

Economic Exposure to Emerging Markets

A new dimension in the construction and evaluation of global equity portfolios

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Executive Summary

With continued trends in globalization, many companies increasingly operate across several countries and regions. Consequently, their revenues may be exposed to economic activity in many regions other than their home country. In this context, we introduce the concept of “Economic Exposure” that may be derived from the geographic distribution of a company’s revenues or assets. Significant disparities in the reporting of segment level financial data across companies and practical issues of availability of reliable data have prompted MSCI to develop a simple and transparent methodology to estimate the economic exposure of companies in a consistent manner using the geographic distribution of a firm’s revenues and the nominal GDP of the countries where revenues are generated.

Economic exposure derived from the geographic distribution of revenues could serve multiple purposes in the investment process, including macro view implementation, security selection, portfolio analysis, risk management, and client reporting. Furthermore, the economic exposure of a company could serve as a complementary or an alternative definition of the country factor that is typically derived from a company’s country of domicile and primary listing. The economic exposure of companies may bring a new dimension to the construction and evaluation of global equity portfolios.

Emerging markets play an increasingly important role in the global economy and in the asset allocation of institutional investors. In this paper, we show that there is a strong relationship between the economic exposure of developed markets companies to emerging markets and the sensitivity of their stock returns to that of the MSCI Emerging Markets Index. The economic exposure of companies in the MSCI World Index to emerging markets (herein, ‘EM exposure’) has risen over time and was 21% as of December 2011. Across regions, companies in Europe have significantly higher EM exposure, while those in North America and Japan have relatively lower EM exposure. Across global sectors, Materials, Information Technology and Consumer Staples have higher EM exposure while more domestically oriented sectors such as Financials, Telecom and Utilities have significantly lower EM exposure.

The MSCI Indices with EM Exposure are a family of indices comprising developed market companies with high exposure to emerging markets. The MSCI World with EM Exposure Index, for example, targets 300 companies from the MSCI World Index with the highest emerging markets exposure. The MSCI Indices with EM Exposure have outperformed their respective MSCI parent indices significantly over the last decade with modest tracking error. The volatility of these indices has been historically higher than the MSCI Developed Markets Indices but lower than the MSCI Emerging Markets Index. The MSCI Indices with EM Exposure showed considerable differences when compared with the MSCI Emerging Markets Index in terms of sector weights and valuations.

The MSCI World with EM Exposure Index may be potentially appealing to investors with constraints on direct investing in emerging markets due to regulation, accessibility issues or corporate governance or other concerns. Furthermore, the companies in the MSCI World with EM Exposure Index in conjunction with the companies in the MSCI Emerging Markets Index may serve to represent a broader opportunity set of companies that reflect the performance of emerging markets in global portfolios.

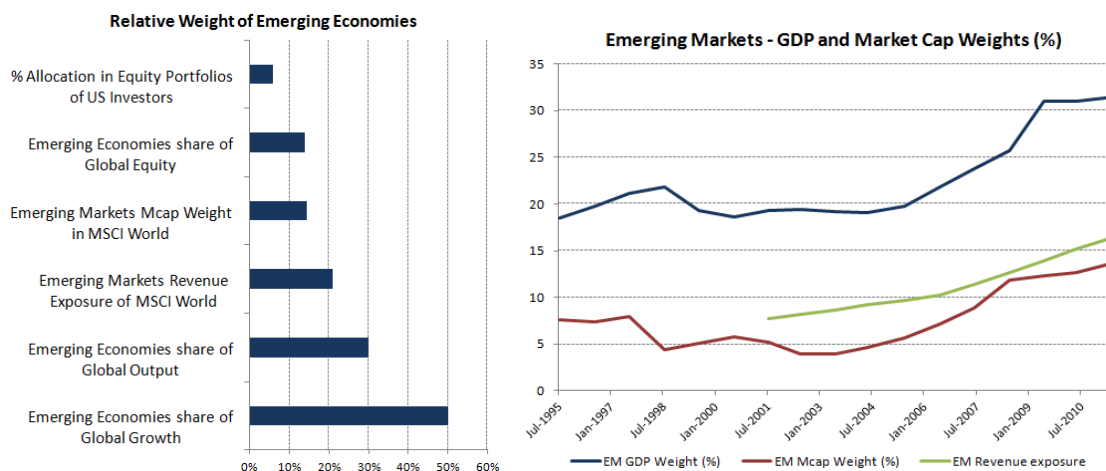
Section 1: Introduction

“Globalization is an irreversible process and not an option.”¹ It has been a driving force of economic and financial integration across markets over the last few decades. Over this period, trade barriers and tariffs have been greatly reduced or eliminated altogether, foreign direct investments have increased steadily and the scope of companies’ operations has expanded well beyond local boundaries. In parallel, capital markets around the world have generally become more accessible to foreign and domestic investors alike and a common Financial Accounting Standard has been adopted across more than 100 countries².

With growing globalization and improved accessibility, emerging markets play an increasingly important role in the global economy and in the asset allocation process of institutional investors (see Briand and Subramanian, 2008). Growing demographics and rising urbanization are driving up infrastructure and consumption demand in emerging market countries. Consequently, emerging markets are today a significant source of global demand for natural resources and a host of consumer goods and services.

Exhibit 1 highlights the growing importance of emerging markets as viewed through various measures. Emerging markets today contribute nearly 30% of global GDP and nearly 50% of global GDP growth. Over the observation period, the weight of emerging markets increased to 13% in a global index such as MSCI ACWI and to 30% in the MSCI ACWI GDP Weighted Index, while the revenue exposure to emerging markets of companies in the MSCI World Index rose to 21%. Emerging markets have become an important investment destination and a growing source of revenues for many global corporations.

Exhibit 1: Growing Importance of Emerging Markets



Source: MSCI, Worldscope, IMF, eVestment Data, World Bank; Data as of 2011.

Given this backdrop, multinational companies today operate in many regions and countries across the world including emerging markets. Therefore the revenues, profits and assets of these firms are exposed to economic activity in many regions other than their home country. In this context, we introduce the concept of “Economic Exposure” of companies that may be derived from the geographic distribution of a company’s revenues and assets.

¹ Former UN Secretary General, Kofi Annan

² Source: Report of IFRS Adoption, PricewaterhouseCoopers, April 2012

The economic exposure of companies derived from their revenue exposure to different regions or countries could serve multiple use cases in the investment process such as a basis for security selection or screening, to reflect a macro view in investment portfolios and to report the true geographic exposures of investment portfolios. Furthermore, this concept could serve as a complementary or an alternative definition of the country factor that has traditionally been derived from a company’s country of domicile and primary listing.

The remainder of this paper is organized as follows. In section 2, we review the economic exposure of companies across developed and emerging markets. In section 3, we analyze the performance of the MSCI Economic Exposure Indices. In section 4, we contrast the characteristics of the MSCI World with EM Exposure Index with the MSCI Emerging Markets Index. Section 5 examines the role of the MSCI Indices with EM Exposure in asset allocation through two illustrative case studies. Section 6 concludes and highlights the relevance of the MSCI Economic Exposure Indices in the investment process.

Section 2: Defining Economic Exposure

With the increasingly global scope of the operations of multinational firms, it is sometimes difficult today to disentangle these companies from their global footprint. Furthermore, it may be inappropriate to assume that a company’s business will always be more reflective of the economy of its country of domicile than of the economies in other parts of the world.

Exhibit 2 shows that the revenue exposure of companies in the MSCI World Index to emerging markets has increased from 10% in 2002 to 21% in 2011. In addition, we find that companies domiciled in Europe have significantly higher exposure to emerging markets (28%) compared to companies domiciled in North America (19%) and Asia Pacific regions (18%) respectively. Furthermore, companies domiciled in Europe have comparatively lower domestic exposure (45%)³ than companies domiciled in the USA (63%) or Asia Pacific (65%). In sum, by investing in domestic equities in many of the countries with large foreign sales or assets, an investor may have taken on significant international exposure.

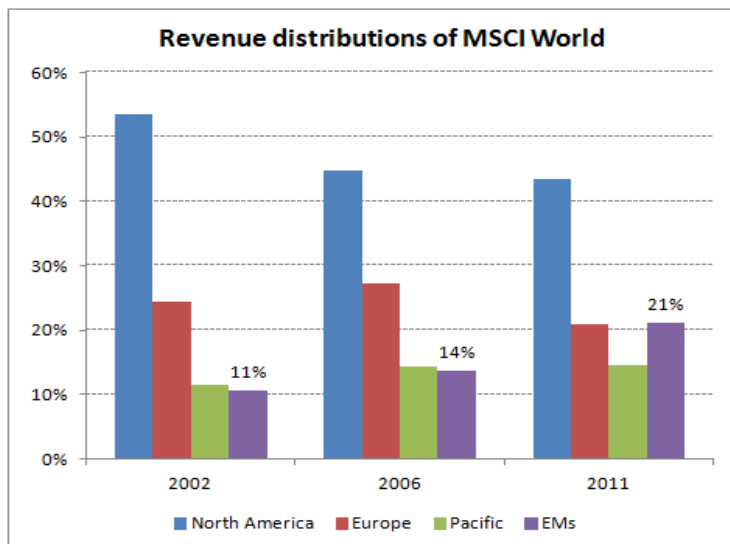
While the economic exposure of a company may be determined using several variables such as revenues, assets, income, etc, disparities in reporting practices across countries and practical issues such as data availability pose significant challenges in developing a common approach to estimate economic exposure. For example, geographic segments such as “Rest of the World” occur often in the revenue distributions reported by companies in their annual reports and make it difficult to precisely attribute revenues to specific countries and regions. MSCI estimates economic exposure of companies across different countries in a consistent manner based on a simple and transparent methodology derived from the geographic distribution of a company’s revenues and the GDP weights of countries⁴.

Exhibit 2: Evolution of the Geographic Distribution of Revenues of Developed Market Companies

	North America	Europe	Pacific	EMs
MSCI North America	63.4	13.0	5.1	18.5
MSCI Europe	19.7	45.3	6.7	28.3
MSCI Pacific	10.1	6.4	65.6	17.8
MSCI World	43.4	21.0	14.6	21.1

³ The domestic exposure of MSCI Europe refers to their exposure to Europe

⁴ [MSCI Economic Exposure Indices Methodology](#)



Source: MSCI, Worldscope; Data as of December, 2011

Exhibit 3: Economic Exposure of MSCI World Index to Emerging Markets (%) by Countries and Sectors

Country/Sector	Materials	Information Technology	Consumer Staples	Energy	Industrials	Consumer Discretionary	Health Care	Telecom	Financials	Utilities	Total
AUSTRIA	20			31				35	60	2	39
GREECE			58			0		30	42		36
SPAIN	28	5	22	47	11	19	16	47	43	12	35
UNITED KINGDOM	53	29	36	36	23	11	23	36	26	1	31
BELGIUM	25		37		52		17	9	18		31
FINLAND	24	58	8	16	38	20	15	1	3	18	30
HONG KONG		84			25	60		10	26	15	29
NETHERLANDS	34	67	32	50	28	13		3	13		28
SWITZERLAND	40		34	41	37	44	22	0	13		27
SWEDEN	14	39	12	17	37	10	17	44	15		26
SINGAPORE			75		28	25		0	23		26
IRELAND	27		31		11		17				25
GERMANY	29	22	33		32	26	28	6	11	14	23
DENMARK	30		38		29		23	5	2		23
NORWAY	32			19	14			41	8		22
FRANCE	32	13	27	31	26	26	9	17	11	11	22
PORTUGAL	70		55	0				10	25	11	21
USA	26	31	24	20	19	12	14	6	8	2	18
ITALY				34	22	27		12	7	8	18
CANADA	54	15	2	5	9	10	13	0	8	3	17
JAPAN	25	28	10	12	20	24	8	0	4	0	16
AUSTRALIA	45	11	2	23	9	1	17	3	2	0	16
ISRAEL	33	29			13		9	0	1		10
NEW ZEALAND	4				0	0		2		0	2
Total	38	31	26	22	22	17	16	16	11	5	21

Source: MSCI, Data as of December, 2011

Exhibit 3 shows the economic exposure to Emerging Markets of the constituents of the MSCI World Index by countries and sectors. In aggregate, the constituents of the MSCI World Index have EM exposure of 21%. Across countries, we observe that countries in Europe such as Austria, Greece, Spain, and the UK have larger EM exposure than countries such as the USA and Japan. In Asia, Hong Kong and Singapore have larger EM exposure mainly through exposure to China.

Across sectors, Materials, Information Technology, Consumer Staples, Energy and Industrials have larger EM exposure than more domestically oriented sectors such as Utilities, Financials and Telecom. In the Energy sector, companies in the Netherlands, Spain, UK and Italy have larger EM exposure. In the Materials sector, firms in the UK, Canada, and Australia have larger EM exposure as a consequence of their global commodity producer firms.

Exhibit 4 reports various statistics for the MSCI World index constituents, ranked by EM exposure. The top 600 constituents by EM exposure cover just over 50% in float market capitalization of the index and have a market capitalization weighted EM exposure of 34% and a lowest company level EM exposure of 19%.

Exhibit 4: Distribution of EM Exposure across MSCI World Index Constituents

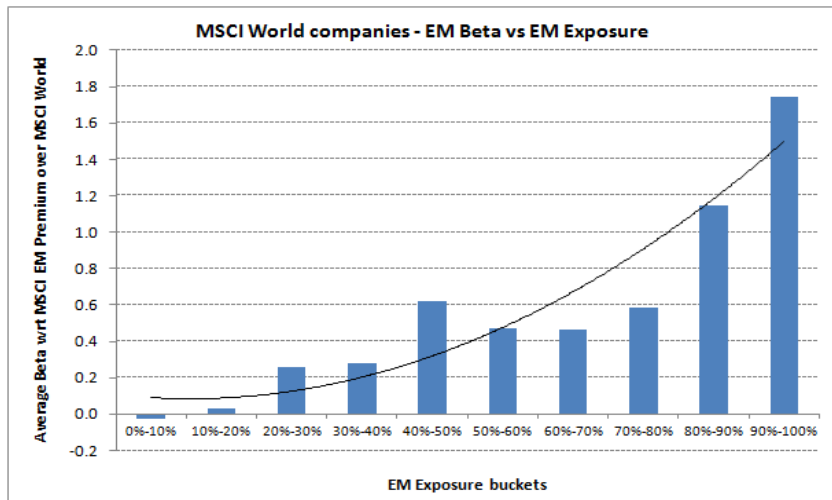
Distribution of EM Economic Exposure across MSCI World				
Number of constituents	Market cap coverage	Cap-weighted EM Exp	Max EM Exp	Min EM Exp
100	6%	0.65	1.00	0.52
200	15%	0.52	1.00	0.39
300	25%	0.45	1.00	0.31
400	34%	0.41	1.00	0.26
500	41%	0.38	1.00	0.23
600	51%	0.34	1.00	0.19
700	57%	0.33	1.00	0.16
800	63%	0.31	1.00	0.12
900	68%	0.29	1.00	0.09
1000	74%	0.28	1.00	0.05
1100	78%	0.26	1.00	0.03
1200	83%	0.25	1.00	0.00
1300	87%	0.24	1.00	0.00
1400	92%	0.22	1.00	0.00
1500	97%	0.21	1.00	0.00
1600	99%	0.21	1.00	0.00
1615	100%	0.21	1.00	0.00

Source: MSCI, Data as of December, 2011

Exhibit 5 plots the distribution of EM exposure of the companies in the MSCI World Index against their average beta with respect to the EM premium⁵. The chart shows a strong positive relationship during the observed period between the two variables. The returns of companies with higher economic exposure to emerging markets have historically reflected a higher sensitivity to the EM premium.

⁵ In order to derive this relationship, we regress each MSCI World Index constituent's return against both the MSCI World Index return (X1) and the excess return of the MSCI Emerging Markets Index over the MSCI World Index (X2). The beta reported in Exhibit 5 is the coefficient of the EM premium (X2). An average beta is calculated for each of the EM Exposure buckets.

Exhibit 5: Relationship between EM Beta and EM Exposure for MSCI World Index Companies



Source: MSCI, data as of December, 2011. Regression Beta estimated at the stock level using 5 years of monthly gross total returns.

Section 3: Characteristics of the MSCI Indices with EM Exposure

Exhibits 6 and 7 present the portfolio characteristics and back-calculated historical performance of the MSCI Indices with EM Exposure. The constituents of these indices are weighted in proportion to their product of EM exposure and market capitalization weight. The indices are rebalanced on a semi-annual basis⁶. The MSCI World with EM Exposure Index comprises 300 issuers (304 securities) with the highest exposure to emerging markets and has float market capitalization coverage of 25% and an EM exposure of 45% based on data as of December 2011.

Exhibit 6: Portfolio Characteristics of MSCI Indices with EM Exposure

Index	# companies	Market cap coverage	Cap-weighted EM Exp	Max EM Exp	Min EM Exp
MSCI World with EM Exposure Index	300	25.2%	0.45	1.00	0.31
MSCI USA with EM Exposure Index	100	27.6%	0.38	1.00	0.26
MSCI Europe with EM Exposure Index	100	31.0%	0.47	1.00	0.35
MSCI EAFE with EM Exposure Index	200	32.2%	0.45	1.00	0.31
MSCI Japan with EM Exposure Index	50	20.8%	0.38	0.69	0.29
MSCI Pacific ex Japan with EM Exposure Index	50	24.6%	0.46	1.00	0.28

Source: MSCI. Data as of Dec 2011

Exhibit 7 shows that during the observed period the MSCI World with EM Exposure Index achieved an annualized return of 7.9% and outperformed the MSCI World Index with a slightly higher risk of 19.4%

⁶ See the [MSCI Economic Exposure Indices Methodology](#) Book for further details

and a tracking error of 4.6%. All regional MSCI Indices with EM Exposure outperformed their respective parent indices during the period of analysis.

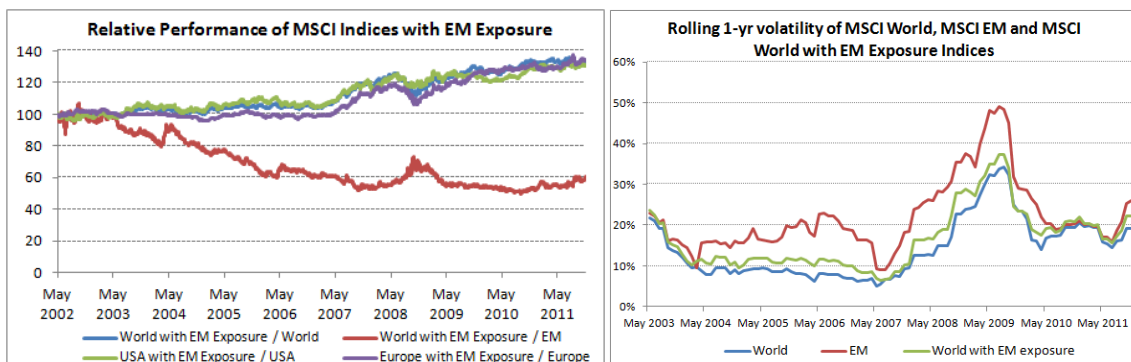
Exhibit 7: Historical Performance of MSCI Economic Exposure Indices

May 2002 - Nov 2011	MSCI World	MSCI World with EM Exp	MSCI USA	MSCI USA with EM Exp	MSCI Europe	MSCI Europe with EM Exp	MSCI EAFE	MSCI EAFE with EM Exp	MSCI EM
Return (%)	4.7	7.9	4.0	7.0	5.4	8.7	5.1	8.5	13.8
Risk (%)	17.2	19.4	16.1	17.8	21.2	21.9	19.0	21.8	24.8
Return/Risk	0.27	0.41	0.25	0.39	0.25	0.40	0.27	0.39	0.55
Active Return (%)		3.2	0.0	3.0		3.3		3.4	
Tracking Error (%)		4.6	0.0	5.5		4.4		5.0	
Active Return/Active Risk		0.71		0.55		0.76		0.68	
# Securities	1524	305	576	101	419	103	862	205	586
One-way Annual Turnover	4.2	15.3	3.2	13.3	5.3	17.6	5.3	17.4	10.6
FIF Mcap Coverage (%)		29.0		27.5		36.1		35.9	
Concentration of Top 10 Securities (%)		27.8		52.0		45.7		35.6	
Maximum Inclusion Factor		15.02		14.90		11.58		12.26	
Avg Portfolio EM Exposure		0.35		0.33		0.36		0.34	
Min security level EM Exposure*		0.26		0.24		0.33		0.26	
Correlation with MSCI EM Index		0.92		0.85		0.90		0.93	
Beta w.r.t. MSCI EM Index		0.72		0.61		0.80		0.81	

Source: MSCI. Indices are back-calculated using the MSCI Global Investable Markets Indices Methodology over the entire period. * Min security level EM Exposure as of Jun 2011. Other figures are averages over the back-calculation period.

Exhibit 8 shows the relative performance and the rolling volatility of various MSCI Economic Exposure Indices. The MSCI World with EM Exposure Index outperformed the MSCI World Index. This outperformance may be reflective of the divergence in economic growth between developed and emerging markets during this period. The MSCI World with EM Exposure Index underperformed the MSCI Emerging Markets Index over the observation period except during the Financial Crisis in 2008 and more recently in 2011. The MSCI World with EM Exposure Index exhibited lower volatility than the MSCI Emerging Markets Index.

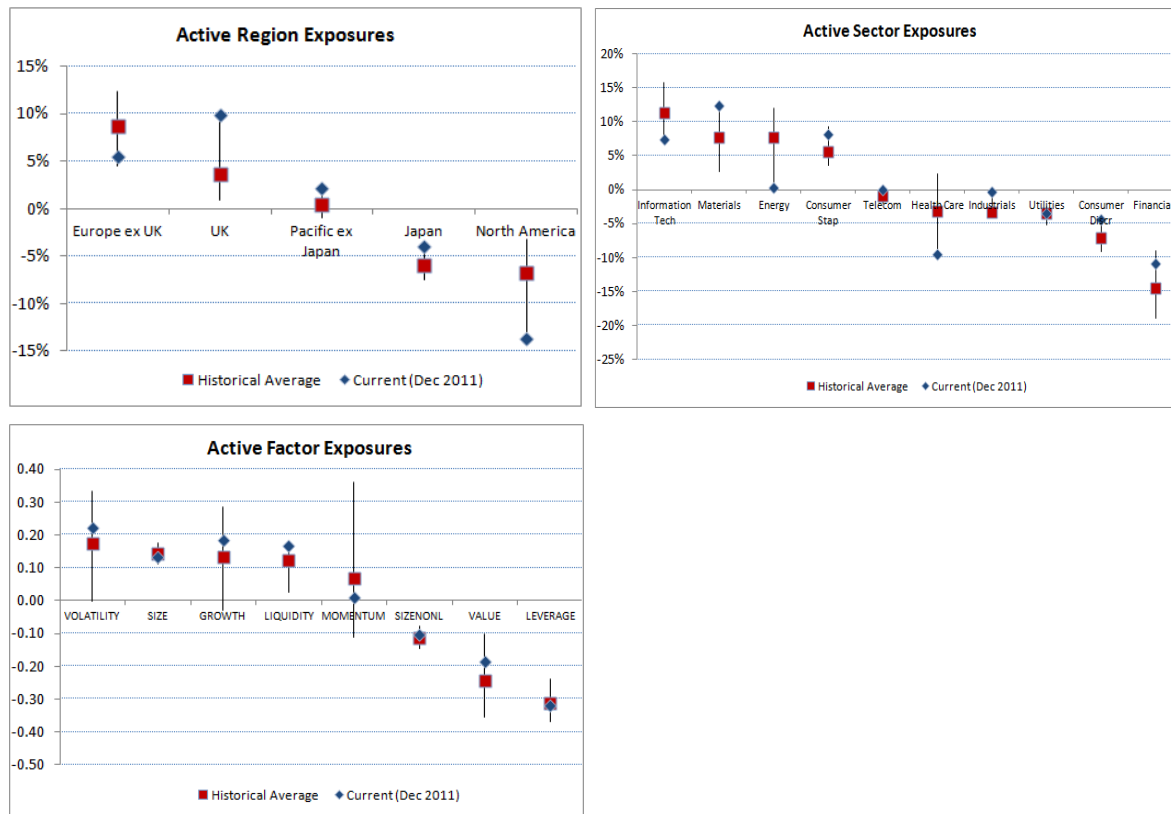
Exhibit 8: Relative Performance of MSCI Economic Exposure Indices



Source: MSCI

Exhibit 9 shows the active exposures of the MSCI World with EM Exposure Index across regions, sectors and styles. The index is overweight in sectors such as Materials, Consumer Staples, Information Technology and Energy and underweight in Financials, Consumer Discretionary, Healthcare and Utilities. Across countries, the index is overweight in the UK, Europe ex UK and Pacific ex Japan and underweight in Japan and North America. With respect to Barra GEM2 style factors, the index exhibited a positive tilt to Size, Growth, Liquidity and Volatility factors and a negative tilt to Value and Leverage factors.

Exhibit 9: Active Exposures of the MSCI World with EM Exposure Index relative to the MSCI World Index



Source: MSCI, Barra. Historical minimum, maximum and average exposures calculated using the back-calculated index level data from Jun 2002 to Nov 2011. The active Factor exposures are calculated using the Barra GEM2L model.

Exhibit 10 shows performance attribution for the MSCI World with EM Exposure Index relative to the MSCI World Index. Across industries, the underweight in Financials contributes 0.46% annually to active return over the observation period. The overweight in Energy and Materials contributes about 1% annually to the active return, while the overweight in Information Technology contributes -0.54% annually to active return. The style factors make a significant negative contribution of -1.2% to the active return of the MSCI World with EM Exposure Index. Across style factors, the large cap tilt from a positive exposure to size and a negative exposure to size non-linearity, combined with a negative exposure to the Value factor and a positive exposure to the Volatility factor have in aggregate contributed negatively to performance over the observation period. The performance attribution analysis also shows that asset selection contributed nearly 3% to active return.

Exhibit 10: Performance Attribution of the MSCI World with EM Exposure Index relative to MSCI World

Source of Return	Contribution (% Return)	Risk (% Std Dev)	Info Ratio	T-Stat
1 Risk Free	1.81			
2 Total Benchmark	4.99	17.94		
3 Currency Selection	0.21	1.31	0.25	0.78
4 Risk Indices	-1.22	1.65	-0.62	-1.92
5 Industries	1.12	2.72	0.45	1.39
6 Countries	-0.20	1.42	-0.09	-0.28
7 World Equity	0.00	0.00		
8 Asset Selection	2.99	2.02	1.39	4.27
9 Active Equity [4+5+6+7+8]	2.70	4.36	0.66	2.03
10 Total Active	3.04	4.52	0.73	2.26
11 Total Managed [2+10]	8.03	20.13		

Annualized Contributions To Industry Return

Source of Return	Average Active Exposure (%)	Contribution (% Return)	Risk (% Std Dev)	Info Ratio	T-Stat
Energy	7.34	0.46	0.95	0.47	1.46
Materials	7.95	0.52	1.27	0.43	1.33
Industrials	-3.24	-0.02	0.13	-0.16	-0.48
Consumer Discretionary	-6.87	0.09	0.36	0.22	0.68
Consumer Staples	5.71	0.23	0.34	0.56	1.74
Health Care	-3.79	-0.04	0.34	-0.06	-0.19
Financials	-13.59	0.46	0.67	0.65	2.01
Information Technology	10.74	-0.54	1.56	-0.27	-0.85
Telecommunication Services	-0.85	-0.04	0.10	-0.26	-0.80
Utilities	-3.41	-0.02	0.26	0.04	0.11
Total		1.12	2.72	0.45	1.39

Annualized Contributions To Risk Index Return

Source of Return	Average Active Exposure (%)	Contribution (% Return)	Risk (% Std Dev)	Info Ratio	T-Stat
Momentum	0.07	0.03	0.56	0.06	0.18
Volatility	0.18	-0.60	1.23	-0.33	-1.03
Value	-0.24	-0.88	0.48	-1.78	-5.47
Size	0.14	-0.02	0.29	-0.07	-0.23
Size Nonlinearity	-0.11	-0.12	0.16	-0.72	-2.22
Growth	0.13	-0.01	0.16	0.03	0.10
Liquidity	0.13	0.01	0.19	0.10	0.31
Financial Leverage	-0.37	0.39	0.51	0.61	1.87
Total		-1.22	1.65	-0.62	-1.92

Source: MSCI, based on Barra GEM2L Model and Barra Aegis Performance Analyst (APA). Returns are in USD.

In order to illustrate the capture of an emerging market premium with the MSCI World with EM Exposure Index, we perform a regression analysis with the MSCI World with EM Exposure Index returns as the dependent variable against Barra GEM2L model style factors, such as Size, Momentum and Value, and the MSCI World Index returns (proxy for the market) as explanatory variables. Exhibit 11 shows the results of this analysis.

In the first case, we regress the MSCI World with EM Exposure Index returns against the MSCI World Index returns and the GEM2 L model style factor returns. We observe that the sensitivity to the market factor and the Momentum factor is positive and statistically significant while the intercept alpha accounts for a monthly return of 20 bps.

Exhibit 11: Regression analysis using GEM2L Factor returns

	Before adding EM Premium		After adding EM Premium	
	Coefficients	t-stat	Coefficients	t-stat
Intercept	0.002027	1.54	0.00078	0.67
MSCI EM - MSCI World			0.1827	6.00
MSCI World	1.1404	45.36	1.0765	44.24
SIZE	0.1297	0.52	0.3669	1.66
VALUE	-0.1683	-0.67	-0.0985	-0.45
MOMENTUM	0.3756	4.05	0.2963	3.62

Source: MSCI, Barra. Data from Jun 2002 – Nov 2011.

In a second case, we introduce an emerging markets premium (defined as the active return of the MSCI Emerging Markets Index over the MSCI World Index) factor in the regression as another explanatory variable. We observe that the alpha diminishes in magnitude (8 bps per month) and is also statistically less significant. The emerging markets premium has a factor sensitivity of 0.183 and is statistically significant, which corresponds with economic intuition.

Section 4: Contrasting Economic Exposure Indices with MSCI Emerging Markets Indices

In this section, we compare and contrast the sector characteristics, valuation and growth attributes, and accessibility issues of the MSCI World with EM Exposure Index with the traditional market capitalization weighted MSCI Emerging Markets Index.

Exhibit 12 shows the sector comparisons of the MSCI World with EM Exposure Index with the MSCI Emerging Markets and the MSCI Emerging Markets Small Cap Indices. We see that the MSCI World with EM Exposure Index has a weight of nearly 32% across globally sensitive sectors such as Energy and Materials that are linked to the demand for natural resources, whereas the weight of these sectors in the MSCI Emerging Markets Index is slightly lower at 28%. The weight of Industrials and Information Technology (29%) in the MSCI World with EM Exposure Index is higher than in the MSCI Emerging Markets Index (20%). However, Financial Services companies in the MSCI EM and the MSCI EM Small Cap Indices have a higher weight at 23.7% with a high domestic orientation compared to the weight of Financials in the MSCI World with EM Exposure Index. Strikingly, Consumer Staples companies in the MSCI World with EM Exposure Index have a much higher weight of 19% compared to their weight in the MSCI Emerging Markets Index (7.8%) and the MSCI Emerging Markets Small Cap Index (8.6%). In sum, on the observed date the MSCI World with EM Exposure Index provided diversification in sector exposures to the MSCI Emerging Markets Index.

Exhibit 12: Sector Comparisons of MSCI World with EM Exposure Index and the MSCI Emerging Markets Index

Sector	Sector weights				Active weights of World with EM Exposure		
	World with EM				wrt World	wrt EM	wrt EM Small cap
	World	Exposure	EM	EM Small cap			
Energy	11.8%	12.1%	14.5%	2.4%	0.3%	-2.4%	9.7%
Industrials	11.0%	10.7%	6.5%	16.3%	-0.3%	4.2%	-5.6%
Information Technology	12.3%	19.7%	12.8%	14.8%	7.4%	6.9%	4.9%
Materials	7.5%	19.9%	13.6%	14.1%	12.4%	6.3%	5.8%
Financials	17.6%	6.8%	23.7%	16.6%	-10.8%	-16.9%	-9.8%
Health Care	10.2%	0.8%	1.0%	5.3%	-9.4%	-0.2%	-4.5%
Consumer Discretionary	10.3%	6.0%	8.1%	18.0%	-4.3%	-2.1%	-12.0%
Consumer Staples	10.9%	19.0%	7.8%	8.6%	8.1%	11.2%	10.4%
Telecom	4.4%	4.5%	8.3%	0.9%	0.1%	-3.9%	3.6%
Utilities	4.0%	0.5%	3.6%	3.0%	-3.5%	-3.1%	-2.5%
	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	0.0%

Source: MSCI. Data as of Dec 2011.

Next, we contrast the valuation and growth characteristics of the MSCI World with EM Exposure Index compared to the MSCI Emerging Markets Index. Exhibit 13 shows that the MSCI World with EM Exposure Index is expensive compared to both the MSCI World and the MSCI Emerging Markets Indices on the basis of valuation ratios such as price to book value, forward price to earnings and price to sales as of April 2012. However, the growth characteristics as measured by long term forward earnings growth, the sales per share growth and the dividends per share growth of the MSCI World with EM Exposure Index are higher than the MSCI World Index. Furthermore, the ROE of the MSCI World with EM Exposure Index is higher than the MSCI World and the MSCI Emerging Markets Index.

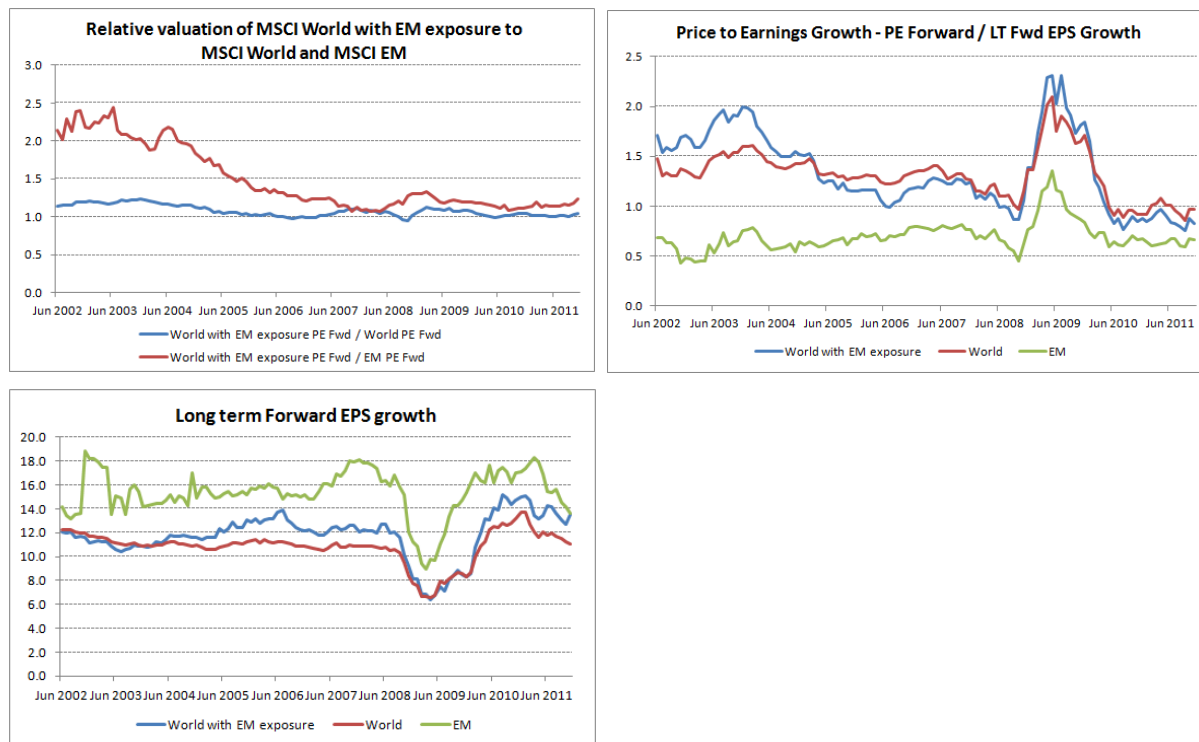
Exhibit 13: Valuation and Growth Comparisons of MSCI World with EM Exposure Index with MSCI World and MSCI Emerging Markets Index

Index	Valuations					Growth						Profitability RoE
	P/BV	P/E	P/S	P/E Fwd	Yield	LT Fwd EPS G	ST Fwd EPS G	PEG	EPS 5Y G	SPS 5Y G	DPS 5Y G	
MSCI World	1.8	14.6	1.0	11.6	2.8	10.3	14.6	1.1	4.2	5.2	4.1	12.0
MSCI Emerging Markets	1.7	11.9	1.0	10.0	2.9	12.7	11.5	0.8	12.7	15.0	10.0	14.1
MSCI World with EM exposure	2.1	14.1	1.5	12.3	2.6	11.9	11.8	1.0	9.8	8.4	9.1	15.0

Source: MSCI, data as of April, 2012. LT Fwd EPS G and ST Fwd EPS G refer to the company's long term and short term forward EPS growth rates respectively. PEG is calculated as the ratio of PE Forward / LT Fwd EPS G.

Exhibit 14 shows the trends in relative valuations of the MSCI World with EM Exposure Index compared to the MSCI World and MSCI EM Indices. The valuation of the MSCI World with EM Exposure Index was significantly higher than MSCI EM based on forward P/E prior to August 2007 and since then has been marginally higher than the MSCI Emerging Markets Index. The price to earnings growth ratio (PEG) of the MSCI World with EM Exposure Index declined below one in 2011 but was still higher relative to the MSCI EM Index. The long term forward EPS growth estimate of the MSCI World with EM Exposure Index was lower than the MSCI Emerging Markets Index as of April 2012. It can be inferred that the MSCI World with EM Exposure Index and the MSCI Emerging Markets Index have historically exhibited divergences in valuation and growth characteristics.

Exhibit 14: Trends in Relative Valuation of the MSCI World with EM Exposure Index



Source: MSCI, I/B/E/S.

Exhibit 15 shows that the MSCI World with EM Exposure Index has a much higher average float compared to the companies in the MSCI Emerging Markets Index, reflecting the better accessibility relative to the MSCI Emerging Markets Index. Exhibit 16 shows that companies in emerging markets have strategic shareholder patterns dominated by holdings of local governments, direct ownership by management and holding company structures (47.0%). In contrast, companies in the developed markets have exhibited broader shareholding patterns with relatively lower strategic ownership by local government, management and holding companies (20.1%). Furthermore, Exhibit 15 highlights that the sovereign governance ratings of countries in the MSCI Emerging Markets Index was lower than those in the MSCI World Index in 2011⁷.

Exhibit 15: Float Distribution and Sovereign Governance Ratings of the MSCI World and MSCI Emerging Markets Index

	Average Float	Float Distributions				Governance Rating
		0-25%	25% - 50%	50% - 75%	> 75%	
MSCI Emerging Markets	0.55	57	318	221	225	BBB
MSCI World	0.82	8	163	275	1169	A
MSCI World with EM Exposure	0.79	2	42	60	202	A

Source: MSCI. Data as of December, 2011.

⁷ Sovereign governance ratings at the index level estimated using the sovereign governance scores at country level and the country weights of the relevant MSCI index.

Exhibit 16: Strategic Stake Distributions for Companies in the MSCI World and MSCI Emerging Markets Index

Average stake (in %)	Mgmt ownership *	Local Govt	Others	Total
MSCI World	13.9	1.6	4.6	20.1
MSCI North America	6.5	0.0	1.5	8.0
MSCI Europe	20.6	4.2	5.7	30.5
MSCI Pacific	18.4	1.5	8.3	28.1
MSCI Emerging Markets	33.8	6.6	6.5	47.0
MSCI EM Asia	33.3	6.4	6.0	45.8
MSCI EM EMEA	32.2	10.7	8.1	51.0
MSCI EM Latin America	37.3	3.2	7.1	47.6

Source: MSCI. Data as of Jun 2011. The strategic holder classifications are internal MSCI definitions for the purpose of calculating company float. Management ownership includes direct ownership by management, employees/ESOP, or other company ownership for management control. Others include categories like Banks, Insurance Companies, Treasury Stocks, Lock-up Shares etc.

While direct investing in certain emerging markets companies may pose issues of accessibility and implementation such as transaction costs, taxes and currency hedging, indirect investment through developed markets companies with EM exposure may provide an alternative approach and may be potentially appealing to investors with constraints on direct investing in emerging markets due to regulation, accessibility issues or corporate governance or other concerns.

Section 5: Potential Applications of MSCI Indices with EM Exposure

With the continued evolution in global investing, global mandates are gaining increasing prominence in the investment process (Kang, Nielsen, Fachinotti, 2010). Within global mandates, institutional investors generally use two different approaches to introduce emerging market exposure. The first is through broad international or global mandates that include emerging markets (such as ACWI ex US, EAFE Plus or ACWI mandates). The second is through dedicated emerging market mandates. Further, allocations to emerging markets have differed markedly across asset owners located in developed and emerging markets (Dopfel, 2009).

In this section, we discuss the potential role of the MSCI Economic Exposure Indices in asset allocation. Specifically, we discuss the relevance of these indices for (i) investors who have constraints on direct investing in emerging markets companies and (ii) investors with global mandates seeking emerging markets exposure as reflected by a broader opportunity set from both emerging and developed market companies.

As a starting point, we note that as of December 2011 a full allocation to the MSCI ACWI Index would provide a direct exposure of 13% (the market capitalization weight of the MSCI Emerging Markets Index in the MSCI ACWI Index) and an economic exposure of 29% to emerging markets. A full allocation to the MSCI ACWI GDP Weighted Index would provide a direct exposure of 31% (the weight of emerging markets companies in the MSCI ACWI GDP Weighted Index) and an economic exposure of 40% to emerging markets. Further, the companies in the MSCI World with EM Exposure Index provide an

exposure of nearly 49% to emerging markets with a market capitalization weight of 22% in the MSCI ACWI Index.

For illustration purposes, Exhibit 17 shows sample allocations as of December 2011 for investors having constraints on direct investing in emerging market companies. These investors would have obtained an economic exposure of nearly 21% to emerging markets by investing in the companies in the MSCI World Index. By combining allocations to the MSCI World Index and the MSCI World with EM Exposure Index, different economic exposures to emerging markets may be obtained. Exhibit 17 shows the exposures and the historical performance characteristics of three such combinations as of December 2011 with increasing allocations to the MSCI World with EM Exposure Index. The economic exposure of these allocations to emerging markets progressively increases from 28% to 42% with modest increases in volatility and tracking error with respect to the MSCI World Index. Across the three allocations, the 25%-75% allocation achieved the highest return of 7.1%, with an active return of 2.4% over the MSCI World Index. This allocation also had the highest return per unit of risk of all the combinations with a tracking error of 3.4% with respect to the MSCI World Index.

Exhibit 17: Historical Performance of Sample Combinations of MSCI World and MSCI World with EM Exposure Indices

	MSCI ACWI	MSCI World	MSCI EM	MSCI ACWI GDP wghted	MSCI World with EM Exp	MSCI World + MSCI World with EM Exp		
						75:25	50:50	25:75
Direct Exposure to emerging markets (%)	13.1	0.0	100.0	31.0	0.0	0.0	0.0	0.0
EM Economic exposure (%)	29.0	20.7	84.4	40.4	48.9	27.8	34.8	41.9
Annual Return (%)	5.3	4.7	13.8	7.5	7.9	5.5	6.3	7.1
Annual Volatility (%)	17.8	17.2	24.8	19.5	19.4	17.7	18.2	18.8
Return / Risk	0.30	0.27	0.55	0.39	0.41	0.31	0.35	0.38
Relative performance (wrt MSCI World)								
Active Return (%)		0.0	9.1	2.9	3.2	0.8	1.6	2.4
Tracking error (%)		0.0	12.1	4.1	4.6	1.1	2.3	3.4
Information ratio		NA	0.75	0.70	0.71	0.71	0.71	0.71

Source: MSCI, Worldscope. Data from May 2002 - Nov 2011. Direct exposure to emerging markets refers to the market cap weight of emerging market companies in the index. EM exposure of emerging market companies estimated using available Worldscope data as of 2010. Other exposure data are as of Dec 2011. Information ratio is the ratio of active return / tracking error.

For illustration purposes, Exhibit 18 shows sample allocations as of Dec 2011 for investors with global mandates who seek a broader opportunity set with companies from both emerging and developed markets. The MSCI Emerging Markets Index had a market capitalization weight of 13 % in the MSCI ACWI Index and provided an economic exposure of 84% to emerging markets. The MSCI World with EM Exposure Index had a market capitalization weight of 22% in the MSCI ACWI Index and provided an economic exposure of 49% to emerging markets. Together, the companies in the MSCI Emerging Markets Index and the MSCI World with EM Exposure Index cover an expanded opportunity set of nearly 1,100 companies that had a market capitalization weight of 35% in MSCI ACWI Index and provided an emerging markets exposure of 71%.

As of December 2011, combinations of allocations to the MSCI Emerging Markets and the MSCI World with EM Exposure Indices provided a range of economic exposures to emerging markets with lower risk and lower tracking error to the MSCI ACWI Index as compared to a full allocation to the MSCI Emerging Markets Index. Across the three sample combinations in Exhibit 18, a 50%-50% allocation to the MSCI EM and the MSCI World with EM Exposure Indices had a lower return per unit of risk compared to the 75%-25% allocation, with a tracking error of 6.5% to the MSCI ACWI Index and an information ratio of 0.86. The 25%-75% allocation yielded the lowest tracking error of 4.7% to the MSCI ACWI Index with an

information ratio of 0.86 albeit with lower emerging markets exposure compared to the MSCI Emerging Markets Index.

Exhibit 18: Historical Performance of Sample combinations of MSCI Emerging Markets and MSCI World with EM Exposure Indices

	MSCI ACWI	MSCI World	MSCI EM	MSCI ACWI GDP Wghted	MSCI World with EM Exp	MSCI EM + MSCI World with EM Exp	MSCI EM + MSCI World with EM Exp		
							75:25	50:50	25:75
Market cap weight in MSCI ACWI (%)*	100.0	86.9	13.1	31.0	21.9	34.9			
EM Economic exposure (%)	29.0	20.7	84.4	40.4	48.9	71.1	75.5	66.7	57.8
Annual Return (%)	5.3	4.7	13.8	7.5	7.9	10.1	12.3	10.8	9.4
Annual Volatility (%)	17.8	17.2	24.8	19.5	19.4	21.0	23.2	21.7	20.4
Return / Risk	0.30	0.27	0.55	0.39	0.41	0.48	0.53	0.50	0.46
Relative performance (wrt MSCI ACWI)									
Active Return (%)	0.0	-0.6	8.5	2.3	2.6	4.8	7.0	5.6	4.1
Tracking error (%)	0.0	1.2	11.0	3.1	4.0	5.5	8.6	6.5	4.7
Information ratio	NA	-0.51	0.77	0.74	0.66	0.88	0.81	0.86	0.86

Source: MSCI, Worldscope. Data from May 2002 - Nov 2011. For MSCI ACWI GDP Weighted Index, the EM weight in the MSCI ACWI GDP Weighted Index is shown. EM exposure of emerging market companies estimated using available Worldscope data as of 2010. Other exposure data are as of Dec 2011. Information ratio is the ratio of active return / tracking error.

Section 6: Conclusion

With increasing globalization many companies operate across different regions and countries and hence it is difficult to disentangle these companies from their global footprint. The economic exposure of companies can be derived using the geographic distribution of a company’s revenues to different regions and countries. The economic exposure of companies could serve as a complementary or an alternative definition of the country factor and brings a new dimension to the construction and evaluation of global equity portfolios. In this regard, the MSCI Indices with EM Exposure may be useful tools for portfolio construction, benchmarking, asset allocation and passive product creation.

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Appendix

1. Summary of MSCI Indices with EM Exposure

May 2002 - Nov 2011	MSCI World	MSCI World with EM Exp	MSCI USA	MSCI USA with EM Exp	MSCI Europe	MSCI Europe with EM Exp	MSCI EAFE	MSCI EAFE with EM Exp	MSCI Japan	MSCI Japan with EM Exp	MSCI Pacific ex Japan	MSCI Pacific ex Japan with EM Exp	MSCI EM
Return (%)	4.7	7.9	4.0	7.0	5.4	8.7	5.1	8.5	1.7	2.3	12.0	15.1	13.8
Risk (%)	17.2	19.4	16.1	17.8	21.2	21.9	19.0	21.8	17.0	20.4	22.1	26.6	24.8
Return/Risk	0.27	0.41	0.25	0.39	0.25	0.40	0.27	0.39	0.10	0.11	0.54	0.57	0.55
Active Return (%)		3.2	0.0	3.0		3.3		3.4		0.6		3.1	
Tracking Error (%)		4.6	0.0	5.5		4.4		5.0		9.3		8.5	
Active Return/Active Risk		0.71		0.55		0.76		0.68		0.06		0.37	
# Securities	1524	305	576	101	419	103	862	205	316	50	125	50	586
One-way Annual Turnover	4.2	15.3	3.2	13.3	5.3	17.6	5.3	17.4	4.7	20.1	6.4	20.5	10.6
FIF Mcap Coverage (%)		29.0		27.5		36.1		35.9		18.0		41.0	
Concentration of Top 10 Securities (%)		27.8		52.0		45.7		35.6		55.2		67.0	
Maximum Inclusion Factor		15.02		14.90		11.58		12.26		17.62		13.10	
Avg Portfolio EM Exposure		0.35		0.33		0.36		0.34		0.29		0.39	
Min security level EM Exposure*		0.26		0.24		0.33		0.26		0.22		0.25	
Correlation with MSCI EM Index		0.92		0.85		0.90		0.93		0.80		0.93	
Beta w.r.t. MSCI EM Index		0.72		0.61		0.80		0.81		0.66		1.00	

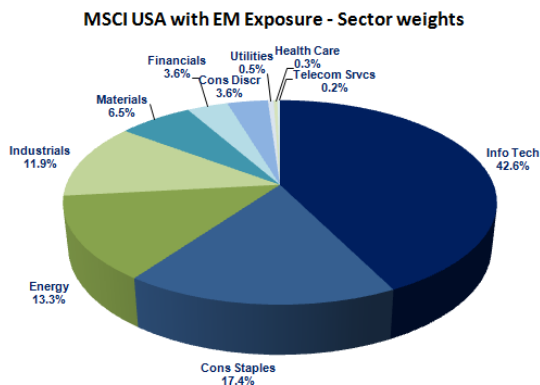
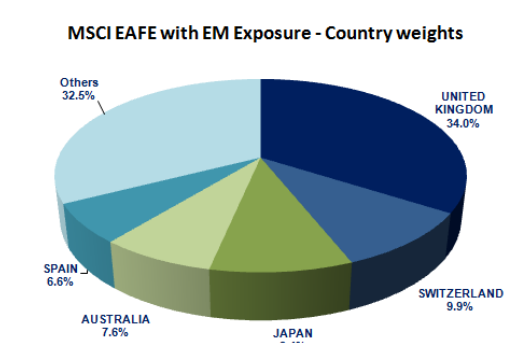
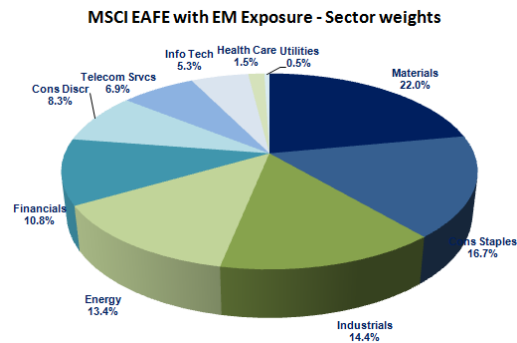
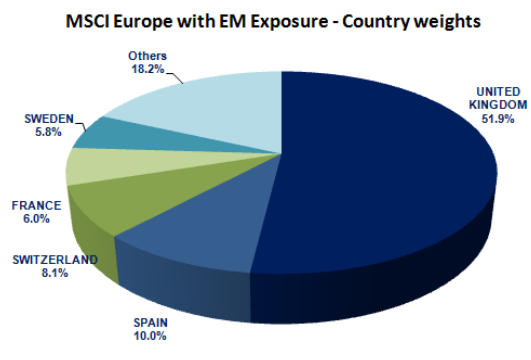
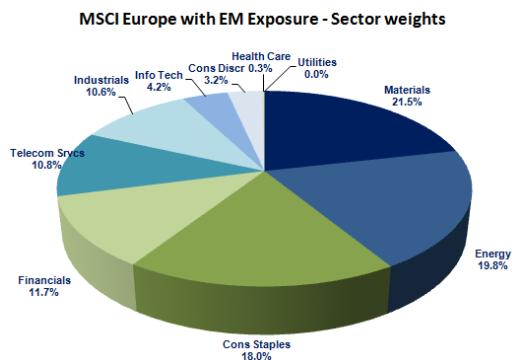
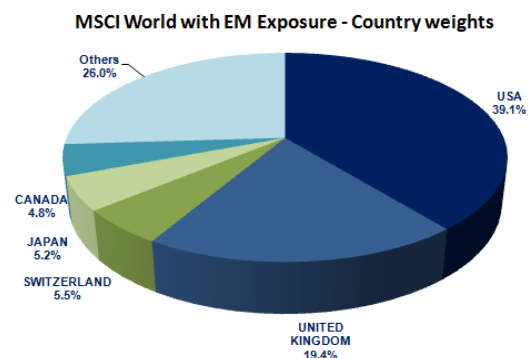
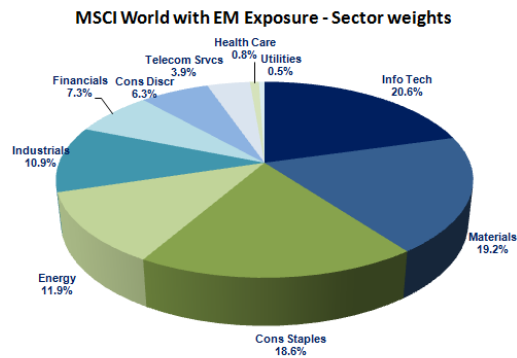
Source: MSCI, data between Jun 2002 – Nov 2011.

2. List of MSCI Indices with EM Exposure Launched⁸

Index	History available from	Target number of companies
MSCI World with EM Exposure	Jun-02	300
MSCI Europe with EM Exposure	Jun-02	100
MSCI USA with EM Exposure	Jun-02	100
MSCI EAFE with EM Exposure	Jun-02	200

⁸ MSCI World ex Israel with EM Exposure Index is constructed by removing the Israeli companies from the MSCI World with EM Exposure Index

3. Country and Sector Weights of MSCI Indices with EM Exposure (Feb 2012)



4. Top 10 Companies in the MSCI Indices with EM Exposure (Feb 2012)

MSCI World with EM Exposure Index

Company	Country	GICS Sector	Index Weight	Parent weight
APPLE	USA	Information Technology	5.88%	2.03%
INTEL CORP	USA	Information Technology	3.04%	0.57%
QUALCOMM	USA	Information Technology	2.83%	0.42%
PHILIP MORRIS INT	USA	Consumer Staples	2.70%	0.59%
BHP BILLITON LTD	AUSTRALIA	Materials	2.61%	0.51%
NESTLE	SWITZERLAND	Consumer Staples	2.52%	0.82%
PROCTER & GAMBLE CO	USA	Consumer Staples	2.12%	0.75%
COCA-COLA CO	USA	Consumer Staples	2.04%	0.58%
BRITISH AMERICAN TOBACCO	UNITED KINGDOM	Consumer Staples	2.00%	0.41%
VODAFONE GROUP	UNITED KINGDOM	Telecommunication Services	2.00%	0.56%

MSCI Europe with EM Exposure Index

Company	Country	GICS Sector	Index Weight	Parent weight
BRITISH AMERICAN TOBACCO	UNITED KINGDOM	Consumer Staples	5.67%	1.48%
VODAFONE GROUP	UNITED KINGDOM	Telecommunication Services	5.67%	2.02%
ROYAL DUTCH SHELL A	UNITED KINGDOM	Energy	5.22%	1.94%
BHP BILLITON PLC	UNITED KINGDOM	Materials	4.06%	1.01%
ROYAL DUTCH SHELL B	UNITED KINGDOM	Energy	3.95%	1.47%
RIO TINTO PLC	UNITED KINGDOM	Materials	3.93%	1.18%
BANCO SANTANDER	SPAIN	Financials	3.79%	1.04%
STANDARD CHARTERED	UNITED KINGDOM	Financials	3.49%	0.90%
TELEFONICA	SPAIN	Telecommunication Services	3.36%	1.04%
BG GROUP	UNITED KINGDOM	Energy	3.21%	1.21%

MSCI USA with EM Exposure Index

Company	Country	GICS Sector	Index Weight	Parent weight
APPLE	USA	Information Technology	11.89%	3.90%
INTEL CORP	USA	Information Technology	6.15%	1.09%
QUALCOMM	USA	Information Technology	5.73%	0.81%
PHILIP MORRIS INT	USA	Consumer Staples	5.46%	1.14%
IBM CORP	USA	Information Technology	4.72%	1.82%
CHEVRON CORP	USA	Energy	4.29%	1.69%
PROCTER & GAMBLE CO	USA	Consumer Staples	4.28%	1.44%
COCA-COLA CO	USA	Consumer Staples	4.12%	1.12%
GENERAL ELECTRIC CO	USA	Industrials	3.83%	1.56%
SCHLUMBERGER	USA	Energy	3.23%	0.81%

MSCI EAFE with EM Exposure Index

Company	Country	GICS Sector	Index Weight	Parent weight
BHP BILLITON LTD	AUSTRALIA	Materials	4.72%	1.19%
NESTLE	SWITZERLAND	Consumer Staples	4.57%	1.92%
BRITISH AMERICAN TOBACCO	UNITED KINGDOM	Consumer Staples	3.62%	0.95%
VODAFONE GROUP	UNITED KINGDOM	Telecommunication Services	3.62%	1.31%
ROYAL DUTCH SHELL A	UNITED KINGDOM	Energy	3.33%	1.25%
BHP BILLITON PLC	UNITED KINGDOM	Materials	2.59%	0.65%
ROYAL DUTCH SHELL B	UNITED KINGDOM	Energy	2.52%	0.95%
RIO TINTO PLC	UNITED KINGDOM	Materials	2.51%	0.76%
BANCO SANTANDER	SPAIN	Financials	2.41%	0.67%
TOYOTA MOTOR CORP	JAPAN	Consumer Discretionary	2.36%	1.09%

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¹As of June 30, 2011, based on eVestment, Lipper and Bloomberg data.