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# Emerging Equity Markets in a Globalizing World

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ABSTRACT

Given the dramatic globalization over the past twenty years, does it make sense to segregate global equities into "developed" and "emerging" market buckets? We argue that the answer is still yes. While correlations between developed and emerging markets have increased, the process of integration of these markets into world markets is incomplete. To some degree, this accounts for the disparity between emerging equity market capitalization in investable world equity market benchmarks versus emerging market economies in the world economy. Currently, emerging markets account for more than 30% of world GDP. However, they only account for 12.6% of world equity capitalization. This incomplete integration along with the relatively small equity market capitalization should be taken into account in portfolio allocation. Other asset classes within emerging markets (such as corporate bonds and currencies) are also viable.

JEL: G11, G15, G18, G24, F36.

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## 1. Introduction

Twenty years ago, the World Bank organized a conference on "Portfolio Flows to Emerging Markets". At the time, the World Bank had recently compiled the first-ever database of emerging market equity returns. Foreign portfolio (as opposed to direct) investment was relatively new. The theme of the conference was to better understand the risks that portfolio investors faced in their emerging market investments and to study why emerging markets were different from developed markets.

Today, the issue is not whether to invest in emerging markets— but how much to invest in emerging markets. However, even after twenty years of research, there are still some unanswered questions. Our paper addresses these questions:

- Has the risk profile of emerging markets changed?
- Are emerging markets more integrated into world markets today?
- How much of a diversified global equity portfolio should be allocated to emerging markets?

Indeed, our paper addresses an even broader question – *should we even bother to distinguish between emerging and developed markets?* As early as 2002, Saunders and Walter (2002) claimed that the continued capital market liberalizations across developing countries obviated the need to separate emerging and developed equity market classes. Despite further globalization since then, our conclusion is different: *Emerging markets should still be treated as a separate asset class.*

Our research has important policy implications for institutional and pension fund management. Emerging markets are not fully integrated within global capital markets yet, and deserve to be a separate asset class. New sub-segments (currencies, bonds) should be considered as well. The relative market capitalization of emerging markets is much lower than their relative economic weight, so that a market capitalization-based benchmark can be viewed as a lower bound on the asset allocation to emerging markets. Over the last 15 years, emerging equity markets transformed from an asset class exhibiting very low correlations with the rest of the world to one with a relatively high world market beta: risky but high expected returns.

Our paper is organized as follows. Section two examines the role of emerging markets in the world economy and compares the share of emerging markets' GDP relative to world GDP to their share of world equity markets. The unique risk characteristics of emerging markets, as well as their evolution through time, are detailed in section three. Section four discusses the degree of integration of emerging markets within global capital markets, and how it has evolved through time. The case for an emerging equity market asset class is examined in section five. Section six focuses on non-equity asset classes that are available in emerging markets. Some concluding remarks are offered in the final section.

## 2. The Increasing Role of Emerging Markets in the World Economy

In the late 1980s, the US and Japan accounted for 46.3% of world GDP, whereas China accounted for less than 1.5% of world GDP. By 2012, China's share grew to 11.5%, whereas the share of the US and Japan fell to 30.2%.

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*Exhibit 1. Contributions to World GDP*

| Rank | 1987 | | 2012 | |
|---|---|---|---|---|
| | Country | GDP Weight | Country | GDP Weight |
| 1 | United States | 30.1% | United States | 24.4% |
| 2 | Japan | 16.2% | China | 12.8% |
| 3 | Germany | 6.6% | Japan | 9.3% |
| 4 | United Kingdom | 4.9% | Germany | 5.3% |
| 5 | France | 4.5% | France | 4.1% |
| 6 | Italy | 3.9% | United Kingdom | 3.8% |
| 7 | Canada | 2.3% | Brazil | 3.5% |
| 8 | Brazil | 2.1% | Russia | 3.1% |
| 9 | Spain | 1.8% | Italy | 3.1% |
| 10 | Russia | 1.7% | India | 2.9% |

GDP data in U.S. dollars. Source: World Bank, IMF. Data for 2012 is as of June 2013.

As Exhibit 1 shows, China, Brazil, Russia and India all feature in the top ten in terms of contribution to world GDP. It is reasonable to expect that the GDP share of today's emerging markets will soon exceed the GDP share of developed markets. In fact, projections of the World Bank, reproduced in Exhibit 2, suggest as much.

*Exhibit 2. Emerging and Developed Countries' Share of World GDP*
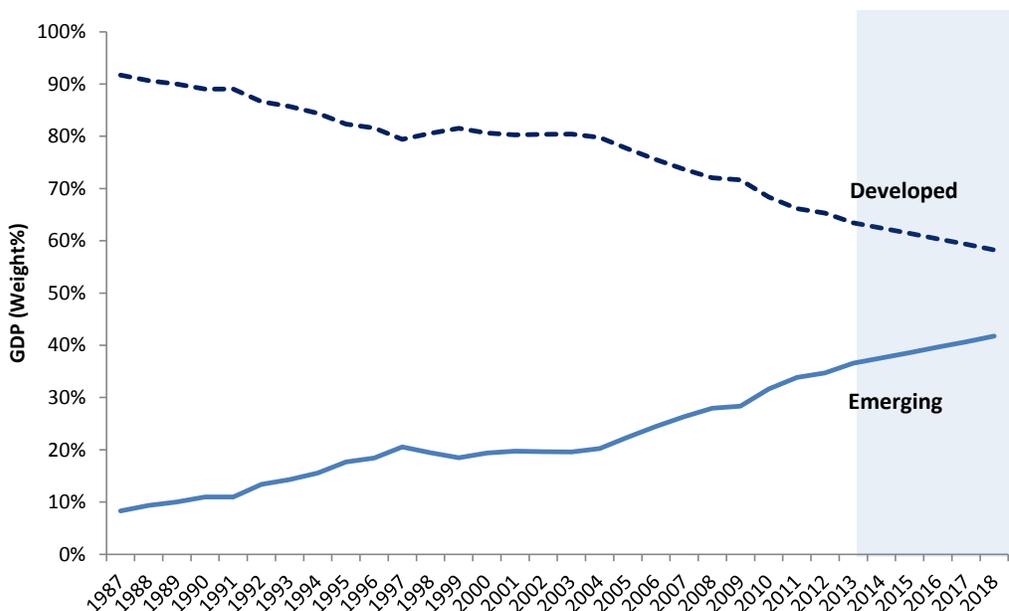


GDP data in U.S. dollars. Source: World Bank, IMF. Shaded area uses IMF forecasts.

Notice that emerging market GDP represented about 10% of world GDP in 1987. Yet at that time, the equity market capitalization was very small – less than 1% of the world market capitalization according to Morgan Stanley Capital International (MSCI) data, as shown in Exhibit 3. The exhibit also shows the rapid growth in market capitalization over the last decade.

*Exhibit 3. Equity Market Capitalization of Emerging Markets*



Source: MSCI

By the beginning of 2012, the market capitalization weight for emerging markets according to MSCI is 12.6%**.** The FTSE benchmark market capitalization weight for emerging markets was 11.5%. The difference between FTSE and MSCI has to do with the countries that are classified as "emerging". The most significant difference is South Korea, which accounts for 2.2% of global equity market capitalization. In the FTSE global index, South Korea is a "developed" market, whereas MSCI puts South Korea in the "emerging" market group. There are other smaller differences. The different approaches to including South Korea speak to one of our fundamental questions: should we bother to distinguish between emerging and developed markets?

While both the GDP and market capitalization share of emerging markets have grown, they have failed to converge. By 2012, emerging markets accounted for more than 30% of world GDP, yet only 12.6% of equity market capitalization. The US, in contrast, currently accounts for 25% of world GDP, and about 45% of world equity market capitalization (according to the MSCI ACWI, which has a broader coverage of emerging markets than the MSCI World Index).

There are economic reasons that, in part, explain the gap between the share of world GDP and the share of world equity. In many developing countries, banks provide the main source of financing for firms. Indeed, there is significant variation in financing patterns across developed countries as well (see e.g. Beck, Demirguc-Kunt and Maksimovic, 2008), and the relative size of equity markets varies wildly even among developed countries. For example, Germany and Italy have relatively small equity markets, whereas the Anglo Saxon countries have relatively large stock markets. What is interesting is the apparent lack of convergence even as equity financing is a viable financing channel in many large emerging markets. Indeed, Exhibit 4 suggests that the gap between GDP and the size of the equity market has widened in recent years.

*Exhibit 4. Emerging Markets' GDP and Equity Market Shares*
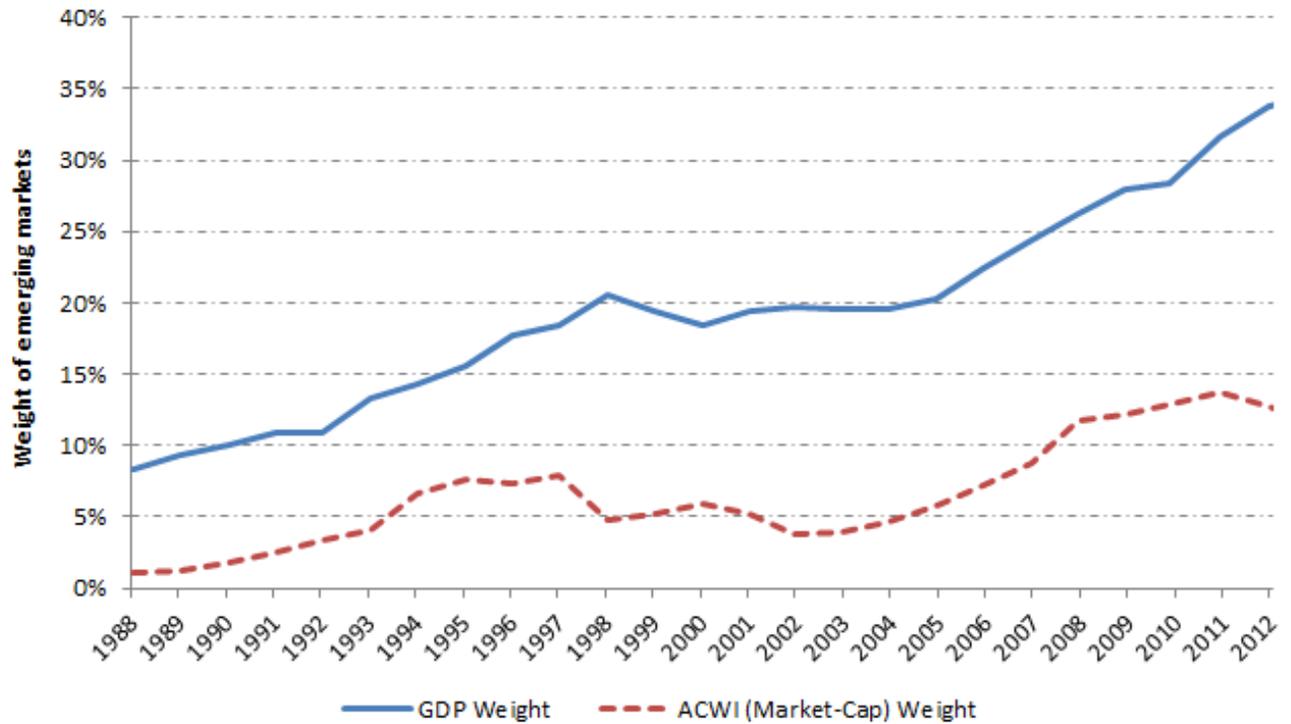


Source: World Bank, IMF, MSCI.

Exhibit 5 drills down to the country level. In the MSCI All Country World Index (MSCI ACWI), of the ten countries most underweighted relative to their GDP weights, six are emerging markets— with China the most underweighted.

Exhibit 5. Top Ten Over- and Underweighted Countries in MSCI GDP-Weighted Indices

| | MSCI ACWI GDP-Weighted Index | MSCI ACWI Index | Difference |
|---|---|---|---|
| **Largest Overweights** | | | |
| CHINA | 12.7% | 2.1% | 10.6% |
| RUSSIA | 3.1% | 0.7% | 2.5% |
| ITALY | 3.2% | 0.8% | 2.5% |
| GERMANY | 5.5% | 3.2% | 2.3% |
| BRAZIL | 2.9% | 1.2% | 1.7% |
| INDIA | 2.3% | 0.6% | 1.7% |
| JAPAN | 9.5% | 7.9% | 1.6% |
| MEXICO | 1.7% | 0.6% | 1.2% |
| SPAIN | 2.3% | 1.1% | 1.1% |
| INDONESIA | 1.0% | 0.3% | 0.7% |
| **Largest Underweights** | | | |
| USA | 25.1% | 48.4% | -23.3% |
| UNITED KINGDOM | 3.9% | 8.2% | -4.2% |
| SWITZERLAND | 1.0% | 3.3% | -2.3% |
| CANADA | 2.8% | 3.8% | -1.0% |
| HONG KONG | 0.4% | 1.1% | -0.7% |
| TAIWAN | 0.7% | 1.3% | -0.6% |
| AUSTRALIA | 2.4% | 2.9% | -0.5% |
| SWEDEN | 0.9% | 1.2% | -0.4% |
| SOUTH AFRICA | 0.6% | 0.8% | -0.2% |
| SINGAPORE | 0.4% | 0.6% | -0.2% |

Source: MSCI. Data as of August 30, 2013. MSCI ACWI includes both developed and emerging market countries.

There is one additional, important consideration. First, providers such as MSCI and FTSE do not count all of the market capitalization. They focus on the "free float". Some of the capitalization may not be easily available for transactions because, for example, it is held by a government. Emerging markets have much lower proportions of free float than developed markets have. Exhibit 6 shows that in the MSCI emerging markets, the free float to total market capitalization is only 55% on average. In contrast, in the US, the ratio is 94%. Note that MSCI only changed the ACWI in 2002 to reflect the difference between total market capitalization and free float.

*Exhibit 6: Free float for MSCI indices*

|  | Free Float (%) |
|---|---|
| ACWI | 73 |
| World | 83 |
| EM | 55 |
| **Developed Markets** | |
| USA | 94 |
| Europe incl Israel | 76 |
| Japan | 75 |
| Pacific ex Japan | 72 |
| **Emerging Markets** | |
| EM Asia | 55 |
| EM EMEA | 53 |
| EM Latin America | 56 |

Source: MSCI. Data as of July 31, 2013. Average of companies' free float for constituents in the index.

However, the free float does not account for all of the underweighting. Exhibit 7 revisits Exhibit 4 – but adding a total capitalization version of the MSCI ACWI.

*Exhibit 7. A Comparison of Total Market Capitalization and Free Float Shares*
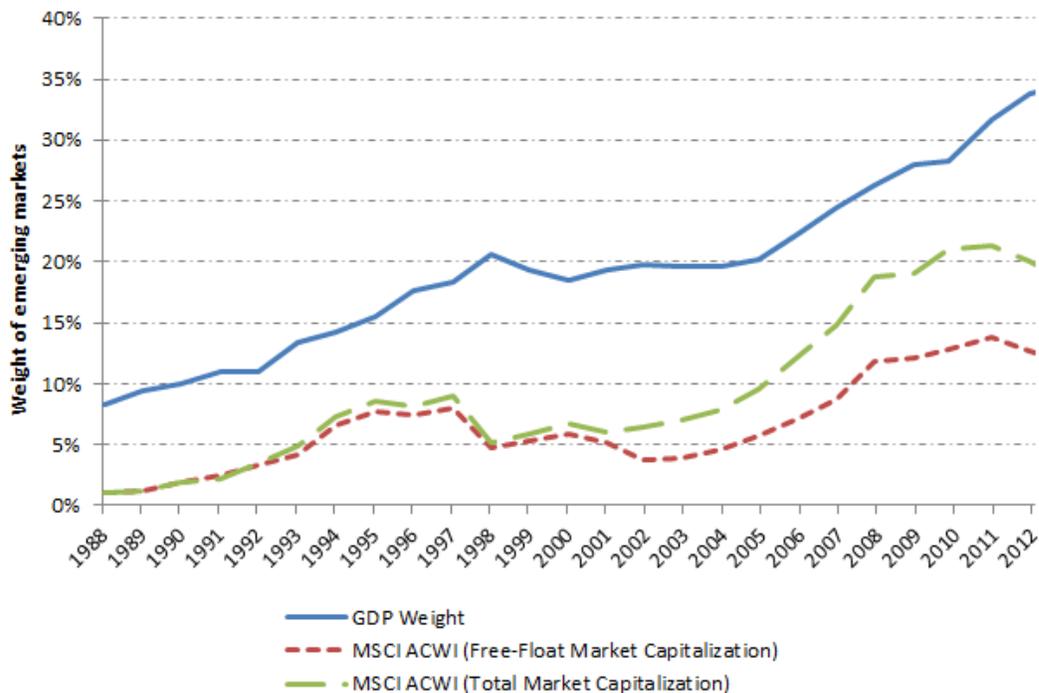


Source: World Bank, IMF, MSCI.

While the emerging markets share of free float is 12.6%, the share of total market capitalization is 20.0%. Nevertheless, this is far short of the near 35% share of GDP they represent.[2]

## 3. Risk Characteristics of Emerging Markets

The combination of home bias and the prevalence of market capitalization benchmarks in investing leads to emerging markets accounting for much less than their economic weight in investment portfolios in the developed world. We now consider how the risk and expected return characteristics of emerging market returns have evolved through time.

Examining the history of the MSCI indices in Exhibit 8, emerging markets have historically outperformed developed markets.

*Exhibit 8: Comparing the Total Return Performance of Developed and Emerging Markets (January 1988 to August 2013)*

|  | MSCI World | MSCI EM |
|---|---|---|
| Average Annualized Excess Returns |  |  |
| January 1988 to August 2013 | 3.69% | 7.96% |
| - January 1988 to December 2000 | 5.18% | 6.46% |
| - January 2001 to August 2013 | 2.19% | 9.53% |
| Annualized Standard Deviation |  |  |
| January 1988 to August 2013 | 15.25% | 23.78% |
| - January 1988 to December 2000 | 13.91% | 23.76% |
| - January 2001 to August 2013 | 16.52% | 23.88% |
| Sharpe Ratios (annualized returns) |  |  |
| January 1988 to August 2013 | 0.24 | 0.33 |
| - January 1988 to December 2000 | 0.37 | 0.27 |
| - January 2001 to August 2013 | 0.13 | 0.40 |
| Beta vs. ACWI |  |  |
| January 1988 to August 2013 |  | 1.17 |
| - January 1988 to December 2000 |  | 1.03 |
| - January 2001 to August 2013 |  | 1.26 |
| Alpha (annualized returns) |  |  |
| January 1988 to August 2013 |  | 4.87%* |
| - January 1988 to December 2000 |  | 3.16% |
| - January 2001 to August 2013 |  | 7.04%*** |

*Significant at 11% level; ***Significant at 2% level; OLS standard errors.
Note: The geometric average is used for average annualized excess returns above. Returns are in excess of a US Treasury bill. Source: MSCI and the St. Louis Federal Reserve.

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[2] Harvey (2012) studies the issue of float vs. total market capitalization in emerging markets and the relevance for long-term investors.

The geometric average excess return (over and above a US Treasury bill) for emerging markets over the sample was 8.0%, compared to only 3.7% for developed markets (MSCI World). Because the emerging market index has much higher volatility than the world indices have, we use geometric averages in these calculations. The standard deviation of emerging market returns is 23.8%, compared to only 15.3% for the diversified world index. Even though the volatility is much higher, the Sharpe ratios for emerging markets are still higher. The difference is even more dramatic in the most recent ten years, when the 2008-2009 financial crisis substantially undermined the performance of developed markets. Despite being hit severely by the crisis as well, some large emerging markets, such as Brazil, Russia and South-Africa, nevertheless more than tripled over the last decade. The five-year trailing excess geometric returns in Exhibit 9 show a very large run-up in emerging markets during most of the past decade, and very few negative five-year returns are observed for emerging markets over the last ten years.

*Exhibit 9: Annualized USD five-year excess returns*
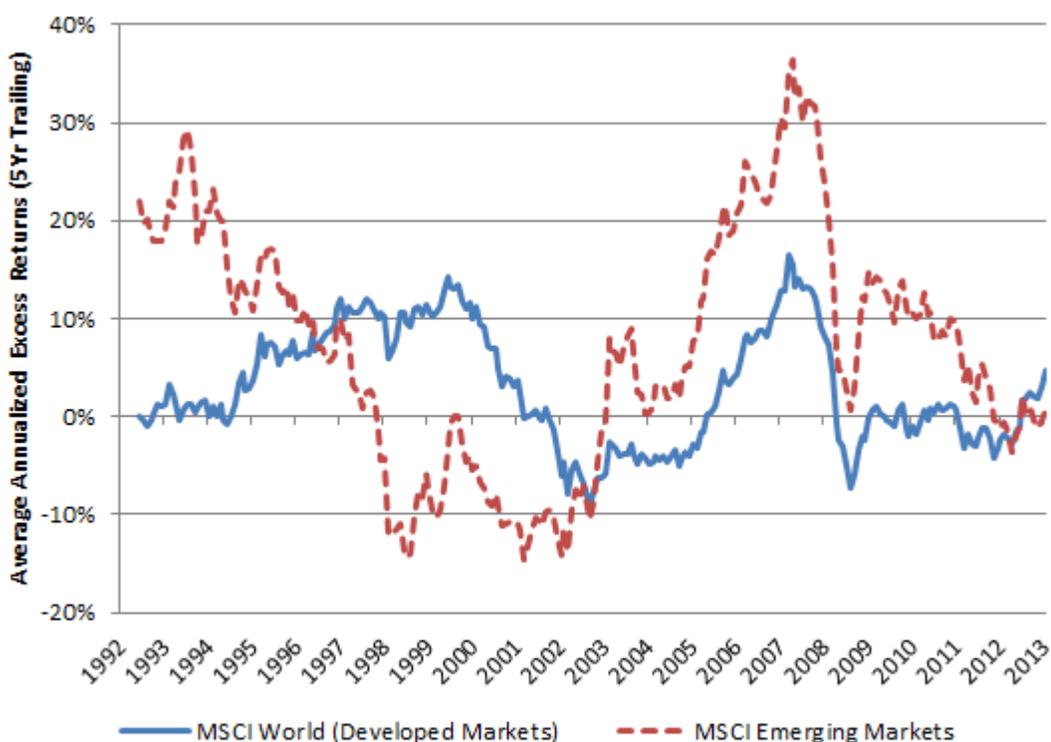


Note: Geometric returns are used. Returns measured in excess of US Treasury bill rate. Source: MSCI and St. Louis Federal Reserve.

Note that higher volatility of the emerging market portfolio is not at all surprising and, in part, reflects the large weight of the relatively low-volatility US market in the world market index and the diversification effect of investing in all of the world's equity markets. Individual emerging markets have very high volatility, ranging from 27% for South Africa to 54% for Russia (using data from 1988 to September 2013). The volatility of the emerging markets composite index is much lower than the individual volatilities of separate emerging market countries, and it is about as high as the volatility of some larger developed countries such as Japan or Germany. The rolling five-year standard deviations in Exhibit 10 show that the volatility of the emerging market index has fluctuated in the 17% to 30% band— but is lately closer to the upper end of that range.

*Exhibit 10: Annualized five-year standard deviations*
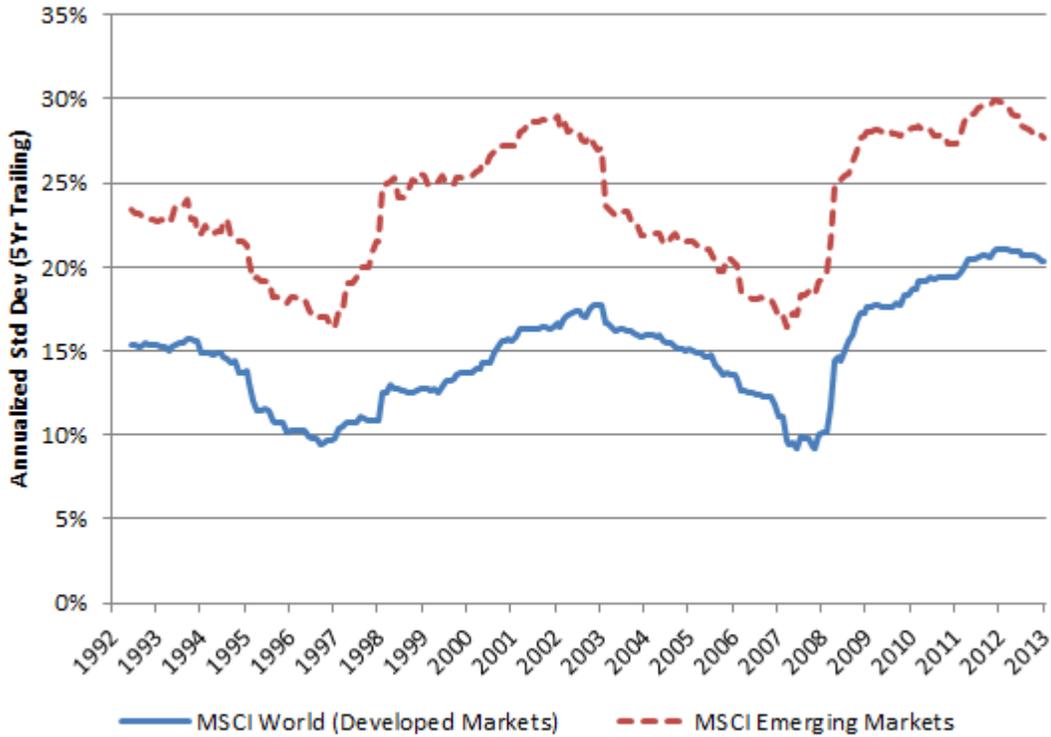


Source: MSCI

Risk should not simply be measured by standard deviation, however. It is well known that emerging market returns are not normally distributed; see Bekaert, Erb, Harvey and Viskanta (1998). It is important to consider downside risk as well. Exhibit 11 shows that the emerging market index does not show substantially more non-normalities than the MSCI World index, exhibiting similar skewness at -1.6 and only slightly more excess kurtosis at 1.6. Note that individual emerging markets actually mostly exhibit positive skewness, but the growth experiences appear country-specific, whereas some of the downside moves are common across countries, causing negative skewness at the index level. Taking together all of the risk characteristics, emerging markets definitely have more downside risk. The 99% VaR for emerging market returns is -24.6%, compared to only -14.7% for developed markets. Of course, this is largely caused simply by the higher variance of emerging market returns.

*Exhibit 11. Downside and Tail Risk (Monthly Total Returns, in USD, January 1988 to December 2012)*

|  | MSCI World | MSCI EM |
|---|---|---|
| Average Monthly Total Return | 0.7% | 1.2% |
| Standard Deviation | 4.4% | 6.9% |
| Skewness | -0.6 | -0.6 |
| Kurtosis | 1.4 | 1.7 |
| VaR (95%) | -7.4% | -10.6% |
| VaR (99%) | -10.9% | -16.3% |
| Conditional VaR (95%) | -10.1% | -11.7% |
| Conditional VaR (99%) | -13.8% | -22.5% |
| Average Negative Return | -3.49% | -5.28% |
| Average Positive Return | 3.45% | 5.31% |

Note: Simple average monthly total returns are shown above. Average monthly return is not annualized. Standard deviation is that of monthly returns, also not annualized. Both skewness and kurtosis are defined in the standard way; kurtosis is excess kurtosis here. Value-at-Risk is the realized monthly percentage loss at the relevant threshold. Conditional Value-at-Risk is the average loss once the threshold has been exceeded. Average negative and positive returns are simple averages conditional on the returns being negative or positive respectively. Source: MSCI

From an investment perspective, the absolute risk of emerging markets is largely irrelevant. Investors in developed markets will invest only a portion of their portfolio in emerging markets, and therefore the correlation between developed markets and emerging markets will be an important driver of the ultimate risk borne. When emerging markets were first touted as interesting investments for global investors in the early 90s, their diversification benefits were emphasized. The emerging market index had a correlation with the world index of about 0.40, leading to considerable diversification benefits. However, this correlation has increased over time (also, see Fernandes, 2005). As Exhibit 12 shows, more recently the correlation stands at 0.90.

It is easy to explain some of the initial increases in correlations. At the end of the 1980s and the beginning of the 1990s, many emerging markets embarked on a liberalization process; these stock market liberalizations drove up the correlations with the rest of the world (see Bekaert and Harvey, 2000; Henry, 2000). Since then, however, the gradual increase in correlations has continued, making diversification benefits a poor rationale for investing in emerging markets.

*Exhibit 12: Emerging Markets Have Become More Correlated with Developed Markets*



Source: MSCI

The correlation between two markets can be expressed as the product of the beta times the ratio of standard deviations. Using this decomposition, the increasing correlations are partly the result of higher betas with respect to the world market, as shown in Exhibit 13. The other component in the heightened correlation is a 10% increase in the world versus emerging market volatility ratio (see Exhibit 9). Betas now seem to fluctuate in a 1.2-1.6 band, making emerging markets a risky, high-expected-return asset class. Importantly, the higher betas are not sufficient to explain the higher returns earned by emerging markets over the last 20 years. As Exhibit 8 shows, the historical "alpha," the additional return over and above the return commensurate with exposure to the world market, was almost 5% per year since 1988. This alpha is only statistically significant at an 11% significance level, but is higher and highly significant for the more recent period starting in January 2001.

*Exhibit 13. Emerging Markets Rolling Beta to World Markets*



Source: MSCI

The high average correlations hide some interesting dynamics. Exhibit 14 separates positive and negative performance. Emerging markets perform similarly to developed markets when developed market returns are negative. However, emerging markets outperform developed markets when developed market returns are positive. There is similar inference with both averages and medians suggesting that influential observations are not a problem. [GB potential addition: In fact, the evidence looks more favourable for emerging markets when median returns are considered.] Of course, the historical behaviour is only suggestive of future return patterns. Nevertheless, it is somewhat reassuring that the above pattern was realized in the period surrounding the recent financial crisis. In other words, the downside of emerging markets is less severe than the beta computations would suggest. If the beta would truly be higher than 1, emerging markets would under-perform when developed markets do poorly, but Exhibit 14 suggests they perform about as well. This result is consistent with recent results on non-linear dependence in emerging market returns by Christoffersen, Errunza, Jacobs and Langlois (2012) and with recent work on contagion during the global crisis (see Bekaert, Ehrmann, Fratzscher and Mehl, 2013).

*Exhibit 14. Alternative Measures of Diversification, January 1988-August 2013*

|  | Monthly Returns Average | Monthly Returns Median | Annual Returns Average | Annual Returns Median |
|---|---|---|---|---|
| DM Return when DM Return is Negative | -3.49% | -2.41% | -16.50% | -16.52% |
| EM Return when DM is Negative | -3.42% | -2.61% | -15.64% | -10.55% |
| DM Return when DM Return is Positive | 3.45% | 2.88% | 18.86% | 18.08% |
| EM Return when DM is Positive | 4.20% | 3.93% | 31.62% | 33.55% |

Note: The annual returns use year-end values except for 2013. Source: MSCI

## 4. Market Integration

But are emerging markets still "different"; do they constitute a separate asset class? The way an academic would pose that question is to ask whether emerging markets are effectively "integrated" in global capital markets. In integrated world markets, a project of the same risk (say, a particular type of industry), should command the same expected return— no matter where the project is located. If a market is not integrated, we refer to the market as segmented. In reality, there is a continuum of possibilities between segmentation on one extreme and integration on the other.

It is well known that many emerging markets are not fully integrated into world markets (see Bekaert and Harvey (1995, 2000) and Bekaert et al. (2011)). Segmentation is first and foremost caused by regulations that make it difficult for foreign investors to buy equity in particular countries.

The stock market and more general financial liberalization process that took place at the end of the 80s and throughout the 90s relaxed a lot of these regulations, creating the emerging market asset class in the process. The globalization process may serve to integrate emerging markets with global capital markets, but how do we measure it? Exhibit 15 focuses on two aspects of (de jure) globalization. The first is economic openness, as measured by the Trade Liberalization Dummy taken from Wacziarg and Welch (2008). Wacziarg and Welch (2008) call a country open to trade when it satisfies a number of criteria regarding tariff and non-tariff barriers. It is a zero-one dummy. The second aspect is financial openness, for which we show two indicators: the Capital Account Openness Index from Quinn and Toyoda (2008), and the Equity Market Openness indicator from Bekaert, Harvey and Ng (2005). The capital account index scores the degree of capital account openness between 0 and 1, based on IMF data. The equity markets measure takes the ratio of "investable" to total market capitalization.

*Exhibit 15. Openness Has Increased*
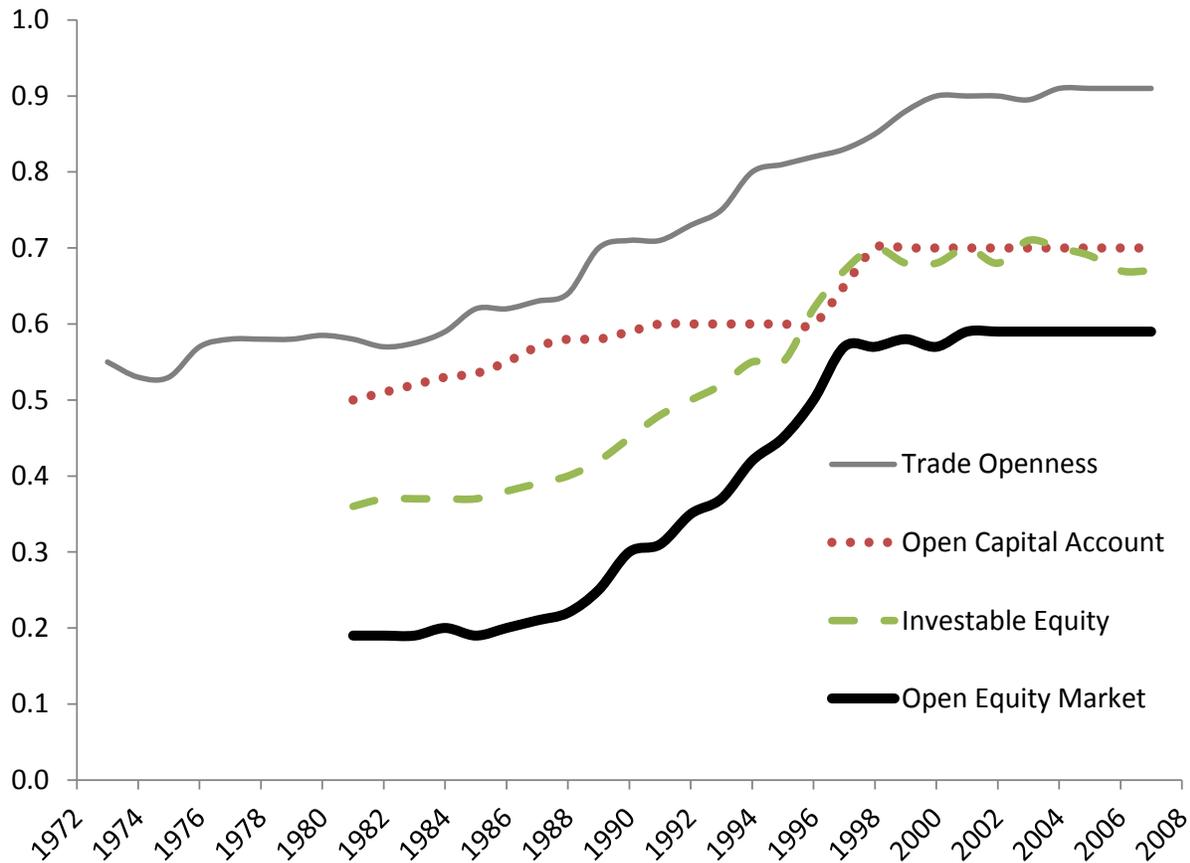


We take these 0/1 measures for 50 countries, average them and graph them over time. The graph shows that there is a very clear trend upwards towards more openness. For trade, the world is "open", but there is some way to go towards full openness for capital account openness and equity market openness. In fact, in the recent global crisis, we most definitely witnessed a globalization reversal, but our measures are too coarse to pick this up.

For global asset managers, globalization has had 'grave' consequences. As discussed before, globalization has led to increased country correlations, has changed systematic risk measures, and may lead to substantial changes in global asset allocation. However, the integration process is far from complete. The third largest market in the world (China), for example, is largely closed to foreign investment. More importantly, a relaxation of restrictions on foreign investors does not necessarily lead to integration, as other factors may effectively segment the market from global capital markets. A good example is extreme political risk, which may keep out important institutional investors who are restricted to invest in investment-grade countries. Another example is corporate governance.

*Exhibit 16. Select Country Governance Indicators for Select Countries (September 2013)*

| | | Enforcing Contracts | Rule of Law | Regulatory quality | Voice and accountabili | Property rights | Political Stability | Control of corruption |
|---|---|---|---|---|---|---|---|---|
| **Developed Markets** | | | | | | | | |
| Australia | DM | High | High | High | High | High | High | High |
| France | DM | High | High | High | High | High | High | High |
| Germany | DM | High | High | High | High | High | High | High |
| Hong Kong | DM | High | High | High | Medium | High | High | High |
| Japan | DM | High | High | Medium | High | High | High | High |
| Norway | DM | High | High | High | High | High | High | High |
| United Kingdom | DM | High | High | High | High | High | High | High |
| United States | DM | High | High | High | High | High | High | Medium |
| **Emerging Markets** | | | | | | | | |
| Brazil | EM | Medium | Medium | Medium | Medium | Medium | Medium | Medium |
| China | EM | High | Medium | Medium | Low | Low | Medium | Low |
| Czech Republic | EM | Medium | High | High | High | High | High | Medium |
| Hungary | EM | High | Medium | High | High | High | High | Medium |
| India | EM | Low | Medium | Medium | Medium | Medium | Medium | Low |
| Mexico | EM | Medium | Medium | Medium | Medium | Medium | Medium | Low |
| Korea, South | EM | High | High | High | High | High | High | Medium |
| Russia | EM | High | Low | Medium | Low | Low | Medium | Low |

Source: MSCI, World Bank (2010 WGI), Rank "Doing Business 2011", Heritage Foundation. Countries are assigned a rank of "High" if they have an MSCI ESG score below 3.0 for Government Risk Exposures (the first three columns) or above 7.0 for Governance Risk Management (the second four columns). A rank of "Low" is assigned for scores above 7.0 for Government Risk Exposures and below 3.0 for Governance Risk Management. Scores between 3.0 and 7.0 inclusive are assigned a rank of "Medium."

Exhibit 16 compares and contrasts a set of country governance and political risk indicators. Today, there is still a sharp contrast between emerging and developed markets with emerging markets showing mostly medium to low scores on these indicators of corporate governance, political stability and corruption. Even within emerging markets, there is considerable variance. For example, both China and Russia score the highest possible rating on the Enforcement of Contracts measure. However, they score the lowest rating on Property Rights. While this may reflect noise in the ratings, both countries are known not only for reasonably well-functioning legal proceedings, but also for governments that may arbitrarily seize property of their citizens and/or foreigners.

These factors may serve to segment markets, but they can also create expected return opportunities for global investors. For example, Erb et al. (1996) argue that political risk is priced, and therefore that emerging markets exhibiting severe political risk may offer high expected returns— as long as the political risk factor eventually reverts to normal levels. More generally, special risk factors that cause emerging markets to be partially segmented from global markets may cause emerging markets to trade more cheaply than developed markets. This "emerging market discount" is apparent in Exhibit 17, where we graph the MSCI price–earnings ratios for the world market and the emerging market index. These ratios are calculated by dividing total market capitalization by total earnings. Through the mid-90s, emerging markets traded at much lower multiples than developed markets, but since then there has been some convergence of price multiples. Note that these index averages do reflect large cross-country dispersion in valuation ratios. Also, the PE ratio may reflect to a considerable extent the unique industry structure of a country.

Exhibit 17. Price-to-Earnings Ratios (August 1994-August 2013)
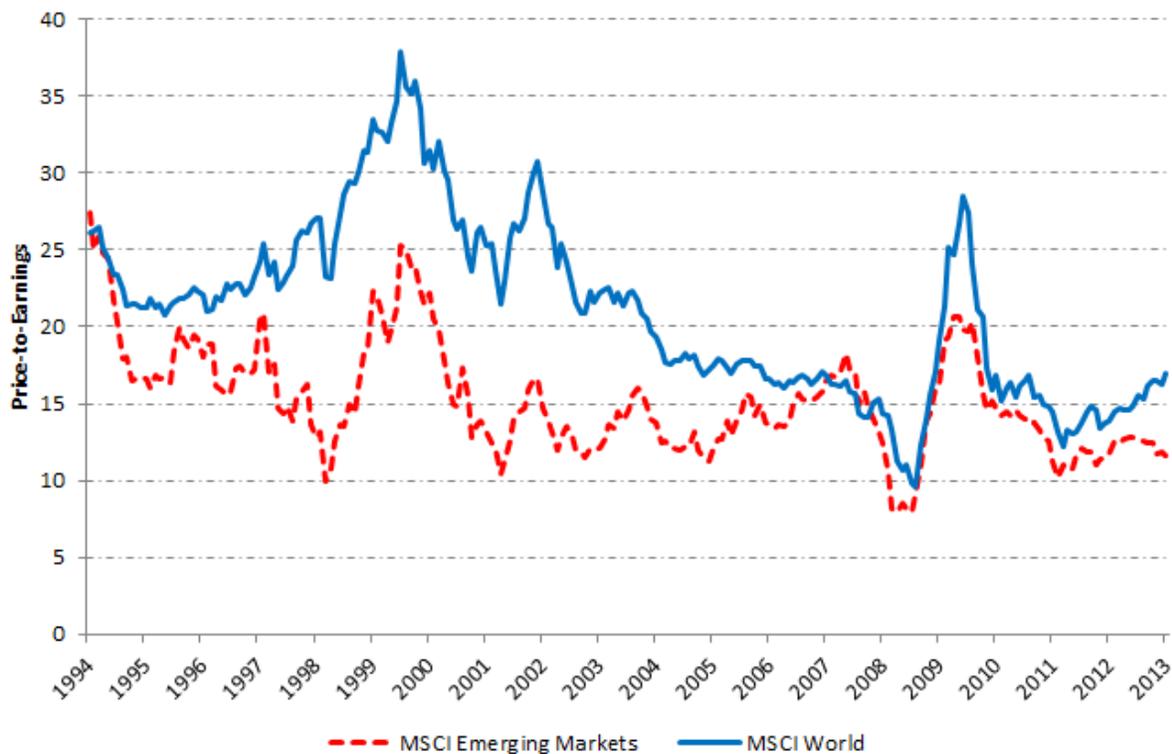
In a recent paper, Bekaert, Harvey, Lundblad and Siegel (BHLS, 2011) develop a measure of the degree of effective market segmentation (SEG) using valuation measures carefully controlling for cross-country variation in industry composition. With their SEG measure in hand, they ask questions such as: Has the degree of effective segmentation decreased over time? What was the role of the *de jure* globalization? What other factors drive valuation differentials across countries and time? The SEG measure views each country as a basket of industries, weighted by their market capitalization. The proposed segmentation measure takes absolute differentials between the industry earnings yield[3] (the inverse of the PE ratio) and the earnings yield of that industry at the world level— doing this for 38 different industries. The market capitalization weighted sum of these absolute differentials is the country segmentation measure.

If countries are integrated, the SEG measure should be very small and relatively constant through time. This is because the discount rate and the growth rate of (expected) dividends should converge for the same industries in different countries if these countries are truly integrated. This strong concept of market integration assumes that industries have identical systematic risk across the globe and that growth opportunities are industry-specific but global in nature. The latter assumption is plausible if growth opportunities are primarily driven by technological factors and capital markets are totally free. The valuation differential measure ignores financial risk, but country-specific regulations may induce

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[3] Earnings yields are preferred over the price-to-earnings ratios because if earnings are small or zero, the PE ratios are extremely large— or infinite.

differences in leverage ratios, which affect valuations. The use of absolute values implies that a low number of firms within an industry group may cause "noise" and upwardly bias the measure. Lastly, earnings volatility may be priced, and cause price differentials even across integrated firms. Because the valuation differential can be measured at each point in time, controlling for these factors in a regression analysis is possible.

Exhibit 18 shows the earnings yield differentials for developed and emerging markets. The earnings yield differential was around 4.5% in the 1970s for developed markets, but is now around 2%. For emerging markets, the differential went from around 10% to about 4%. Hence, there is a downward trend, with earnings yield differentials converging worldwide.[4]

*Exhibit 18. Market Segmentation*
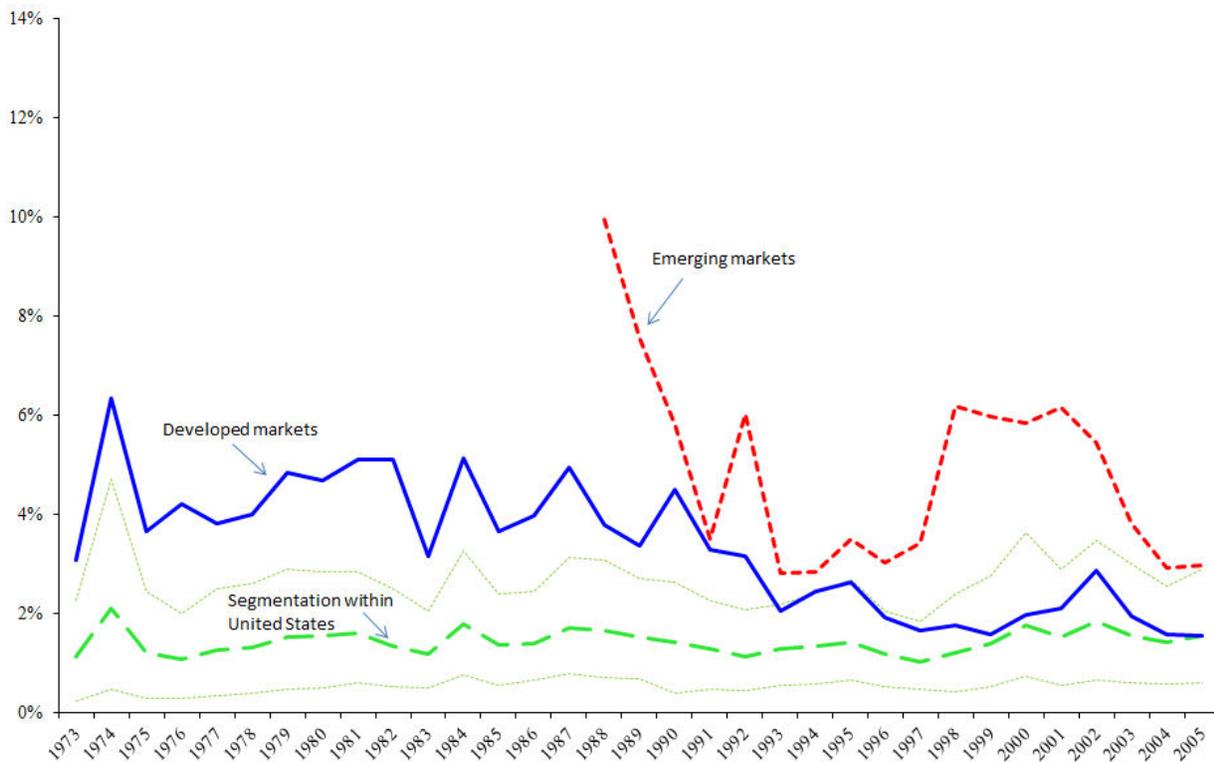


But how high or low is 2%? Because of the use of absolute values, a value of 0 is not the right benchmark. What level of segmentation would be observed in an integrated world? To get a grip on this, BHLS perform a simulation experiment. They use US data to construct a segmentation measure for a non-segmented equity market. Specifically, they construct 100 data sets from random draws of US firms, and use the overall US market as the "world" market. That is, the US serves as an "integrated planet", and random samples of US stocks are used to create 50 pseudo-countries, which replicate the cross-sectional and temporal variation in the number of firms in the actual sample of countries. The SEG index for the "integrated" world then produces a 5% - 95% a confidence bound for the measure. Using

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[4] Using monthly data, the negative trend for emerging markets is significantly different from zero, with a p-value smaller than 0.01. Removing some of the influential observations at the beginning of the sample (above 8%), the negative trend is significant at the 0.097 level.

these bounds, Exhibit 18 also shows that developed markets have effectively converged since the mid-1990s. Emerging markets have also moved toward convergence, but are still slightly above the 95% confidence band. As such, emerging markets are still not fully integrated within global capital markets and are rightfully still a separate asset class. Eun and Lee (2010), studying risk-return distance between developed and emerging markets, also show convergence, but conclude that emerging markets are still distinct, as do Carrieri, Chaieb and Errunza (2013), based on a study of implicit investment barriers in emerging markets.

BHLS also assess the determinants of valuation convergence, by running panel regressions of the SEG measure onto a large set of factors as potential determinants of valuation differentials. They find that a relatively parsimonious set of variables explains the cross-sectional and time series variation quite well, including de jure openness, investment profile (a measure of political risk from the International Country Risk Guide), and the VIX and corporate bond spread. The latter two variables can be considered as measures of risk aversion and/or risk premiums. Thus, in a crisis, you would expect valuation differentials to diverge and segmentation to increase. This did happen in the recent global financial crisis.

The relative higher degree of "segmentation" of emerging markets is also reflected in the dominance of "country factors" (as opposed to "industry factors") as drivers of variation in firm returns. Exhibits 19 and 20 detail the amount of the cross-sectional variance in developed and emerging market returns that is accounted for by industry factors and country factors.[5] For developed markets, both industry and country factors contribute about equally to the cross-sectional variance. For emerging markets, it is a much different story: country factors are twice as important as industry factors, confirming the results of Phylaktis and Xia (2006), whose data set ended in 2002.

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[5] Estimates are based on the Barra Global Equity Model, which includes 55 country factors, 34 industry factors, 8 style factors and 55 currency factors. The sum of country and industry contributions is not 100% because we omit from the graph the contribution of the style factors.

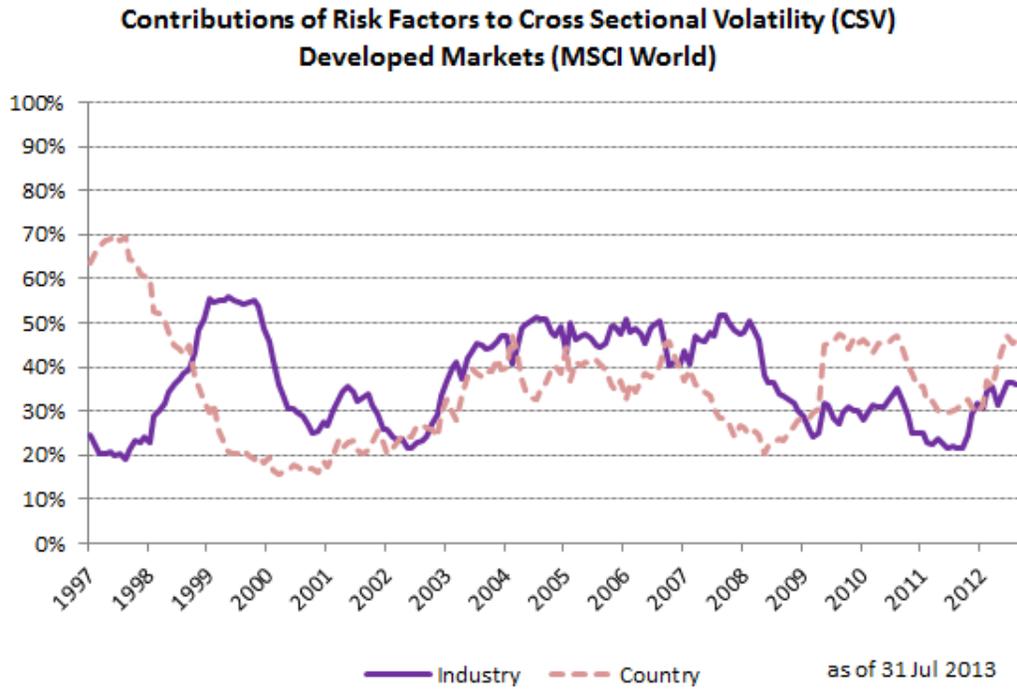*Exhibit 19. Country vs. Industry Factors: Developed Markets*

**Contributions of Risk Factors to Cross Sectional Volatility (CSV) Developed Markets (MSCI World)**



Industry — — Country          as of 31 Jul 2013

*Exhibit 20. Country vs. Industry Factors: Emerging Markets*

**Contributions of Risk Factors to Cross Sectional Volatility (CSV) Emerging Markets**



Industry — — Country          as of 31 Jul 2013
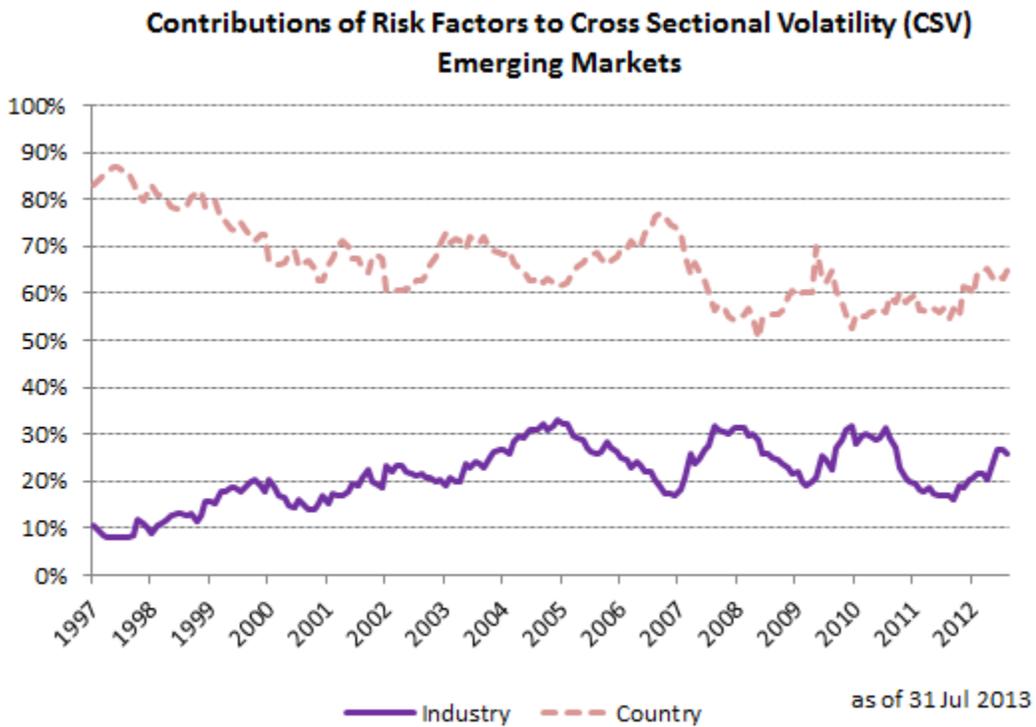
Source: MSCI

## 5. The Case for Emerging Markets Revisited

At first blush, some of the recent developments have made emerging markets less compelling investments. Globalization has increased country return correlations with developed markets, and valuations seem to have somewhat converged (see also Conover, 2011). In addition, an investment in any individual country is very volatile. However, these facts do not undermine the case for emerging markets to be a meaningful separate asset class.

First, country factors still dominate cross-country valuations. Investment barriers and other country factors are priced, but "risk appetite" factors are important as well. The country factors are nowhere larger than in emerging markets, given their economic status, which is one important differentiating factor from more developed country markets. Moreover, the high country-specific volatility can be diversified, and a diversified basket of emerging markets is not risky. It has about the same volatility as the larger developed markets.

Second, despite the increase in correlations with world markets at the index level, the high individual country volatility and country factors create potentially useful investment opportunities for active asset managers. For example, if you were to record the best- and worst-performing equity markets since 1990; you would find that in more than 90% of the cases, it's an emerging market. One way to formalize this potential is to examine the cross-sectional volatility in emerging versus developed markets. We plot this cross-sectional volatility over time in Exhibit 21. While the cross- sectional volatility in emerging markets was higher than in developed markets up to 2000, the differences have decreased over the last ten years. One potential reason is the continuing integration of emerging markets within global capital markets and the recent global crises that have affected many countries simultaneously.

*Exhibit 21. Cross-Sectional Volatility: Emerging vs. Developed Markets*
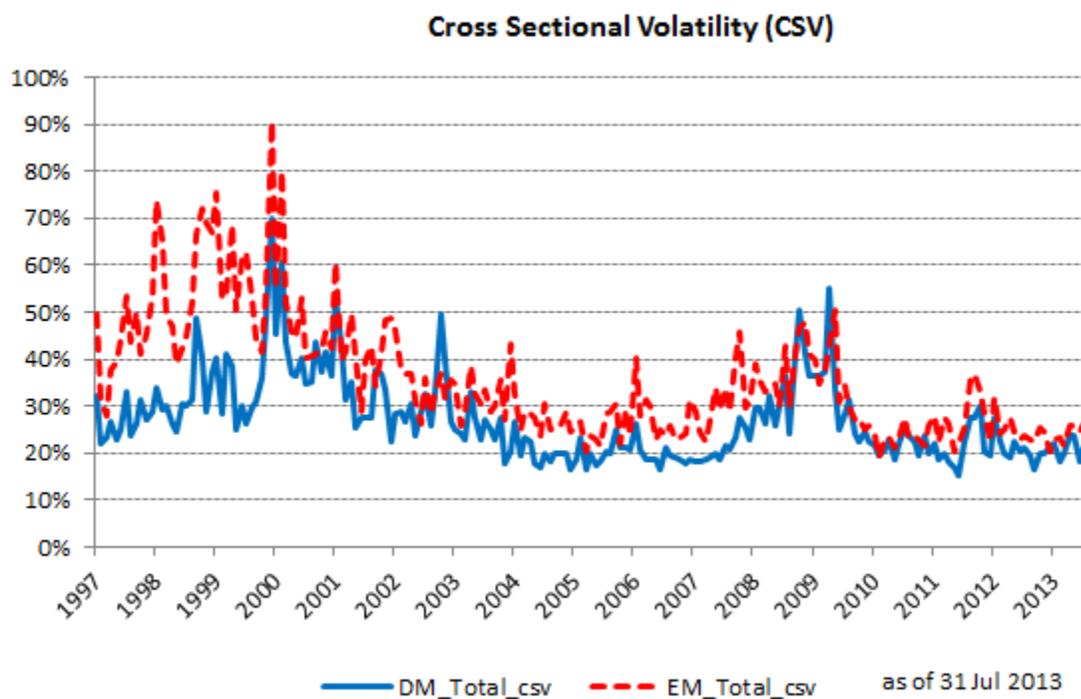
Third, the globalization process has led to valuation convergence, but the process has not been smooth. For example, in the recent financial crisis, valuation ratios diverged again. This, in itself, may provide opportunities for excess returns from global tactical asset allocation programs.

Fourth, emerging markets account for less than 15% of market capitalization but more than 30% of GDP. This is no guarantee for outperformance, as most of the catch-up should come through share issuances. However, as the last decade has shown, some emerging markets, such as Brazil, really took off and had very high returns during the decade at a time where many developed markets had dismal returns. It is hard to predict which markets will be next. But you are not in them at your peril. To the extent that valuation convergence has not completely eliminated the emerging market discount, some of the gap between relative market capitalization and relative GDP may be driven by further valuation convergence. However, such valuation differentials are better exploited in fundamental–based tactical asset allocation strategies.

One simple exercise, explored in Exhibit 22, is to look back in time. What does the return of a GDP-weighted allocation to emerging and developed markets look like? We construct a GDP-weighted portfolio by using the MSCI world index (for developed markets) and the MSCI emerging market index (for emerging markets). The weights allocated to each index are based on the previous year's share of world GDP. The average annual geometric return of a GDP-weighted allocation to emerging and developed markets is 8.3%. The alternative is the (float) market capitalization index which includes both emerging markets and developed markets, the MSCI-ACWI, which has an average geometric return of 7.4%. Thus, the average annual outperformance of the GDP-weighted portfolio is 102 basis points. While the volatility is slightly higher for the GDP weighted allocation, the Sharpe ratio is still higher using GDP instead of market capitalization weights. However, the 102 basis points is not statistically significant at the usual levels of significance. As the exhibit shows, the additional returns do come in smoothly over time, with the exception of the late 1990s where a market capitalization based strategy would have performed better.

*Exhibit 22: Cumulative Profit of Long GDP Weighted Index and Short Market Capitalization Weighted Index (January 1988 to August 2013)*
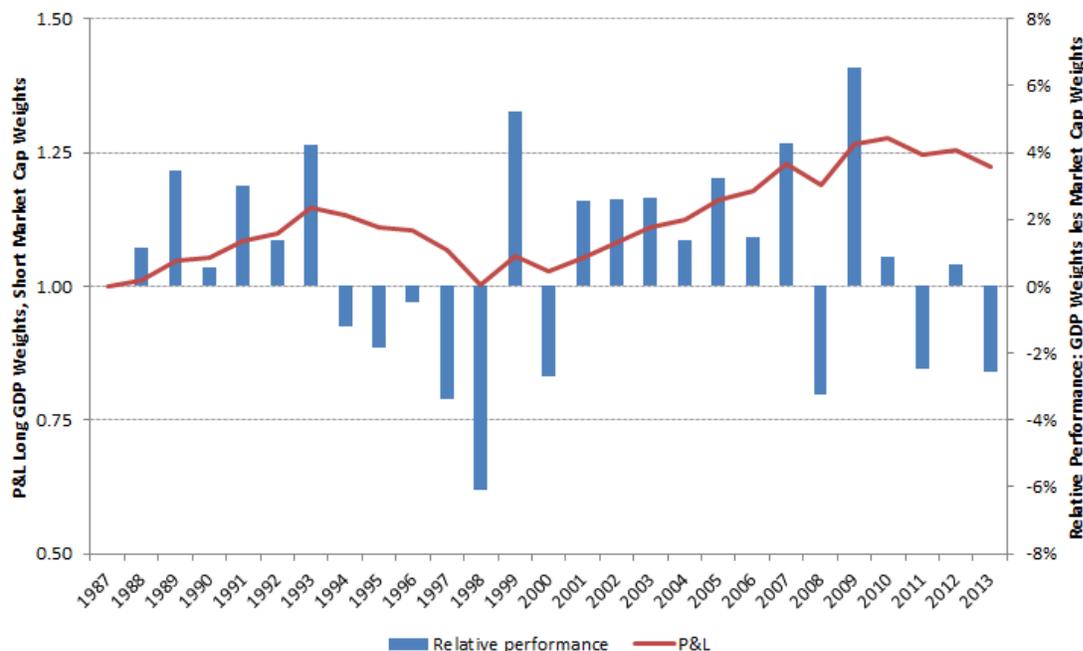


## 6. Emerging Asset Classes in Emerging Markets

We have thus far focused the discussion on equities, but new asset classes are "emerging." The emerging market corporate bond market has exploded in size. Ten years ago, US dollar-denominated emerging market corporate bonds represented a small fraction of sovereign issuance. Now, 86% of new issuance of emerging market dollar bonds is from corporations. Indeed, the emerging market corporate bond market now rivals the US high yield market in capitalization.[6] Moreover, emerging markets seem to have overcome the "original sin" of being unable to borrow in their own currencies, and local currency debt markets are growing fast; see Burger, Warnock and Warnock (2012).

In addition, currencies have become more likely floating and investable. Investors can obtain emerging market currency exposure though investing in local currency emerging market bonds, or through forward contracts and options. Gilmore and Hayashi (2011) claim that the risk-return profile of long investments in emerging market currencies has been historically quite attractive. Importantly, the return of emerging market currencies mostly comes from their high "carry," as they typically have higher yields than developed market currencies.[7] Such a strategy features negative skewness, just as a carry strategy in developed market currencies does. Recently, however, interest rate differentials have converged across the world, making it somewhat unlikely that the historical performance of emerging market currencies will be repeated over the next decade.

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[6] See, for example, King and Williams (2013).
[7] The carry trade involves investing in currencies with the highest interest rates and selling those currencies with low interest rates.

An important consideration here is how correlated equity markets are with their currencies. In developed markets such correlation is quite low and even often negative. For example, using monthly MSCI data between 1980 and 2012, we computed the correlation between currency changes relative to the dollar and the local equity markets (in local currency) for France, Germany, Italy, Japan, Canada and the UK. These correlations vary between -0.06 for the UK, and 0.43 for Canada, the latter partly explained by the Canadian currency being a commodity currency. If we repeat the same computations from the German rather than the US perspective, the correlations vary between -0.09 for the US and 0.20 for Italy. In emerging markets, however, these correlations are quite a bit higher. Exhibit 23 shows the correlation between the equity market return in local currency and the change in the dollar value of the local currency for 22 emerging markets. The correlations are invariably positive. Hence, for a US investor, the currency increases the risk of the equity investment, and emerging market currencies and equities are not independent investments. One reason for this is that some emerging markets are rich in resources, and commodity currencies generally show higher correlations between their equity markets and currencies— as is, for instance, also true for Australia and Canada. Another reason is of course the fact that both the equity market and the currency market provide an option on the long-term economic performance of the country.

*Exhibit 23. Correlation of FX (US$ per local currency) changes and local currency MSCI equity returns for individual emerging markets*

| Jan 1998 – Dec 2012 | |
|---|---|
| Brazil | 0.311 |
| Chile | 0.272 |
| China | 0.043 |
| Colombia | 0.202 |
| Czech Republic | 0.153 |
| Egypt | 0.033 |
| Greece | 0.239 |
| Hungary | 0.435 |
| India | 0.490 |
| Indonesia | 0.499 |
| Korea | 0.350 |
| Malaysia | 0.215 |
| Mexico | 0.396 |
| Morocco | 0.049 |
| Peru | 0.213 |
| Philippines | 0.371 |
| Poland | 0.447 |
| Russia | 0.260 |
| South Africa | 0.153 |
| Taiwan | 0.429 |
| Thailand | 0.557 |
| Turkey | 0.250 |
| Average | 0.289 |

Exhibit 24, displaying five-year trailing correlations, shows that the correlation between equity markets and currencies has increased substantially for a number of countries, reducing their diversification potential.

*Exhibit 24. Five-year trailing correlation of FX (US$ per local currency) changes and local currency MSCI equity returns for individual emerging markets*
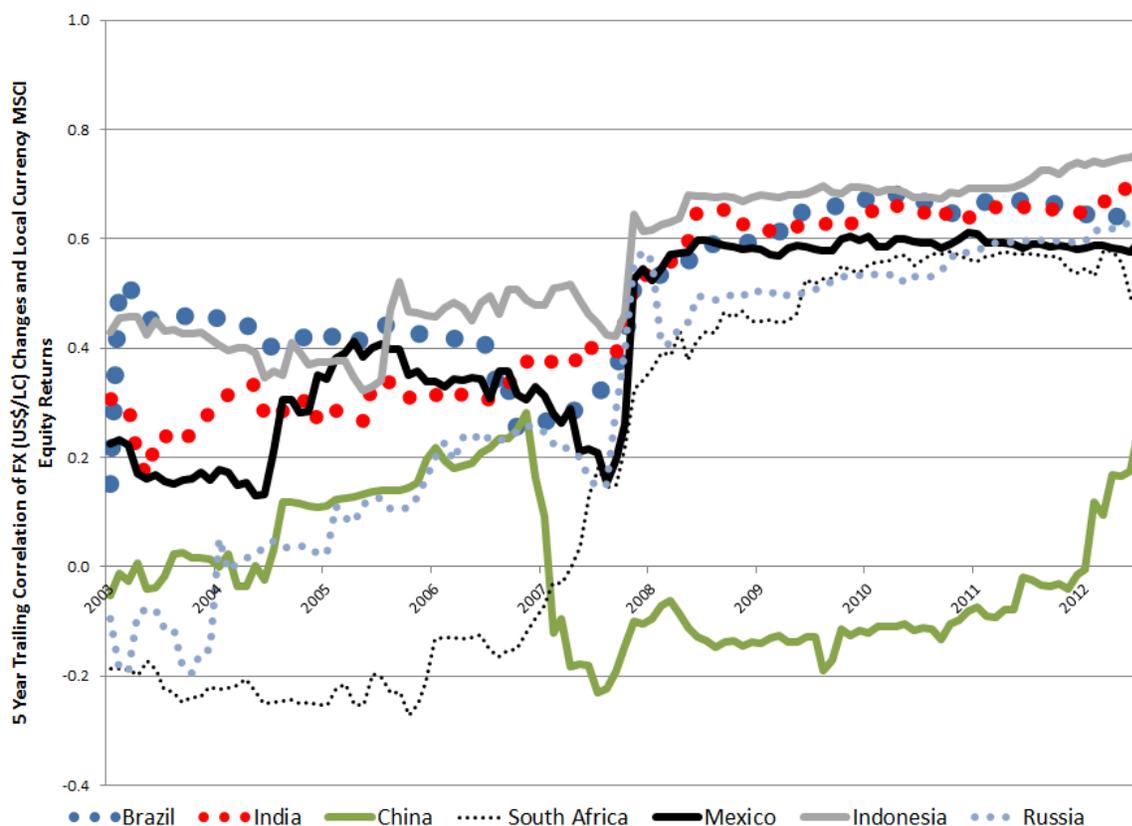


## 7. Conclusions

Emerging markets represent less than 15% of world equity market capitalization, but more than 30% of world GDP. This does not necessarily make emerging markets attractive investments. Since the liberalization process in the late 80s and early 90s, the correlation between emerging markets and developed markets has increased substantially and valuation ratios have partially converged. However, recent research by Bekaert et al. (2011) suggests that emerging markets are still not fully integrated into world capital markets, and therefore that emerging markets should still be viewed as a separate asset class. Part of the increase in correlation is due to the higher beta of the emerging market index, making emerging markets high expected return but risky investments. At least historically, the "downside" beta seems to be lower than the "upside" beta, so that the increase in correlations has not eliminated diversification benefits as

much as one might initially believe. Finally, the development of a large corporate and sovereign bond market as well as investable currencies has substantially increased the available investment opportunities in emerging markets for developed market investors.

Given these reflections, strategic allocations somewhere in between market capitalization weights and GDP weights are easy to defend. Indeed, as we point out, the so-called market capitalization weights are based on the amount of free float not total market capitalization. If total market capitalization is taken into account, emerging markets represent 20% of world equity capitalization.

While float-based weights were designed to better reflect illiquidity in emerging markets, many long-term institutional investors are relatively insensitive to illiquidity. That is, being long-term investors, a trade can be worked over a very long-period, e.g. one or two years. For these investors, the float-based benchmark makes little sense.

Institutional investors, however, appear still under-weight in emerging markets. In 2011, MSCI conducted a survey of asset allocation and risk management practices across the world for institutional investors. Among the 85 participants, there were 35 public plans, 16 corporate plans, ten endowments/foundations or sovereign wealth funds, and 24 unclassified institutions. Exhibit 25 shows that the average allocation to emerging markets was well below 15%; that is, less than the float-based market capitalization weight of emerging markets. There is considerable dispersion across institutions with some allocating over 30% to emerging markets. The survey also found that there is a general trend towards decreased allocations to domestic and developed ex-domestic equities and towards increased exposures to emerging markets equities. Given the findings in our research, we expect this trend toward increased allocation to emerging markets to continue.

*Exhibit 25: Emerging Equity Market Exposure of Institutional Investors in 2011*
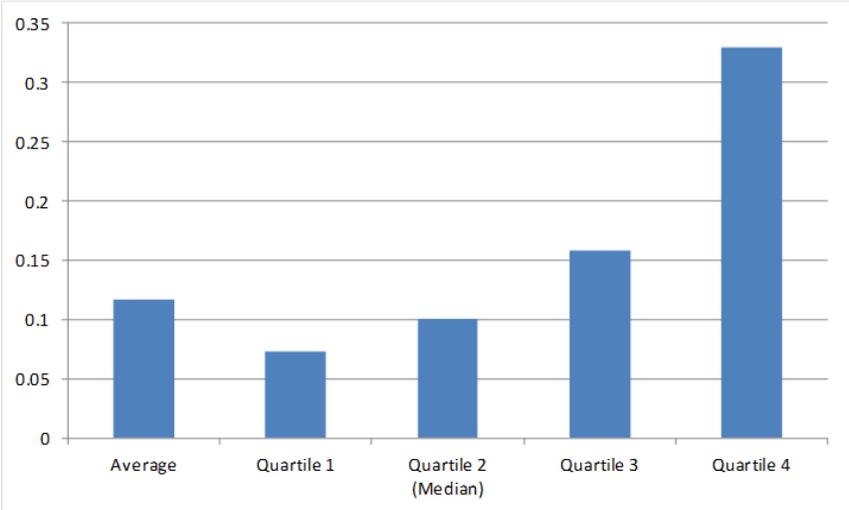


Source: MSCI survey of 85 institutional investors.

Our paper has important policy implications for investment management, and is particularly relevant for large institutional investors, such as pension funds and insurance companies. First, given that emerging markets are still not fully integrated into world capital markets, they should be treated as a separate asset class. Second, the share of world output accounted for by emerging markets is far greater than their share of equity market capitalization. As a result, market capitalization weighting of emerging markets should be the minimal allocation, and the weight should ideally be higher than market capitalization. Third, any allocation to emerging markets should now include relatively new assets such as emerging market corporate bonds. Fourth, an institutional investor's allocation must take into account the fact that emerging markets have evolved from an asset class with relatively low correlation with developed markets to an asset class with a much higher correlation. Finally, emerging market assets still have higher risk than most developed markets— and as a result, continue to command higher expected returns.

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