^2(r_p)$ is portfolio dispersion (the risk), w_i is asset i weight in the portfolio, w_j is asset j weight in the portfolio, $\operatorname{cov}(r_i, r_j)$ is the covariance between assets i and j benefits, and n is the number of assets in the portfolio.

Portfolio dispersion depends on the dispersion of each asset and the correlations between assets. The first instrument that measures the relationship between the benefits of any two assets is *covariance*. If we have two random variables X and Y, they can have n possible outcomes combined. When event e takes place, X value is r_{xi} and Y value is r_{yi}. By marking $E(r_x)$ the expected benefit of X and $E(r_y)$ the expected benefit of Y and supposing that p in the probability of the event taking place, the covariance is determined as follows: $\operatorname{cov}(r_x, r_y)=\sum_{i=1}^{n}[r_{xi}-E(r_x)][r_{yi}-E(r_y)]p_i$ (Horobeț, 2005, p. 18).

Harry Markowitz considers a portfolio to be effective if it provides: a) the highest possible expected return for a given level of risk, b) the lowest possible level of risk for any expected rate of earnings. The curve describing all efficient portfolios is called the *efficient frontier* by Markowitz. By definition, all portfolios are under or on efficiency frontier. Suppose a portfolio manager invests only in domestic assets. In this case, the domestic efficiency frontier portfolios reflect the best kit available. In Figure 1, the portfolio has the maximum expected return for a given level of risk. If we analyze the global portfolio manager, the situation changes. Usually, a global investor invests in ten, twenty or even more countries. In this case, global portfolio may include both high-risk and low-risk assets and expected returns higher than those offered by domestic portfolio. Also in Figure 1 is the efficient overall portfolio B, which will have a much lower risk for the same level of expected return for the portfolio A. There is also portfolio C, which will have a much higher expected return for the same level of risk as portfolio A (Michaud & Bergstrom & Frashure & Wolahan, 1996, p. 9-22).Markowitz's theory is currently considered the standard theory of investment management and rational ideas expressed on that investment expansion beyond country offers major opportunities to investors. Therefore, the creation of an investment policy based both on domestic assets and foreign assets is currently on arguably more important than investment based solely on domestic assets. The situation began to unfold with the passage from fixed exchange rates to floating ones, and with the globalization of financial markets which has demonstrated that markets are interconnected.

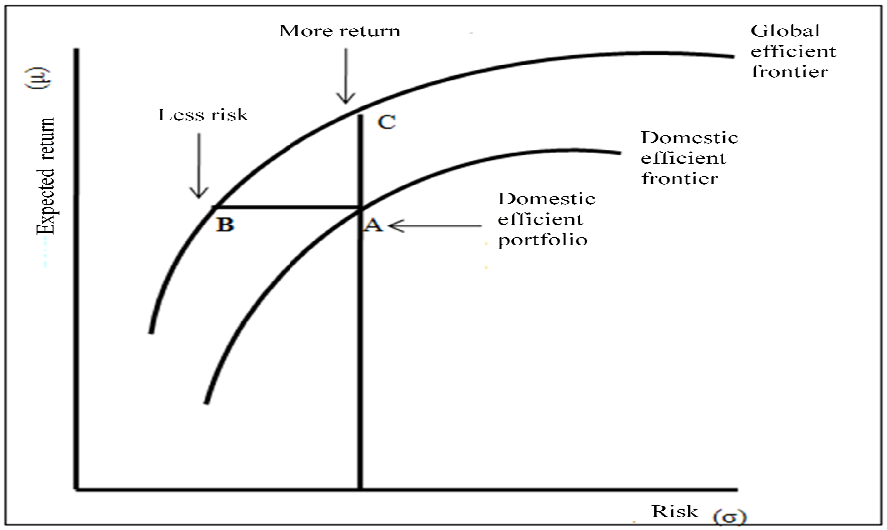

Figure 1. Global Efficiency Frontier vs. Domestic Efficiency Frontier

Source: (Michaud, Bergstrom, Frashure & Wolahan, 1996, p. 10)

The overall risk of a portfolio can be divided into two types of risk: *systematic risk* and *unsystematic risk*. Professor William Sharpe defines systematic risk as an asset earnings variability driven by common factors that affect all assets in the market gains. Sometimes this type of risk is called *undiversified risk* or *market risk*. Systematic risk is considered the minimal risk level that can be achieved through diversification of a portfolio with a large number of random assets. Unsystematic risk is defined as earnings variability if an asset due to unique factors (strikes, natural disasters, loss of a dispute) related directly to the company that issued the title. This type of risk is known as *diversified risk, unique risk, idiosyncratic risk* and *company specific risk* (Sharpe, 1963, pp. 277-293).

3. Portfolio Diversification with Emergent Currencies

3.1. The Federal Reserve Currency Classification

An important classification of currencies with which investors can diversify their portfolios was conducted in late 1998, when the Federal Reserve introduced a new index (different from the one used until 1970). For the USA the change was based on two reasons. The first reason was that five of the ten currencies making up the index have been replaced by the single currency euro, and the second was aimed at developing international trade since the late 70s, which requested an extension of the Index and a close proximity between partner countries' currencies and U.S. dollar. Aggregate index of exchange aims to summarize the effects of appreciation and depreciation of the dollar against major currencies competing American products with the products of the largest trading partners of the United States. It also aims to move the dollar index against the major currencies for financial markets to avoid pressure on the dollar. Federal Reserve leadership has set the following formula for the index: $I_t = I_{t-1} \times \prod_{j=1}^{N(t)} (e_{j,t} / e_{j,t-1})^{w_{j,t}}$, where I_{t-1} is the index value at the time *t-1*; $e_{j,t}$ and $e_{j,t-1}$ is the price of the dollar in the currency terms at the time *t* and *t-1;* $w_{j,t}$ is the importance of the currency *j* in the index at the time *t*; *N(t)* is the number of currencies in the index at the time *t* and $\sum_j w_{j,t} = 1$. Federal Reserve has grouped the currencies which were part of the general Index into two classes: The Major Currencies Index and Other Important Trading Partners – the OITP countries are China, Mexico, Korea, Taiwan, Hong Kong, Malaysia, Brazil, Thailand, India, the Philippines, Israel, Indonesia, Russia, Saudi Arabia, Chile, Argentina, Colombia, Venezuela).

Besides the 1998 proposal of the Federal Reserve to classify currencies as major and minor currencies, Howard Simons suggested in 2008 in his work *Currencies*

and U.S. a research framework of 52 currencies divided into six groups for the investors on the equity market: Europe – major currencies, Europe – minor currencies, Latin America, Asia – minor currencies, Asia – major currencies, Africa-Middle East, and others (Simons, 2008, p. 26-31).

MSCI Barra, the American provider that offers support for investment decisions, proposes *MSCI Global Currencies Indices* for the analysis of the global equity market.

MSCI Global Currencies Indices may be used as support instruments for the managing the currency flow following the creation of an international portfolio. These indices set the level of importance for each currency according to the importance of the country they belong to. This approach of weighing the currency allows the creators of indexed products to accomplish investment methods to be used efficiently in the practice of protecting against currency risk. The global currency indices may be calculated both for the developed countries (*MSCI Developed Countries Index: MSCI EAFE Currency [USD] Index* and *MSCI Europe Currency [USD] Index)*, and for the emergent countries (*MSCI Emerging Market Index*).

Table 1. Major Currencies vs. Minor Currencies

Europe (major currencies)	**Asia (minor currencies)**
CHF – the Swiss Franc	CNY - the Chinese Yuan
DKK – the Danish Crown	HKD – the Hong Kong Dollar
EUR – the Euro	IDR – the Indonesian Rupee
GBP – the Pound Sterling	INR – the Indian Rupee
NOK – the Norwegian Crown	KRW – the Korean Won
SEK – the Swedish Crown	LKR – the Sri Lanka Rupee
Europe (minor currencies)	MYR –the Malaysian Ringgit
CZK – the Czech Crown	PHP –Philippine Peso
HRK – the Croatian Crown	SGD – Singapore Dollar
HUF – the Hungarian Forint	THB – the Thai Baht
ISK – the Icelandic Crown	TWD – the Taiwan Dollar
PLN – the Polish Zloty	**Africa – Middle East**
RON – the Romanian Leu	CYP – Cyprus Pound
RUB – the Russian Rouble	EGP – the Egyptian Pound
SKK – the Slovakian Crown	ILS – the Israeli Shekel
Latin America	IRR – the Iranian Rial
ARS – the Argentinean Peso	KES – the Kenyan Shilling
BRL – the Brazilian Real	LBP – the Lebanese Pound
CLP –the Chilean Peso	MAD – the Moroccan Dirham
COP –the Columbian Peso	MUR – the Mauritian Rupee
CRC – the Costa Rican Colonel	NGN – the Nigerian Naira
MXN –the Mexican Peso	PKR – the Pakistani Rupee
PEN – Nuevo Sol (Peru)	SAR – the Saudi Arabia Riyal

PYG –the Paraguayan Guaraní	TND – the Tunisian Dinar
Asia (major currencies)	TRY – the Turkish Lira
AUD –the Australian Dollar	ZAR – the South African Rand
JPY –the Japanese Yen	**Others**
NZD – New Zeeland Dollar	CAD – the Canadian Dollar

Source: Howard Simons, 2008.

3.2. The Emergent Currencies' Trend in the New Age of Globalization

With globalization, national currencies are considered by Eric van Wincoop and Andrew Rose (2001) as international trade barriers whose removal would lead to significant economic benefits. In addition, going on the idea that financial markets have become more important than national governments globalization forces governments to adopt strong currencies and to abandon their own currencies. In such an environment, Alan Taylor stated in an economic letter addressed to the Federal Reserve Bank of San Francisco in 2000 and entitled *Dollarization as a Technology Import* that only the highest quality coins will be able to survive. In this regard, it is interesting to remark Paul Bowles's statement in his book *National Currencies and Globalization: Endangered species?*: Globalization as global financialization is dictating this effect (Bowles, 2008, p. 1).

Along with the trend, especially the *dollarization* and *euroisation* of global investors' portfolio, globalization has brought into question the tendency to invest in emerging currencies. Currently, the *dollarization* and *euroisation* is the imperialist structure - the present structure of globalization. This is about the *dollar hegemony* acting as a symbol of imperialist ambitions of the United States of America. Therefore, to Robert Wade the dollar's role in the global economy is *part of the invisible hand of the American empire*. By contrast, the "birth" of the euro is an event of epochal significance, a significance which indicates a regional manifestation rather than a global one. For example, for Zanny Minton Beddoes - Washington economic correspondent for The Economist - the euro is the future for investors who wish to invest in this currency (Beddoes, 1999). Instead, globalization skeptics do not see any major change in the appearance of euro, only a neoliberal ideology that seeks the removal of monetary autonomy and independent currencies.

The expressions *emerging markets* or *emerging economies* are vaguely defined in the literature. The World Bank defines emerging markets as "places" in which GDP per capita records the amount of approximately $ 8,000 / year, but they have a dynamic development potential and they are fast-growing economies (Luo, 2002, p. 4). Portfolio diversification opportunities offered by emerging markets is a relatively recent phenomenon, associated with the early '90s, which developed as the capital markets have deepened and broadened. Essential arguments supporting

the role of emerging markets in the portfolio of an investor from a developed market are two in number. The first argument supports emerging countries, which even if considered small countries with limited capital, offer investors high returns compared to what mature countries offer. The second argument provides a positive outlook for emerging markets in that emerging markets yields are very poorly correlated with yields in developed markets, which creates benefits for diversification. These effects may operate in tandem, giving investors - as stated by Robert Litan and Martin Baily - a "free lunch" with high returns and low risk. Currently, due to long periods of crisis of the financial markets in recent years, many emerging countries increasingly promote more financial stability as a key part of their economic policies. Thus, it is suggested that possible regulatory changes will affect a growing number of currencies. Emerging markets will continue to drive global growth in coming years. These markets will become important centers for investment, developing new products and currency regulation (HSBC Global Research, 2012, p. 1).

3.3. The BRIC Countries Time Scenario for 2050 Time Horizon

Development and globalization - and we refer here specifically to the economic situation of emerging countries - are two of the most heated and debated issues worldwide, especially by investors with long-term perspectives. Analyses of the BRIC countries are very important, and projections are optimistic, especially since it is expected that they will become a force in the global economy, a force far greater than investors currently expect.

On this subject, in 2003, researchers have developed the work *Dreaming with BRICs: The Path to 2050*, at Goldman Sachs, a study on the future of the BRIC countries over the next 50 years. Researchers analyzed the parallel evolution of the G6 countries (Australia, Brazil, India, Japan, EU, USA) and the evolution of the BRIC countries, taking into account the latest data on demography, the model of capital accumulation, the GDP, the income per capita and the movement of currencies in the BRIC economies in 2050. Moreover, Goldman Sachs said that an increase in the exchange rate could contribute significantly to the GDP growth in U.S. dollars for BRIC countries: one third of this increase is attributable to the appreciation of the BRIC countries' currencies and the other 2/3 will come from the rapid growth of economies.

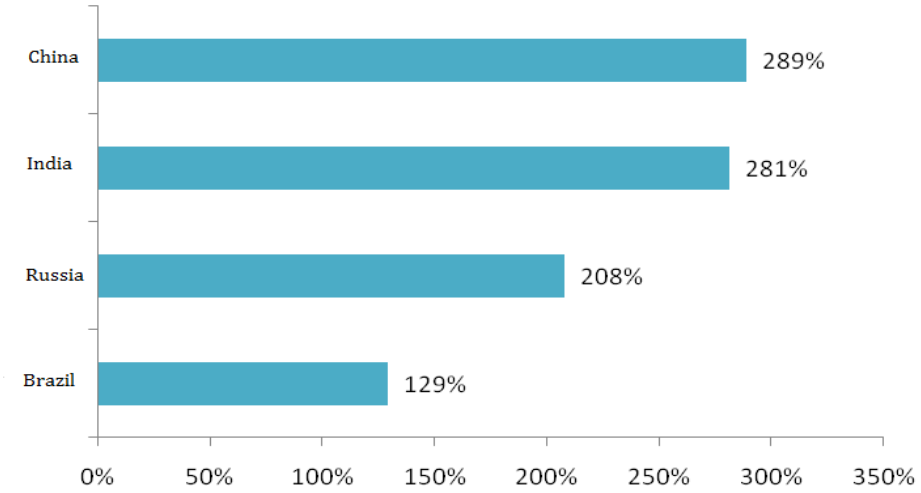

Figure 2. Forecasts for the Exchange Rate in 2050

Source: Goldman Sachs, 2003

The real exchange rate of the BRIC countries could appreciate by 300% over the next 50 years and China's currency could double the value if it continues to grow and the exchange rate is allowed to fluctuate further (Goldman Sachs, 2003, p. 5). BRIC countries' development model seems to be based on different determinants. If for Brazil and Russia the determinants may be their natural resources, for India, it is about testing its own version of economic development where outsourcing is a strong component. This new dimension of growth achieved more by services than by production activities, made possible the development of the Internet, thus reducing communication costs.

3.4. The Sources of Volatile Emerging Markets

Currently the most important emerging economies are the E7 countries: China, India, Brazil, Russia, Indonesia, Mexico and Turkey. As emerging markets, these countries tend to experience rapid growth and their currencies may present major opportunities for portfolio diversification rates. In the article *The behaviour of emerging market return*, Geert Bekaert, Claude Erb, Campbell Harvey, Tadas Viskanta said that the behavior yields of emerging markets is different from the behavior yields in developed markets. Research on emerging markets highlighted three basic characteristics for the behavior of these markets: high average returns, high volatility and low correlations between emerging markets and developed markets (Levich, 1998, p. 108).

The sources of volatile emerging markets can be found at both international and national levels. The main international sources of volatility are changes that occur in the return on assets (interest rates and stock market returns), herd behavior of investors and contagion. There is evidence to suggest that emerging markets are inclined to foreign investors with a herd behavior, but there are analyses of these countries that began the process of financial integration 20 years ago and it suggests that this behavior suggests has a "short life". Regarding the effect of contagion, the experience of countries that have followed the Mexican crisis suggest that *pure contagion* is a relatively short phenomenon and international markets are able to take each emerging market separately. These differences have helped countries with strong economic fundamentals to resume financial flows quite rapidly.

Regarding national sources of volatility, emerging countries are more susceptible to real and political shocks than developed countries, and these shocks will result in higher volatility of capital flows and asset prices. In addition, there are several other features that can enhance the emerging international and domestic shocks. Financial and capital markets in emerging countries suffer more because of incomplete and asymmetric information than developed countries. In this environment, the potential for investors' herd behavior is very high and domestic investors can be greatly influenced by foreign investors, which may lead to greater volatility. From this point of view, emerging markets after the crises of the 90s were a time "marginalized" in the international portfolio investors, making them even more susceptible to fluctuations in international financial conditions (World Bank, 1997, p. 27-28).

Table 2. Emerging Countries with the Best and the Worst Performance during 1988 - 2008

Year	Country with the best performance	Return	Country with the worst performance	Return	Spread
1988	Indonesia	228%	Turkey	-63%	291%
1989	Turkey	472%	South Korea	0%	471%
1990	Mexico	59%	Brazil	-66%	124%
1991	Argentina	402%	Indonesia	-46%	448%
1992	The Philippines	37%	Turkey	-50%	87%
1993	Poland	745%	Israel	14%	731%
1994	Brazil	64%	Poland	-55%	119%
1995	Peru	22%	Pakistan	-38%	60%
1996	Russia	151%	South Korea	-38%	189%
1997	Russia	112%	Indonesia	-75%	186%
1998	Korea	138%	Russia	-83%	221%
1999	Russia	246%	Columbia	-19%	265%
2000	Israel	25%	Indonesia	-63%	88%

2001	Russia	53%	Egypt	-44%	97%
2002	Pakistan	151%	Argentina	-52%	201%
2003	Thailand	144%	Malaysia	27%	117%
2004	Columbia	132%	Thailand	-1%	134%
2005	Egypt	162%	Malaysia	2%	159%
2006	China	83%	Turkey	-7%	90%
2007	Peru	94%	Argentina	-4%	98%
2008	Morocco	-11%	Pakistan	-74%	63%

Source: Austin Fraser, 2010

Despite these similarities, emerging markets are very different economically, politically and socially. Performance on each market is different from one year to another, and the evolution of these markets is very important for investors wishing to diversify their portfolio by investing in these markets (Fraser, 2010, p. 131).

In conclusion, regardless of the degree of similarity or discrepancy that exists between emerging countries, the data from the last twenty years shows that economic development and open markets play a significant role in the development and penetration of these markets in terms of investment of international investors. As long-term growth restores the importance of countries worldwide, rapid and unsustainable economic expansion can cause major macroeconomic imbalances and serious economic crisis as it was seen in the 90s. In this context, *The MSCI Emerging Market Index* for investors in the foreign exchange market is to provide important information in case they want to diversify their portfolio by investing in emerging market currencies.

Table 3. MSCI Emerging Market Index for Latin America

Latin America	22,5%
The Brazilian Peso	15,1%
The Mexican Peso	4,3%
The Chilean Peso	1,4%
The Peruvian Peso	0,6%
The Argentinean Peso	0,5%
The Colombian Peso	0,6%

Source: www.mscibarra.com

Table 4. MSCI Emerging Market Index for Africa and the Middle East

Middle East			21,5%
The Russian Rouble	6,9%	The Hungarian Forint	0,5%
The South African Rand	7,3%	The Egyptian Pound	0,6%
The Israeli Shekel	2,9%	The Czech Crown	0,5%
The Turkish Lira	1,3%	The Moroccan Dirham	0,4%
The Polish Zloty	1,0%	The Jordanian Dinar	0,1%

Source: www.mscibarra.com

Table 5. MSCI Emerging Market Index for Asia

Asia					59,6%
The Chinese Renminbi	18,4%	The Indonesian Rupee	8,2%	The Thai Baht	1,2%
The Korean Won	14,4%	The Malaysian Ringgit	2,8%	The Philippine Peso	0,4%
The Thai Dollar	12,5%	The Indonesian Rupiah	1,5%	The Pakistani Rupee	0,2%

Source: www.mscibarra.com

4. Conclusions

Along with the main currencies in the foreign exchange market that exists in investors' portfolio, diversifying risk prompted investors to expand their portfolio by investing in emerging market currencies. The importance of emerging markets for investors is supported by the fact that, although considered small countries with limited capital, they offer international investors high returns compared to what mature countries have to offer, because yields in emerging markets are very poorly correlated with those on developed markets. Therefore, one can say that emerging markets offer international investors a "free lunch" with high returns and low risk. In the authors' opinion, even if, following the crises of the '90s, emerging markets have been "marginalized" for some time in the international investors portfolio, the present data and future scenarios designed especially for the BRIC countries show that the economic opening of these markets as well as their development plays a significant role in their penetration of international investors investment plan.

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