



**Parametric™**

Leaders in Structured Portfolio Management

**WHITE PAPER**

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# EMERGING MARKETS:

## Portfolio Structuring to Capture Long Term Growth

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Emerging market equities are now firmly established as a dedicated asset class. Profound structural changes in developing countries over the past two decades have made them a key contributor to world economic growth. Reflecting this transformation, the number of investment opportunities in terms of markets and companies listed has increased substantially. This paper describes portfolio construction concepts designed to efficiently capture long-term emerging market equity returns. ▶▶

**David M. Stein, Ph.D.**

Chief Investment Officer

**Thomas Seto**

Director — Portfolio Management

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**Emerging Markets Portfolio Management and Research:**

Vassilii Nemtchinov, Ph.D.

Jodi Wong

Brian Dillon

Geoff Longmeier, CFA

Tom Hardy, CFA

**Emerging Markets Product Management:**

Ross Chapin

**Parametric**

1151 Fairview Avenue N.

Seattle, WA 98109

**T** 206 694 5575

**F** 206 694 5581

[www.parametricportfolio.com](http://www.parametricportfolio.com)

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## 1.0

### ►► INTRODUCTION

According to Standard & Poor's, the market capitalization of developing countries has more than doubled over the past decade, growing from less than \$2 trillion in 1995 to over \$5 trillion in 2006.<sup>1</sup> As a percentage of world market capitalization, developing countries now account for more than 12 percent, and that share is steadily growing. Economic growth in developing economies is projected to be above 5.5 percent for 2007 as compared to 2.5 percent for high-income countries.

Eight of the ten largest countries worldwide are currently classified as emerging markets. These account for 52 percent (3.5 billion inhabitants) of the world population.<sup>2</sup>

Portfolio flows into emerging markets have reflected the above trends as investors continue to respond to both the increased opportunities and the strong relative investment returns of the past several years. The majority of emerging market flows have been directed to traditional active investment styles - strategies that rely upon in-depth research of countries and securities in order to identify tactical or short-term opportunities. Conventional wisdom states that these are the world's most inefficient equity markets, so quality research should create information advantages and enhance performance. However, investors pay higher management fees and implementation costs while also engaging in significantly greater risks (sometimes absolute risk, always active risk vs. a benchmark) as part of this pursuit.

On the other end of the spectrum, there is a substantial amount of money held in indexed portfolios which track, most commonly, the capitalization-weighted indexes compiled by S&P/IFC and MSCI. Management fees and implementation costs tend to be lower in this approach, but investors must fully embrace both the positive and negative aspects of passive index investing.

In this paper, we argue strongly for a long-term commitment to the emerging markets via a third investment strategy: a disciplined, rules-based or "structured" approach. Parametric's research and experience indicate that such an approach can bring about a material improvement over, and serve as a complement to, both traditional active and passive strategies. Supporting this assertion, we present arguments that the equity markets of developing countries are exceptionally well-suited to structured portfolio management. This approach to asset management incorporates ideas such as equal weighting, systematic rebalancing, and diversified economic sector and stock allocations within countries.

We begin with a brief overview of this asset class, analyzing its return potential, risk profile, volatility characteristics, and cost structure. We then go into more detail as to how a thoughtful, structured investment process can enhance returns while also reducing risk.

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<sup>1</sup> The International Finance Corporation  
(a division of the World Bank Group)  
[http://www.ifc.org/ifcext/50thanniversary.nsf/Content/Fact\\_sheet\\_English](http://www.ifc.org/ifcext/50thanniversary.nsf/Content/Fact_sheet_English)

<sup>2</sup> U.S. Census Bureau, International Data Base,  
<http://www.census.gov/ipc/www/idb/world-popinfo.html>

## 2.0

## ▶ THE REWARDS AND THE RISKS

**Opportunities**

**Higher growth rates.** For some time, emerging markets have achieved, and will probably continue to achieve, higher long-term economic growth rates than those of the developed world. The BRIC (Brazil, Russia, India, and China) countries have increased substantially as a percentage of the world's GDP – from approximately 7 percent in 1999 to an estimated 12 percent in 2007.<sup>3</sup> Looking ahead, observers predict that by 2050, 7 of the top 10 world economies will be those that are defined as emerging markets today. The success of the past several years—and the optimism about the future of these economies—is underpinned by material improvements in key economic metrics such as inflation, governmental fiscal policy, current accounts, and net direct investment.

**Low valuations.** Adding to the return potential of emerging markets is their relative cheapness on a valuation basis. Whereas trailing price to earnings ratios in the US are between 17 and 18, developing countries as a whole show a ratio between 14 and 19. If we were to exclude the recent boom in Asian emerging markets, this range would be between 14 and 16.<sup>4</sup> Importantly, there is also ample evidence supporting an emphasis on the smaller vs. larger emerging markets within a diversified portfolio – p/e ratios are lower, historical returns have been higher.

**Low correlations.** Last, but not least, emerging markets offer meaningful diversification to a global portfolio due to their relatively low correlations to other emerging markets and the markets of developed countries.

**Risks**

On the risk side of the equation, political and economic shocks should be anticipated but are hard to predict. In 2007, investors dealt with dramatic volatility in China. On February 27, 2007 and again on June 4, 2007, the Shanghai stock market dropped 8.84 percent and 8.26 percent respectively. Despite these two large single day sell-offs, this same index ended 2007 up over 96 percent.<sup>5</sup> Of course, investors may be facing a “bubble” in China and it is ongoing volatility that makes investing in individual countries so challenging.

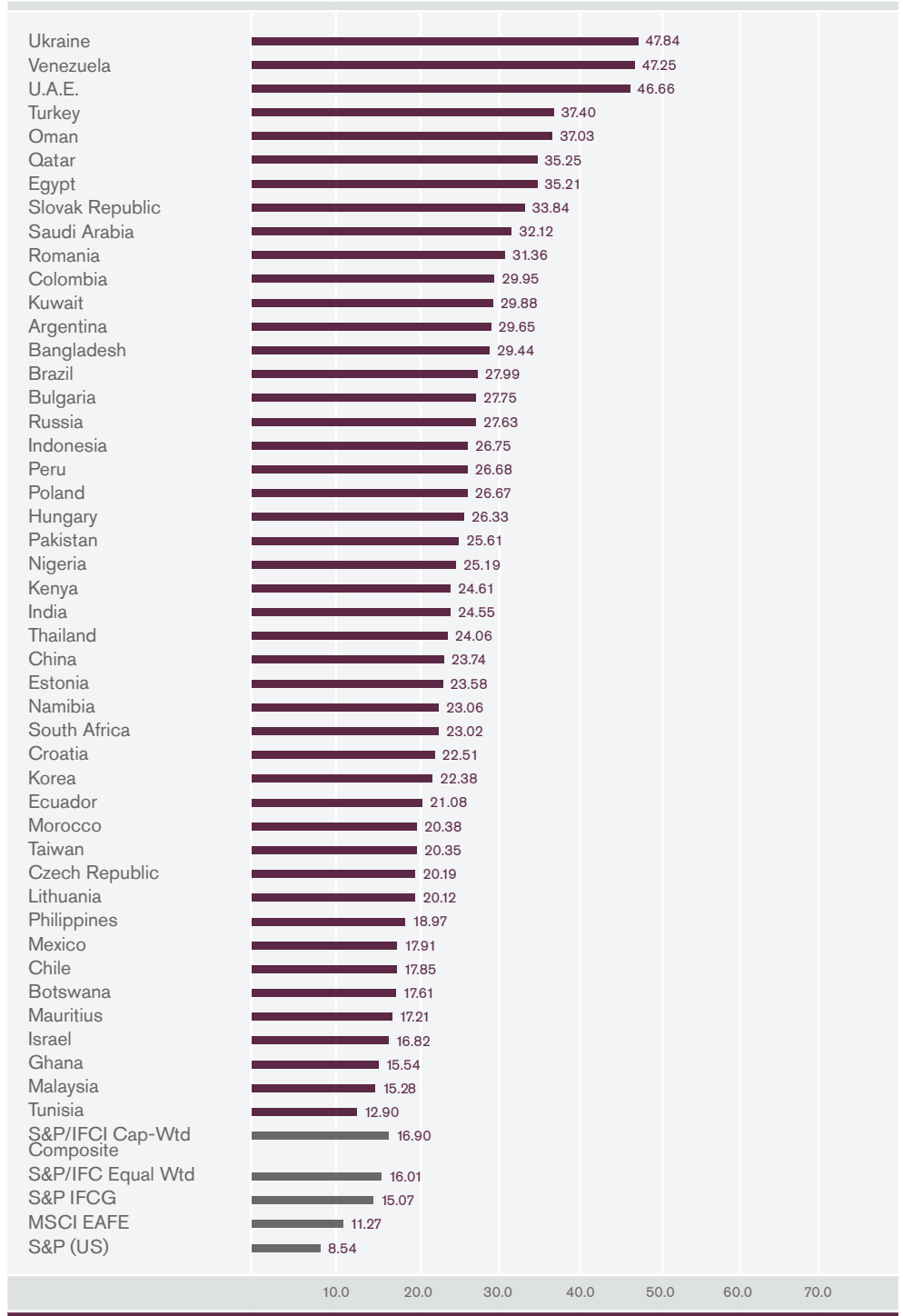
<sup>3</sup> HSBC Investments, BRIC and Beyond presentation. 2007.

<sup>4</sup> Morgan Stanley Capital International, MSCI Red & Blue Book publications. December 2007.

<sup>5</sup> Bloomberg Financial L.P., Shanghai Stock Exchange Composite Index (Ticker: SHCOMP). 2008.

Chart 1 shows how high volatility can be at the individual country level.

**Chart 1:**  
ANNUALIZED STANDARD DEVIATIONS  
5 years ending 12/31/07



**Chart 2:**  
**AVERAGE CROSS CORRELATION**  
**ACROSS COUNTRIES**  
 5 years ending 12/31/07

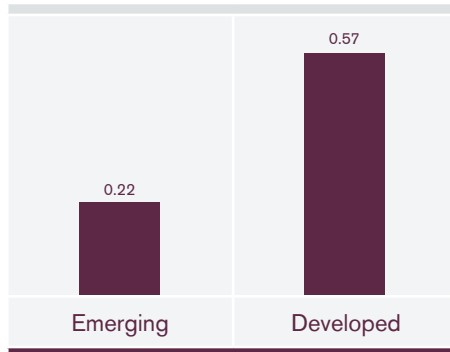


Chart 2 shows the average correlation among the emerging markets over the same period. At 0.22, the average correlation is low, implying that many of the risks are country specific. In contrast, the average correlation among developed countries, at 0.57, are much higher: developed countries behave more like one another than emerging countries.

The quality of data and information in emerging markets is often lacking or inconsistent by developed country standards. China, for example, recently revised more than a decade of growth rates after under estimating the size of the country's service sector. Similarly, accounting standards are not as well developed and we cannot verify what we are seeing on individual company metrics. In this questionable data environment, many traditional security and market selection models become noisier, less effective, and increasingly expensive to implement.

Finally, the cost to execute transactions in emerging markets is high and liquidity is often tight. For example, restrictions on the Thai Baht pushed the offshore buy rate about 15 percent higher than the onshore sell rate during the second quarter of 2007. On average, trading costs are about twice those of developed international markets and three to five times those of the US. Total agency costs range between 20 and 100 basis points and bid/ask spreads can be as high as 1 percent. In a cost environment such as this, a long-term buy-and-hold strategy presents a large performance advantage over higher turnover approaches.

### 3.0

#### ▶▶ CAPTURING SYSTEMATIC RETURNS

It's clear that investors who want to actively participate in emerging market equity investing must navigate a world of high individual country volatility, relatively poor information, and extreme transaction costs. Further, while emerging market cap-weighted indexes offer some cost relief, they present much greater concentration risks than most cap-weighted index-based investments offered in the developed world. For example, both the IFCI (International Finance Corporation Investable) and the MSCI Emerging Market indices at year-end 2007 showed four countries (China, Korea, Brazil, and Russia) making up more than 50 percent of their respective totals.

In seeking effective, long-term exposure to this asset class, investors are wise to consider alternatives to the rock-and-a-hard-place approach represented by traditional active and passive emerging market investing. Through Parametric's own research and experience in emerging markets (which started in 1994), we have identified several disciplined structured portfolio approaches as particularly attractive.

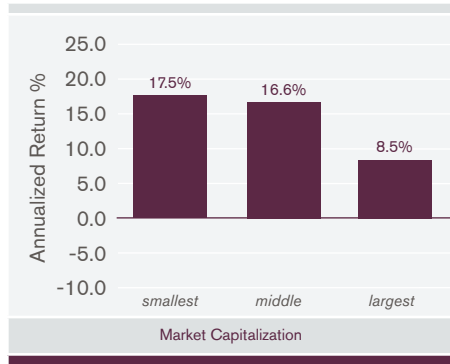
#### Country Selection and Weighting

Since the systematic risk of each country is the dominant factor in explaining security returns, selecting and weighting countries (as opposed to selecting specific securities) is

**Chart 3:**  
**EQUAL VS. CAP-WEIGHTED EMERGING**  
**MARKETS RETURNS**  
 10 years ending 12/31/07

	EQUAL WEIGHTED	CAP WEIGHTED
Annualized Return	22.8%	14.2%
Volatility	20.4%	22.0%

**Chart 4:**  
**ANNUALIZED RETURN OF EMERGING**  
**MARKET SIZE GROUPS**  
**S&P/IFCI MAJOR AND S&P/IFCG FRONTIER**  
**COUNTRY INDICES**  
 10 years ending 12/31/07



the most crucial determinant of investment success in any diversified emerging market strategy. As shown on the bottom of Chart 1 (see page 3), while these countries may be quite risky on an individual basis, combining them in an equal-weighted portfolio can significantly reduce this risk through the power of diversification that their low correlations provide. Furthermore, a very broadly diversified approach which (relative to cap weighting) emphasizes the smaller of the emerging markets is an even more powerful return enhancer and risk reducer. Consider the performance history of an equal-weighted country approach relative to a cap-weighted approach. Equal weighting, by definition, over-weights smaller countries (and forces a contrarian rebalancing which we discuss next). As Chart 3 shows, an equal-weight strategy historically produced better returns with lower volatility than the capitalization-weight approach.

As mentioned earlier, the investment case for emphasizing smaller markets is strong (low valuations, higher growth rates, low correlations). Chart 4 (returns by market capitalization size) reveals a powerful historical relationship between market size and performance. This inverse market size effect is one primary driver of the excess performance of equal weighting vs. cap weighting countries.

A closer look at the smallest of the emerging markets and economies – sometimes called the frontier markets – strengthen the case for emphasizing smaller markets. A modest investment in these markets can offer the most compelling combination of growth and correlation (both cross correlation and correlation within the global market) because frontier markets in all regions – Africa, Middle East, Eastern Europe, Asia, and Latin America – have projected earnings growth rates that are among the fastest in the world. Certainly, both the reality and perception of risk in these countries are high, but the impact of macro-economic improvements and globalization is also high. Properly structured long-term, diversified allocations to these markets offer a portfolio material risk and return benefits.

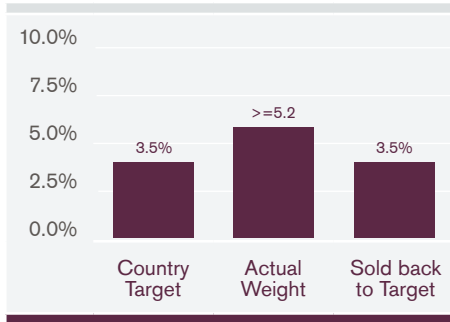
**Rebalancing**

As academic literature has explored, the performance benefits from disciplined rebalancing are demonstrable because they are direct consequences of high volatility and low correlations – two factors strongly representative of emerging markets.<sup>6</sup> In effect, a structured approach involving rebalancing to fixed weights can turn volatility into an ally in the hunt for superior risk-adjusted returns. This is driven by the interaction of volatility and correlation. The greater the volatility, the larger the dispersion between outperformers and underperformers – and therefore the higher the profits from timely rebalancing. The lower the correlation among assets, the more opportunities there are for rebalancing from an asset that has appreciated to one that has depreciated. Emerging markets, with both of these traits, are wonderful candidates for capturing this “rebalancing premium.”

Chart 5 (next page) illustrates a hypothetical example of rebalancing to the target weight when a country exceeds that weight by 50 percent. Chart 6 (next page) demonstrates that an IFCI portfolio rebalanced quarterly and based on equal weights outperformed a non-rebalanced strategy in the ten years ended December 31, 2007 on an annualized basis. When coupled with the low correlation characteristics of emerging markets, a rebal-

<sup>6</sup> See chapter 15 of Investment Science (David G. Luenberger, Oxford University Press, 1997) and “Diversification Returns and Asset Contributions,” (David G. Booth and Eugene F. Fama, Financial Analyst Journal, May/June 1992)

**Chart 5:**  
REBALANCING TO A TARGET WEIGHT



**Chart 6:**  
PERFORMANCE COMPARISON OF EQUALLY WEIGHTED S&P/IFCI PORTFOLIOS  
10 years ending 12/31/07

	REBALANCED	NOT REBALANCED
Equally Weighted Annualized Return	22.8%	19.3%
Volatility	20.4%	20.6%

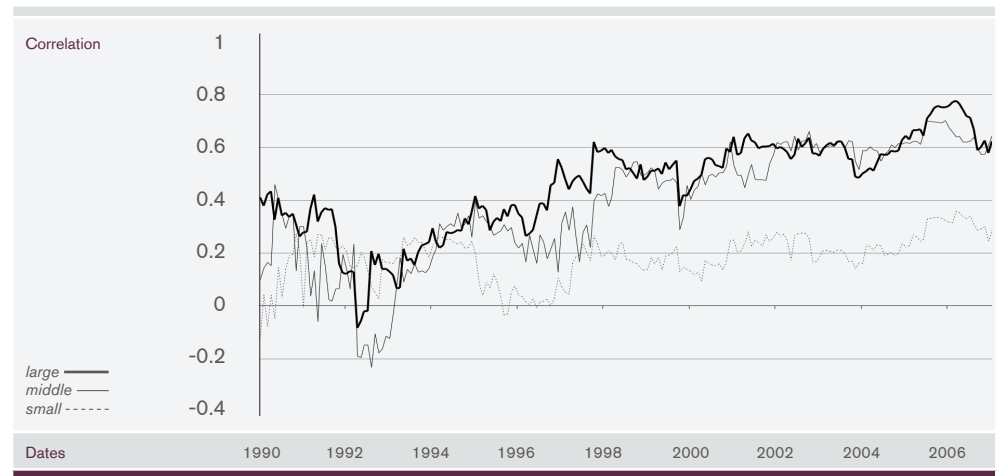
ancing investment strategy can significantly enhance the success of an equal-weighted approach.

Looking ahead, investors must consider whether future correlations between emerging countries and between the emerging asset class and the developed world will increase enough to alter these rebalancing conclusions. While predictions are difficult, it is helpful that the effects of the current forces of globalization have been observable in the emerging markets for many years.

It should come as no surprise that the economies of the world have become more linked and interdependent as sales and distribution channels have increased in sophistication and availability. These trends have resulted in security returns that are also linked and that now move much more in tandem with each other than was the case in prior periods. Correlations of emerging market countries as shown in Chart 7 have increased, especially among the larger- (defined as the top 80 percent of the market capitalizations of the companies within the IFCI universe) and middle-sized segments (defined as the next 15 percent). The smallest (defined as the bottom 5 percent) of the emerging market countries continue to show a relatively stable and persistently low level of correlation as their economies still remain somewhat independent on the world stage.

Although the larger emerging markets are developing closer ties to each other and to the developed world, the evolution is slow and gradual; thus, the case for a structured approach is currently strong and will likely remain so for years as the introduction of smaller and frontier countries systematically continues to dampen upward trends in correlation.

**Chart 7:**  
AVERAGE ROLLING 24-MONTH CORRELATIONS BETWEEN THE S&P/IFCI MAJOR AND S&P/IFCG FRONTIER SIZE GROUPS AND MSCI WORLD INDEX



### Sector Selection

Another opportunity to realize investment returns from a long-term structured approach is to target sector diversification within each country, ensuring that industry selection truly reflects all economic activities. As with countries, this means the approach allocates investment dollars into those sectors that are under-represented in the overall market capitalization of the country. Consumer-related areas are often a good example. While it is common for energy, natural resources, and basic industry to dominate the market capitalization of many emerging markets, demographic trends are pushing up consumer spending at a rapid pace, making consumer investments attractive long-term. A structured stock selection approach that ensures balanced holdings in all major economic sectors within a given country can add performance and reduce concentration risk.

Emerging market investment strategies that have incorporated this type of country weighting, rebalancing, and enforced diversification ideas over the past decade have been very successful. Importantly, this success has not been the result of a single event or a particular year, but has persisted across a variety of market environments. An interpretive analysis of performance affirms the structured thesis: systematic emphasis on smaller markets and under-represented economic sectors realizes higher growth with lower risk; a highly controlled rebalancing discipline captures profits from volatility and low correlations; and low portfolio turnover protects against significant trading costs and taxes.

## 4.0

### ►► CONCLUSION

#### THE WAY FORWARD

Emerging markets, which only 20 years ago were the realm of only the most intrepid investors, are rapidly being embraced as a viable and consequential asset class. While they are still viewed with suspicion by some who fear these markets will be “here today, gone tomorrow,” much of that fear is derived from tactical or short-term approaches to investing that make large bets on a few countries or stocks, impose large investment costs and create substantial risk of underperformance. Indeed, successful active country and stock selection is based on a rare and often unsustainable ability to spot trends and understand economic systems and cultures over a broad array of diverse and dynamic markets. And yet index-based investing in these markets does not take advantage of their unique risk/return characteristics, in fact, creating material concentration risks.

We believe that a structured, long-term strategy involving the concepts outlined in this paper can efficiently participate in the systematic growth of these markets on a consistent and replicable basis without incurring either the return risk that comes with an active fundamental approach or the concentration risk of the capitalization weighted indexes.

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**David M. Stein, Ph.D.**

Chief Investment Officer

Dr. Stein is Chief Investment Officer, leading investment, research, and product development activities. Prior to joining Parametric, Dr. Stein held positions as Director of Investment Research at GTE Investment Management Corporation, Director of Active Equity Strategies at the Vanguard Group, and Director of Quantitative Portfolio Management and Research at IBM Retirement Funds. Dr. Stein holds a Ph.D from Harvard University in Applied Mathematics and M.S. and B.S. degrees from the University of Witwatersrand, South Africa.

**Thomas Seto**

Director — Portfolio Management

Mr. Seto is responsible for all portfolio management at Parametric, including taxable, tax-exempt, quantitative active and international strategies. Prior to joining Parametric, Mr. Seto served as the Head of U.S. Equity Index Portfolio Management at Barclays Global Investors. Mr. Seto has an M.B.A. in Finance from the University of Chicago and a B.S. in Electrical Engineering from the University of Washington.

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