NATIONAL COUNCIL ON TEACHER RETIREMENT

The Role of Emerging Markets In Your Portfolio

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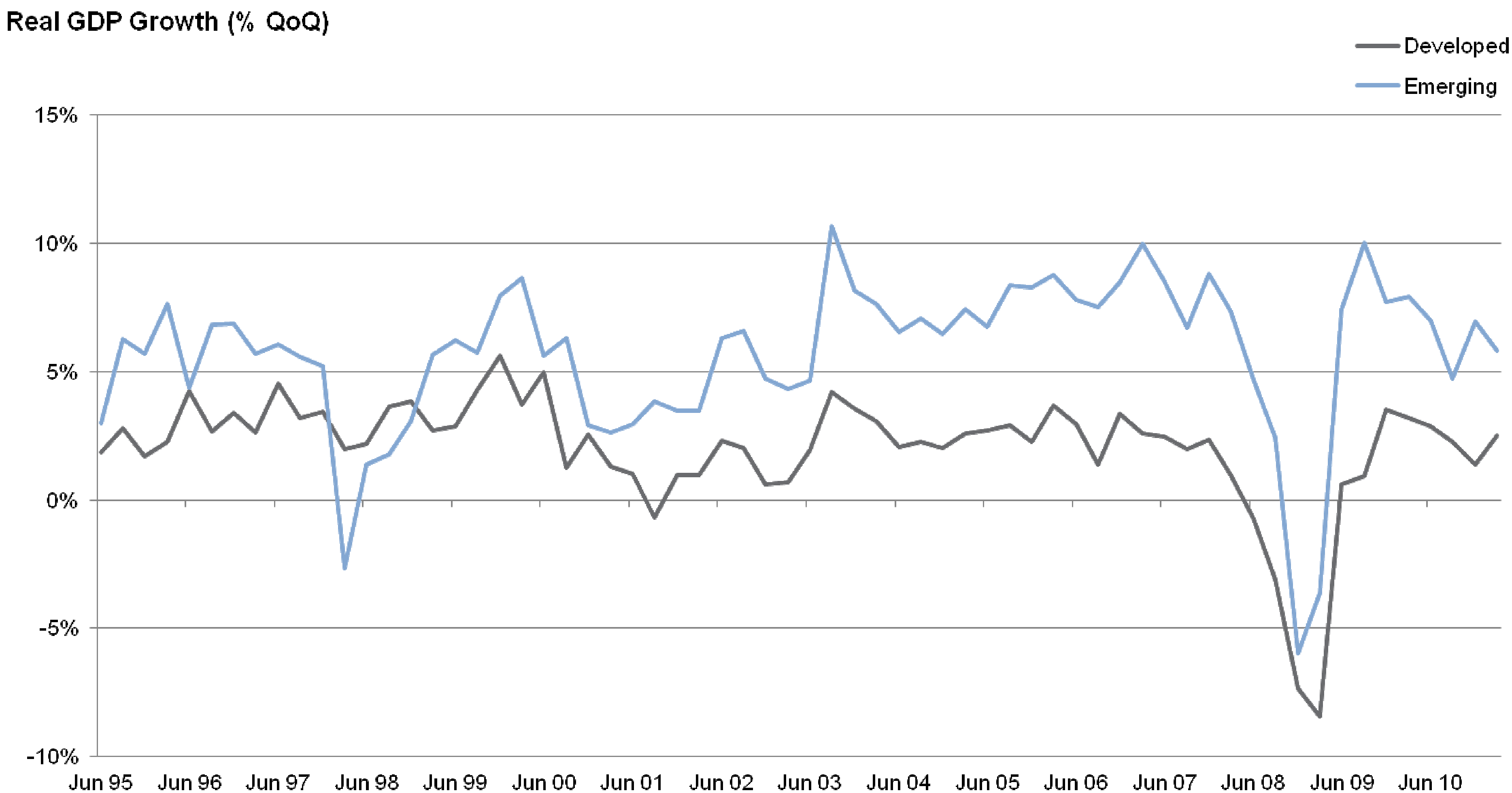
Craig Husting – PSRS of Missouri

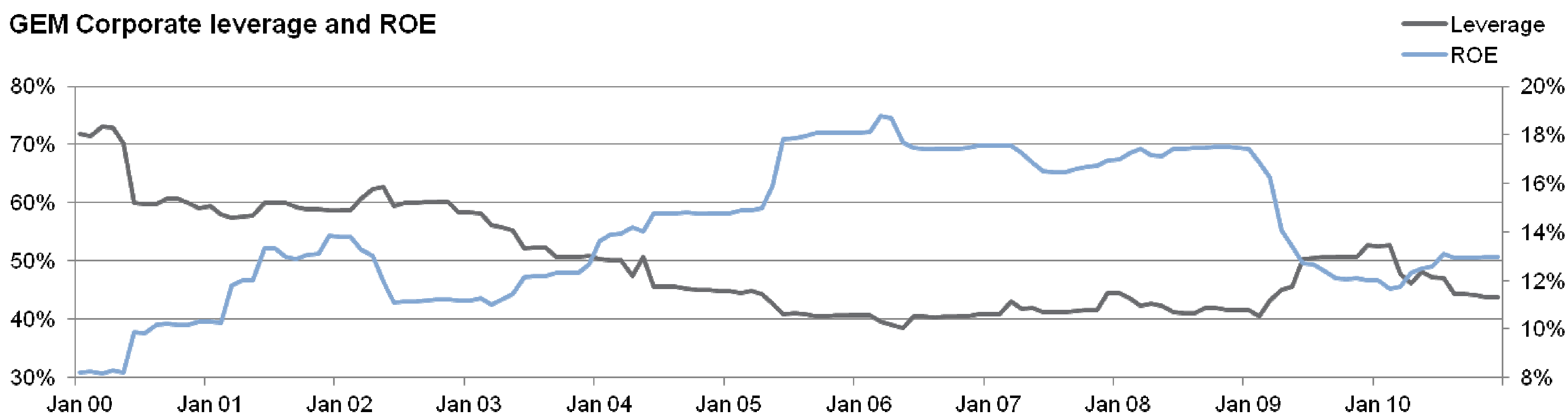
Why people think you should invest in EME

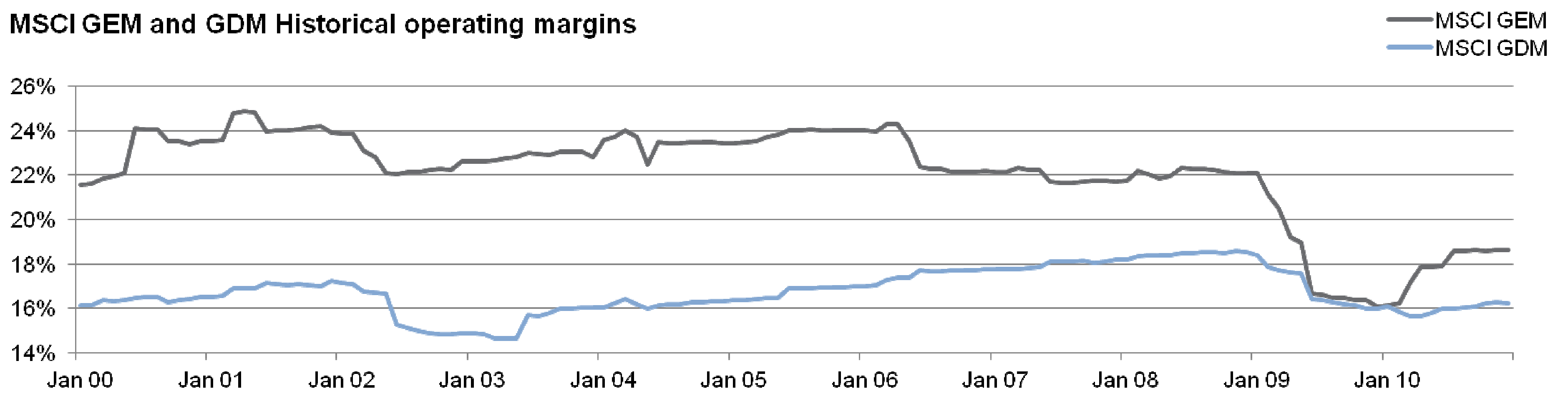
- GDP growth in Emerging Markets has consistently outpaced that of Developed Markets in the past 10 years



Source: J.P. Morgan Asset Management. As of December 2010.

Yet, ROE is more important for an equity investor



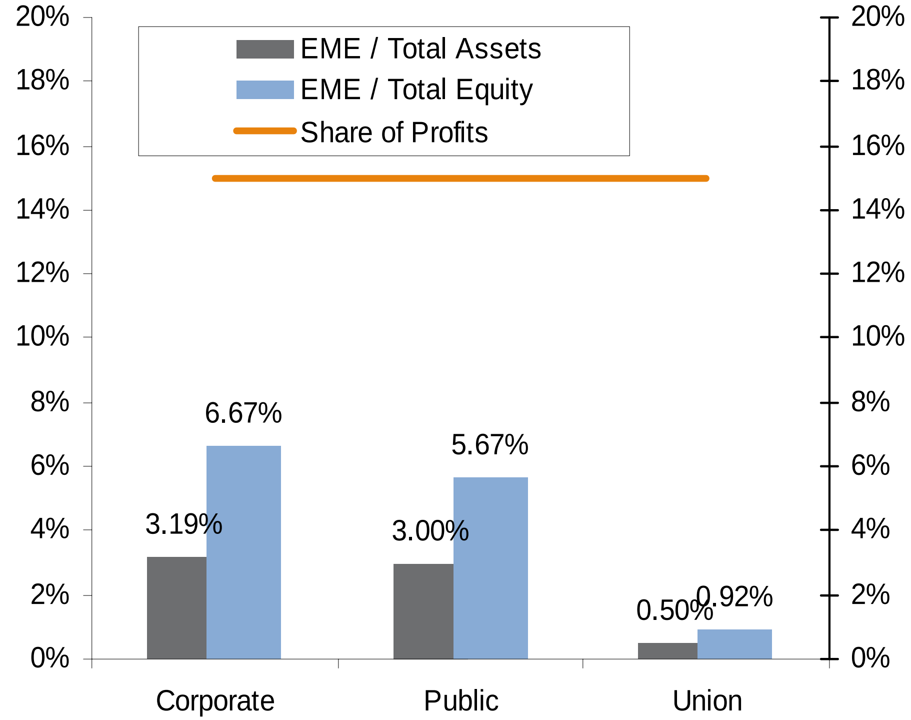


Source: J.P. Morgan Asset Management (USD aggregations from corporate reports). Data as of December 2010

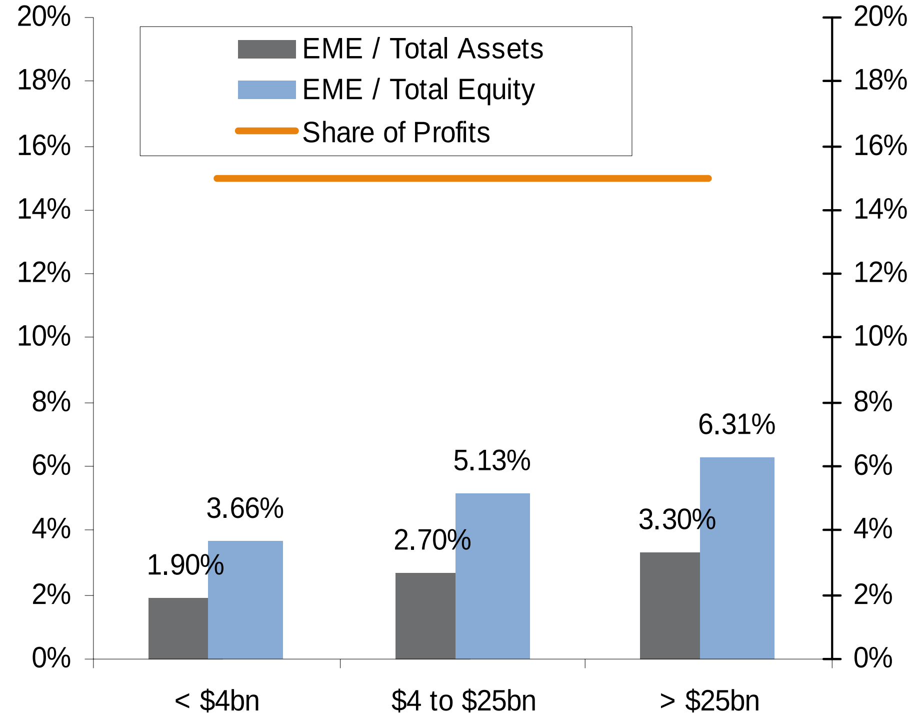
Current allocations by US investors to EME are low

Council of Institutional Investors 2010 Asset Allocation Survey

2010 allocation by plan type



2010 allocation by plan size



Source: J.P. Morgan Asset Management,,Council of Institutional Investors 2010 Asset Allocation study, 59 funds with USD 1.5 trn in AUM, Fund websites,

J.P.Morgan Asset Management

Why use specialist managers in Emerging Markets?

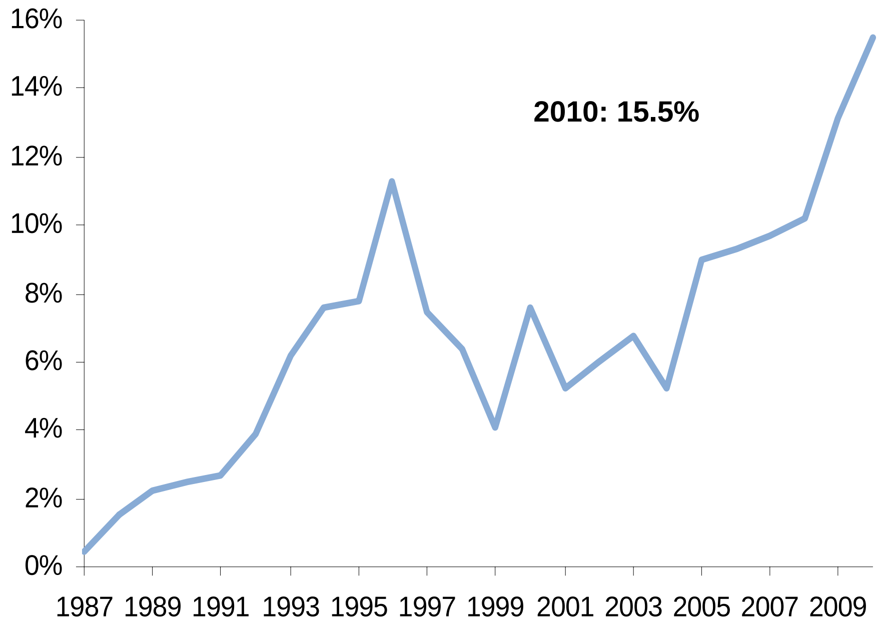
- Funds and trustees have historically used global or EAFE equity managers to provide Emerging Markets Equity (EME) exposure
  - Simple approach when EME was a marginal and cyclical asset class
- EME is now 13-16% of global (MSCI ACWI) market cap and earnings
- International (MSCI EAFE) and Global (MSCI World) managers have typically, given it is out of benchmark, been underweight this level even as EME outperformed developed markets
  - Global manager performance is highly correlated with their GEM exposure (0.44 over 5 years)
  - Returns from EME beta have generally been delivered as global manager alpha
- Trustees need greater control over their EME exposure (beta) and to exploit EME alpha through manager selection
- The universe of liquid EME stocks is up four-fold since 2003
  - specialist managers are needed to exploit the full range of market capitalisation
- ➔ Core exposure to EME through dedicated GEM managers exploiting the full range of market capitalisation
- ➔ Allow international/global managers to provide tactical allocation depending on their global view

Source: J.P. Morgan Asset Management, eVestment database, as at end March 2011

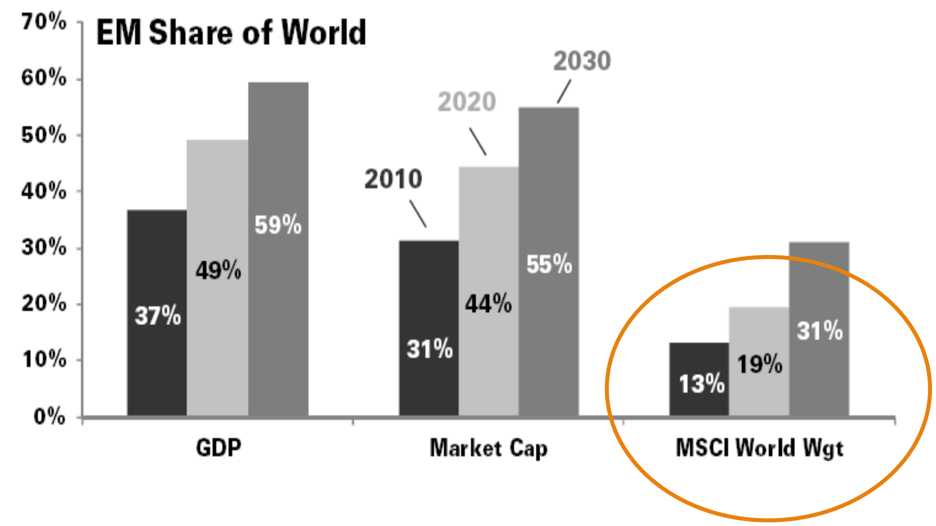
Emerging Markets are now 13-16% of global profits and market cap

… driven by rising profitability and higher growth

Benchmark proxy – EME share of global profits



Estimates of EM's growing share of world activity and market capitalisation



… GEM is 13.7% of MSCI All Country World Index (ACWI) as at end 1Q11

Source: J.P. Morgan, MSCI, IBES, at December 2010

Source: IMF, MSCI, Goldman Sachs Global ECS Research estimates, as at September 2010

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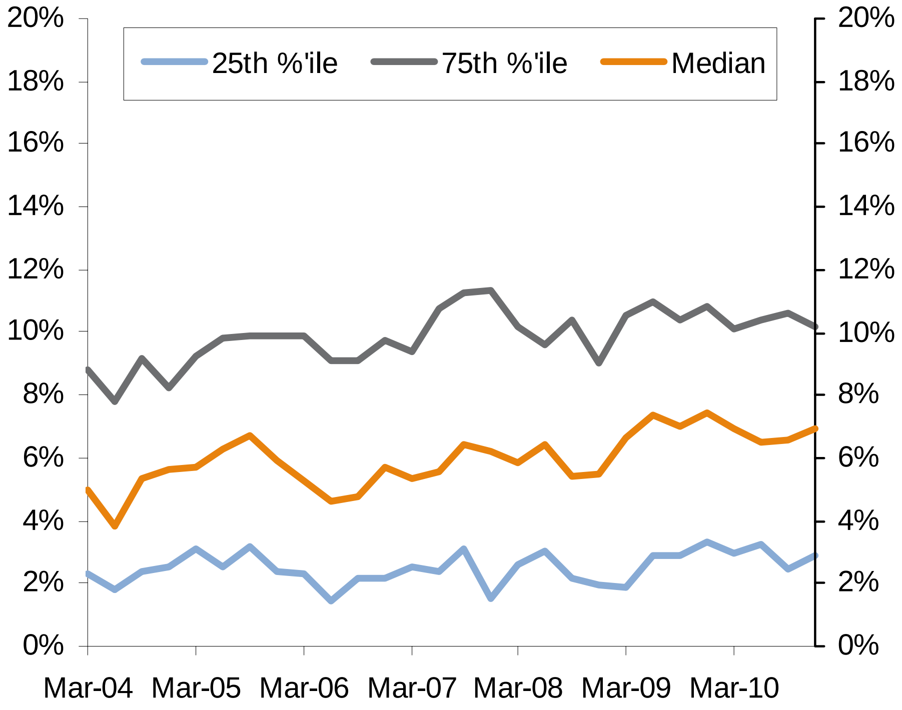
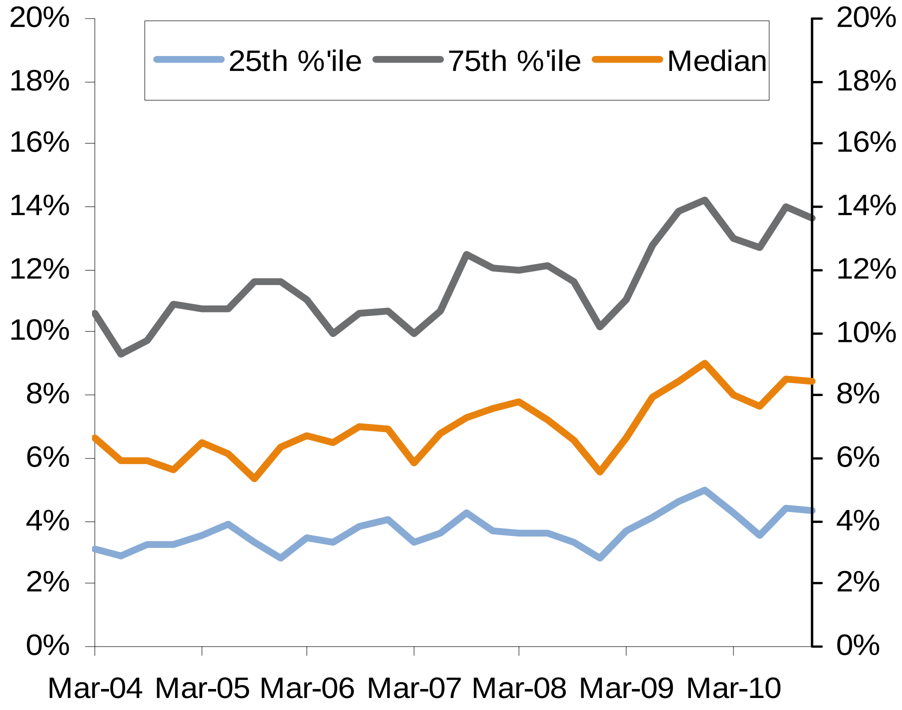
International and Global manager exposure to GEM

GEM allocations have drifted upwards, but remain underweight emerging markets

International (MSCI EAFE) allocations to Emerging Markets



Global (MSCI World & increasingly ACWI) allocations to Emerging Markets



Source: J.P. Morgan Asset Management, eVestment database, as at end April 2011. Charts show quarterly allocation to GEM of active, large-cap managers. Universe covers 168 strategies in International (EAFE) universe and 270 strategies in Global (World/ACWI) universe as at end 1Q11. Allocations are simple weighted.

Roadmap for structuring EME exposure

- Step 1. Core GEM exposure
  - Multi-manager approach: growth, core and value
  - Beta + Alpha with style diversification
- Step 2. Regional strategies
  - Specialist, locally based managers
  - Higher target alpha, adds tracking error
- Step 3. Specialist strategies
  - Small cap / thematic / Frontier

What about EME and EMD?

Summary

- A strategic allocation to both EME and EMD has the potential to improve the return per unit if risk as measured by our non-normality model
- Improvement seen, over 10 years, with up to 10% of total portfolio invested in EM*
- Highly sensitive to forward return assumptions
- Our economic regime-based analysis suggests EME and EMD are 'all terrain' asset classes that should be included in investors portfolios except under extreme economic conditions

*Based on J.P. Morgan Asset Management Long Term Capital Market assumptions, as at end November 2010

Asset class performance under different economic scenarios

- Relative asset class rankings are sorted by descending order of their performance in the various economic regimes
- EMD recouples with the performance of Treasuries and Credit in a recessionary and stagflationary environment (extreme or wing scenarios), with EMD underperforming the other two
- In contrast, EME recouples with US Equities in a recessionary economy and decouples in other less extreme economic scenarios

Implied 1Yr asset rankings

Asset Ranking	**Regime 1:** Recession	**Regime 2:** Stagnant Economy	**Regime 3:** Moderate Recovery	**Regime 4:** Strong Recovery	**Regime 5:** Stagflation
1 – Best	US Credit*	EMD	EME	EME	Commodities
2	US Treasuries	US Credit*	EMD	EMD	EME
3	EMD	EME	US Equities	US Equities	US Treasuries
4	US Equities	US Equities	US Credit*	Commodities	US Equities
5	Commodities	US Treasuries	US Treasuries	US Credit*	US Credit*
6-Worst	EME	Commodities	Commodities	US Treasuries	EMD

Source: J.P. Morgan Asset Management.
*US Credit in our analysis is defined as BBB-rated corporate debt

Risk/return analysis of a hypothetical portfolio with a simultaneous allocation to both EME and EMD

Assume $1B initial portfolio value

Asset	Initial portfolio (%)	5% allocated to EME/EMD	10% allocated to EME/EMD	15% allocated to EME/EMD
Total Bonds	**30.0**	**30.0**	**30.0**	**30.0**
Intermediate Treasury bonds	20.0	15.0	10.0	5.0
Long Treasury bonds	5.0	5.0	5.0	5.0
US High Yield	5.0	5.0	5.0	5.0
EMD	0.0	5.0	10.0	15.0
Total Equities	**55.0**	**55.0**	**55.0**	**55.0**
US Large Cap	40.0	35.0	30.0	25.0
EAFE hed	15.0	15.0	15.0	15.0
Emerging Markets	0.0	5.0	10.0	15.0
Total Alternatives	**15.0**	**15.0**	**15.0**	**15.0**
Fund of Hedge Funds	5.0	5.0	5.0	5.0
Private Equity	5.0	5.0	5.0	5.0
Commodities	5.0	5.0	5.0	5.0
Total Allocation	**100.0**	**100.0**	**100.0**	**100.0**
Expected arithmetic return	7.3%	7.7%	8.0%	8.3%
Expected volatility	9.8%	10.5%	11.2%	12.0%
Conditional value-at-risk 95 (allowing for non-normality)	$311 M	$318 M	$344 M	$373 M
Return per unit of CVaR95	0.107	0.115	0.116	0.115
Improvement in return per unit of CVaR95		**7.0%**	**7.9%**	**7.7%**

- ***Allocations to EME and EMD can improve the return per unit of risk of the portfolio***
- ***However, a greater allocation to EME and EMD doesn't necessarily translate to improved returns per unit of risk***

Source: J.P. Morgan Asset Management. . Analysis uses J.P. Morgan Long-Term Capital Market Return Assumptions as inputs.

The above characteristics are from a representative portfolio. Actual account characteristics of individual accounts may be different. Portfolio characteristics are as of 31/03/2011 and are based on individual securities in the Portfolio on that date. Securities in the Portfolio are subject to change. Statistics shown are not indicative of future statistics and are not representative of future Portfolio performance.

J.P.Morgan Asset Management

J.P. Morgan Asset Management

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The hypothetical performance calculations are shown for illustrated purposes only and are not meant to be representative of actual results achieved by the manager while investing in the respective strategies over the time periods shown. The hypothetical performance calculations for the respective strategies are shown gross of fees. If fees were included returns would be lower. Hypothetical performance returns reflect the reinvestment of all dividends. The hypothetical performance period is from November 2010. The hypothetical performance results have certain inherent limitations. Unlike an actual performance record, they do not reflect actual trading, liquidity constraints, fees and other costs. Also, since the trades have not actually been executed, the results may have under-or-over compensated for the impact of certain market factors such as lack of liquidity. Simulated trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. These hypothetical performance results do not take into consideration the ongoing implementation of the manager’s proprietary investment strategies. No representation is being made that any portfolio will or is likely to achieve profits or losses similar to those shown. Returns will fluctuate and an investment upon redemption may be worth more or less than its original value.

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Asset Management

The Role of Emerging Markets in Your Portfolio

NCTR Conference
Hilton Hotel Baltimore, Maryland
October 10, 2011

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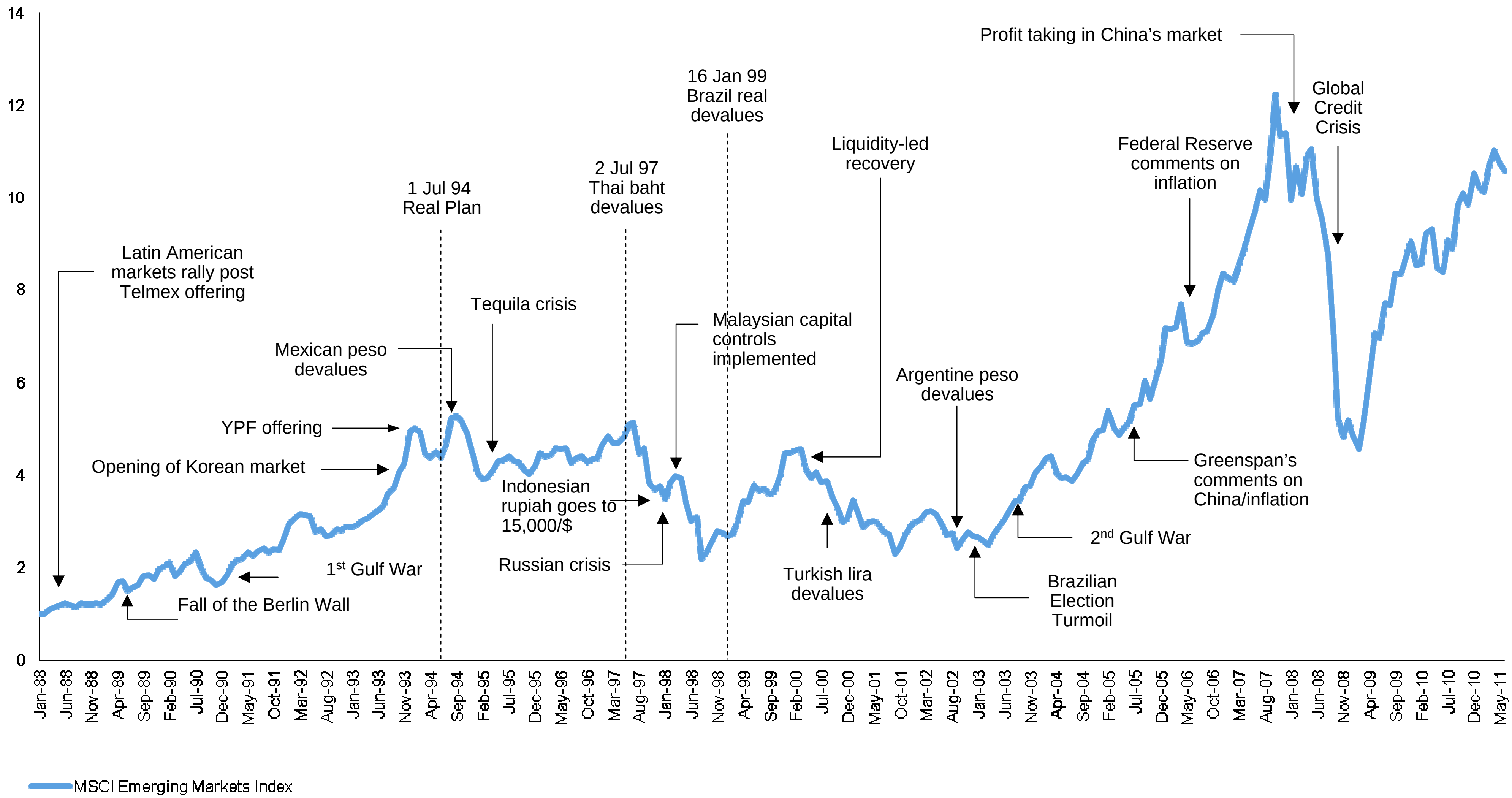
Evolution of Emerging Markets

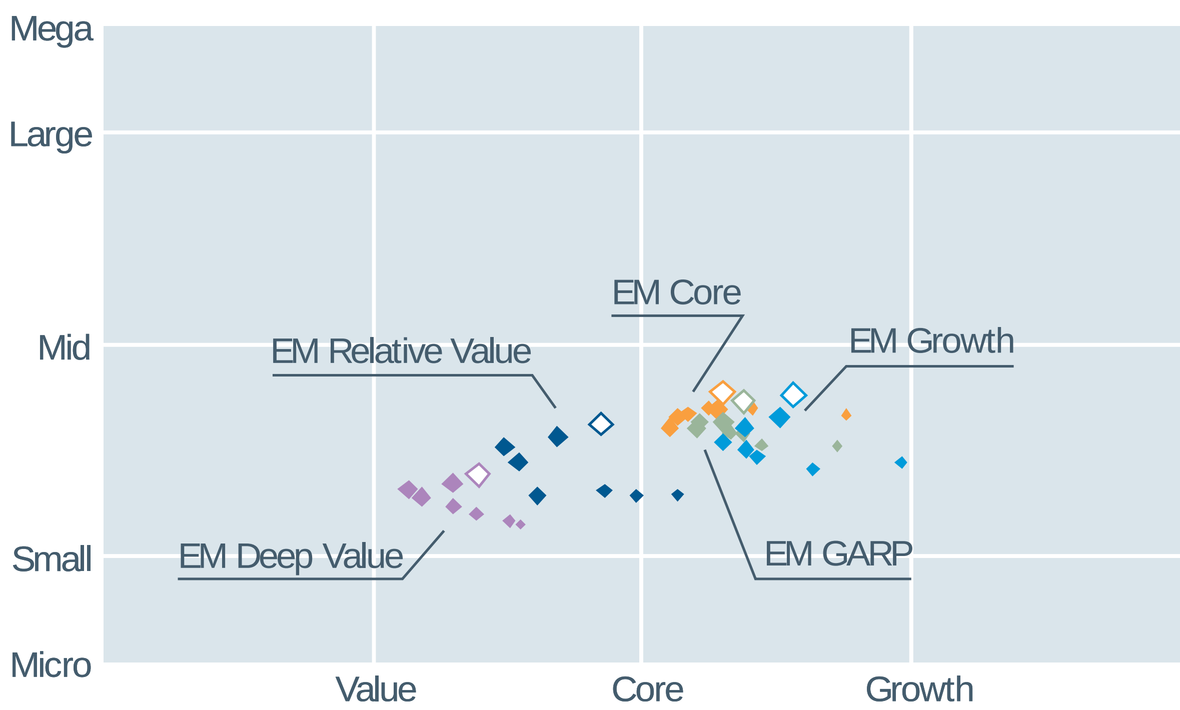


As of 30 June 2011

Source: Lazard, MSCI

At the End of 2004, Emerging Market Styles Were Just Beginning Their Evolution.

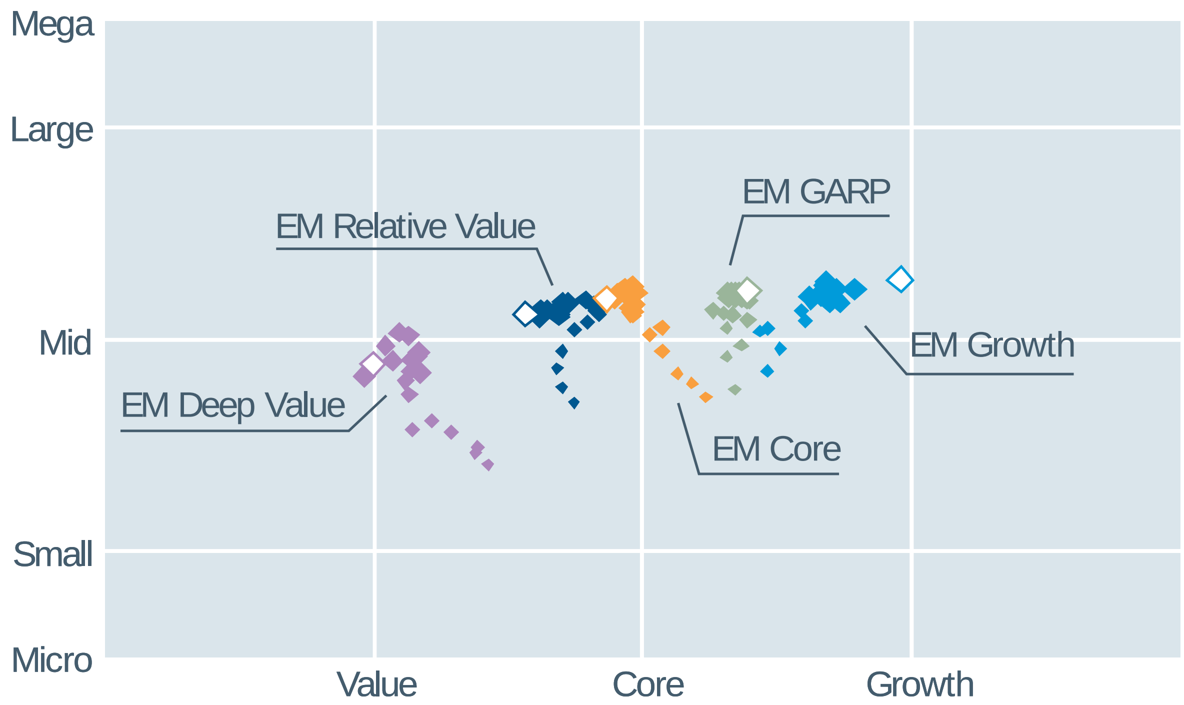
Rolling 4-quarter holdings-based equity style map for 5 years ended 31 December 2004



Source: Lazard, Callan Associates

By the End of 2009, Five Emerging Market Style Groups Had Emerged

Rolling 4-quarter holdings-based equity style map for 5 years ended 31 December 2009



Source: Lazard, Callan Associates

Lazard Emerging Markets Debt as a Diversifier

Comparative Indices (1 May 1995 – 30 June 2011)

Asset Class Mandate	JPMorgan EMBI + Index Beta	JPMorgan ELMI+ Index Beta
MSCI Emerging Market Index	0.36	0.20
Barclays Capital Aggregate Treasury Bond Index	1.13	0.17
Merrill Lynch HY Master II Index	0.73	0.29
Citigroup WGBI non-U.S. (hedged) Index	0.88	-0.14
S&P 500 Index	0.50	0.24
MSCI EAFE Index	0.44	0.27
S&P Goldman Sachs Commodity Index	0.11	0.09

As of 30 June 2011

Shown for informational purposes only. Past performance is not a reliable indicator of future results.

Source: Lazard, Frank Russell, J.P. Morgan

The EMBI+ Index tracks returns for actively traded external debt instruments in emerging market, and is also J.P. Morgan's most liquid U.S-dollar emerging markets debt benchmark. The index segments further the universe of emerging markets as defined by the broader EMBI Global and EMBI Global Diversified, by placing a strict liquidity requirement rule for inclusion. Included in the EMBI+ are US-dollar denominated Brady bonds, Eurobonds, and traded loans issued by sovereign entities.

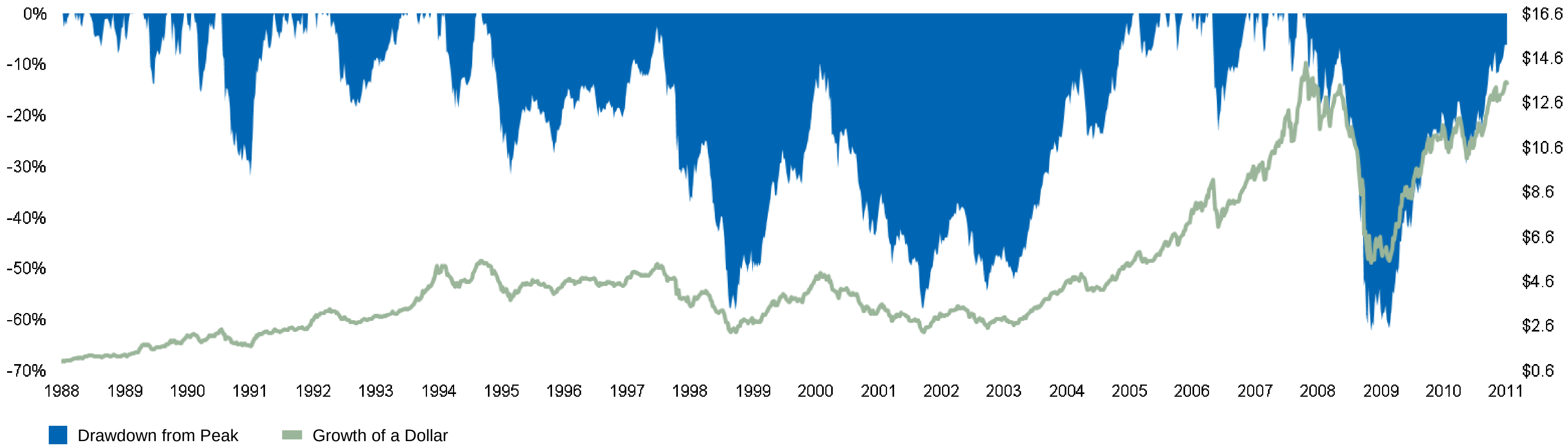
The EMBI+ is a market capitalization-weighted index and is rebalanced on the last business day of each month. Only issues with a current face amount outstanding of $500 million or more and a remaining life of greater than 2 1/2 years are eligible for inclusion in the index.

The ELMI+ Index tracks total returns for local currency-denominated market indexes in 24 emerging market countries. The ELMI+ Index consists of FX forwards wherever possible, to represent a countries money market. For countries that do not have developed FX forward markets, deposits or Treasury bills are used. The index is rebalanced on a semi-annual basis.

The Case for Emerging Markets Multi-Strategy Investment

- Regular crises in emerging markets equities can destroy years of compounding in weeks
- Since 1988, the emerging markets equity asset class has experienced 11 drawdowns lasting at least 3 months and greater than 20% of peak
- The drawdown initiated by the Mexican peso crisis (Tequila Crisis) began in September 1994 and ended in February 2005
- The Financial Crisis drawdown has been ongoing for 169 weeks

MSCI Emerging Markets Index



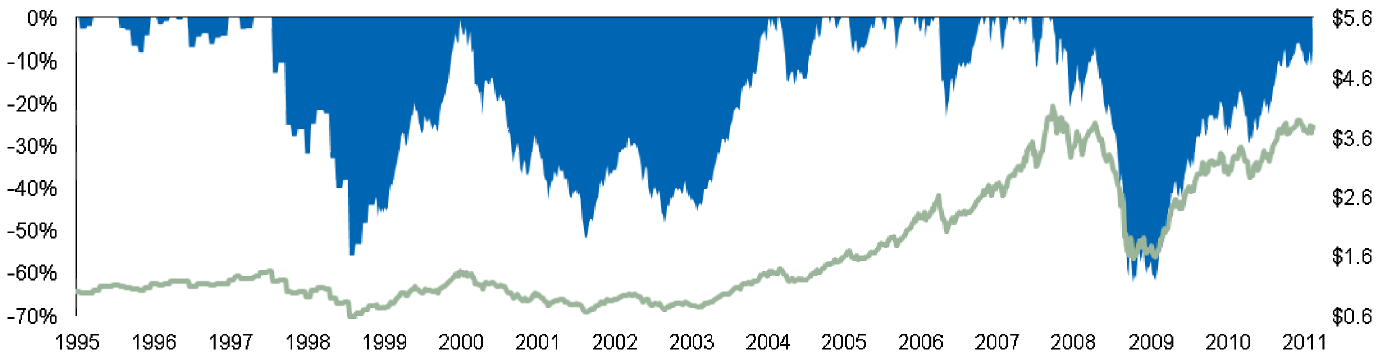
Source: Lazard, MSCI

As of 13 January 2011

The information in the chart above is for illustrative purposes only and does not represent any product offered by Lazard.

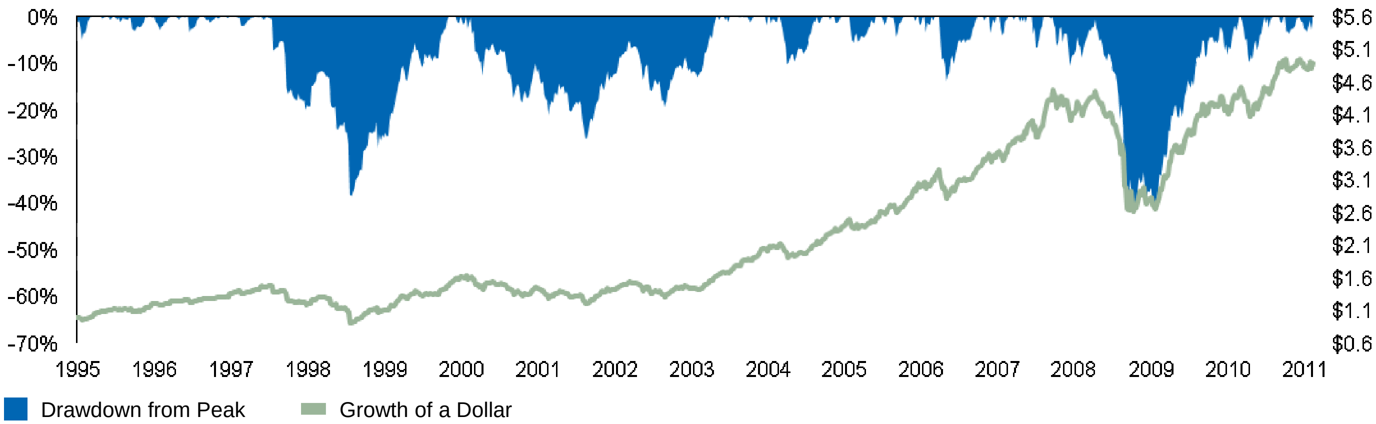
The Case for Emerging Markets Multi-Strategy Investment

Emerging Markets Equity Only[1] (since 1995)



	Return	Volatility
MSCI Emerging Markets Index	8.6	24.7
Blended Emerging Markets Index[3]	10.3	14.3

50% Emerging Markets Equity, 25% Local Debt, 25% External Debt[2] (since 1995)



1 MSCI Emerging Markets Index

2 50% MSCI Emerging Markets Index, 25% J.P. Morgan ELMI+ Index, 25% J.P. Morgan EMBI Global Diversified Index

3 For the period from 2/8/1995 to 3/23/2011. 50% MSCI Emerging Markets Index, 25% J.P. Morgan ELMI+ Index, 25% J.P. Morgan EMBI Global Diversified Index

As of 23 March 2011

Source: Lazard, J.P. Morgan, MSCI

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MSCI Emerging Markets Small Cap Index vs. MSCI Emerging Markets Standard Index

Geographic Distribution of MSCI EM Small Cap Index

Relative Mkt Cap & Nº of Companies by Country (%)

	Standard		Small Cap	
Countries	Weight (%)	No of Comp	Weight (%)	No of Comp
Brazil	15.5	128	6.1	121
Chile	1.7	14	1.5	29
China	17.3	143	17.0	338
Colombia	0.8	7	0.1	2
Czech Republic	0.4	3	0.4	8
Egypt	0.3	3	0.6	12
Hungary	0.4	3	0.2	3
India	7.4	61	9.7	192
Indonesia	2.6	21	3.5	69
Korea	14.8	122	16.1	320
Malaysia	3.2	26	4.2	84
Mexico	4.4	36	2.3	45
Morocco	0.2	1	0.2	4
Peru	0.5	4	0.1	2
Philippines	0.6	5	1.1	22
Poland	1.7	14	1.8	35
Russia	6.8	56	1.1	21
South Africa	7.3	60	8.2	163
Taiwan	11.1	92	20.5	407
Thailand	1.7	14	2.9	58
Turkey	1.4	11	2.6	52
Total	**100.0**	**824**	**100.0**	**1,987**

As of June 30th 2011

Source: MSCI from Factset

- MSCI EM Small Cap is the most utilized benchmark of the 3 Emerging Markets Small Cap Indexes available
- The MSCI EM Index includes 1,987 companies in 21 countries, substantially higher number as compared to the Standard EM index (824)
- EMSC is substantially Asia focused (75%), with largest concentrations in Taiwan (20.5%), China (17%), South Korea (16.1%), India (9.7%) and
- Major Differences between Standard and SC indices are weights in Taiwan (+9.4%), Brazil (-9.4%), Russia (-5.8%), India (+2.3%).

EM SC Index vs. EM Standard Index by Country

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Development of Frontier Markets

- The MSCI Frontier Markets Index has 25 countries, 161 companies with a total market cap of U.S. $117 billion
- The Index is fairly concentrated in the Middle East region (56%) and in the Financials sector (47%)

Region	No. Cos	Index Weight (%)	Market Cap (US$M)	P/BV	P/CE	P/E	ROE	YLD
Middle East	57	56	64,964	1.9	9.5	22.2	12.8	5.6
Asia	48	13	14,854	3.3	12.2	13.9	26.1	3.8
Central and Eastern Europe & CIS	30	12	14,327	1.5	7.2	12.7	14.6	3.6
Africa	20	11	13,215	4.5	14.2	14.9	26.4	4.3
Latin America & Caribbean	6	8	9,342	2.4	4.9	9.3	26.3	4.2
Total	**161**	**100**	**116,702**	**1.6**	**7.8**	**13.8**	**17.4**	**4.9**

Sector	Weight (%)
Energy	11.6
Material	3.4
Industrial	6.9
Cons. Dis.	0.6
Staples	4.0
Health Care	2.6
Financials (Ex Real Estate)	46.9
Real Estate	5.1
IT	0.0
Telecom	17.2
Utilities	1.6
Total	**100.0**

As of 30 June 2011

Source: MSCI Barra

MSCI Frontier Markets Index by Country

- Growing opportunity set: 6 countries were added to the Index
- Kuwait (28% of total market cap), Qatar (12%), Argentina (8%), United Arab Emirates (9%), and Nigeria (7%) are the most relevant countries represented in the Index
- UAE and Qatar are being evaluated for an upgrade to the MSCI Emerging Markets Index

Country	No. Cos	Index Weight (%)	Market Cap (US$M)	P/BV	P/CE	P/E	ROE	YLD
Argentina	6	8.0	9,342	2.4	4.9	9.3	26.3	4.2
Bahrain	3	0.5	628	1.6	5.7	8.7	18.2	6.3
Bangladesh	18	4.3	5,069	3.9	16.5	15.3	26.8	1.8
Bulgaria	2	0.2	226	1.1	6.5	8.7	12.7	0.0
Croatia	4	2.7	3,169	1.9	7.3	13.5	14.0	6.5
Estonia	2	0.4	480	0.9	5.2	14.2	6.8	1.2
Jordan	4	0.9	1,008	1.8	10.6	23.1	10.0	3.0
Kazakhstan	3	3.6	4,228	1.1	4.4	7.2	17.5	3.6
Kenya	7	2.5	2,919	4.2	14.6	14.3	27.6	4.7
Kuwait	14	28.3	33,045	2.1	8.4	25.5	11.7	7.5
Lebanon	4	2.0	2,336	1.4	14.4	11.6	13.2	6.1
Lithuania	2	0.3	299	1.5	6.1	11.1	14.8	7.4
Mauritius	3	1.2	1,408	1.9	13.5	14.1	14.5	2.8
Nigeria	7	6.8	7,935	5.3	14.8	14.9	29.7	4.5
Oman	8	2.9	3,361	1.9	5.7	10.3	19.0	4.6
Pakistan	12	4.0	4,724	2.9	7.5	8.4	32.5	6.6
Qatar	13	12.3	14,337	2.1	7.1	12.3	17.8	3.5
Romania	4	1.3	1,485	1.3	4.6	16.0	8.7	2.6
Serbia	2	0.4	439	0.6		4.6	25.0	0.0
Slovenia	4	2.6	2,991	1.6	8.6	12.8	13.4	2.5
Sri Lanka	8	2.2	2,579	2.9	15.2	18.3	16.2	1.5
Tunisia	3	0.8	952	2.4	11.1	17.8	13.5	2.8
Ukraine	7	0.9	1,012	3.3	18.9	36.1	15.7	0.3
United Arab Emirates	11	8.8	10,249	0.9	14.9	32.2	7.2	2.7
Vietnam	10	2.1	2,483	3.6	13.1	16.9	23.0	4.0
Total	**161**	**100.0**	**116,702**	**1.6**	**7.8**	**13.8**	**17.4**	**4.9**

As of June 30, 2011
Source: MSCI Barra

One Market Place: Two Views

Russell Frontier Index vs. MSCI Frontier Index

- Russell Frontier Index is more diverse with 11 more countries, 3x the number of companies in the MSCI FM Index and nearly double the market cap
- The Index is also concentrated in the middle east but is more diverse than the MSCI Index. Financials constitute 46% of the Index

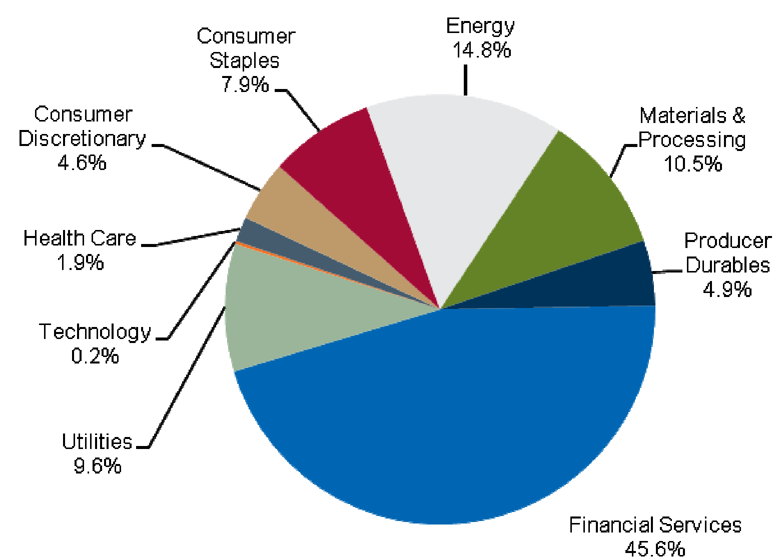
Index	No of Countries	Number of Companies	Market Cap ($B)
MSCI Frontier	25	161	116
Russell Frontier Index	36	571	228

Region	No. Cos	Index Weight Index (%)	MSCI Index (%)	Market Cap (MILL USD)
Middle East	171	38	56	85,562
Asia Pacific	183	18	13	42,156
Europe	97	17	12	38,996
Africa	87	16	11	37,439
Americas	33	10	8	23,888
Total	**571**	**100**	**100**	**228,041**

As of 30 June 2011

Source: MSCI Barra, Russell Investments

Russell Frontier Index



The Role of Emerging Markets in the PSRS/PEERS Portfolio

October 10, 2011

Craig Husting, CFA
Public School and Education Employee Retirement Systems of Missouri

The Systems

- **The Public School and the Education Employee Retirement Systems of Missouri**
  - 2 formulas (certified and non-certified)
  - 223,000 members (130,000 active)
  - 7 member Board
    - 4 elected and 3 appointed
  - Investment staff of 10 professionals
  - 100% externally managed
  - $29.5 billion in total assets as of August 31, 2011

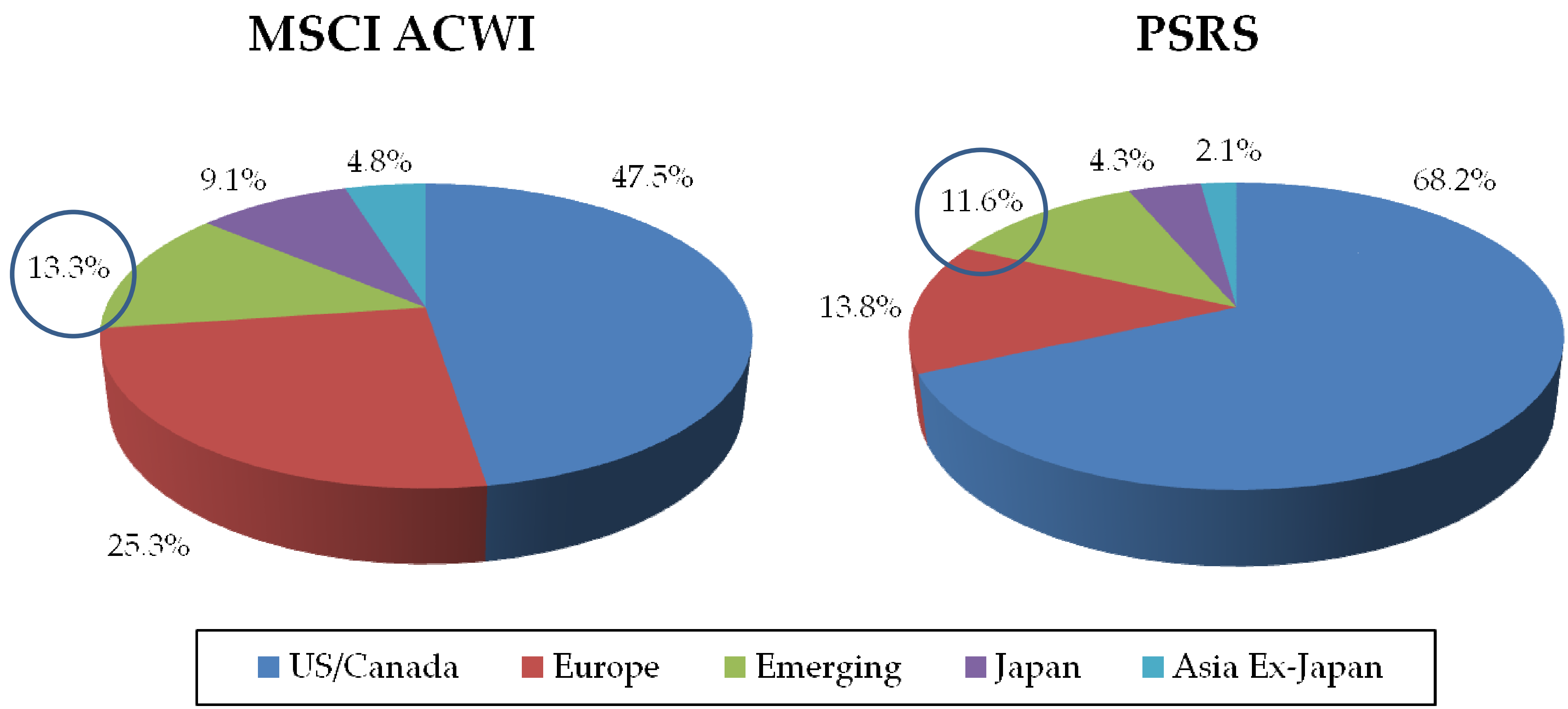
Asset Allocation: Emerging Markets

Investment Type	Long-term Target	Policy Ranges
Public Risk Asset Programs		
U.S. Equity	27.00%	16% - 48%
Credit	12.00%	0% - 20%
Hedged Assets	6.00%	0% - 15%
Global Equity	15.00%	8% - 28%
Total Public Risk Assets	**60.00%**	**35% - 75%**
Safe Assets		
U.S. Treasuries	16.00%	0% - 40%
U.S. TIPS	4.00%	0% - 40%
Total Safe Assets	**20.00%**	**10% - 40%**
Private Risk Asset Programs		
Private Equity	10.50%	4% - 14%
Real Estate	7.50%	4% - 10%
Private Credit	2.00%	0% - 7%
Total Private Risk Assets	**20.00%**	**5% - 25%**
Cash Account / Other	**0.00%**	
Total Fund	**100.0%**	

- **Global Equity**
  - Over 30% of composite and approximately 6% of total fund in emerging market equity
- **Credit**
  - 10% of composite and approximately 1% of total fund in emerging market debt/currencies
- **Hedged Assets**
  - 10% of composite and approximately 1% of total fund in emerging market assets
- **Private Assets**
  - No current emerging market allocation

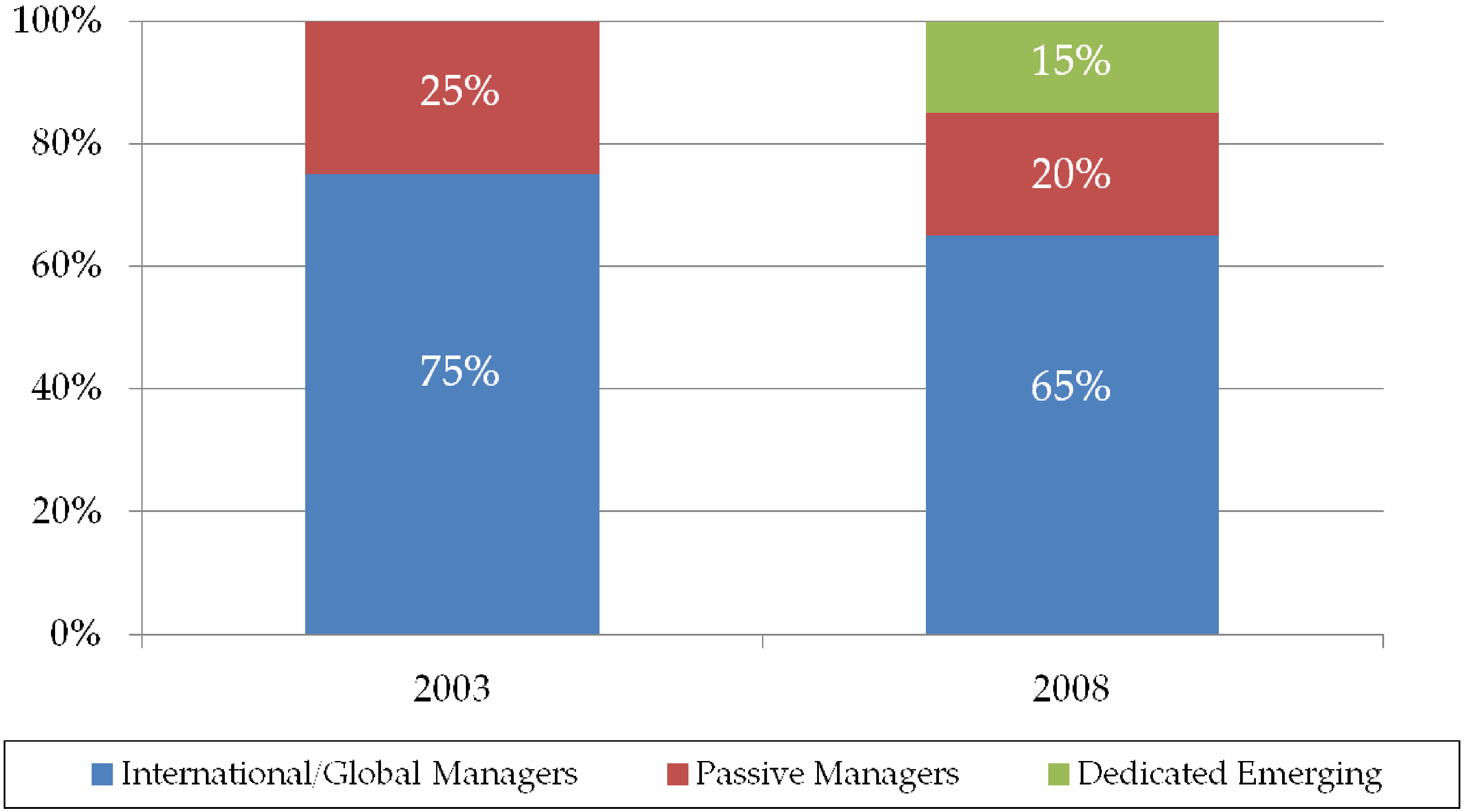
- **Approximately 8% of PSRS Total Fund in Emerging Market Assets**

Emerging Allocation Relative to ACWI



- **U.S. bias within total equity allocation**
- **Close to equal weight (and growing) for emerging market equities**
  - Belief in long-term growth and demand

PSRS Exposure To Emerging Equity



- **Exposure to emerging market equities started in the late 1990's: *controlled discretion to international and global managers***
- **Began investing with dedicated emerging market managers in 2004**

Results

- **Dedicated EM, Global and International mandates most representative of index in terms of market capitalization and sectors**

- **Many Global and International managers are concentrated in the largest and most liquid names**

- **Low alpha across the Board with dedicated EM slightly more successful**

- **Bottom Line:**
  - *PSRS/PEERS captured the emerging market beta but not much else*

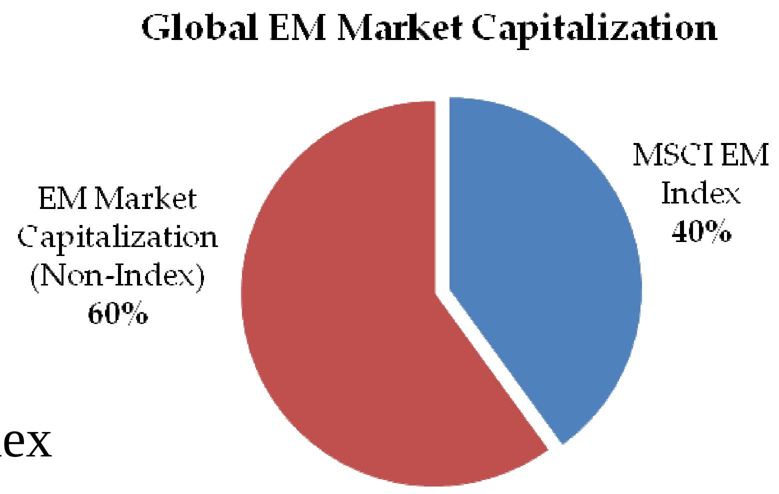
Changing Thoughts: Beta

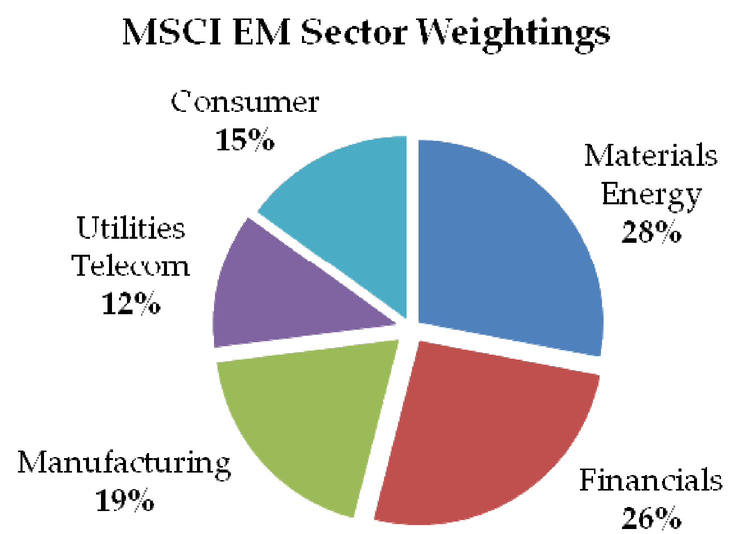
- **Growth in Emerging Markets will result in strong beta**
- **Continue to access beta at relatively low cost through dedicated emerging / international /global managers**
- **Utilize low-volatility emerging market equity**
  - Passive alternative
  - Low cost
  - Expected to exceed the returns of a market cap weighted benchmark with materially less return volatility
  - Better performance in down markets

Changing Thoughts
Accessing Alpha in Emerging Markets

- **Less than half of EM market capitalization is captured by the MSCI EM index**

- **MSCI EM index**
  - Top Heavy: the 25 largest companies and the 5 largest countries account for 30% and 2/3 of index market cap, respectively
  - Heavily weighted toward resource, financial, manufacturing and stocks whose performance is influenced by macro/cyclical factors
  - Drivers of long-term secular growth in the developing world expected to be domestic consumption (which has a small index weight)





Changing Thoughts
Accessing Alpha in Emerging Markets

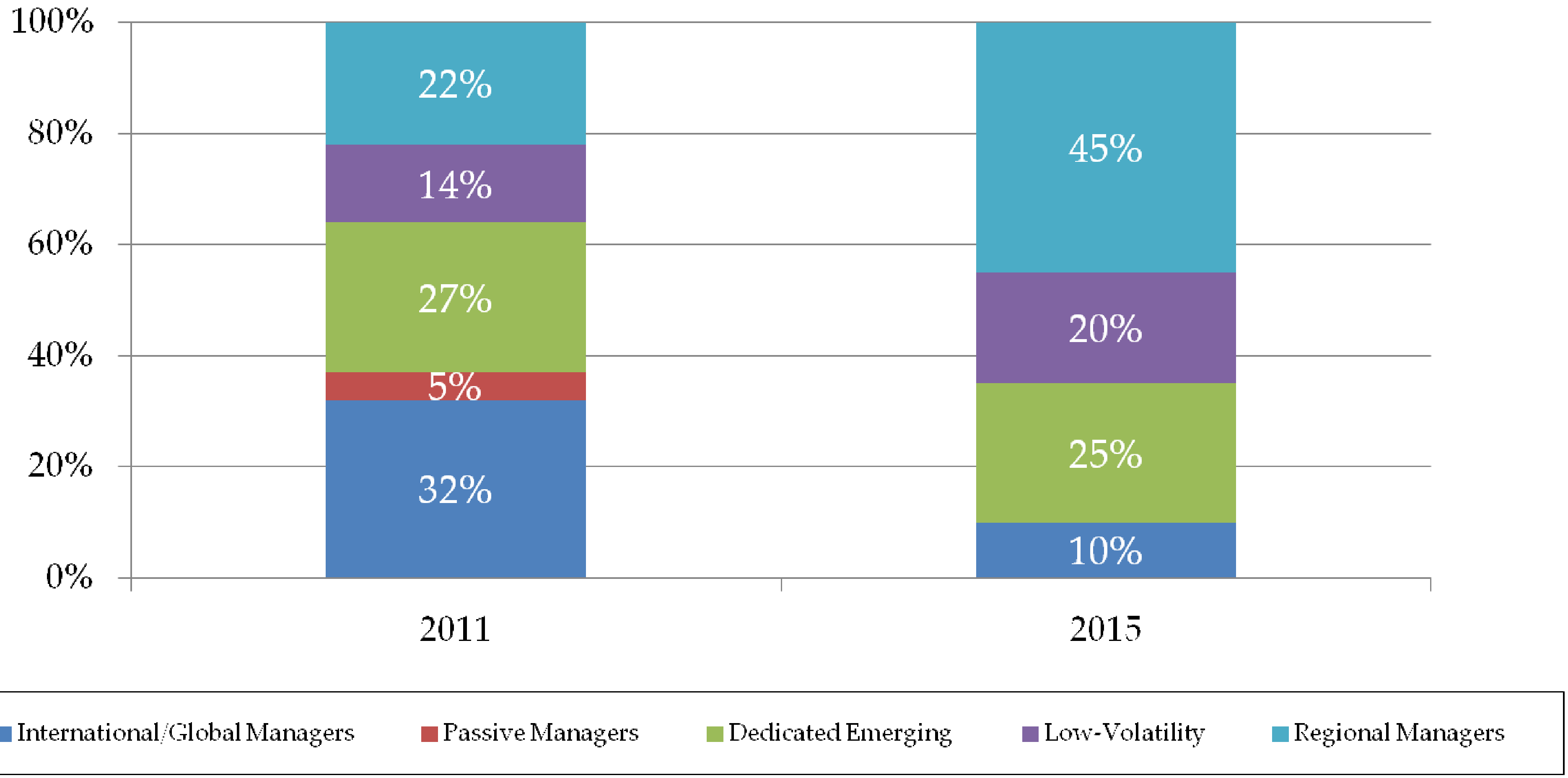
- **Sources of Alpha**
  - Country and regional selection
  - Sector selection
  - Bottom-up stock selection

→ **Regional Mandates**

- **Issues**
  - PSRS/PEERS Staff capacity and expertise
  - Travel / due diligence / monitoring budget and tabloid issues
  - Complexity of markets

- **Solutions**
  - Hire regional expertise managers where possible
  - Work with a partner to structure a fund-of-funds specializing in local and regional emerging market teams
  - Develop relationships with underlying managers over time

PSRS Current and Future Allocations to Emerging Market Equity



- Continue to increase emerging market equity beta in Total Plan
- Access emerging market equity alpha through regional exposure