THE FUTURE OF EMERGING MARKETS

30 Years On from the Launch of the MSCI Emerging Markets Index

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CONTENTS

EXECUTIVE SUMMARY

For the past 30 years, emerging markets have provided return enhancement and risk diversification opportunities for global equity investors. The ongoing liberalization of the domestic Chinese capital market has the potential to transform the characteristics of the equity segment and its role in global portfolios. Recently, emerging markets have experienced volatile performance, driven by changes in monetary policy, increasing political uncertainty and deteriorating conditions for international trade. Are these factors temporary or could they have a long-lasting impact? Will emerging markets remain a distinct equity segment and will they continue to represent an essential portfolio allocation for international investors?

We can trace the genesis of emerging markets as a distinct equity segment to the launch of the MSCI Emerging Markets Index in December 1987. At that time, the index covered 10 countries, making up less than 1% of the global equity market, as reflected in the MSCI All Country World Index (now known as ACWI). Emerging markets have experienced dramatic growth and transformation over the subsequent three decades. As of Jan. 31, 2019, the MSCI Emerging Markets Index comprised 24 countries, representing almost 12% of the MSCI ACWI Index.

The rationale for allocating to emerging markets rests on three pillars: Superior economic growth has resulted in positive market returns historically, low correlation within emerging markets and across asset classes has provided diversification benefits, and relative scarcity of information has created opportunities for active portfolio management. Long-term historical data confirms that emerging markets have provided positive long-term risk-adjusted excess returns and enhanced portfolio diversification. Their diversity has led to high cross-sectional return dispersion, both at the country and at the security level, creating opportunities to add value through active country allocation and stock selection. Omitting this equity segment would have introduced a performance drag on global indexed strategies and reduced the investment opportunity set of active strategies.

The opening of the domestic Chinese capital market and its integration into international markets is likely to have a transformative effect on the emerging markets equity segment. MSCI introduced domestic Chinese equities (A shares) into the MSCI Emerging Markets Index in June 2018 at a reduced weight. Chinese equities listed in mainland China and Hong Kong currently represent 30% of the index but could grow to over 40% when A shares are included at full weight. The growing size of China within emerging markets raises the prospect for investors of making dedicated allocations to China. Whether investors make separate China allocations or continue to seek opportunities across global emerging markets, the segment likely will remain an essential element of the global equity universe in the future.

THE EVOLUTION OF EMERGING MARKETS

Historically, institutional investors focused on their domestic equity market. In the late 1970s, several investors started to invest internationally across developed equity markets, mainly North America, Western Europe and some developed countries such as Japan and Australia in the Asia Pacific region. In the late 1980s, a few pioneering investors ventured beyond developed equity markets and started to seek opportunities in developing countries in Latin America and South East Asia. These investors faced considerable obstacles across the entire investment process, ranging from difficulties in obtaining information about listed companies to operational challenges in opening investment accounts, trading, settling trades, safeguarding securities and repatriating the proceeds of their investments. However, for these pioneers, the attraction of emerging markets remained compelling despite these challenges, as they anticipated that rapid economic development would translate to high earnings growth and, combined with attractive valuations, would lead to superior portfolio returns over time.

In response to the growing needs of these investors for information and tools to help them conduct investment research and asset allocation in emerging markets and to benchmark the performance of their portfolios, the MSCI Emerging Markets Index was created in December 1987. At its inception, the index included 10 markets (Argentina, Brazil, Chile, Mexico, Portugal, Greece, Jordan, Malaysia, the Philippines, Thailand) and represented less than 1% of the global equity universe, as reflected in the MSCI All Country World Index (since renamed “ACWI”).

An avalanche of political and economic events, including the adoption of market-oriented policies in China, the collapse of the Soviet Union, the spread of democracy in Eastern Europe and the fall of apartheid in South Africa, led to the rapid expansion of the emerging-market universe throughout the 1990s. By 1992, the MSCI Emerging Markets Index had grown to cover 13 markets and represent 5.3% of MSCI ACWI. By 1997 the index covered 28 markets and had a weight of 6.8% in MSCI ACWI.

The rapid globalization of portfolio investments and fast-moving international capital flows combined with relatively weak institutional governance and flawed macroeconomic policies led to the Asian financial crisis of 1997 and the Russian debt default of 1998. These events hit emerging markets directly and were followed by the burst of the technology, media and telecom (TMT) bubble and the global recession and bear market of the early 2000s. As a result, emerging markets (using the MSCI Emerging Markets Index as a proxy) underperformed developed markets in the late 1990s and by 2002 only represented approximately 4% of the global equity universe.

The equity segment recovered and attracted greater investor interest and allocations throughout the 2000s, leading to the outperformance of emerging markets relative to developed markets in the first decade of the 21st century. Market accessibility has improved gradually but steadily throughout the last two decades, as domestic regulators and stock exchanges enhanced the operational framework and market infrastructure, leading to declining trading costs through time. In 2007, MSCI created the MSCI Emerging Markets Small Cap Index and the MSCI Frontier Markets Index, to serve investor needs for benchmarks reflecting the small-cap sub-segment in emerging markets as well as countries that were beginning to develop their equity market but had not yet reached sufficient levels of size, liquidity and accessibility to be considered "emerging."

In the last few years, the ongoing development and liberalization of the domestic Chinese equity market has been the dominant change in the emerging-market segment and led to the inclusion of A shares in the MSCI Emerging Markets Index in June 2018 at a small fraction (5%) of their free float. MSCI has announced that it will increase the percentage of A shares free float included in the index from 5% to 20% by December 2019. Chinese equities currently make up 30% of emerging markets but could rise to 40% should A shares be fully included at 100% of their free float, based on market capitalizations as of Jan. 31, 2019.

Exhibit 1 chronicles the introduction of new equity markets into the MSCI Emerging Markets Index and the MSCI Frontier Markets Index. Currently, the MSCI Emerging Markets Index comprises 24 markets representing 12% of the MSCI ACWI Index. Exhibit 2 plots the performance of developed and emerging markets in absolute terms while Exhibit 3 shows the relative performance of emerging markets since the inception of the MSCI Emerging Markets Index.[1]

[1] The analysis and observations throughout this report are limited solely to the period of the relevant historical data, back test or simulation. Past performance — whether actual, back tested or simulated — is no indication or guarantee of future performance. None of the information or analysis herein is intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision or asset allocation and should not be relied on as such.

Exhibit 1: Additions to MSCI Emerging Markets and MSCI Frontier Markets Indexes

1988	1989	1992	1993	1995	1996	1997	2001
Argentina	Indonesia	South Korea	Colombia	Israel	China	Russia	Egypt
Brazil	Turkey		India	Poland	Czech Rep.	Portugal	Morocco
Chile			Pakistan	South Africa	Hungary		
Greece			Peru		Taiwan		
Jordan			Sri Lanka				
Malaysia			Venezuela[2]				
Mexico							
Philippines							
Portugal							
Thailand							

2006	2007	2008	2009	2012	2016	2018	2019
Bahrain	Bulgaria[1]	Lithuania	Bangladesh	Saudi Arabia[3]	WAEMU	China A[4]	China A[4]
Kuwait	Croatia	Serbia	Trin. & Tob.[1]				Argentina
Oman	Estonia						Saudi Arabia
Qatar	Kazakhstan						
UAE	Kenya						
	Lebanon						
	Mauritius						
	Nigeria						
	Romania						
	Slovenia						
	Tunisia						
	Ukraine[1]						
	Vietnam						

Country Introduced as Emerging Market/Frontier Market

[1] Trinidad and Tobago, Ukraine and Bulgaria were removed from the MSCI Frontier Markets Index in 2001, 2015 and 2016, respectively.

[2] Venezuela was removed from the MSCI Emerging Markets Index in 2006.

[3] Saudi Arabia was re-introduced into the MSCI Domestic Indices as standalone index in 2012 and into the MSCI International indexes as standalone in 2015.

[4] In March 2018 the MSCI China A index was launched, offered in CNH and CNY versions. In May 2018 Large Cap China A shares were added to the MSCI China index, the MSCI Emerging Markets index and MSCI ACWI index at 5% of their FIF-adjusted market cap. The inclusion factor of China A will be raised to 20% in three steps in 2019.

Exhibit 2: Absolute Returns of EM and DM Indexes (Gross Total Return)

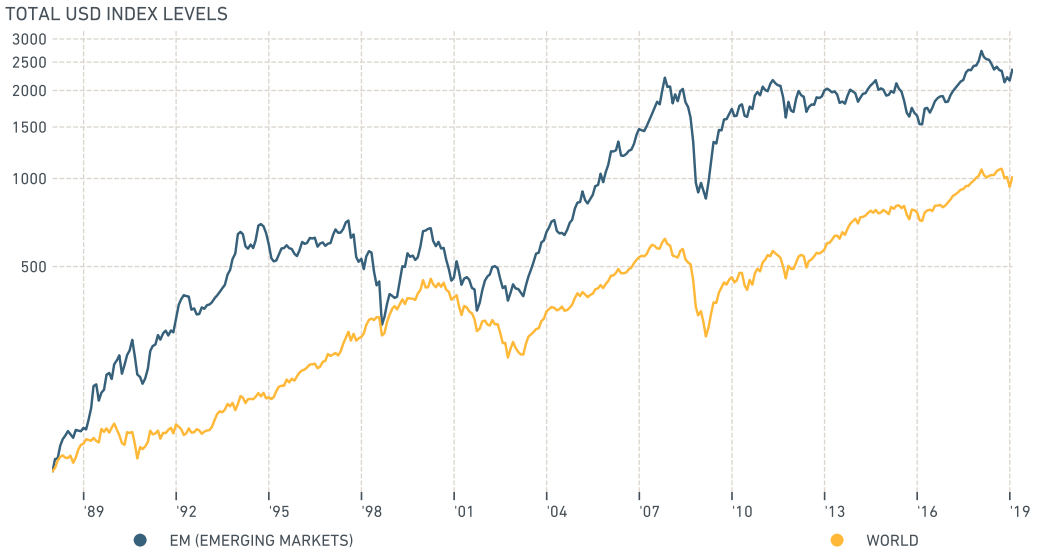


Exhibit 3: Performance of EM Relative to DM (Gross Total Return)

EXAMINING ALLOCATIONS TO EMERGING MARKETS

Investors making portfolio allocations to emerging markets typically look at two sets of variables, namely, macroeconomic indicators and market indicators. In this section, we will examine both sets of variables, investigate their historical relationship with emerging market performance and evaluate how they may affect the equity segment in the future.

With respect to **macroeconomic variables**, we analyze indicators relating to four categories:

1. Sustainable economic growth
2. Monetary policy, price stability
3. Fiscal discipline, debt position
4. Trade, current account balance

We examine the historical evolution and future anticipated path of these four main macroeconomic indicators (using IMF forecasts). We find that emerging markets have provided superior economic growth historically but have also been subject to considerable macroeconomic volatility. While the growth premium over developed economies has moderated, it is expected to continue over the coming years, supported by the broad adoption of policies that seek to promote fiscal discipline and price stability.

Exhibit 4: Real GDP Growth, Annual Percentage Change

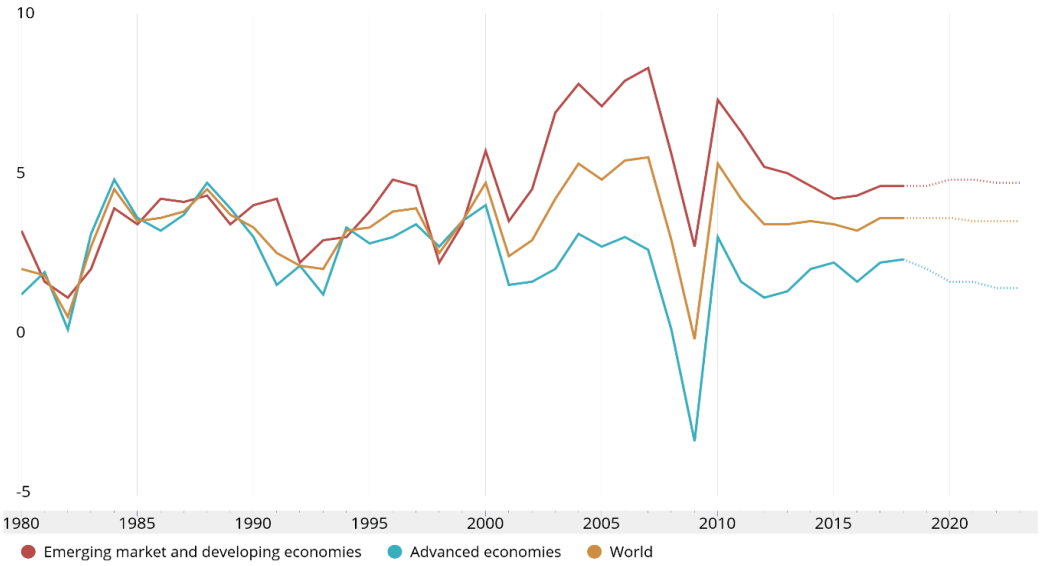


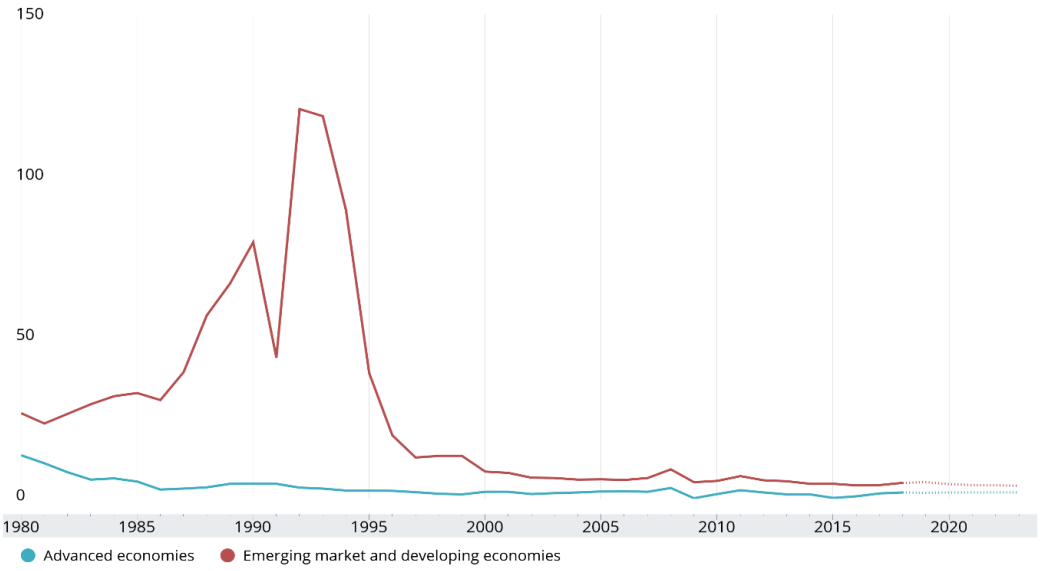
Exhibit 4 plots the annual percentage change in real gross domestic product (GDP) for emerging markets and developed markets.[2] This exhibit shows that emerging markets historically experienced higher economic growth compared to developed markets, and the International Monetary Fund (IMF) expects this pattern to continue through 2023. Specifically, in the 1980s, we observed little difference between the two groups. However, in the 1990s, as emerging markets started to develop rapidly, and many began to adopt free market policies, they experienced higher economic growth, although this was interrupted by the Asian financial crisis of 1997. Higher growth resumed after 1998 and has persisted throughout the last two decades. This growth gap in favor of emerging markets is expected to continue over the next five years, according to IMF forecasts.

Exhibit 5 shows annual inflation rates for emerging and developed markets over the last 40 years. Emerging markets experienced higher inflation in the 1980s, which accelerated further in the early 1990s. However, as many emerging markets reformed their monetary policies and introduced independent central banks with price stability mandates, inflation declined in the late 1990s and has gradually converged toward developed-market levels in the last 20 years. Forecasts from the

[2] Exhibits 4-7 in this section show macroeconomic indicators using the IMF definitions of Advanced Economies, Emerging Markets and Developing Economies and World. The precise country composition of these IMF groupings can be found at https://www.imf.org/external/pubs/ft/weo/2019/01/weodata/groups.htm

IMF anticipate that emerging-market inflation will remain low over the coming five years.

Exhibit 5: Inflation Rate, Annual Percentage Change



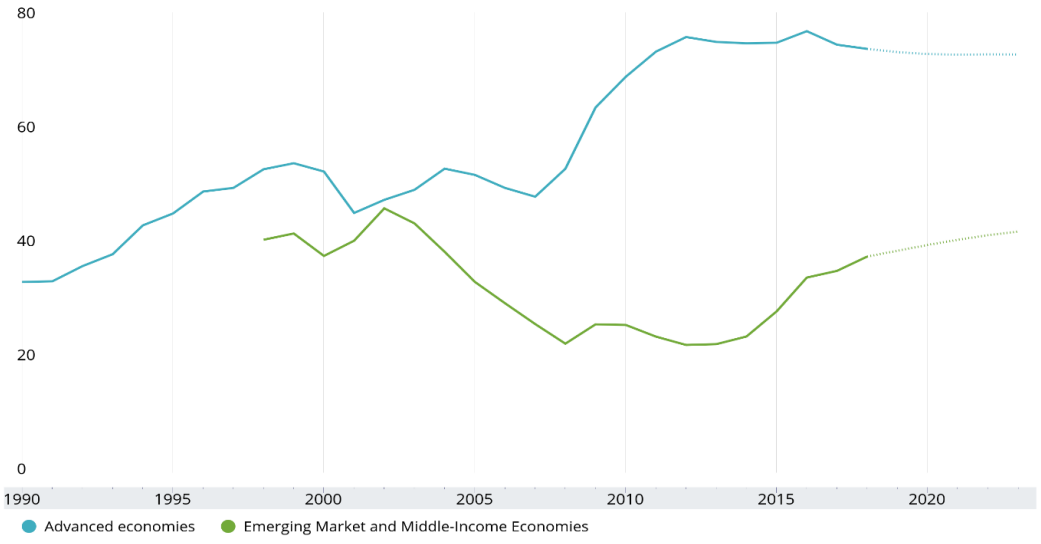
©IMF, 2018, Source: World Economic Outlook (October 2018)

Exhibit 6 displays net public debt, as a percentage of GDP, for developed and emerging economies. Debt levels in developed markets rose in the 1990s, remained elevated in the early and mid-2000s, and increased further in the aftermath of the global financial crisis of 2008. The IMF estimates that net public debt as a percentage of GDP will stay close to 80% for developed economies over the next five years. Emerging markets have followed a different path, with debt peaking in the early 2000s and then declining gradually through the decade, following the adoption of sound fiscal policies by many emerging economies. Debt levels have started to pick up recently, but the IMF expects them to remain significantly lower than for developed markets in the next five years.

Exhibit 7 describes the evolution of trade across developed and emerging economies, as reflected in their current account balance, as a percentage of GDP. Emerging markets established a sizable trade surplus in the 1990s, which expanded in the 2000s, underpinned by increasing business globalization and foreign direct investments into emerging markets that sought to benefit from lower labor costs and other comparative advantages enjoyed by emerging economies. In the current decade, as China and other emerging markets have started to shift gradually from investment and exports to consumption, the trade surplus they previously enjoyed

with developed markets has been eliminated. However, the United States continues to have a current account deficit, which the IMF expects to persist in the next five years.

Exhibit 6: Net Public Debt, as a Percentage of GDP



©IMF, 2018, Source: Fiscal Monitor (October 2018)

Exhibit 7: Current Account Balance, as a Percentage of GDP

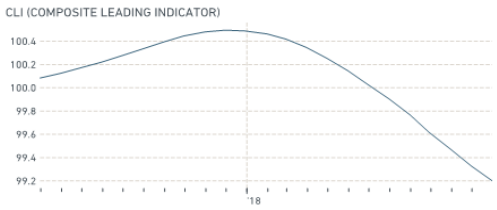
©IMF, 2018, Source: World Economic Outlook (October 2018)

Having discussed the historical evolution and outlook of key macroeconomic indicators, we now turn to **leading indicators and market variables** that investors typically examine when making allocations to emerging markets. Specifically, we focus on the following variables:

1. Business cycle: OECD Composite Leading Indicator (CLI)
2. Risk aversion: CBOE Implied Volatility Index (VIX)
3. Interest rates: US Treasury 10-Year Constant Maturity
4. The US Dollar: US Dollar Trade Weighted Index

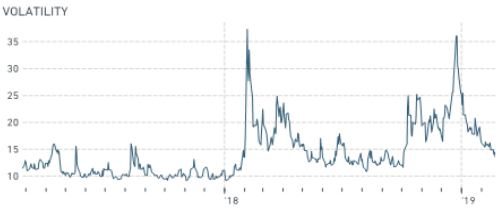
Exhibit 8 shows the recent evolution of these variables, while Exhibit 9 summarizes the long-term relationship between them and the outperformance of emerging markets relative to developed markets. Emerging markets generally performed well when business conditions were improving, when investor risk appetite was rising, when interest rates were declining and when the U.S. dollar was weak relative to other currencies. The analysis presented in Exhibit 9 confirms most of these relationships. Specifically, we observe that, historically, emerging markets outperformed when the CLI was rising, when the VIX was falling and when the USD was weakening. On the other hand, we did not find a consistent relationship between U.S. interest rates and emerging markets performance.

Exhibit 8: Recent Evolution of Key Leading Indicators Used by EM Investors



OECD CLI Total. Period: February 28, 2017 to January 31, 2019.

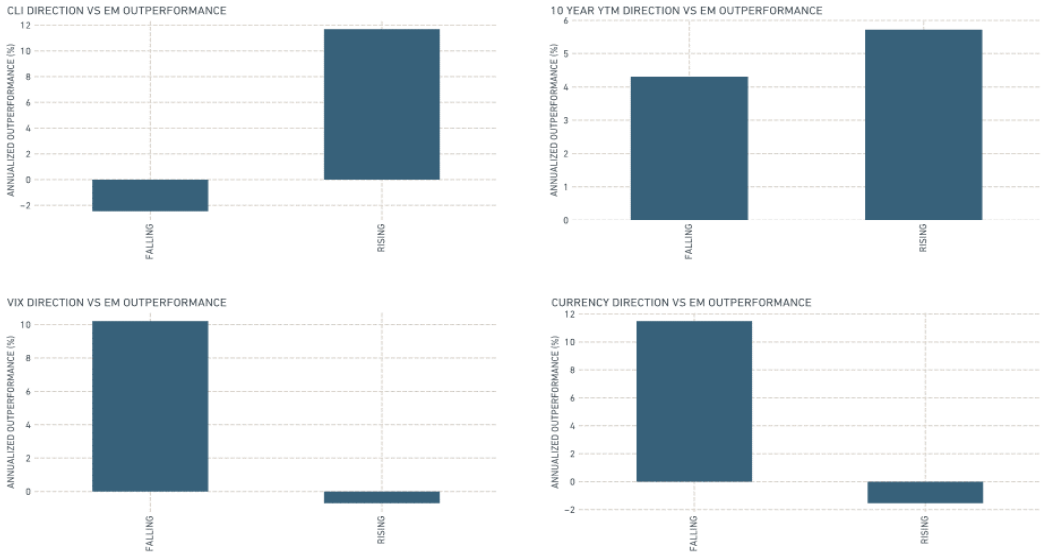
United States Treasury 10 Yr Constant Maturity. Period: February 24, 2017 to February 22, 2019.



CBOE VIX. Period: February 24, 2017 to February 22, 2019.

USD Trade Weighted Index. Period: February 24, 2017 to February 22, 2019.

Exhibit 9: Emerging Market Performance and Leading Indicators

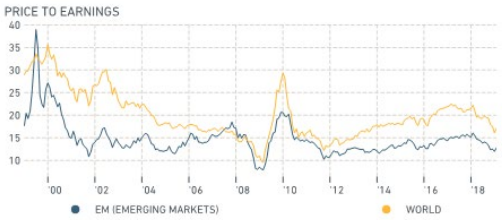


Data from Dec. 31, 1998 to Jan. 31, 2019

We conclude this section with a discussion of **emerging-market valuations** and market performance. We assess valuations using two complementary measures, the aggregate price-to-book value ratio and the aggregate price-to-trailing 12-month earnings ratio. The two top charts in Exhibit 10 show these two ratios for developed and emerging markets, while the bottom charts show the relative valuation of emerging markets compared to developed markets. The relative valuation charts have a simple and intuitive interpretation: They effectively show the percent premium or discount of emerging markets relative to developed markets. We also plot the in-sample mean and standard deviation of the two relative valuation measures.

Exhibit 10: Valuations of Emerging Markets

Period: December 31, 1998 to January 31, 2019.



Period: December 31, 1998 to January 31, 2019.

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Period: December 31, 1998 to January 31, 2019.

Focusing on price-to-book value, we note that emerging markets have been trading at a discount relative to developed markets for most of the last 20 years, averaging close to 20%. As of Jan. 31, 2019, the discount was closer to 30%, suggesting that emerging markets currently had moderately attractive valuations compared to developed markets and relative to the historical relationship between the valuations of the two markets. With respect to price-to-earnings, emerging-market valuations appeared closer to neutral, trading at a discount that was in line with the historical average discount, relative to developed markets.

Has there been a relationship between relative valuations and subsequent performance? In Exhibit 11, we examine this relationship over different horizons. Over one year, the relationship was negative (lower valuations were associated with higher performance) but weak, indicated by an almost flat regression line and lack of consistency in quintile performance. On the other hand, when we examine performance over five years, the relationship became stronger, reflected in a steeper regression line and more consistent quintile rankings. In summary, relative valuations have historically been associated with subsequent performance over long horizons and recent valuations were neutral or moderately attractive, compared to historical levels. In fact, given the robust long-term macroeconomic outlook for emerging markets (see Exhibits 4-7), investors may start to question the magnitude of the EM valuation discount.

Exhibit 11: Relative Valuations and Subsequent 1-Year Outperformance

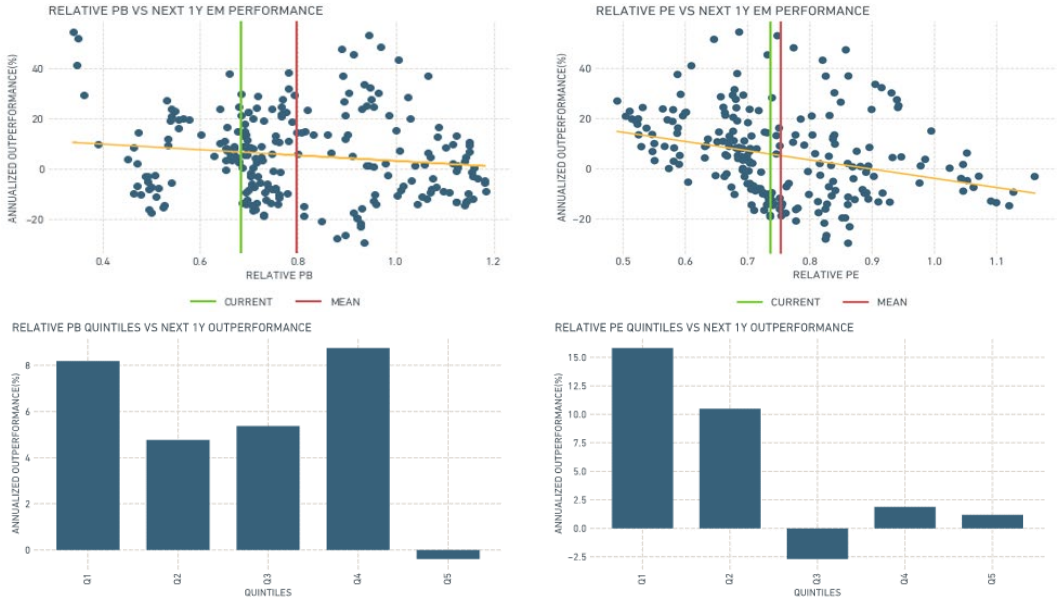
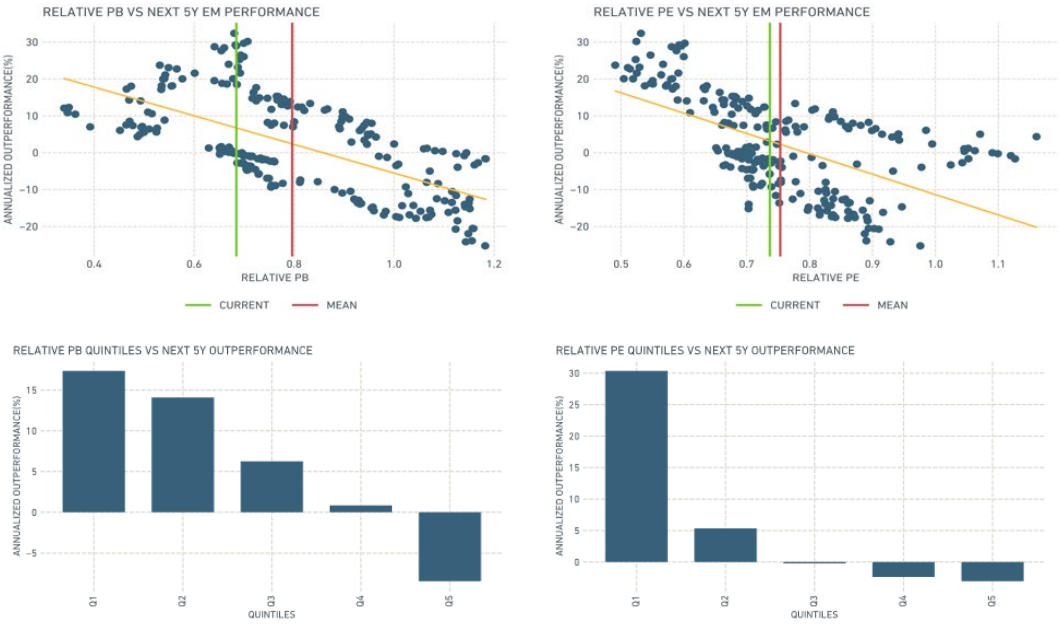


Exhibit 12: Relative Valuations and Subsequent 5-Year Outperformance



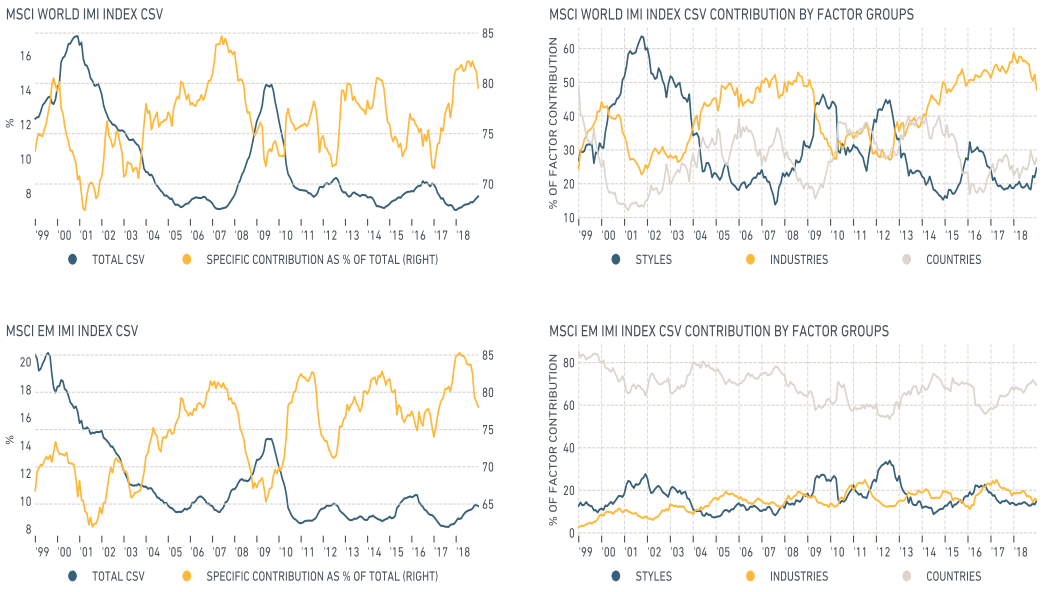
SOURCES OF RISK AND RETURN IN EMERGING MARKETS

Various options are available for portfolio construction, once investors decide to make an allocation to emerging markets, including:

- Country allocation
- Security selection
- Factor mandates
- Integration of ESG

To evaluate these options, we examine the relative importance and contribution of different sources to risk and performance in emerging markets. **Cross-sectional volatility** (CSV), defined as the standard deviation of returns across stocks in a given universe and over a given period, is often used as a proxy for the potential to add value from active portfolio management. Exhibit 13 shows CSV for developed and emerging markets. We used MSCI's Barra Global Equity Model for Long-Term Investors (GEMLT) to decompose CSV into country, industry, style and specific sources.

Exhibit 13: Cross-Sectional Volatility of MSCI World IMI and MSCI EM IMI



Total CSV, a proxy for the potential added value from active management in general, is higher in emerging markets, even though the number of constituents is

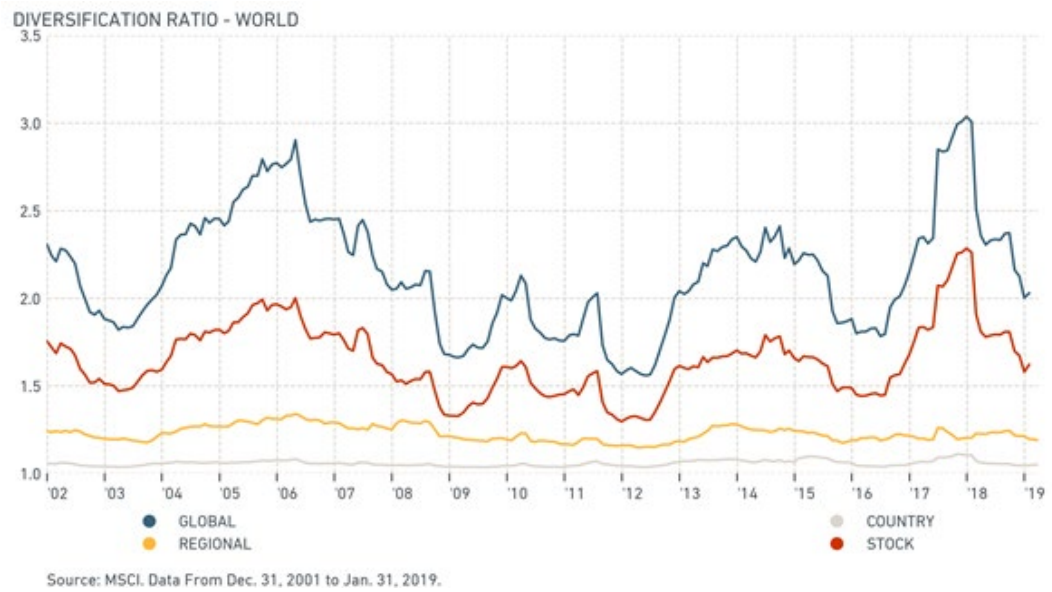
significantly lower than in developed markets. In addition, the contribution of specific CSV, a proxy for potential added value from security selection, has been higher in emerging markets, especially during the 10 years to 2019. The charts on the right break down common factor CSV into country, industry and style factor contributions. Countries are the dominant source of common factor CSV in *emerging markets*, accounting for more than 60%, while industries and styles each contributed less than 20%. In contrast, countries are the least important source of CSV in *developed markets* while industries and styles are more important, with styles contributing more in volatile market conditions.

Following Choueifaty and Coignard (2008) and Coueifaty et al. (2013), we calculated and decomposed the "diversification ratio" of developed and emerging markets, using the following formula:

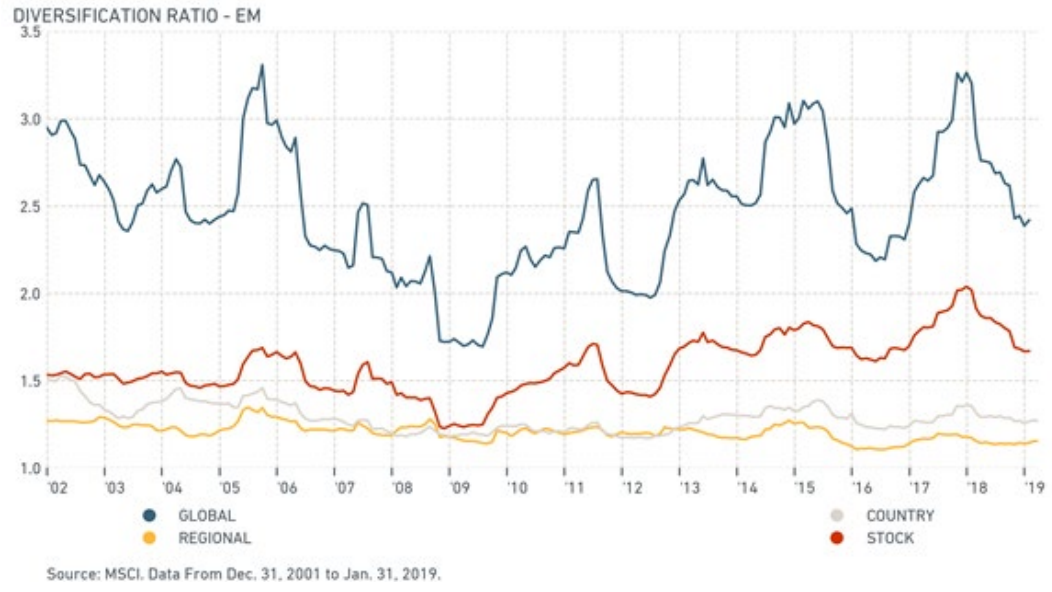
$$\underbrace{\frac{wgt\ avg\ stock\ risk}{total\ portfolio\ risk}}_{\text{Global Diversification}} = \underbrace{\frac{wgt\ avg\ stock\ risk}{wgt\ avg\ country\ risk}}_{\text{Stock Diversification}} \cdot \underbrace{\frac{wgt\ avg\ country\ risk}{wgt\ avg\ region\ risk}}_{\text{Country Diversification}} \cdot \underbrace{\frac{wgt\ avg\ region\ risk}{total\ portfolio\ risk}}_{\text{Region Diversification}}$$

Exhibit 14 plots the total diversification ratio (left side of the equation) and its three components, namely, region-, country- and stock-level diversification ratios (right side of the equation). The total and stock-level diversification ratios have been higher in emerging markets during the analysis period. These observations highlight the availability of active stock-selection opportunities in a diverse universe of securities, as well as potential risk reduction through diversification at the global level during this timeframe. In addition, the country diversification ratio that compares country and regional risk has been lower in emerging markets compared to developed markets. These results are consistent with the earlier cross-sectional volatility analysis and further illustrate the historical impact of the country factor in emerging markets.

Exhibit 14: Rolling 12-month Diversification Ratio for DM and EM



Source: MSCI. Data From Dec. 31, 2001 to Jan. 31, 2019.



Source: MSCI. Data From Dec. 31, 2001 to Jan. 31, 2019.

Further evidence of the importance of countries in emerging markets is provided in Exhibit 15, where we plot pairwise **country correlations** in emerging and developed markets. These correlations were lower in normal market conditions and increased during periods of heightened market volatility. However, emerging-market country correlations have remained substantially lower relative to developed markets during the two decades through 2018. Low country correlations in emerging markets have important implications for different investment strategies. Specifically, global index-based strategies may experience reduced volatility due to country diversification while global active strategies may benefit from a diverse country selection opportunity set.

Exhibit 15: 3-year Rolling Country Correlations in Emerging and Developed Markets

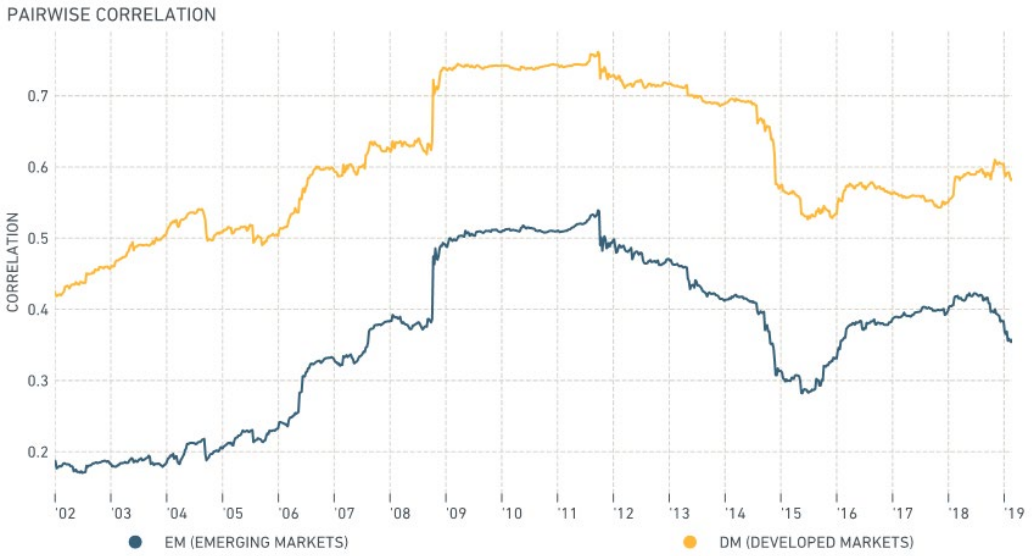
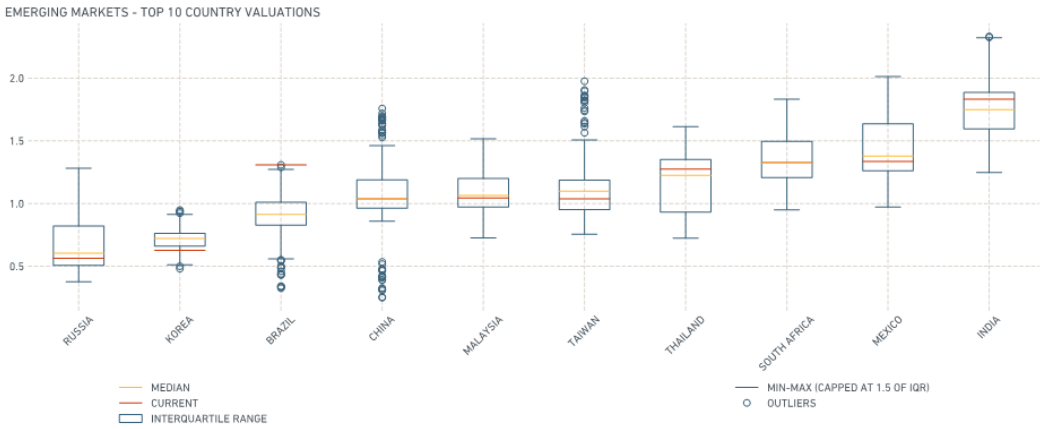


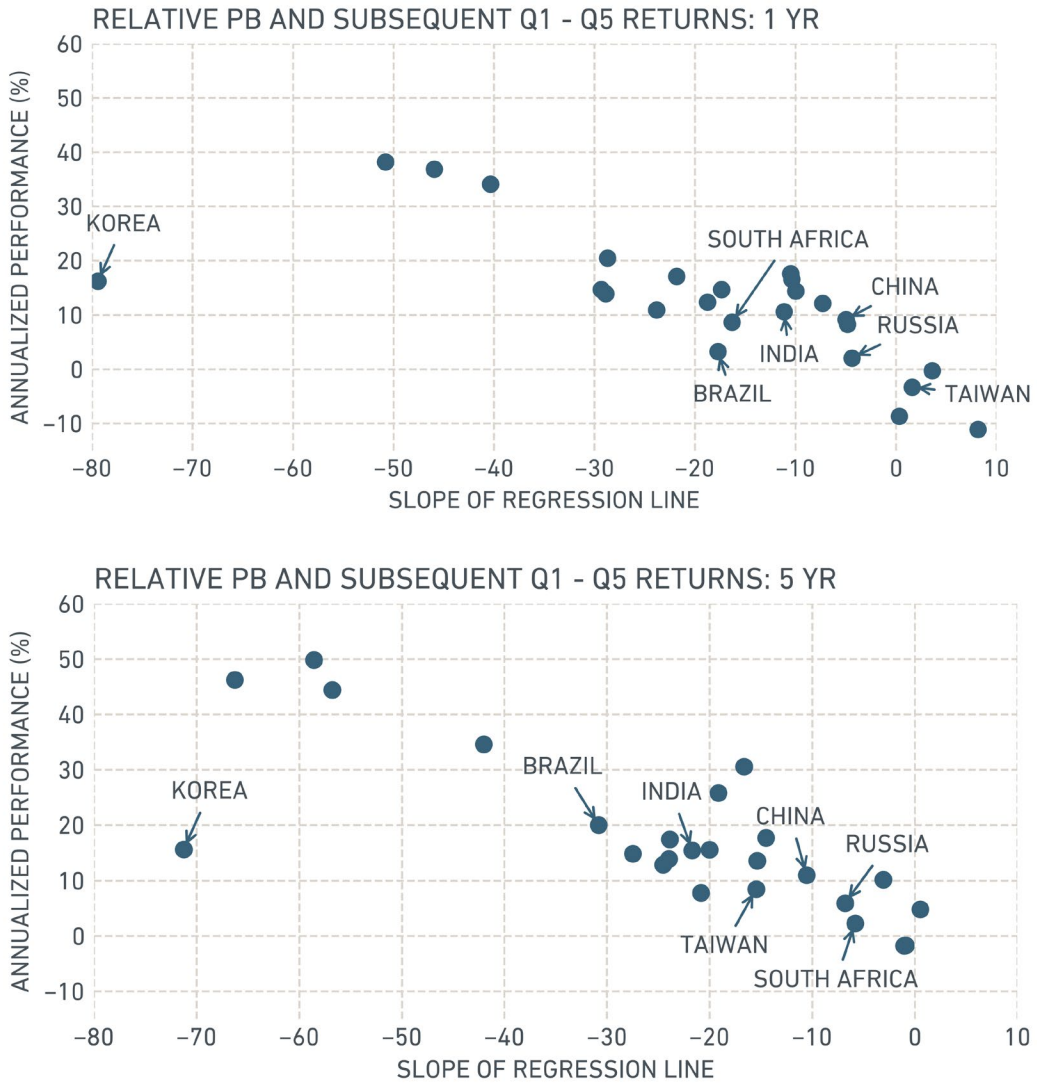
Exhibit 16: Price-to-Book of Largest EM Countries Relative to MSCI EM Index



Period: December 31, 1998 to January 31, 2019.

Having established the importance of countries as drivers of risk and performance in emerging markets, we examine **country valuations** and assess their historical track record in guiding country allocation decisions. Exhibit 16 shows the current relative valuations of the largest emerging-market countries and compares them with their historical levels. Russia and Korea have historically traded at a discount relative to other emerging markets, and that discount was even wider as of Jan. 31, 2019, suggesting that the two markets enjoyed moderately attractive valuations. India and Thailand, on the other hand, have traded at premium valuations in the past and that premium was high, indicating that the two markets had relatively expensive valuations.

Exhibit 17: Starting Valuation and Subsequent Outperformance



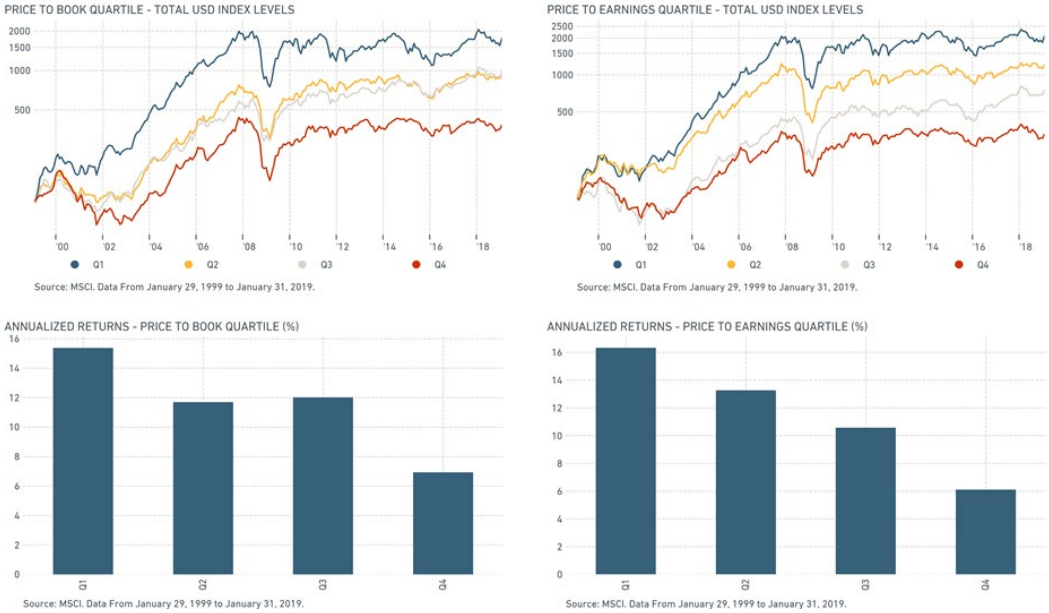
Data from Dec. 31, 1998 to Jan. 31, 2019

We illustrate the historical relationship of country level relative valuations and subsequent country index performance over different investment horizons in Exhibit 17. Consistent with the global emerging markets results presented in Exhibits 11 and 12, we found that country-level valuations had a negative relationship with performance — that is, higher valuations preceded weaker performance and vice

versa — and the relationship became more consistent as we increased the holding period.

In Exhibit 18, we show quartile returns of emerging-market countries selected based on absolute valuations and confirm that lower valuations were associated with higher average returns historically. For every month during the analysis period, we sorted emerging-market countries by price-to-book and price-to-earnings ratios, and calculated the return of equal-weighted quartile portfolios over the next month. These results suggest that country-level valuations could have been used as an input into active asset allocation strategies in emerging markets during the study period.

Exhibit 18: Country Valuations and Subsequent Outperformance



Another important, but sometimes overlooked, element of managing an emerging-market portfolio is **currency risk**. Equity investors often accept currency exposure as a component of the total risk of a global emerging-market equity portfolio. Our research[3] showed that over a 10-year period from 2007-2017, the unhedged MSCI Emerging Markets Index would have outperformed the hedged variant. However, with emerging-market currency volatility increasing in the last few years, investors may

[3] Aylur Subramanian, R. "Does Turkey offer lessons for managing emerging-market currency volatility?" MSCI.com, Aug. 15, 2018.

choose to use currency volatility as an indicator to monitor currency risk and guide currency hedging decisions.

Next, we examine the integration of factor and ESG information in index-based strategies and active fundamental portfolios in emerging markets. Specifically, we focus on the following **factor investing** strategies and use the corresponding MSCI Factor Indexes as proxies:

Factor	MSCI Factor Index
Value	MSCI Enhanced Value Index
Low Size	MSCI Equal Weighted Index
Momentum	MSCI Momentum Index
Low Volatility	MSCI Minimum Volatility Index (Min Vol)
Quality	MSCI Quality Index
Yield	MSCI Quality Index
Risk Parity	MSCI Risk Weighted Index
Multi-factor	MSCI Diversified Multiple Factor Index (DMF)

We show the performance of these factor investing strategies in emerging markets in Exhibit 19. These strategies have produced active returns ranging from 0.7% to 4.7% per year in emerging markets during the last 20 years. This analysis suggests that the same factor investing strategies that many investors use in developed markets could have been deployed successfully in emerging markets during our study period.

Exhibit 19: Performance of Factor Investing Index Strategies in Global EM

Key Metrics

	EM (Emerging Markets)	Min Vol	High Dividend Yield	Risk Weighted	Enhanced Value	Momentum	Quality	DMF	Equal Weighted
Total Return* (%)	9.2	11.1	12.1	10.7	14.0	11.7	11.0	12.9	10.0
Total Risk (%)	21.8	16.9	21.3	18.5	26.3	22.8	20.4	22.8	21.9
Return/Risk	0.42	0.66	0.57	0.58	0.53	0.51	0.54	0.57	0.46
Sharpe Ratio	0.33	0.53	0.47	0.46	0.45	0.42	0.44	0.47	0.36
Active Return (%)	0.0	1.8	2.9	1.4	4.7	2.5	1.7	3.7	0.7
Tracking Error (%)	0.0	6.8	6.6	5.9	8.9	7.4	5.1	5.3	5.0
Information Ratio	NaN	0.27	0.44	0.24	0.53	0.34	0.34	0.69	0.15
Historical Beta	1.00	0.75	0.93	0.82	1.14	0.99	0.91	1.02	0.98
No of Stocks***	810	245	233	806	247	224	199	209	810
Turnover** (%)	9.4	26.2	37.7	30.6	34.3	102.3	29.2	40.4	37.7
Price To Book***	1.7	1.9	1.5	1.5	0.9	2.3	3.1	1.4	1.3
Price to Earnings***	14.1	15.2	10.1	16.9	9.9	16.8	13.4	11.0	21.6
Dividend Yield*** (%)	2.5	3.2	4.7	3.2	3.2	2.0	2.8	3.2	2.8

Period: 31-Dec-1998 to 28-Feb-2019

* Gross returns annualized in USD

** Annualized one-way index turnover over index reviews

*** Monthly averages

We have observed that institutional investors increasingly consider the potential significance of Environmental, Social and Governance (ESG) issues and seek to integrate ESG criteria in the investment process. So, we now turn our attention to **ESG integration** in emerging markets. Specifically, we look at four different ESG integration strategies, using the following MSCI indexes as proxies:

ESG integration strategy	Index name	% of parent index
Index reweighting	MSCI ESG Universal Index	Approx. 100%
Best-in-class selection	MSCI ESG Leaders Index	Approx. 50%
Optimized integration	MSCI ESG Focus Index	Approx. 33%
High conviction integration	MSCI SRI Index	Approx. 25%

Exhibit 20: Performance of ESG Integration Index Strategies in Emerging Markets

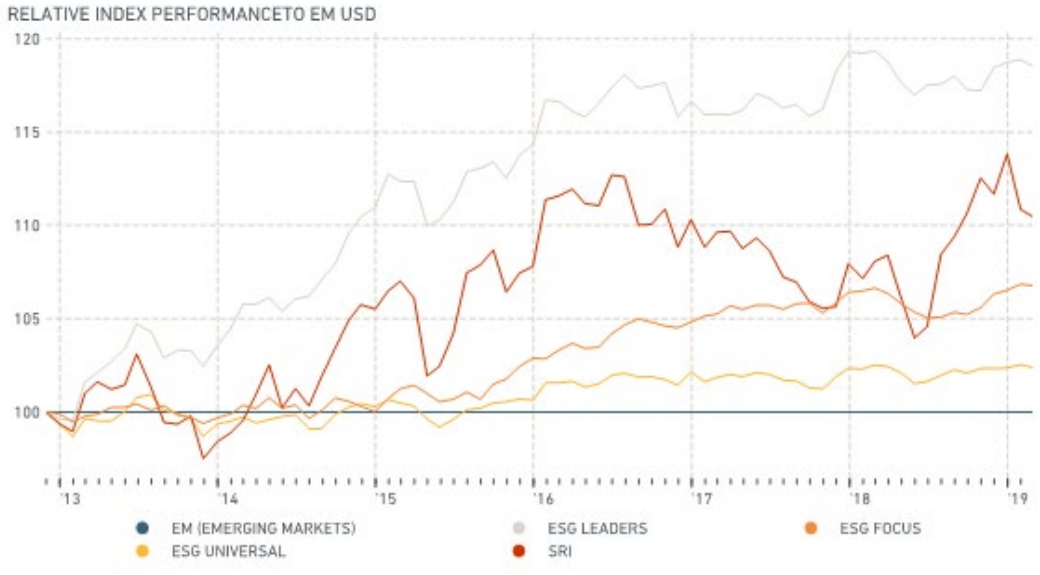
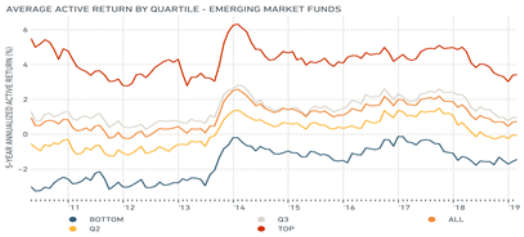


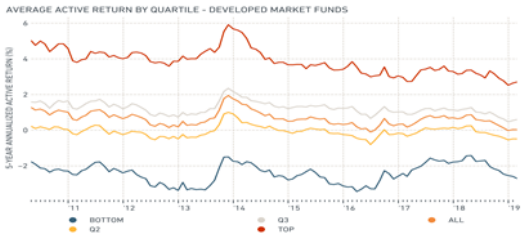
Exhibit 20 shows that the four ESG index integration strategies we examined outperformed the MSCI Emerging Markets (EM) Index during the analysis period (we are limited to a shorter period during which ESG data was available). In addition, all four strategies experienced lower realized volatility and superior risk-adjusted return (Sharpe ratio) compared to the MSCI EM Index.

Having examined strategies for integrating factor and ESG information into emerging-market indexes, we now turn to the topic of **active management** and specifically the integration of factor and ESG information into active emerging-market portfolios. We analyzed a sample of 90 actively managed global emerging-market funds from the Lipper database for which we had data during the period April 2010 to February 2019 and divided them into quartiles based on their rolling 5-year active return, relative to their benchmarks. For reference, we also analyzed 360 actively managed global developed market funds from Lipper for which we had data over the same period. Exhibit 21 shows this analysis, confirming that most actively managed emerging-market funds in our sample outperformed their benchmark during the analysis period, and that outperformance was greater in emerging markets than in developed markets, before transaction costs and management fees.

Exhibit 21: 5-year Returns of Actively Managed EM and DM Funds



	Performance Quartile				
%	Bottom	Q2	Q3	Top	All
Mean	-1.67	0.12	1.44	4.24	1.05
Median	-1.50	0.29	1.38	4.27	1.08
Max	-0.13	1.50	2.82	6.31	2.58
Min	-3.26	-1.25	0.29	2.77	-0.26



	Performance Quartile				
%	Bottom	Q2	Q3	Top	All
Mean	-2.41	-0.07	1.24	3.84	0.65
Median	-2.33	-0.09	1.23	3.79	0.63
Max	-1.42	1.00	2.35	5.91	1.94
Min	-3.44	-0.80	0.46	2.52	-0.10

To assess the efficacy of ESG integration in active emerging market portfolios, we follow the process outlined in Giese et al. (2018) and simply screen out the 10% worst ESG-rated stocks from the active portfolios we analyzed. In addition, to evaluate the impact of incorporating factor information into these portfolios, we tilt the remaining holdings toward the eight main equity factors, following the process described in Melas et al. (2019). The results of this analysis are summarized in Exhibits 22 and 23.

Exhibit 22 reveals that screening out the 10% worst ESG-rated stocks from the actively managed emerging-market portfolios in our sample led to a modest improvement in their 5-year annualized return. Furthermore, when we tilted the remaining holdings toward the main equity factors, there was a further, more significant uplift in performance. Exhibit 23 shows that the resulting modified active portfolios experienced a substantial enhancement in their sustainability profile. This analysis shows that actively managed emerging-market strategies could have benefitted from integrating factor and ESG information.

Exhibit 22: Rolling 5-year Returns of Actively Managed EM Mutual Funds

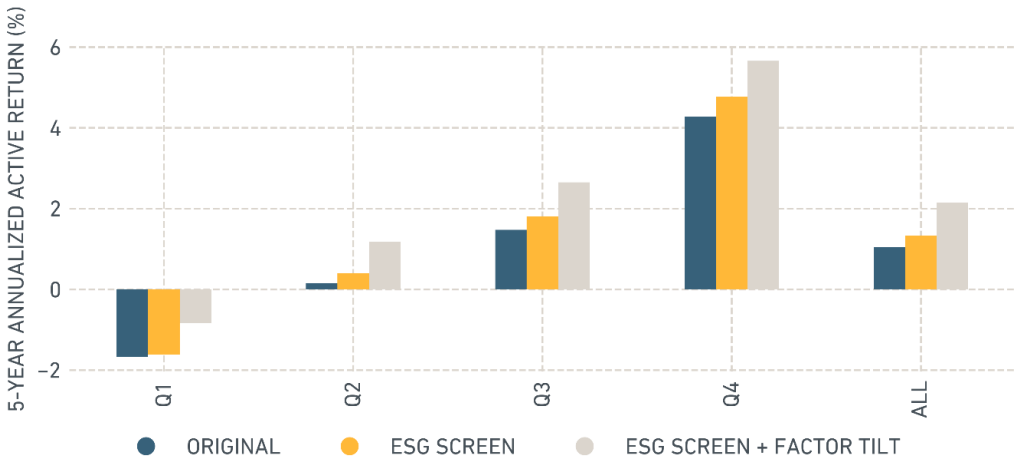
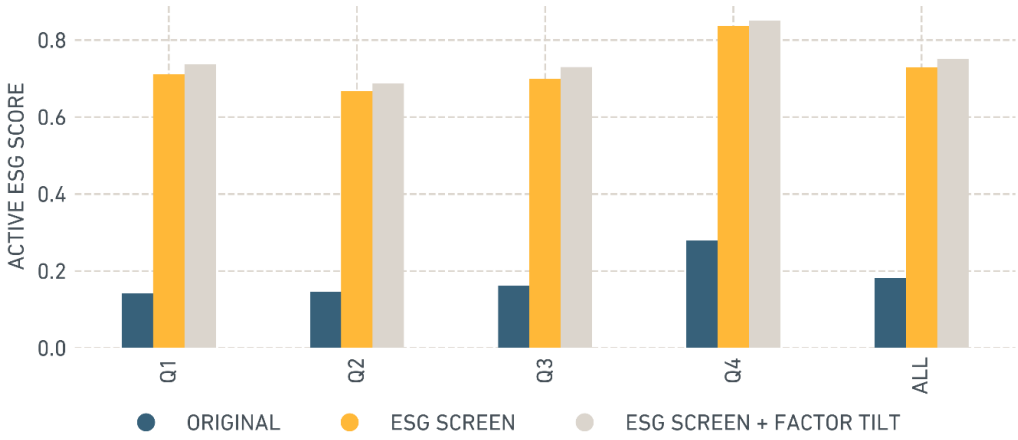


Exhibit 23: Active ESG Score of Actively Managed EM Mutual Funds



CHINA AND THE FUTURE OF EMERGING MARKETS

The emerging-market universe has evolved through time, reflecting economic and market changes, as well as the evolution of the institutional investment process. In the last few years, this process has been dominated by the gradual liberalization of the domestic Chinese equity market. The Chinese authorities have implemented a series of equity market reforms, aiming to attract foreign long-term portfolio investments and support the country's transition from manufacturing and exporting to a consumption-driven economy.

Exhibit 24: China's Market Liberalization and the MSCI Index Methodology

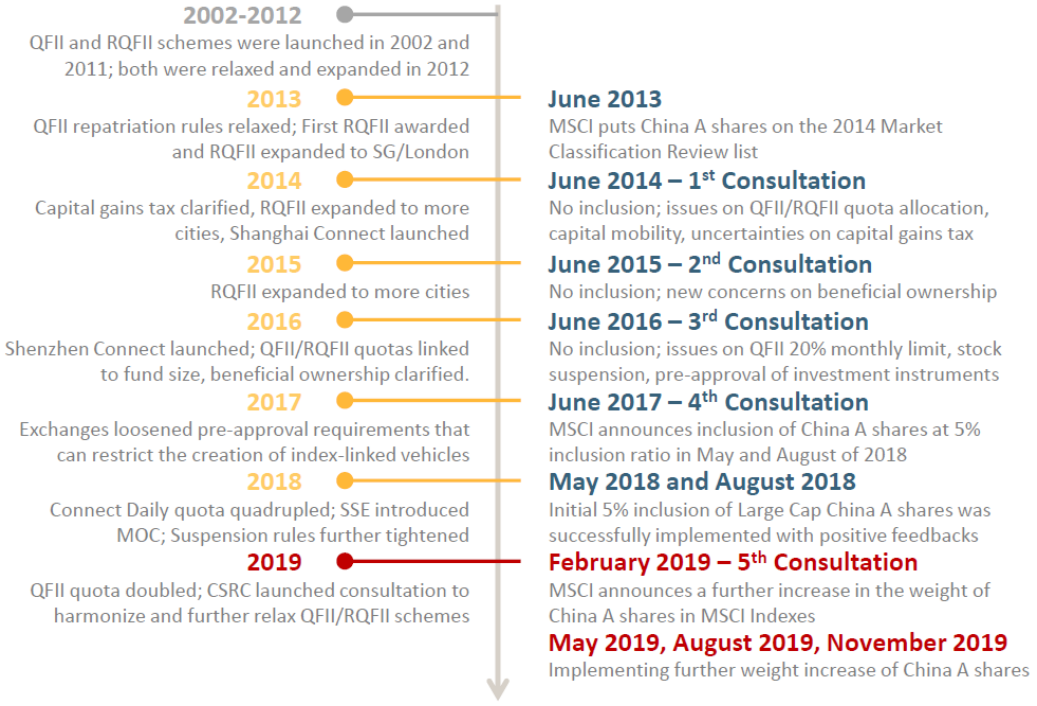
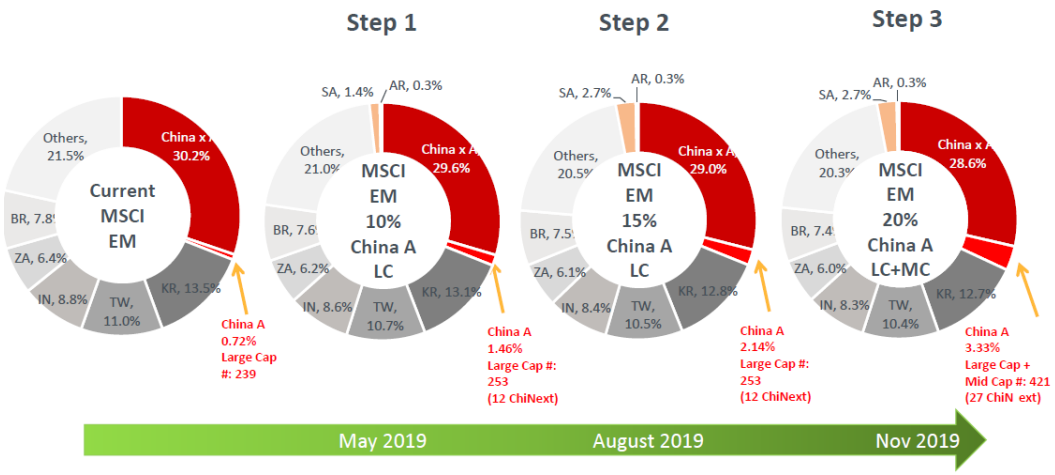


Exhibit 24 chronicles the main equity market liberalization measures implemented by the Chinese authorities and how the market opening process has been reflected in the MSCI index methodology. The market first became accessible to a few large foreign institutions in 2002, when the Chinese authorities launched the Qualified Foreign Institutional Investor (QFII) scheme. The process started to accelerate in 2013, when capital repatriation rules were relaxed and the RQFII scheme was extended to multiple locations. That was the time when MSCI first opened a consultation on the inclusion of domestic Chinese equities in the MSCI Emerging Markets Index.

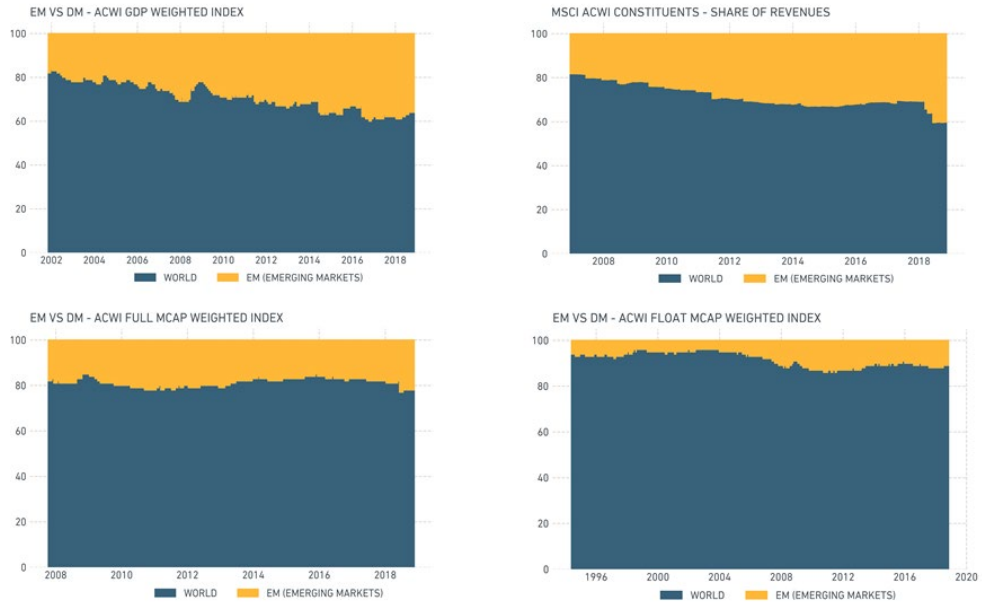
The opening of the Chinese market and MSCI's index consultation process have progressed in parallel over the past five years. The introduction of the Stock Connect scheme, which does not require investor registration, and its extension to cover both main Chinese exchanges (Shanghai and Shenzhen), were the catalysts that led to the inclusion of A shares in MSCI indexes in May 2018. As the pace of regulatory reform and market liberalization has accelerated in the last 12 months, MSCI has announced that the weight of A shares will be further increased from the current 5% to 20% of their free float, in three steps between May 2019 and the end of the year.

Exhibit 25: Increase of the Weight of A shares in the MSCI Emerging Markets Index



Data as of Jan. 22, 2019.

Exhibit 26: Relative Market Size and Economic Importance of Emerging Markets



CONCLUSION

As Exhibit 3 shows, emerging markets have delivered superior returns and greater volatility than developed markets in the last 30 years. The forces that are likely to shape the future of the equity segment in the coming decades include economic growth and fiscal discipline, ongoing capital market liberalization, the further adoption of free market policies, the emergence of world-class companies and the transition from natural resources extraction, manufacturing and exporting to higher added value economic activity and domestic consumption. As Exhibit 26 highlights, emerging markets represent only 12% of global equity free float, but their weight increases to approximately 20% by total market cap and to 40% of global economic activity (GDP) and share of company revenues. These observations underscore the central role that emerging-market allocations will likely continue to play in global equity portfolios in the future.

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