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Allocation to Emerging Markets in a Globally Diversified Portfolio

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EXECUTIVE SUMMARY

As of December 31, 2011, Norway's GPFG benchmark allocated 10.5% of its equity assets to emerging markets. GPFG's benchmark is underweighted emerging markets compared to both market capitalization weights (12.6% free float and 20.2% total market capitalization) and GDP weights (32%). My paper explores the risk and expected return characteristics of emerging market investments. While emerging markets are riskier than developed markets, they offer higher expected returns to compensate for that risk. While the diversification appeal of emerging markets has decreased as these markets become more closely linked to the world economy, I find no reason to strategically underweight these markets. I recommend that the Ministry of Finance consider and increase in weight to emerging markets 16%. This would take the benchmark half way to the total market capitalization weights.

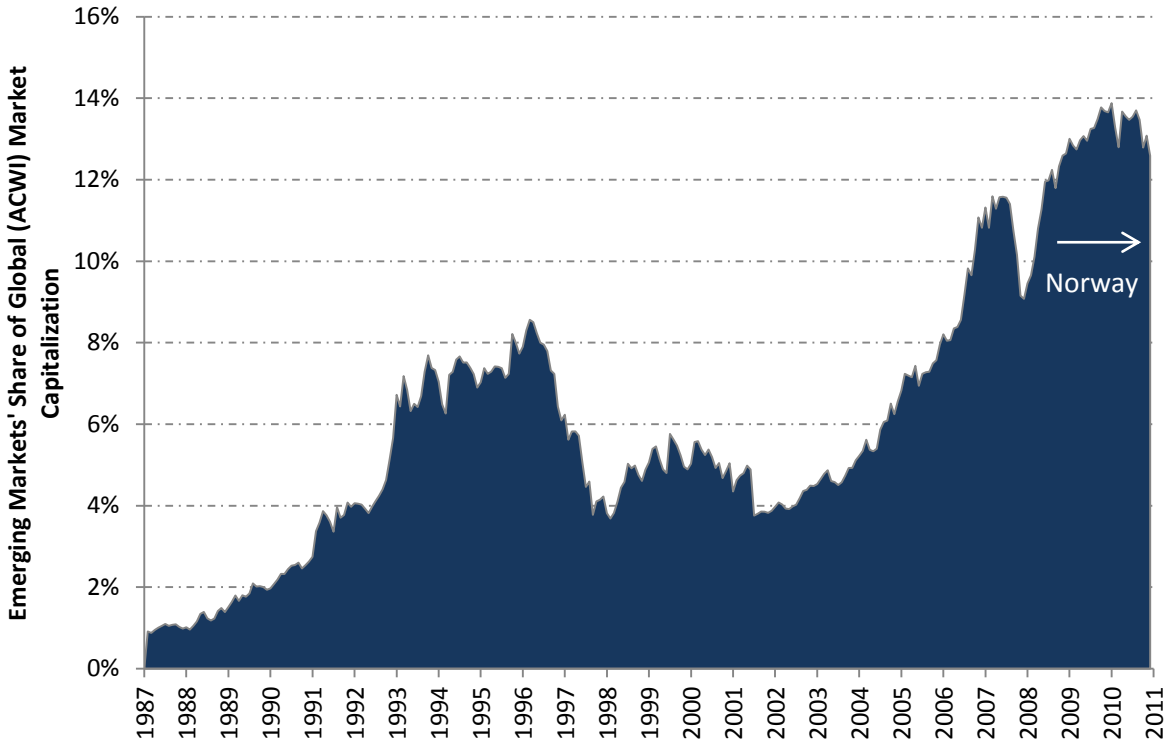
I.The Invitation

I was asked by the Ministry of Finance to address the risk and return characteristics of emerging equity markets, and to give my opinion on what the weight of these markets should be in the GPFG's equity benchmark. My advice considers equities in isolation. It assumes a starting point of a globally diversified portfolio, such as a portfolio based on global market capitalization weights. To be clear, my advice would be different, for example, if the GPFG invested in emerging market debt in excess of market weighs. My advice also does not involve recommendations on how the entire portfolio is constructed, nor the strategy through time.

II. **Current Allocation**

GPFG's benchmark is strategically underweighted emerging markets. As of December 31, 2011, GPFG's benchmark had 10.47% of its equity portfolio invested in emerging markets – as defined by Morgan Stanley Capital International (MSCI). The benchmark market capitalization weight for emerging markets according to the MSCI is 12.58%**.** Figure 1 shows the time series of the MSCI weights in emerging market and the current GPFG allocation.

Exhibit 1: Emerging market weights in MSCI and GPFG benchmark's current weight



The GPFG benchmark is also underweighted in emerging markets according to the FTSE definitions of emerging markets. As of December 31, 2011, the FTSE benchmark market capitalization weight for emerging markets was 11.5% whereas the GPFG benchmark has only

9.2% allocation to emerging markets. 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.

In summary, GPFG is 2.3% underweighted using the FTSE method and 2.1% underweighted using the FTSE method. Exhibit 2a and 2b shows the GPFG's share of investment in emerging markets compared to both FTSE and MSCI benchmark weights.

Exhibit 2a: GPFG benchmark's historical underweight in emerging market equity FTSE

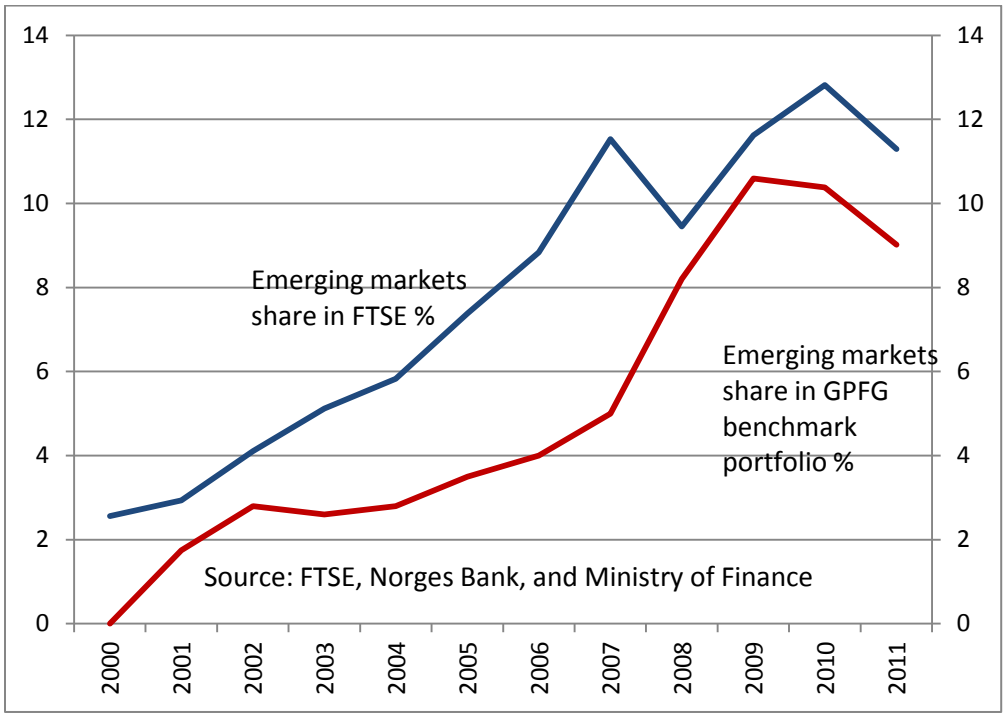
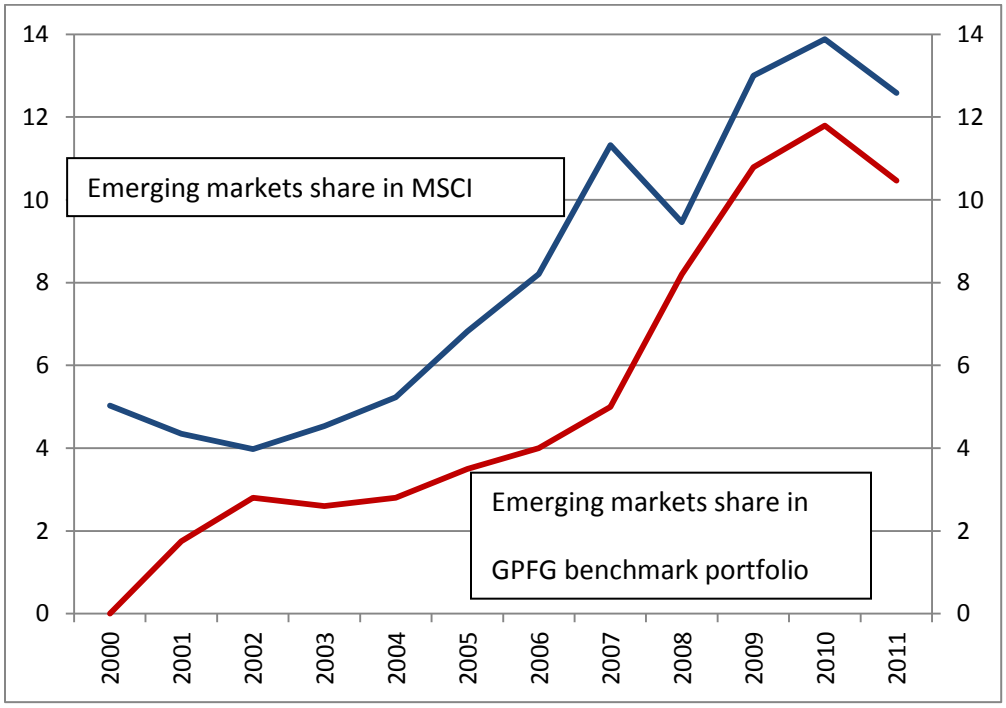


Exhibit 2b: GPFG benchmark's historical underweight in emerging market equity MSCI



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 proportion of free float than developed markets. Exhibit 3 shows that in the MSCI emerging markets, the free float to total market capitalization is only 56% on average. In contrast, in the U.S., the ratio is 94%. On a full capitalization basis, GPFG benchmark's emerging market underweight would be closer to 10% according to the MSCI method (for example, the full capitalization weight is 20.2% for MSCI and the December 2011 allocation is 10.47%). Note that MSCI only changed the ACWI in 2002 to reflect the difference between total market capitalization and free float.

Exhibit 3: Free float for MSCI indices

	Free Float (%)
ACWI	73
World	82
EM	56
Developed Markets	
USA	94
Europe incl Israel	73
Japan	76
Pacific ex Japan	72
Emerging Markets	
EM Asia	57
EM EMEA	53
EM Latin America	57

* Data as of Nov 2011

The proportion of free float is directly related to illiquidity in a market. Many investors prefer free float indices because they have a strong aversion to illiquidity. I would argue in the GPFG benchmark should be more tilted towards total capitalization weights. The reason is simple. The GPFG has an extremely long-term horizon. Issues with day to day liquidity in a particular market – while important to most investors – are largely irrelevant to the GPFG.

III. Alternative weights

Market capitalization weights are not without controversy. I have already raised the "free float" issue. For example, another index provider, Standard and Poor's, provides "investible" as well as "global indices". However, there are other issues.

The basic idea of holding a market capitalization weighted index comes from the insight of the famous Capital Asset Pricing Model (CAPM). In this model, the investor should hold the "market portfolio" (total market capitalization weighted – not free float weighted) because that portfolio is "efficient" (highest possible expected return for a given level of risk).

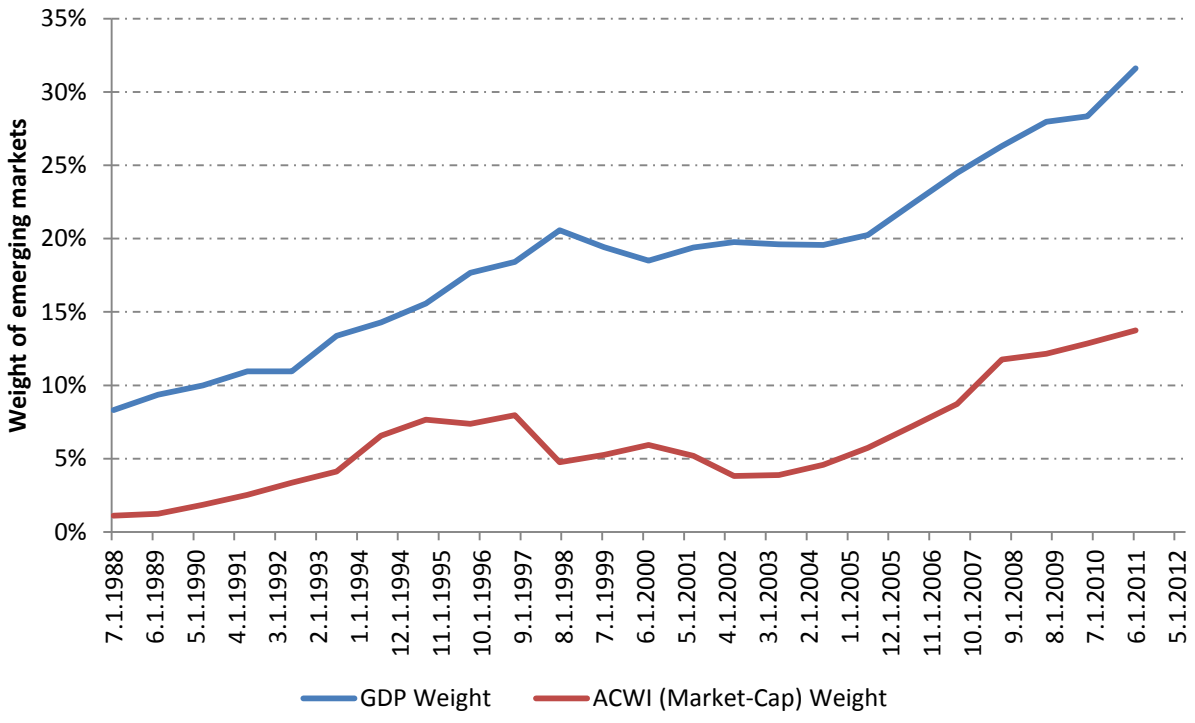
However, there are many reasons to question the assumptions of the model. For example, prices sometimes deviate from their fundamental value (CAPM assumes prices are "perfect"); there are market frictions and segmentations (taxes, transactions costs, regulatory barriers); people have a deeper view of risk that goes beyond standard deviation (such as downside risk);

equities are only part of the market portfolio of wealth (for example, real estate and human capital should be included); and asset returns are often not normally distributed. In addition, the model is rejected in the data. Even though there is evidence against the model and the assumptions deviate from reality, this does not mean the model is not useful in providing a guidepost for portfolio management.

Now let me highlight one particular assumption – that all assets are correctly priced. We know this is not true. Even in the most liquid, efficient markets, say in the U.S., it is reasonable to think that prices might deviate from their true values. Suppose that deviation is small – e.g. 3%. If we combine this small imperfection with market capitalization weights, we get the following problem. The capitalization weights will overweight "overvalued" stocks and underweight "undervalued" stocks – by construction. A number of market observers have advocated alternative methods for weighting a globally diversified portfolio.

MSCI provides an alternative global index which is GDP weighted. Exhibit 4 shows the time series of emerging markets weight in both the ACWI (market cap) as well as the GDP weighted index.

Exhibit 4: Market capitalization and GDP weights for emerging markets



The GDP weight is roughly double the market capitalization weight. That is, about one third of world GDP comes from emerging market economies.

Exhibit 5 shows some summary statistics for the market capitalization and GDP weighted indices (in U.S. dollar terms).

Exhibit 5: A comparison of market capitalization and GDP weighted indices, 1999-2011

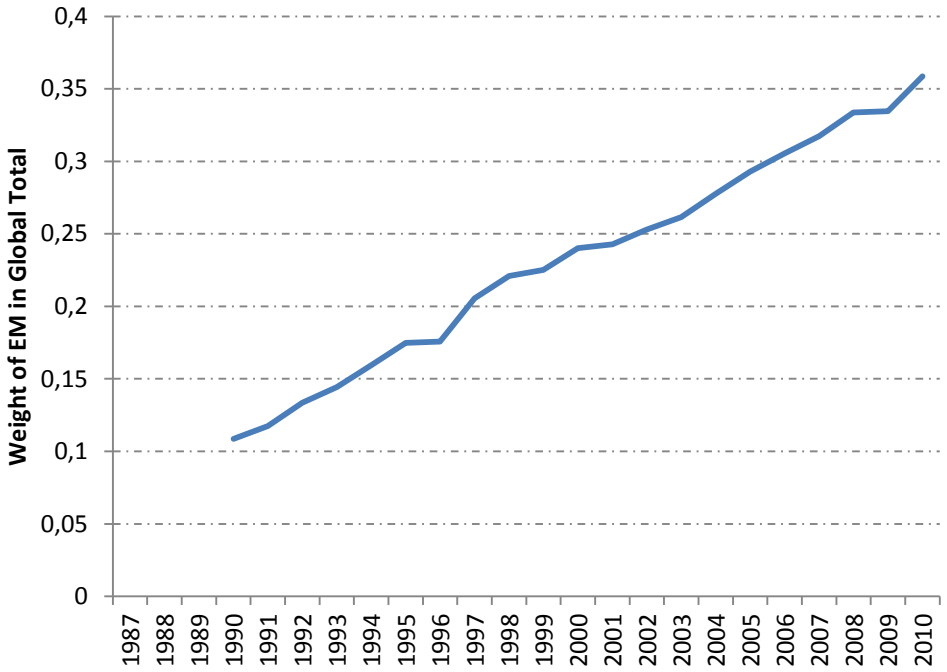
	MSCI ACWI	MSCI ACWI GDP Weighted
Annualized Mean	0.70%	4.77%
Annualized Std Dev	17.41%	19.12%
Skewness	-61.96%	-64.54%
Autocorrelation	0.201	0.209
Correlation	0.99	

The GDP weights give higher allocation to emerging markets. As a result, it is not surprising that the average return of the GDP weighted index is higher – but so is the risk (both overall variance and downside risk).

GDP weights are not the only way construct an index. Government spending could distort GDP weights. For example, suppose that government spending greatly increased (and GDP increased too) but the spending was financed by borrowing. Most would not consider this wealth increasing because debts need to be repaid in the future. A measure that is arguably cleaner is the size of the trade sector.

Exhibit 6 shows emerging markets weights by the size of trade. Here I sum exports plus imports for all emerging markets and divide by world exports plus imports.

Exhibit 6: Emerging markets trade as a proportion of world trade



The message of trade weights Exhibit 6 is very similar to the GDP weights in exhibit 4. Trade weights, like GDP, are a fundamental (i.e. non-market) based measure. It is a different way to depict the role of emerging markets in the world economy.[1]

Importantly, I am not advocating the use of GDP or trade weights. It is easy to think of a situation where they don't make much sense – for example, some countries don't even have equity markets. However, they are an alternative that give us some perspective on the capitalization weights. Summarizing the weights to the MSCI emerging markets: Trade 37%; GDP 32%; Total capitalization 20.2%; free float capitalization 12.6%; and current GPFG benchmark 10.5%.

IV. Historical Comparison of Emerging Markets and Developed Markets

[1] Last week Citibank and Research Affiliates announced that they will launch a new sovereign bond product where the portfolio weights will use GDP, energy consumption, population and rescaled land mass – rather than market capitalization.

A passive investment in emerging markets may offer higher expected returns. However, the higher expected returns are due to higher risk.

Exhibit 7 shows some summary statistics of for developed markets, emerging markets, as well as the MSCI ACWI from 1987.

Exhibit 7: Summary statistics for emerging and developed market stock returns (USD)

1987-2011

	Developed Markets (MSCI World)	Emerging Markets (MSCI EM)	All Countries (MSCI ACWI)
Annualized Arithmetic Mean	5.80%	12.98%	5.99%
Annualized Buy and Hold Mean	4.43%	9.23%	4.57%
Annualized Std Dev	15.45%	24.16%	15.72%
Skewness	-58.46%	-65.62%	-61.48%
Autocorrelation	0.08	0.17	0.17
Correlation	0.73		

Exhibit 7 shows that emerging markets offer higher average returns. However, both measures of risk are higher. Investors dislike both variance and negative skewness.

While the risks are higher, the GPFG is an unique position as a long term investor. For example, long-term investors do not necessarily treat standard deviation the same way as a short-term investor. The standard deviation is based on monthly returns whereas GPFG has a multi-year horizon. It is well known that volatility mean reverts. Hence, while short-term volatility might be high, the longer term investor does not bear all of that volatility.

Exhibit 8 shows rolling five-year averages returns, standard deviation as well as correlations.

Exhibit 8a: Annualized USD five-year returns

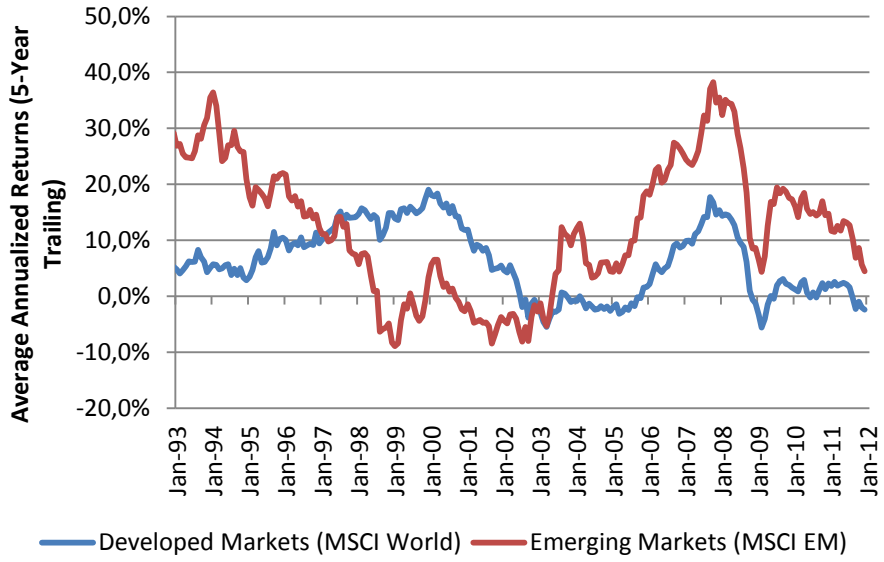


Exhibit 8b: Annualized five-year standard deviations

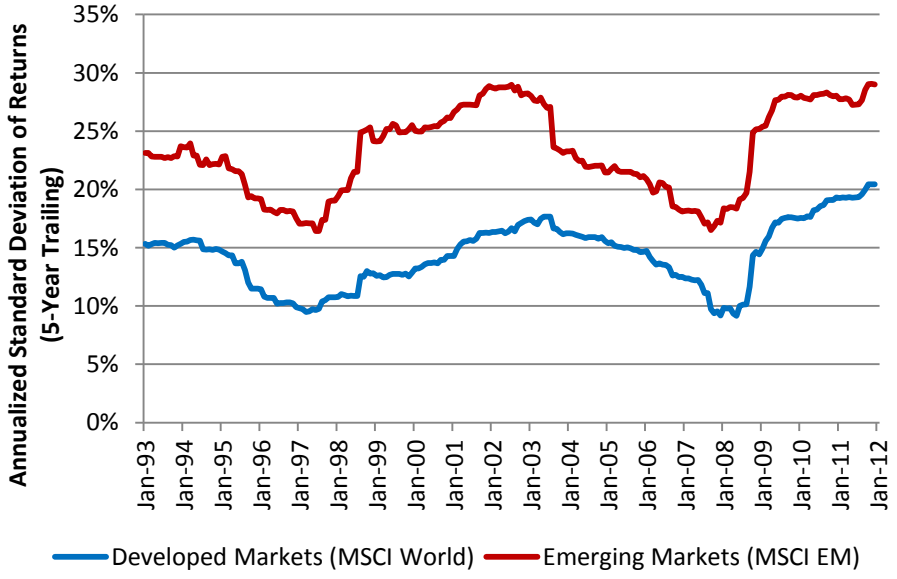


Exhibit 8c: Correlation of emerging and developed market returns

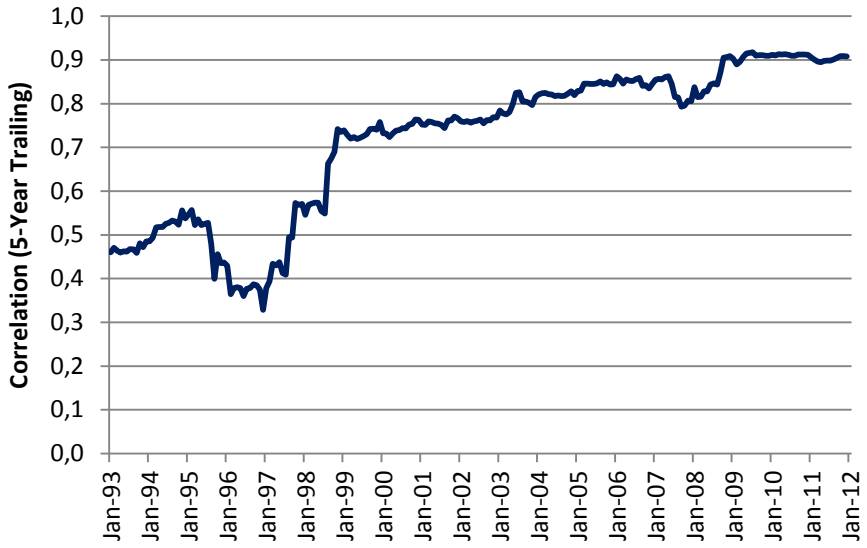


Exhibit 8 provides a different perspective. First, while emerging markets outperform developed markets on average, there are periods when emerging markets underperform. This could be a very significant risk for an investor with a shorter investment horizon. However, again, this type of risk is mitigated for GPFG given their long holding period. The second panel confirms that the volatility of emerging market returns is higher than developed returns. This volatility difference is remarkably constant through time. Again, this measures monthly volatility not multi-year volatility. Finally, emerging markets have become much more correlated with world markets. This decreases the diversification benefit of investing in emerging markets. The increasing correlations are consistent with Bekaert et al. (2011a).

V. An alternative look at diversification

While correlations have increased, they do not tell the entire story. Exhibit 9 takes a different look at diversification.

Exhibit 9: Alternative measures of diversification

	Monthly Returns (Jan 1988 - Dec 2011)	Annual (Year-End) Returns (Dec 1988 - Dec 2011)
Average DM Return when DM Return is Negative	-3.57%	-18.35%
Average EM Return when DM is Negative	-3.49%	-17.75%
Average DM Return when DM Return is Positive	3.40%	16.43%
Average EM Return when DM is Positive	4.29%	29.01%

Like correlations, exhibit 9 looks at longer-term averages. However, the idea of exhibit 9 is to separate out positive and negative performance. Emerging markets perform similarly to developed markets when developed markets are negative. However, emerging markets outperform developed markets when developed markets are positive. Again, this is based on averages and this measure as well as correlation could be affected by influential observations. In addition, 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.

VI. Standard Measures of Risk

According to the Capital Asset Pricing Model, there is only one source of risk: the sensitivity to a world market return or the beta. Exhibit 10 shows the five-year rolling exposure of emerging markets to world returns.

Exhibit 10: Emerging market equity market risk exposure

The message is consistent with volatility. Emerging markets have more sensitivity to world market returns. However, there are two reasons to be cautious in interpreting the beta, which currently is 1.25.

First, there is a similar argument for beta as for standard deviation. Beta is estimated with monthly data. While emerging markets may be more sensitive to world shocks, the long-horizon investor will have the luxury of time to allow for mean reversion to kick in.

Second, it is important to understand the source of beta. A portfolio's beta could be high because it is very good at outperforming the market portfolio. Most would not consider this extra risk.

Let me explain. Suppose the sensitivity or beta is 1.5. This means that if world market returns go up or down by, say, 10%, emerging market returns will be on average up or down by 15%. However, you might get a similar beta in the following scenario. When world markets are down 10%, emerging markets drop by 10%. When world markets are up by 10%, emerging markets increase by 20%. It is obvious that the investor prefers the latter scenario.

A very similar intuition can be found in the analysis of tracking error (the standard deviation of the difference in the portfolio and benchmark return). Higher tracking error is usually considered riskier. However, suppose a portfolio roughly matched the benchmark in down markets but greatly exceeded the benchmark in up markets. This portfolio would have high tracking error. It is not riskier.

The insight here is that simply looking at beta is unlikely to give a deep understanding of emerging market risk. First, one needs to take into account the investment horizon. With mean reversion, the risk is likely lower. Further, any possible asymmetries need to be taken into account.

VII. Alternative Measures of Risk

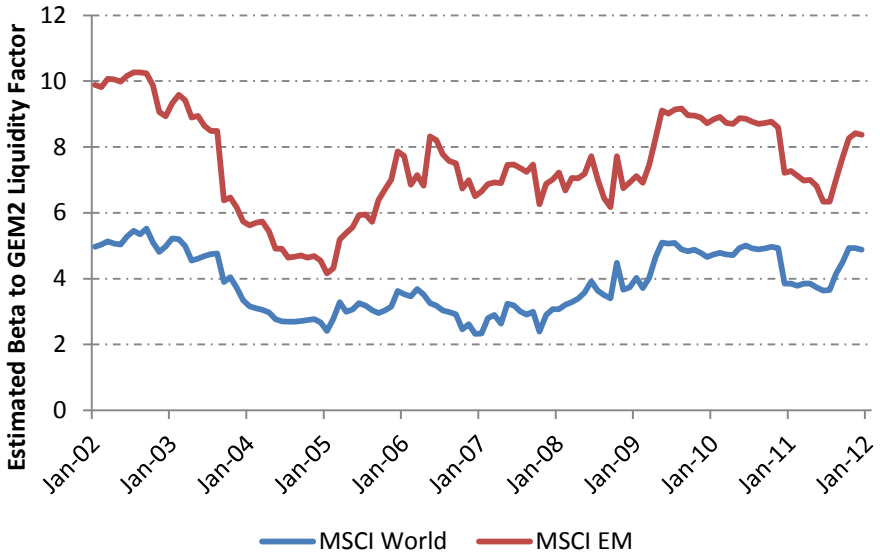
Many additional risk factors have been proposed by both academics and practitioners, such as size, value, growth, momentum and liquidity.

In my opinion, caution needs to be exercised in analysing some of these factors. For example, a firm can be small because it is new or small because it is in distress. Hence, it is very difficult to interpret "size" as a risk factor. Momentum is a trading strategy and it is also very difficult to justify in terms of an innate source of risk. Growth is a characteristic. Bekaert et al. (2007a, 2011) show that emerging markets have higher growth opportunities. Hence, it is no surprise that emerging markets tend to score higher on growth measures. Again, just because you have growth opportunities do not necessarily mean you are risky.

Let me comment on value. Like growth, value is a characteristic. Some emerging markets score high on the value criteria. The value (prices are low relative to book value) could be due to perceived risk or it could be due to misvaluation. Again, it is difficult to make the case that this is a basic risk factor. To be clear, value, growth and momentum, should be taken into account in a portfolio strategy. It is also useful to know a portfolio's tilt with respect to these characteristics. However, it is a stretch to relate this to a theory of risk.

The last factor is liquidity and, in my opinion, it is a first-order risk factor (see Bekaert et al. 2007). Exhibit 11 shows the time series of MSCI-BARRA exposures to liquidity. Emerging markets have consistently higher exposure.

Exhibit 11: Emerging and developed market risk exposure to liquidity



Like market beta, the exposure to liquidity depends on the horizon of the investor. Liquidity is generally priced for short-term investors. That is, equities that are subject to liquidity risk are discounted to attract investors who might find it hard to sell these equities in an illiquid market. GPFG is not a short-term investor and does not necessarily need to sell securities when liquidity is reduced.

This is yet another reason to deviate from free float market capitalization weights. Markets will lower free float will have illiquidity risk. Given this risk, expected returns are higher. However, this risk does not fully impact the GPFG because of its long time horizon.

In summary, in looking at a set of standard risk measures as well as a liquidity risk factor, emerging markets have higher risk. Given these risks, it is reasonable to believe that expected returns in the future are higher. Importantly, GPFG's long-term orientation naturally mitigates some of these risk exposures.

VIII. Segmentation and political risk

The logic of market capitalization weight in a global context critically relies on the assumption of market integration. This means that project with the same underlying risk should command the same expected returns – no matter where it is located. Integration (or lack of segmentation) is one of the critical assumptions of the CAPM.

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. (2011a)). Segmentation can be caused by extreme political risk or regulations that make it difficult for the average investor to buy equity in the particular country. This segmentation is associated with higher costs of capital for businesses. However, segmentation creates an opportunity for the set of investors that are able to access the market in the form of higher expected returns. Even partial segmentation can create expected return opportunities for global investors. However, as with the previous discussion of higher expected returns, these higher premia are directly related to higher risk. Again, the GPFG has the advantage of having both full global diversification (which minimizes a negative outcome in any given country) and a very long holding period.

Any global investment needs to take political risk into account. First, there is considerable evidence that political risk is rewarded with higher expected returns (see Erb et al. (1996)). Second, political risk is mean reverting which implies an opportunity for the long-term investor. Third, given today's environment (European and developed country debt crisis), it is not obvious that there is any substantive difference between political risk in emerging and developed markets.

IX. Expected Returns and the Real Economy

So far I have focused on a financial analysis of emerging market expected returns. For example, there is reason to expect emerging markets to outperform developed markets – on average, because emerging markets are more sensitive to world equity returns. A reasonable question is: why are they more sensitive? The goal is a deeper economic interpretation of emerging market returns.

The academic literature contains the following findings.

First, measures of financial development, such as the size of a stock market relative to GDP or the amount of lending in the economy are strongly correlated with economic growth across countries. As a country "emerges", its financial sector is fledgling and as it grows this sector increases in size. For example, in new emerging markets the size of the equity market to GDP could be quite small. That ratio increases as a country develops.

Second, there is strong evidence that financial liberalizations increase economic growth. Bekaert et al. (2006) show that equity market liberalizations are associated with an average of 1% extra real GDP growth per year. The economic mechanism is the following. Opening markets brings new investors which bid equity prices up, thereby reducing the cost of capital. This

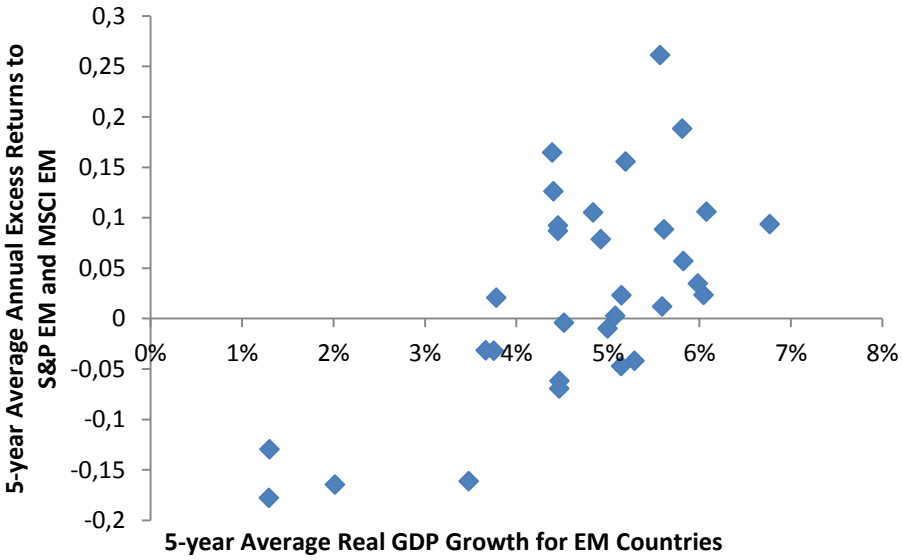
increases investment and employment. Furthermore, Bekaert et al. (2011b) show that productivity also increases.

These two findings suggest a symbiotic link between finance and development. The real economy may be initially larger than the financial economy. The financial economy begins to grow and facilitates further growth in the real economy.

These two findings provide some economic justification for assigning weights to emerging markets that exceed market capitalization weights. The growth cycle of countries suggests that a small financial sector will rapidly grow as a country "emerges". Of course, most of the growth in the financial sector comes from new firms entering the market rather than existing firms.

Exhibit 12 shows the relation between average five-year excess returns in emerging markets and average five-year real GDP growth.

Exhibit 12: Emerging market GDP growth and equity excess returns



For this particular exhibit, I splice the MSCI emerging market data (which begins in 1987) with the S&P composite data (which begins in 1984). I also create a capitalization weighted composite index of eight S&P emerging markets which covers the 1976-83 period. The data show a positive relation between real growth and excess returns. Both economic intuition as well as the empirical results point to an investment weight in emerging markets that exceeds simple market capitalization weights.

X. Three Levels of Investment Decisions

There are three active investment decisions: a) whether to change the weight of emerging markets relative to developed markets; b) whether to deviate from market capitalization weighting across emerging markets; and c) which securities to select in each emerging market.

a)*Emerging Markets Weight*

Most of the focus in my paper has been on this first level of allocation. Of course, the "overweight" or "underweight" decision depends on the benchmark. For example, if the GPFG benchmark increased its weight to 16%, it would be slightly over weighted in terms of free float market capitalization – but underweighted in terms of total capitalization, GDP, and trade weights.

b)*Choosing Among Emerging Markets*

Given an allocation to emerging markets, another choice is how to allocate among those markets. There are many reasons to deviate from market capitalization weighting among emerging markets. First, misvaluation is more likely in emerging versus developed markets. This weakens case for market capitalization weighting across emerging markets relative to a portfolio of only developed markets. As a result, portfolio managers often scrutinize various different measures of value. A value-based country overlay is particularly important when investing in markets with known deviations from fundamental values. Second, given that GPFG's benchmark is controlled by a political process, some countries may not be deemed to be acceptable for ethical reasons (see Harvey (1999)). Third, there may be some political risks (such as expropriation probabilities) that are deemed undiversifiable even for a longer-term investor.

c)*Asset Selection within Emerging Markets*

The third decision is what securities to select in each emerging market. A passive strategy would be to hold the market capitalization benchmark weight for each security. Similar to the country weight selection, market capitalization weights within an emerging market suffer from the problem of misvaluation. Capitalization weights will guarantee that too much is invested in overvalued securities and too little in undervalued securities. Hence, it is important to be selective among the available companies in each emerging market.

XI. Recommendations

I fully realize that GPFG's size constrains the flexibility of investment strategies. The current market capitalization of the float weighted MSCI ACWI is US$25.8 trillion. Emerging markets represent only US$3.2 trillion of that (float adjusted) capitalization. However, the GPFG has the advantage of being a very long term investor who does not demand instant liquidity.

Recommendation 1: ***GPFG increase its current equity allocation to emerging markets from the current level of 10.47% to approximately 16%.***

This weight is somewhat higher than free float market capitalization (12.53) but lower than total market capitalization weight (20.2%) and roughly half the weight that would be suggested by using GDP weights. Such a decision should fully take into account that this increases the risk of the overall portfolio. However, as I have argued in my paper, the very long term horizon of GPFG effectively mitigates some of these extra risks.

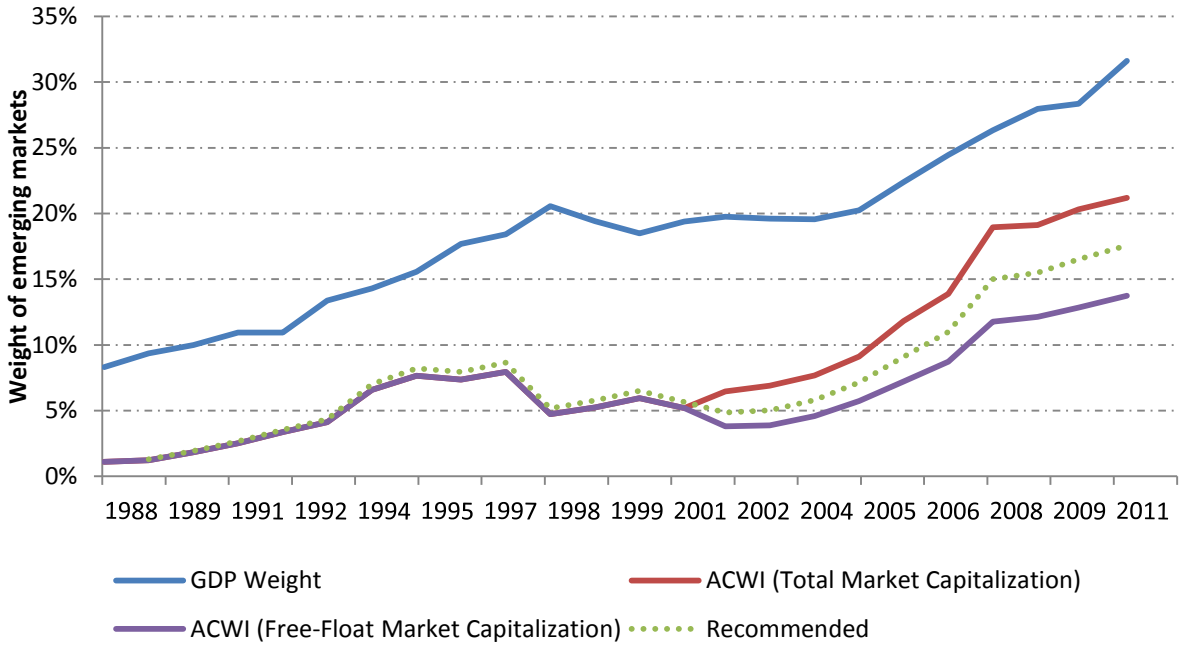
Where does 16% come from? My approach is a Bayesian approach. Given the baseline of free float capitalization weights, my idea is to: make an adjustment by scaling it up by the size of emerging market GDP compared to world GDP and 2) to move half way towards full capitalization weights. These are two different approaches. It is not clear which one is preferred so I assign 0.5 to both of them.

$$Benchmark\ weight_t(EMFFcap_t + .5*[(EMGDP_{t-1}/WorldGDP_{t-1}) + .5*(EMTcap_t - EMFFcap_t)]$$

Where EMFF is the free float market capitalization and EMT is the total market capitalization. This weighting scheme delivers extra weight to emerging markets as their share of world GDP increase. This fundamental weighted adjustment is averaged with half of the difference between total market capitalization and free float capitalization. With this formula, if all emerging markets transitioned to developed markets, then we would be left with the market capitalization weights. The current weight would be 16.43%.

This is not the only way to make an adjustment. For example, one could take an additive approach (adding a portion of the difference between the GDP and capitalization weights). However, this would give very large weights early in the history that were not practically feasible.

Exhibit 13: Different weighting methods for the GPFG benchmark



Let me emphasize, there is no "correct" formula. My proposal suggests a deviation from float-based market capitalization weights that reflects both the increasing role of emerging markets in the world economy as well as their growth opportunities along with the recognition that a long term investor like GPFG can bear additional liquidity risk.

Recommendation 2: ***For GPFG's emerging market allocation, there should be some deviation from capitalization weights among the countries invested.***

Given the prevalence of misvaluation in emerging markets, some attention needs to be paid to the relative value of different country portfolios. In addition to value, there may be other criteria that lead to deviations from market value weights.

Recommendation 3: ***For GPFG's investment to particular emerging markets, there should be some deviation from free float capitalization weights.***

Misvaluation begins at the firm level. Within each emerging market, there are often significant differences in management practices and corporate governance which leads to different expected returns. This suggests that capitalization weights should only be considered a guidepost not a rule set in stone.

XII. Conclusions

I was invited by the Ministry of Finance to provide some insight on how much emerging market equity should be included in the GPFG benchmark.

Given my own research, there are strong reasons to believe that there are higher expected returns to be obtained from investment in emerging markets relative to developed markets. These expected returns reflect the higher growth opportunities that are available in these markets. Of course, these higher expected returns are not free. Emerging markets have greater risk. For example, they are more sensitive to market volatility and they also suffer from higher illiquidity risk. However, given the long time horizon of GPFG, many of these risks can be time diversified.

My case for the deviation from free float market capitalization weights is based on three arguments.

First, a long term investor like GPFG should position their portfolio to better reflect total market capitalization rather than free float. GPFG is able to absorb the illiquidity risk and, indeed, also harvest a premium for bearing it.

Second, there is a general argument for some deviation from capitalization weights – whether free float or total market capitalization. Emerging markets are more likely to experience deviations from fundamental value. Market capitalization weighting overinvests in overvalued stocks and underinvests in undervalued stocks.

Third, any global equity strategy needs to be guided by both the economics of development and the link between finance and economic growth. In emerging markets, both the size of the equity and debt markets are small relative to GDP. As a country “emerges” (and economic growth rates in emerging markets are higher than developed markets), the size of the financial sector increases. There is a positive feedback whereby the growth of the financial sector facilitates further real investments and leads to additional GDP growth. All of these arguments support the idea that GPFG’s benchmark should eliminate its strategic underweight in emerging market equities.

I believe that emerging markets offer higher expected returns. However, I want to emphasize that there are risks associated with these extra expected returns. For example, there is a considerable academic literature highlighting political risk and corporate governance problems in emerging market companies (appendix C). However, the GPFG is in an ideal position to bear these risks given that it is truly globally diversified. In addition, its long holding period means that some transitory political risks are unlikely to diminish the long-term expected returns. In addition, it is important to realize specific risks can be taken into account in allocating among emerging markets (Recommendation 2) and among individual companies (Recommendation 3). That is, political risk or corporate governance problems in a particular country might be a reason to reduce an allocation to that country or company– but not all emerging markets. Finally, political risk problems with corporate governance occur in all countries (Japan's Olympus is but a recent example). Indeed, in the current environment, it is hard to see much of a difference between developed and emerging markets when it comes to political risk and corporate governance. Fortunately, in the development process, there are strong incentives to improve both corporate governance and the general regulatory environment. These changes can be triggered at a country level or at the firm level. Improvements generally increase equity prices and reduce the cost of capital. The portfolio manager invested in such a market benefits while the portfolio manager that stays away or underweighted until reforms are implemented will be faced with much higher equity acquisition costs and lower expected returns.

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Appendix 1: Campbell R. Harvey Biography

Campbell R. Harvey is the J. Paul Sticht Professor of International Business at the Fuqua School of Business, Duke University and a Research Associate of the National Bureau of Economic Research in Cambridge, Massachusetts. He is also Editor of *The Journal of Finance*.

Professor Harvey obtained his doctorate at the University of Chicago in business finance. He has served on the faculties of the Stockholm School of Economics, the Helsinki School of Economics, and the Graduate School of Business at the University of Chicago. He has also been a visiting scholar at the Board of Governors of the Federal Reserve System. He was awarded an honorary doctorate from Svenska Handelshögskolan in Helsinki.

Harvey received the 2007 Graham and Dodd Award for the best paper published in the *Financial Analysts Journal.* He has also received five Graham and Dodd Scrolls for excellence in financial writing from the CFA Institute and three Roger F. Murray Prizes from the Institute for Research in Quantitative Finance (Q-Group). He has published over 100 scholarly articles on the implications of changing risk and the dynamics of risk premiums for tactical asset allocation in international settings.

Harvey is a Founding Director of the Duke-CFO Survey. This widely watched survey polls over 1,000 CFOs worldwide.

Harvey is an internationally recognized expert in portfolio management, asset allocation, the cost of capital, and global risk management. He is the Investment Strategy Advisor to the Man Group, the world's largest hedge fund group. He also serves on the Advisory Board of Russell Investments.

Harvey is the Editor of *The Journal of Finance* – the leading scientific journal in his field and one of the premier journals in the economic profession through July 2012. He is the past-President of the Western Finance Association and serves on both the Board of Directors and the Executive Committee of the American Finance Association.

Harvey is a content pioneer on the Internet. In 2001, he successfully conducted the first live Webcast of his Global Asset Allocation and Stock Selection course. His website was recently named one of the "Best of The Web" in Forbes Magazine. His hypertextual financial glossary is used by The New York Times, Forbes, Bloomberg, The Washington Post, CNNMoney and Yahoo to name a few of the sites. The glossary, which is the most comprehensive in the world, contains over 8,000 terms and over 18,000 internal links. His iPhone/iPad glossary app is sold through iTunes. The book version of the glossary, *The New York Times Dictionary of Money and Investing* is coauthored with Pulitzer Prize winner, Gretchen Morgenson. Harvey writes for thestreet.com and is the author of the blog gardenofecon.com.

Appendix 2: Campbell R. Harvey's Scientific Writing on Emerging Markets

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