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ABC Client

The Emerging Markets Debt – Local Currency Opportunity

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Introduction

- **Emerging markets comprise roughly 12% of global equity markets**
  - We believe many portfolios are currently under allocated to emerging markets and should look to be at least market weighting with the potential to overweight emerging markets through the fixed income markets
- **Recently approved asset allocation targets include a 6% target allocation to Emerging Markets Equities and a 4% target allocation to Emerging Markets Debt**
- **Emerging markets are the driver of global GDP growth**
  - Positive trends in current account balances as well as consumer spending

Emerging Market Debt

- **In years past, NEPC has published a single Emerging Market Debt assumption**
  - This blended figure encompassed both the external, or USD denominated debt, and local currency debt issued by emerging sovereign nations
- **Local Currency EMD created as a distinct asset class given growing size and unique characteristics**
  - Local EMD has shorter duration, higher yield and different issuer mix
  - Investable local EMD issuance now totals $600 billion as compared to the $400 billion in USD denominated debt
  - We expect issuance to shift from external to local currency debt for many large nations
    - BarCap notes that Russia and Mexico are unlikely to issue in USD or EUR in 2011 – the two make up about 30% of the current external debt market
- **Based on improving fundamentals we believe volatility is likely to decline slightly in EMD on a blended basis to approximately 14%**
  - This view is executed through a reduction in volatility for External USD denominated debt to 12%
  - Maintaining prior EMD volatility assumption of 15% for EMD Local to account for additive currency volatility
- **Emerging Markets Debt Local Currency**
  - Take advantage of higher yields, potential currency appreciation and diversification benefits

Emerging Markets Debt

- **Several ways to gain exposure to this asset class:**
  - Global bond manager
  - EMD Hard Currency (USD denominated) manager that opportunistically invests in Local Currency issues
  - Hire a dedicated manager in local currency (eight vetted strategies)
    - Recommend a 3-5% portfolio weight to start off

- **EMD Local Currency Will:**
  - Increase diversification
  - Increase portfolio yield
  - Expect volatility to be less than US high yield bonds, but greater than US investment grade

Emerging Markets Review

What constitutes an Emerging Market?

- The MSCI Market Classification Framework consists of the following three criteria: economic development, size, and liquidity as well as market accessibility.
- In order to be classified in a given investment universe, a country must meet the requirements of all three criteria as described in the table below.

Criteria	Frontier	Emerging	Developed
1. Economic Development			
Sustainability of economic development	No requirement	No requirement	Country GNI per capita 25% above the World Bank high income threshold* for 3 consecutive years
2. Size and Liquidity Requirements			
Number of companies meeting the following Standard Index criteria	2	3	5
Company size (full market cap)**	USD 505 mm	USD 1010 mm	USD 2020 mm
Security size (float market cap)**	USD 35 mm	USD 505 mm	USD 1010 mm
Security liquidity	2.5% ATVR	15% ATVR	20% ATVR
3. Market Accessibility Criteria			
Openness to foreign ownership	At least some	Significant	Very high
Ease of capital inflows/outflows	At least partial	Significant	Very high
Efficiency of the operational framework	Modest	Good and tested	Very high
Stability of the instituitional framework	Modest	Modest	Very high

- The economic development criterion is only used in determining the classification of Developed Markets while that distinction is not relevant between Emerging and Frontier Markets given the very wide variety of development levels within each of these two universes.
- The size and liquidity requirements are based on the minimum investability requirements for the MSCI Global Standard Indices. Emerging Markets country indices with fewer than three companies meeting the Emerging Markets size and liquidity requirements for four consecutive Semi-Annual Index Reviews will be reclassified as Frontier Markets.

**High Income threshold for 2009: GNI per capita of USD 12,196 (World Bank, Atlas method)*
***Minimum in use for the May 2011 Semi-Annual Index Review, updated on a semi-annual basis*
Source: MSCI

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Which Countries are Emerging Market Economies?

Developed Markets				
Americas	**Asia**	**Europe**	**Africa**	**Other**
US	Japan	Euro Area		Israel
Canada	Australia	Austria		
	New Zealand	Belgium		
	Singapore	Cyprus		
		Estonia		
		Finland		
		France		
		Germany		
		Greece		
		Italy		
		Ireland		
		Luxembourg		
		Malta		
		Netherlands		
		Portugal		
		Slovakia		
		Slovenia		
		Spain		
		UK		
		Scandinavia		
		Denmark		
		Iceland		
		Norway		
		Sweden		

29 Developed Countries

Emerging Markets				
Americas	**Asia**	**Europe**	**Africa**	**Other**
Argentina	China	Czech	Egypt	Iraq
Brazil	India	Georgia	Gabon	*Lebanon*
Chile	Indonesia	Hungary	Ghana	*Pakistan*
Colombia	*Kazakhstan*	*Lithuania*	Ivory Coast	
Dominican Rep.	Korea	Poland	Morocco	
Ecuador	Malaysia	Russia	*Nigeria*	
El Salvador	Philippines	Serbia	Senegal	
Mexico	*Sri Lanka*	Turkey	South Africa	
Panama	Taiwan ROC	*Ukraine*		
Peru	Thailand			
Uruguay	*Vietnam*			
Venezuela				

43 Emerging Countries

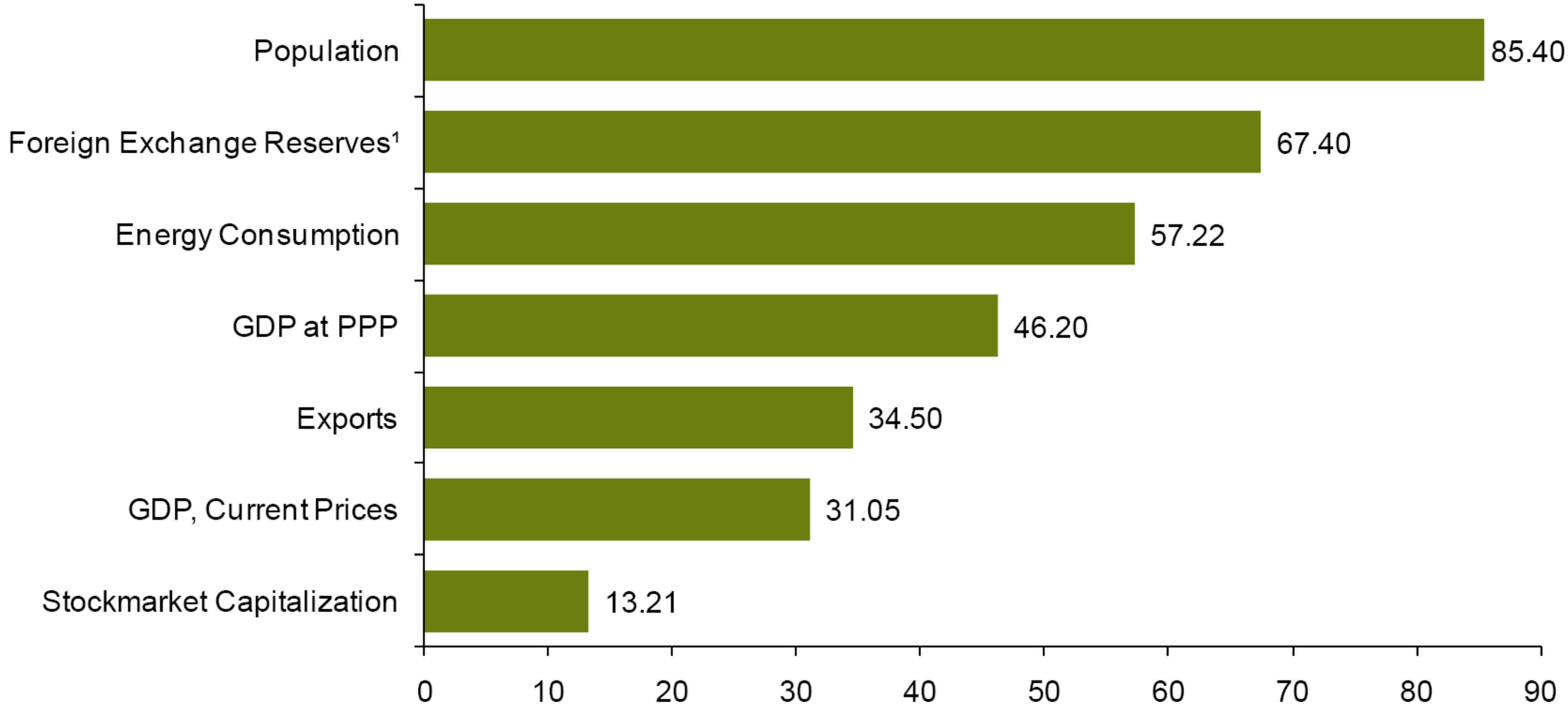
- Emerging Market Economies are generally defined by having low to mid GDP per capita or per capita income

Frontier Markets				
Americas	**Asia**	**Europe**	**Africa**	**Other**
Trinidad and Tob.	Bangladesh	Bulgaria	Kenya	Bahrain
	Mauritius	Croatia	Tunisia	Jordan
		Estonia		Kuwait
		Romania		Oman
		Slovenia		Qatar

15 Frontier Countries

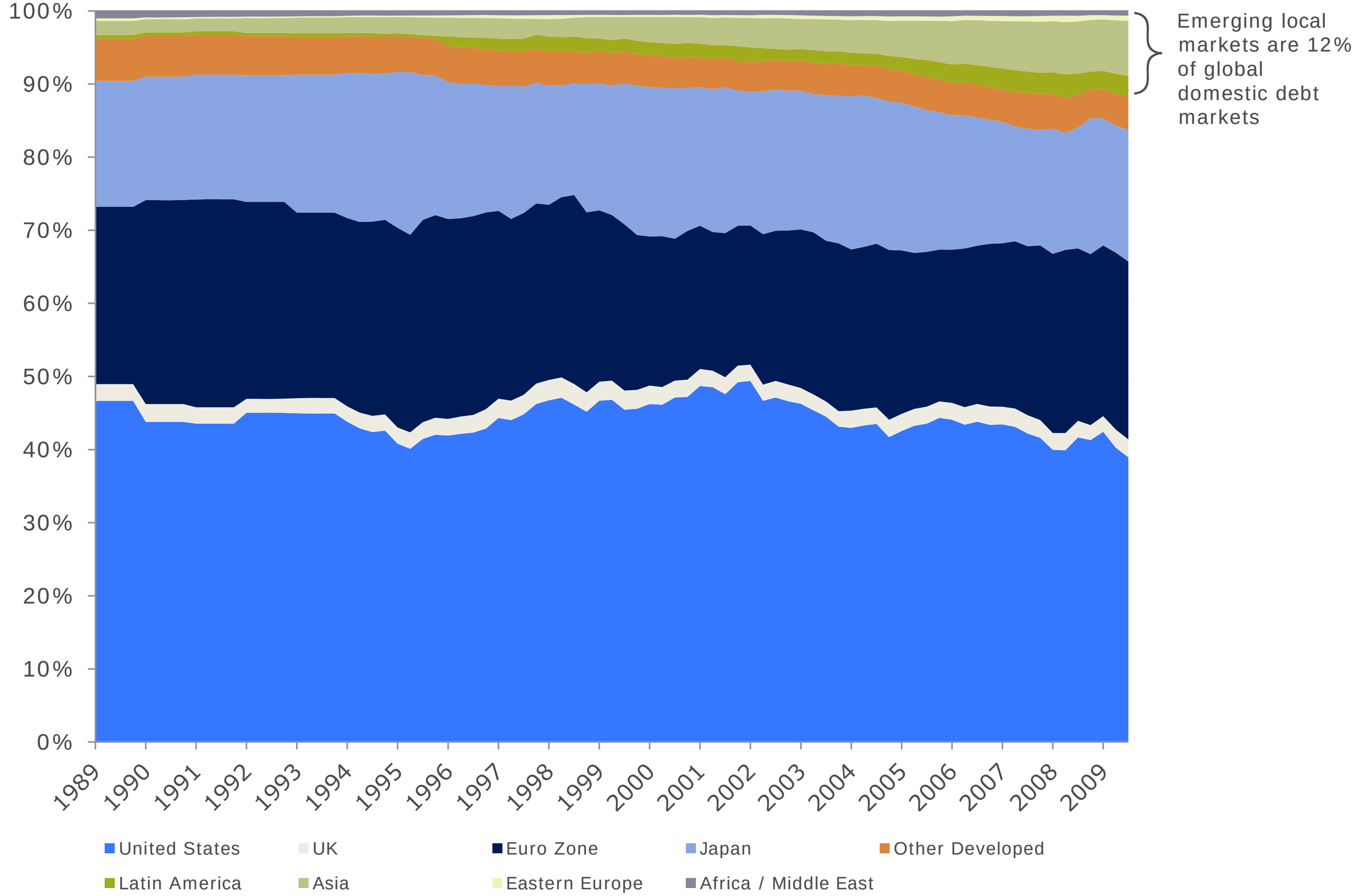
Countries in italics can be considered in another category as well.

Emerging Markets as a % of World Total



Sources: Human Development Index, Bloomberg, IMF, BP ,MSCI, Artio Global Management LLC

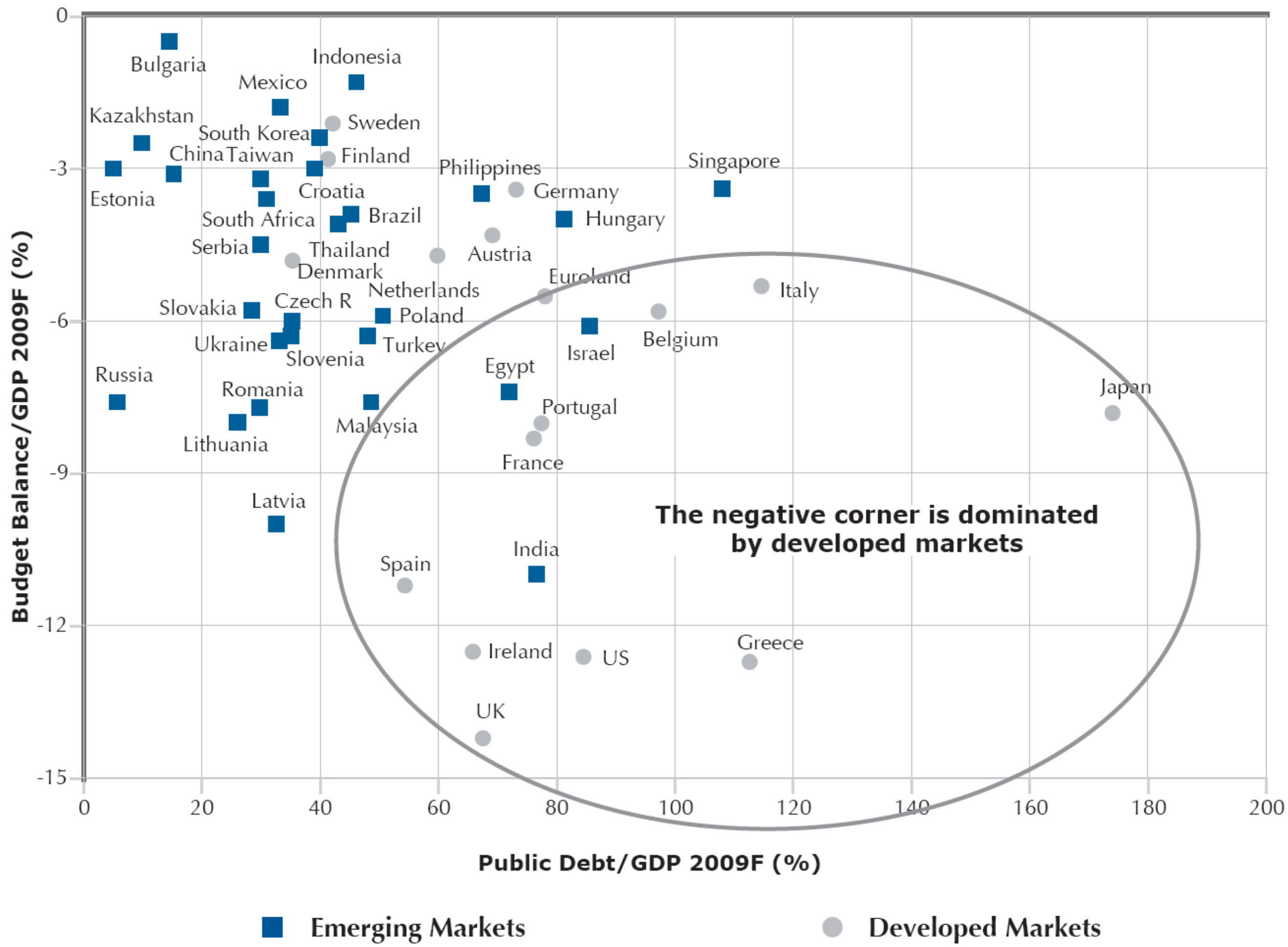
World Domestic Debt Markets – Total Capitalization



Source: Bank for International Settlements

Creditworthiness - Emerging Markets vs. Developed Markets

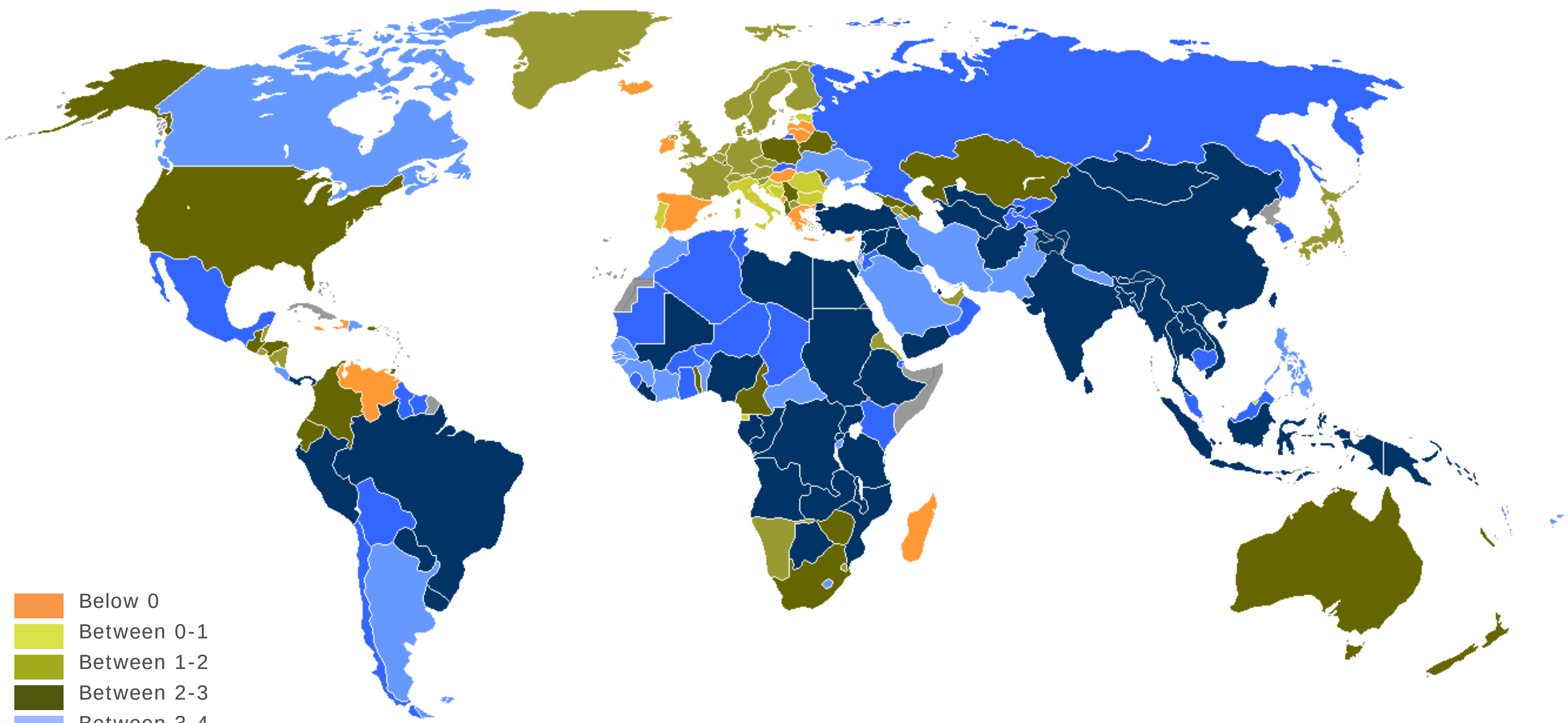
Figure 2: Public Debt and Budget Deficit Ratios



Source: Batterymarch, ING, & Eurostat Forecasts

The Emerging Markets Lead World Real GDP Growth

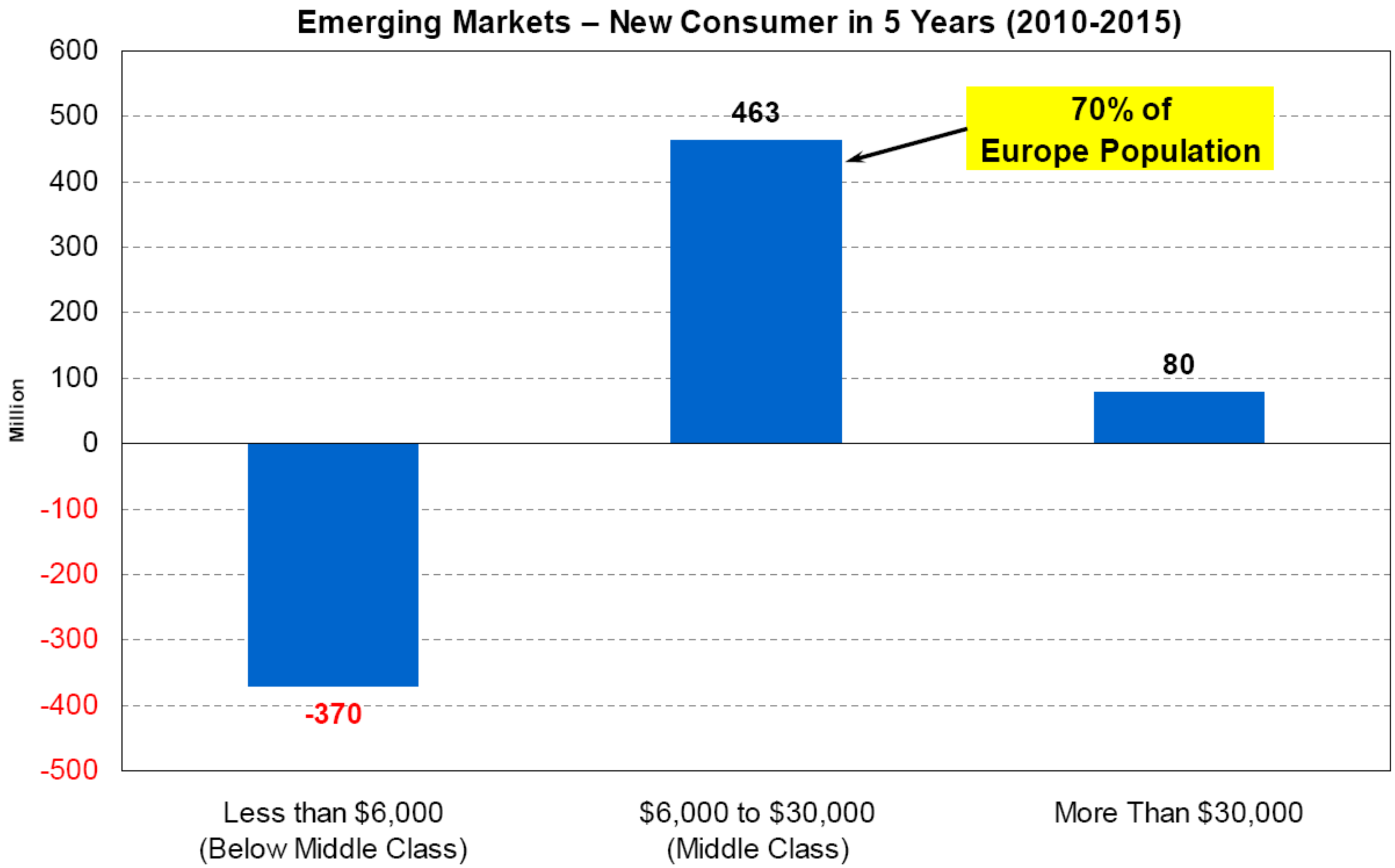
2010 World Real GDP Growth Projections (%)



- Below 0
- Between 0-1
- Between 1-2
- Between 2-3
- Between 3-4
- Between 4-5
- Above 5
- No Data

Source: International Monetary Fund

Based off Current Trends "Middle Class" is expected to grow by 460 million people



Source: GMO

The EMD Local Currency Opportunity

Emerging Market Debt – Local Currency vs. Hard Currency (USD)

- **In years past, NEPC has published a single Emerging Market Debt assumption**
  - This blended figure encompassed both the hard, or USD denominated, debt and local currency debt issued by emerging sovereign nations
- **Local Currency EMD created as a distinct asset class given growing size and unique characteristics**
  - Local EMD has shorter duration, higher yield and different issuer mix
  - Investable local EMD issuance now totals $600 billion as compared to the $400 billion in USD denominated debt
  - We expect issuance to shift from hard to local currency debt for many large nations
    - BarCap notes that Russia and Mexico are unlikely to issue in USD or EUR in 2011 – the two make up about 30% of the current Hard debt market
- **Based on improving fundamentals we believe volatility is likely to decline slightly in EMD on a blended basis to approximately 14%**
  - This view is executed through a reduction in volatility for Hard USD denominated debt to 12%
  - Maintaining prior EMD volatility assumption of 15% for EMD Local to account for additive currency volatility
- **Emerging Markets Debt Local Currency**
  - Take advantage of higher yields, potential currency appreciation and diversification benefits

Key Points

- **Local currency emerging markets debt is a unique asset category that is separate from USD / Euro EMD**
  - Mainly due to differences in components of risk and return

- **In general, fundamentals in emerging countries are strengthening, with contemporaneous weakening of fundamentals in developed markets**

- **Higher yields in emerging countries combined with prospects for real currency appreciation make the current opportunity attractive**

- **Emerging markets will continue to drive global growth in aggregate demand at a sustainable pace**
  - World demographics will be a major driver of economics
  - Levels of productivity and wealth in emerging countries are increasing
    - Growth and emergence of a middle class and expectations of increasing domestic consumption

- **Investing in local currency bond markets is not a free lunch**
  - Markets are still susceptible to risks of default, currency devaluation or high levels of volatility

EM Local Currency – The Opportunity

- **Emergence of local currency markets that are open to foreign investors is a relatively new phenomenon**
  - Tremendous growth within the past five years
  - An alternative for emerging countries that have traditionally borrowed (long-term) in external debt markets (Dollars or Euros)

- **The depth, size and liquidity of local markets is increasing**
  - Some markets exhibit a stronger "local bid" from long-term investors such as pension funds, insurance companies, financial institutions, and investors
  - Foreign investors hold a minority percentage in most local bond markets
    - Foreign capital comprises about 20% of local currency bond markets
  - A growing perception that local government bonds are the safest investment in the local currency
  - Only sovereign issues are considered
    - Local credit markets are currently too illiquid and undeveloped

- **Equities also provide an opportunity for foreign investors that like the growth prospects of emerging markets**
  - EM stock markets do not completely overlap with the bond opportunity, creating an ability to diversify in local bond markets
  - Less of a "BRIC" (Brazil, Russia, India, China) story in debt markets due to capital controls in some countries and issuance patterns

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EM Local Currency – The Opportunity (continued)

- **In aggregate, nominal sovereign bond yields are attractive in emerging markets countries relative to developed markets**
  - Vis-à-vis the collapse in global risk premia in all asset classes
  - Inflation expectations and thus the inflation risk premium is also higher in emerging countries
    - But this is trending downward as inflation stabilizes
  - Layering-in credit and liquidity risk premiums helps to explain the higher yields
  - Emerging markets equities may also capture higher prospective real yields, however, equities are much more volatile

- **In an environment where macro-economic factors are likely to drive capital markets, emerging markets are positioned to perform relatively better**

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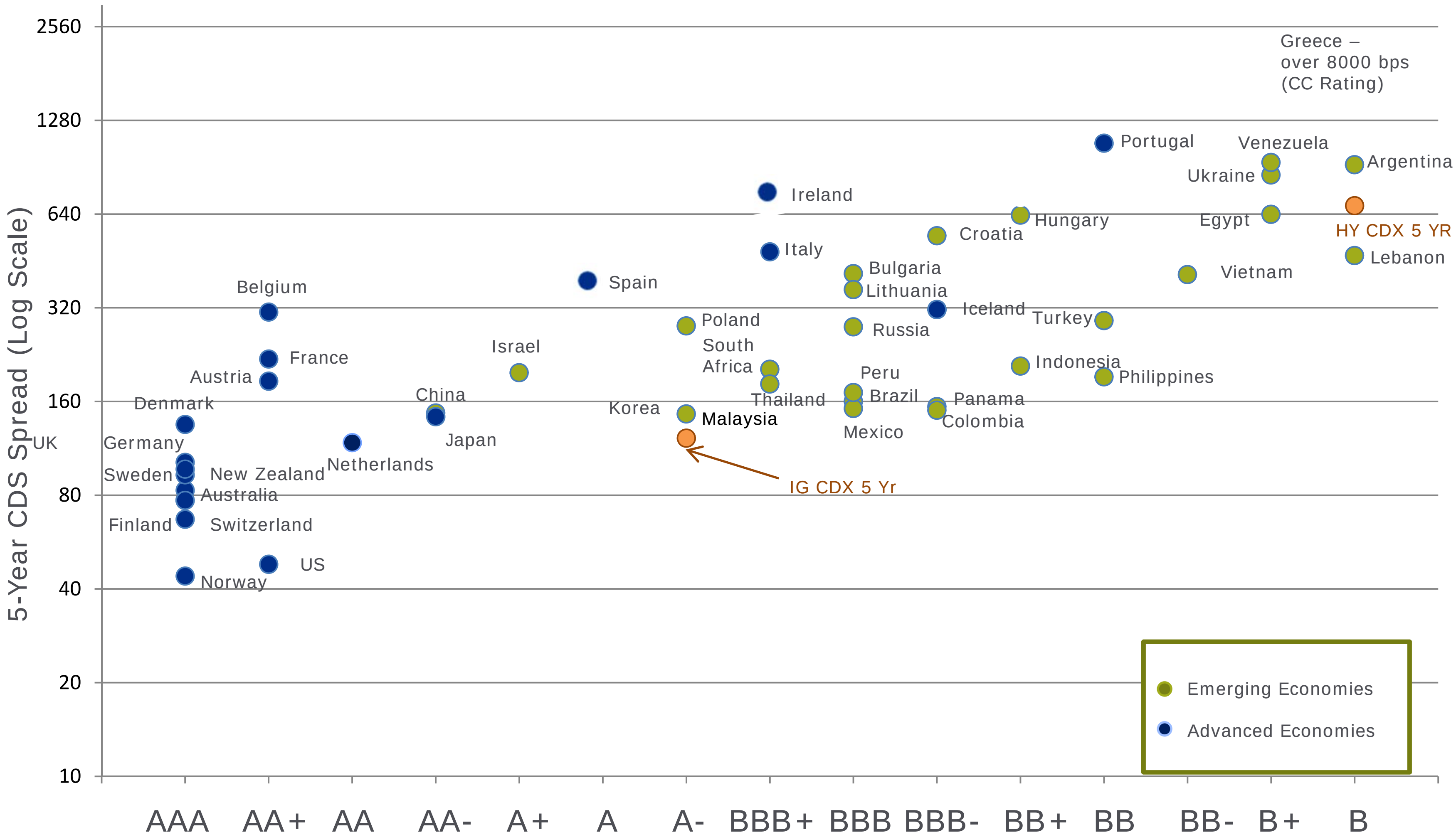
Global Sovereign Risk is Converging



Source: Bloomberg, S&P, JP Morgan

As of 12/31/2011

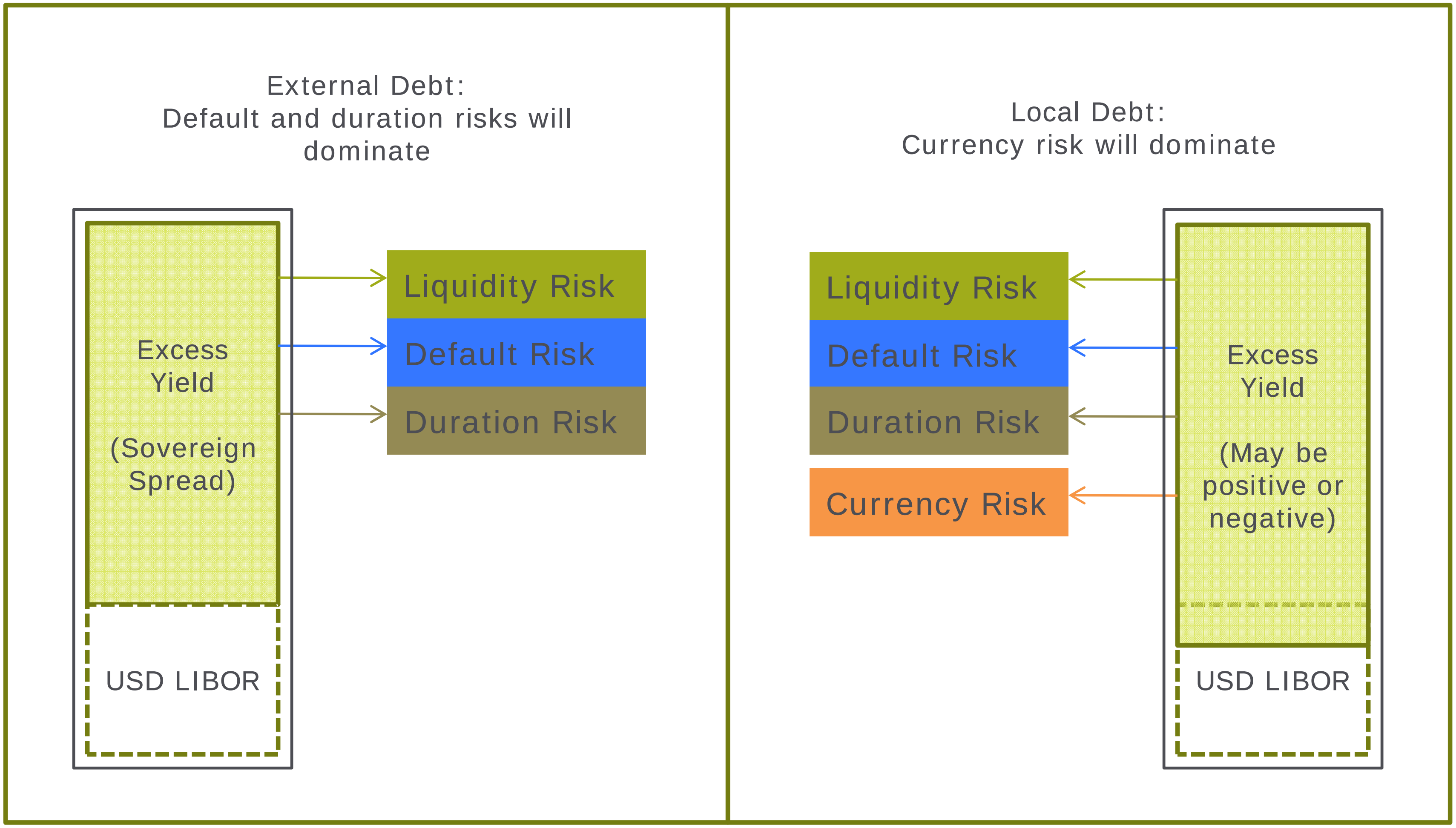
EM Local Currency – Positive Structural Change

- **Many countries have adopted floating exchange rates versus pegged exchange rates**
  - A floating exchange rate provides greater financial flexibility for an economy
  - Example: Iceland versus Greece
  - Generally, emerging country currencies are volatile, and holders of these currencies demand a higher yield to bear the currency risk

- **Central banks have increasingly adopted more pro-active monetary and fiscal policies**
  - Inflation targeting
  - Increased transparency
  - Retiring external debt, shorter term debt and floating rate debt in favor of issuing longer term debt, and in some countries inflation-linked bonds
  - A gradual lengthening and build-out of government yield curves
    - A very important step in developing debt markets

- **The quality and quantity of information has improved**
  - Better central bank and government oversight
  - More dedicated global research and focus on emerging markets

Risks in Emerging Markets Debt



Source: GMO

Potential Challenges and Risks in Emerging Economies

- **A crash in commodity markets**
  - Many emerging countries are commodity exporters (Russia is particularly reliant on oil exports)
- **The deepening and broadening of local markets erodes prospective return outlook, and/or increases correlations with developed markets**
  - Perhaps emerging economies have weathered the credit crisis better because they are relatively unsophisticated markets
  - Increased sophistication of financial systems could increase market fragility
- **Political risks?**
  - Seems like less of a concern now than in previous time periods, with some country-specific exceptions
- **Currency devaluation and convertibility risks**
  - A large devaluation would be akin to a default
  - Capital controls relating to the expatriating/repatriating of dollars
    - Biggest threat would be a government preventing capital outflows during a crisis

Potential Challenges and Risks in Emerging Economies (Cont'd.)

- **Boom in asset prices combined with ample liquidity and credit**
  - Could fuel vulnerability to correction or instability
  - Strong capital flows into emerging countries due to strong growth prospects and appreciating currencies
    - Inflationary pressures
  - Push factors such as low growth and low interest rates in advanced countries
  - Real estate bubbles

- **A weaker China**
  - China is becoming such a large contributor to global growth and such a large consumer of energy and commodities that it will have a greater impact on emerging markets that export commodities
  - Outlook relies on exports
    - Thus consumer demand in the US and Europe
  - Uncertainty with potential transition to a consumer-driven economy

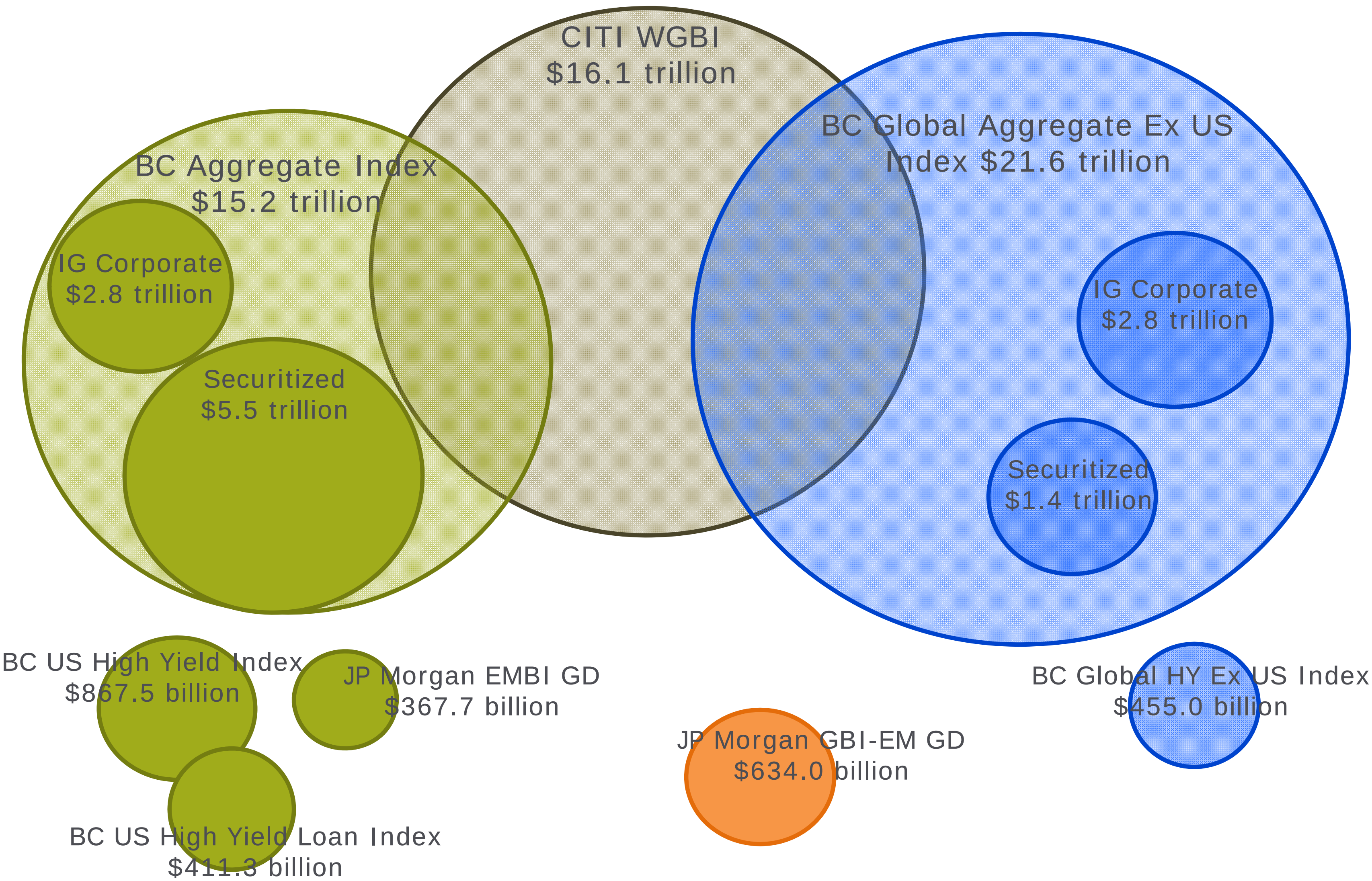
Summary

- **We like the macro-economic story supporting the reasons to invest in emerging markets**
  - Particularly in the current environment where fundamentals in advanced markets are weakening

- **Local currency EMD in an investment portfolio will:**
  - Increase the yield on the fixed income portfolio
    - Mostly through higher nominal interest rates in emerging countries and not by taking a lot of credit risk
  - Increase diversification and provide access to markets where emerging equities are not available
  - Increase exposure to faster growing parts of the world without adding to equity volatility

EMD Local Currency As an Asset Category

Investable Bond Markets By Index – Total Capitalization



Source: Bank for International Settlements, Barclays, CITI, JP Morgan

Indexes may not fully represent entire market capitalization

Emerging Local Bond Markets – Total Capitalization

- **In general, benchmarks are not a complete representation of local bond markets**
  - There are about 25 emerging countries that issue bonds in domestic markets
  - China, India and Brazil are the largest components by capitalization
  - Chinese and Indian markets are mostly closed to foreign investors, amongst other smaller markets
  - Capital controls and taxation on foreign investors exist in some markets such as Indonesia
- **By including liquid currencies, the opportunity set increases**
  - Markets where bond investments are not available, but currency markets are investible

Emerging Markets Fixed Income Indices

- **JP Morgan Emerging Markets Bond Index Family (EMBI)**
  - Tracks total returns for US dollar-denominated debt instruments issued by emerging market sovereign and quasi-sovereign entities. Includes Brady Bonds, loans and Eurobonds
  - Three different versions: EMBI+, EMBI Global, EMBI Global Diversified
- **JP Morgan Corporate Emerging Markets Bond Index Family (CEMBI)**
  - Tracks total returns for US dollar-denominated debt instruments issued by corporate entities domiciled in emerging markets countries
  - Three different versions: CEMBI, CEMBI Broad, CEMBI Diversified

External Debt

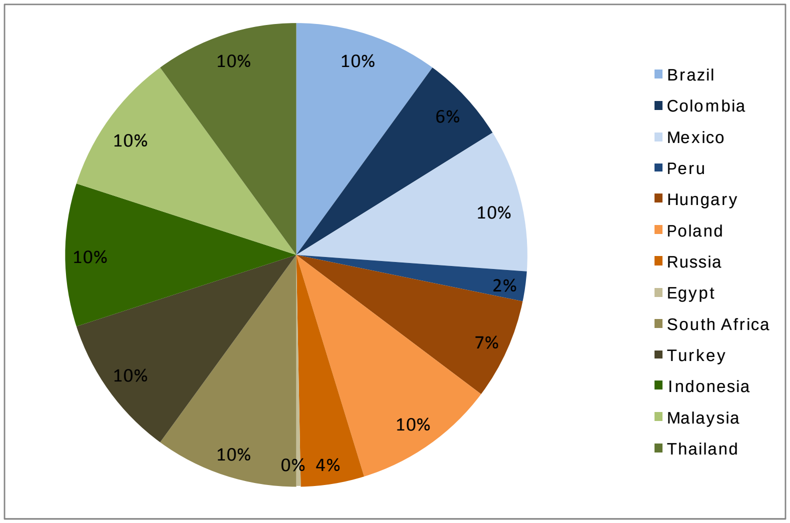
- **JP Morgan Emerging Local Markets Index Family (ELMI)**
  - Tracks total returns for local-currency denominated money market instruments and NDFs in 23 emerging markets
- **JP Morgan Global Bond Index – Emerging Markets Family (GBI-EM)**
  - Tracks total returns of investible fixed rate, regularly traded and liquid emerging markets government bonds issued in the local currency

Local Debt

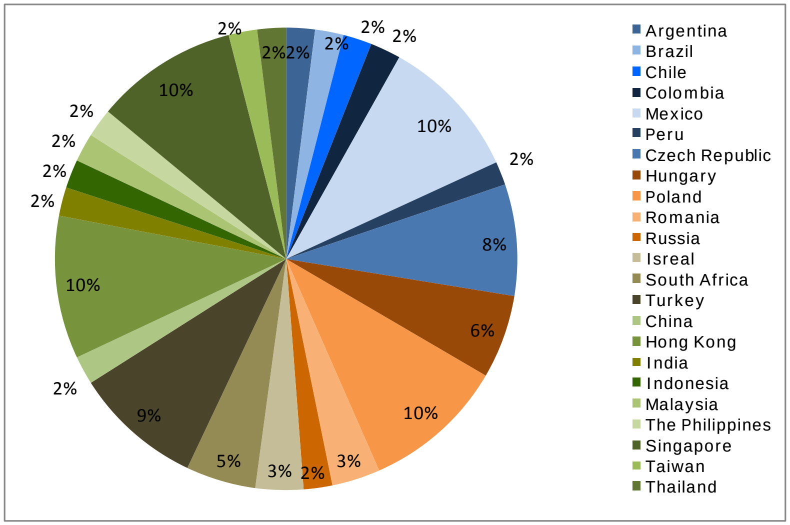
Benchmark Composition

- **The JP Morgan GBI-EM Diversified attempts to represent the investible government bond market in emerging countries**
  - Good diversification by region
  - Brazil, Mexico, Poland, South Africa, Turkey, Indonesia, Malaysia and Thailand are all capped at 10%
  - Lower country diversification than other EMD benchmarks
- **The JP Morgan ELMI+ is a currency-only benchmark**
  - Good country and regional diversification
  - Brazil, Poland, Hong Kong and Singapore are capped at 10%

JP Morgan GBI-EM Global Diversified



JP Morgan ELMI+



Source: JP Morgan

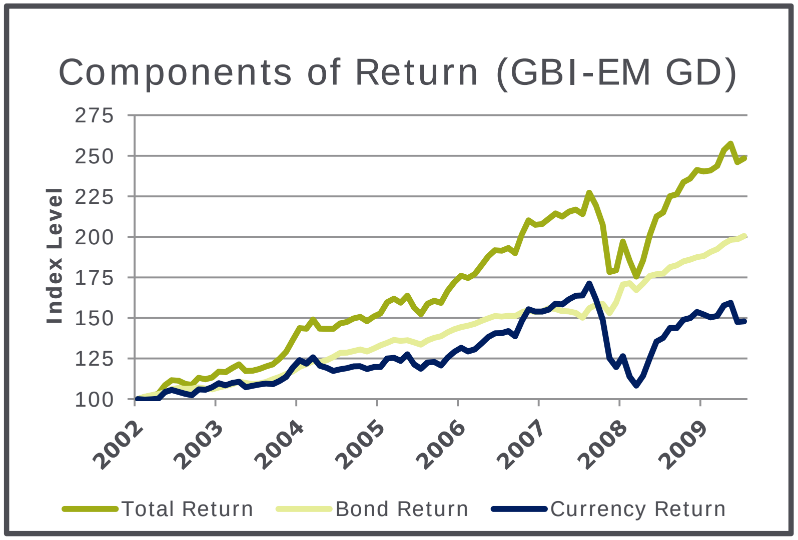
Emerging Markets Fixed Income Index Comparison

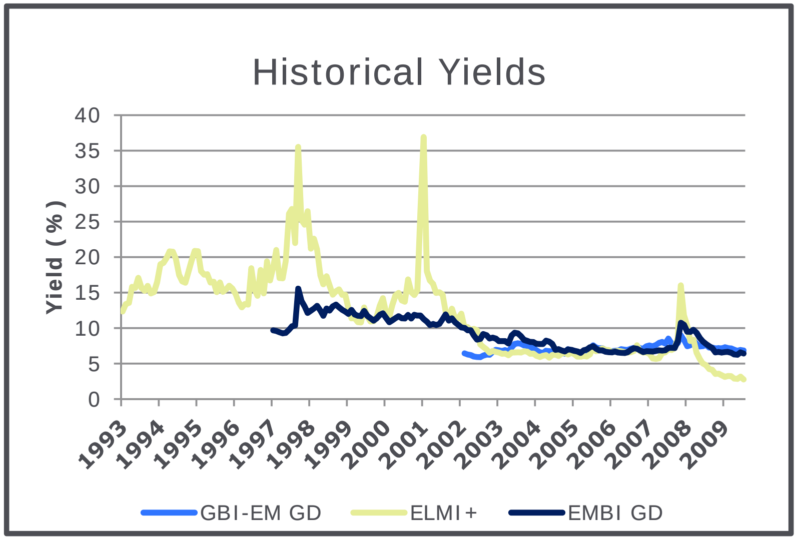
Index	JP Morgan EMBI Global Diversified	JP Morgan GBI-EM Broad Diversified	JP Morgan GBI-EM Global Diversified	JP Morgan GBI-EM	JP Morgan ELMI+
Local/External	External Debt ($)	Local Currency	Local Currency	Local Currency	Local Currency
Number of Countries	40	17	14	13	23
Country Scope	EM Countries that issue debt in US dollars or in the Eurobond market	Includes China and India	Excludes China and India, but includes Indonesia	Constraints on Brazil and Colombia. Excludes China and India	Includes countries with larger and liquid currency markets, and investable money market instruments
Country Criteria	Low/Middle income emerging markets countries. Determined based upon security-level eligibility and liquidity profile	Low/Middle income countries with a liquid local government bond market	Low/Middle income countries. Accessible to a majority of foreign investors. Does not include markets with capital controls	Low/Middle Income. Directly accessible. No impediments for foreign investors.	Low/Middle Income. Country weights are based on a three year rolling average of exports plus imports
Liquidity Criteria	Daily Pricing	Daily Pricing	Daily Pricing	Daily Pricing	Daily Pricing
Instrument Criteria	Fixed coupon, zero coupon, floating rate, maturity >13 months, sovereign and quasi-sovereign, includes Brady Bonds, loans and Eurobonds	Fixed coupon and zero coupon, maturity >13 months	Fixed coupon and zero coupon, maturity >13 months	Fixed coupon and zero coupon, maturity >13 months	Consists of 1, 2, and 3 month currency forwards. If an FX forward market does not exist, deposits or T-Bills are utilized. Currently the ELMI consists entirely of NDFs.
Number of Issues	223	274	181	147	N/A
Index Market Capitalization	$367.7 billion	$1.1 trillion	$634 billion	$581 billion	N/A
Inception Date	Dec-90	Dec-01	Dec-01	Dec-01	Dec-93
Yield to Maturity	6.63%	6.50%	6.92%	6.61%	3.13%
Duration	7.00 years	4.57 years	4.39 years	4.42 years	1.7 months
Average Maturity	11.92 years*	6.64 years	6.57 years	6.58 years	56.3 days
Average Credit Rating	BB	A-	BBB+	A-	N/A

*Average Life

Sources of Return

- **Local currency bonds have several distinct sources of return:**
  - Currency (local cash yield plus changes in spot rates)
  - Duration
  - Credit risk premium
- **Bond returns have been steadily positive and higher than cash rates since the benchmark's inception**
  - Suggests a positive term premium and upward sloping yield curves
- **Currency has been a major source of volatility, but also has contributed positively to returns**
  - Attractive alpha opportunities (some managers have ability to invest long or short, and to enter cross-currency positions)





Source: JP Morgan

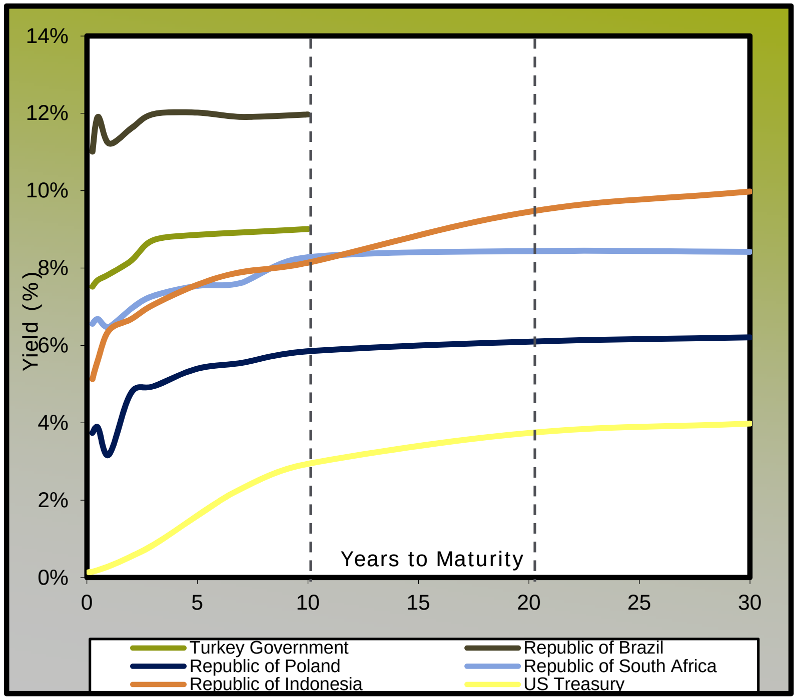
Local Yield Curve Examples

- **Carry, duration and roll-down may provide greater sources of alpha going forward**
  - Due to kinks in some yield curves, positive slope, and high short-term rates
  - Opportunities for security selection

- **Government of Turkey (BB rated), Republic of Brazil (BBB rated) and other countries offer yields similar to high yield corporate bonds**

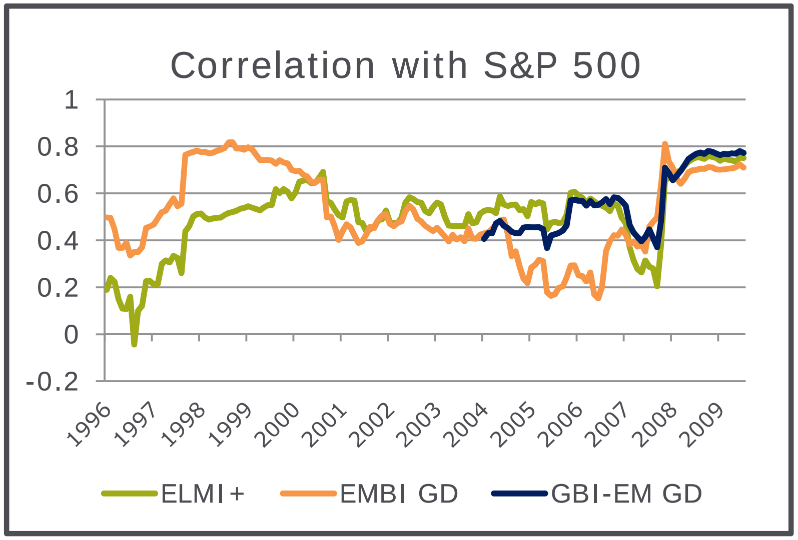
- **Opportunity for country relative value**

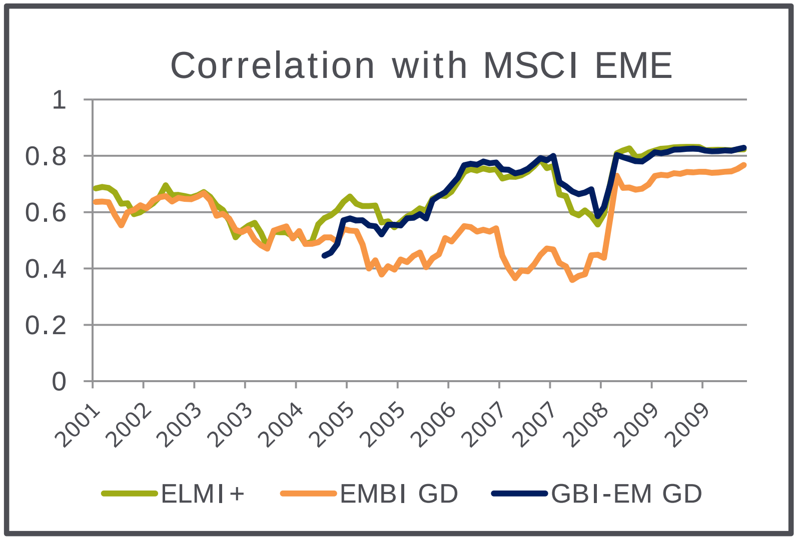
- **Several emerging countries have begun tightening monetary policy and raising benchmark rates**
  - Ahead of advanced markets

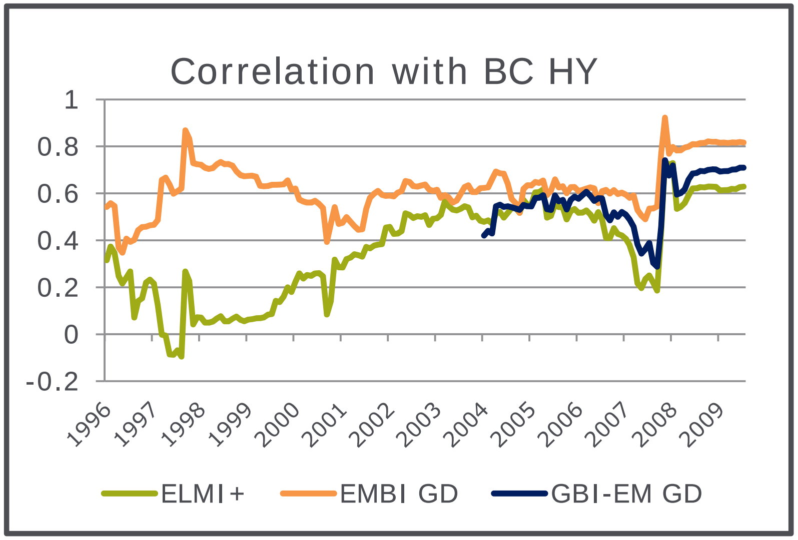


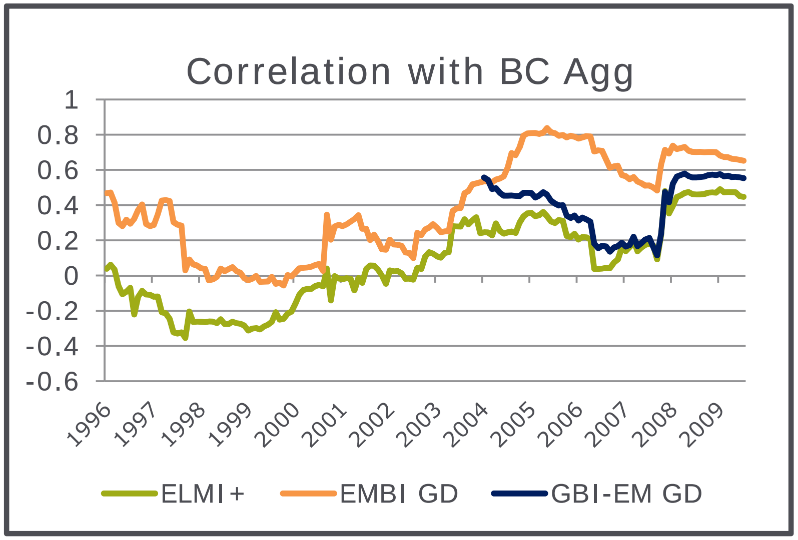
Source: Bloomberg

EMD Rolling Three-Year Correlations with Major Asset Classes



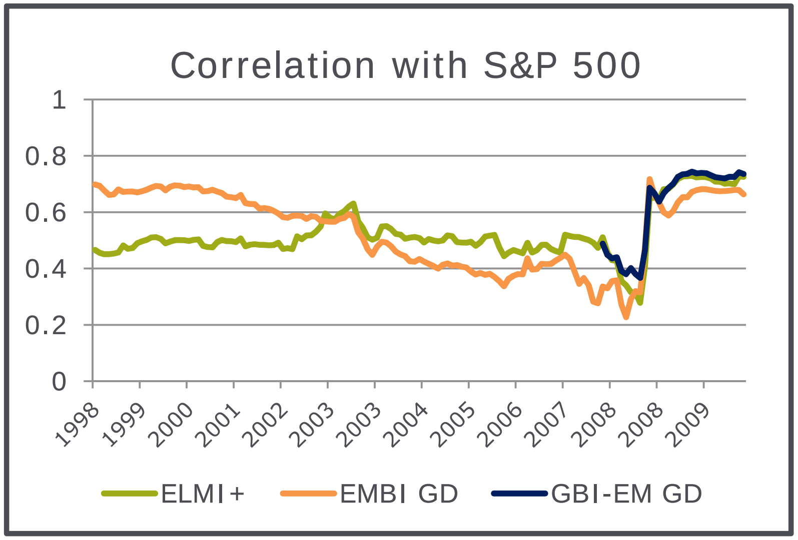


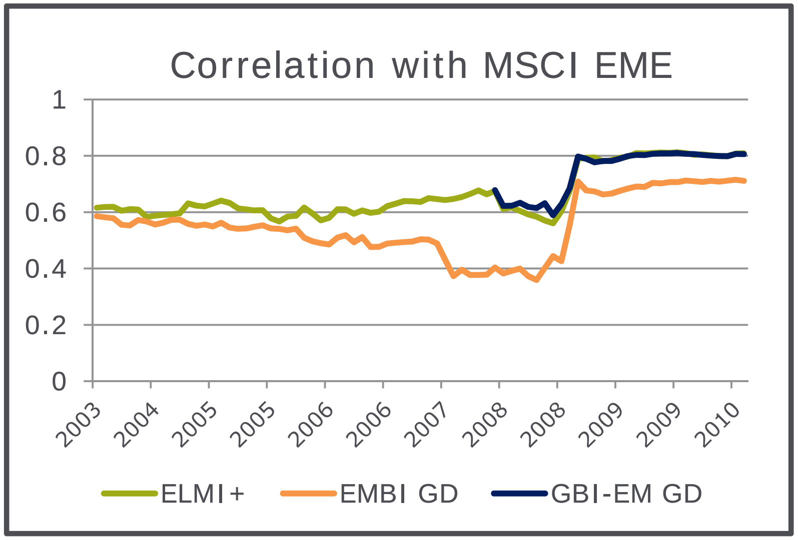


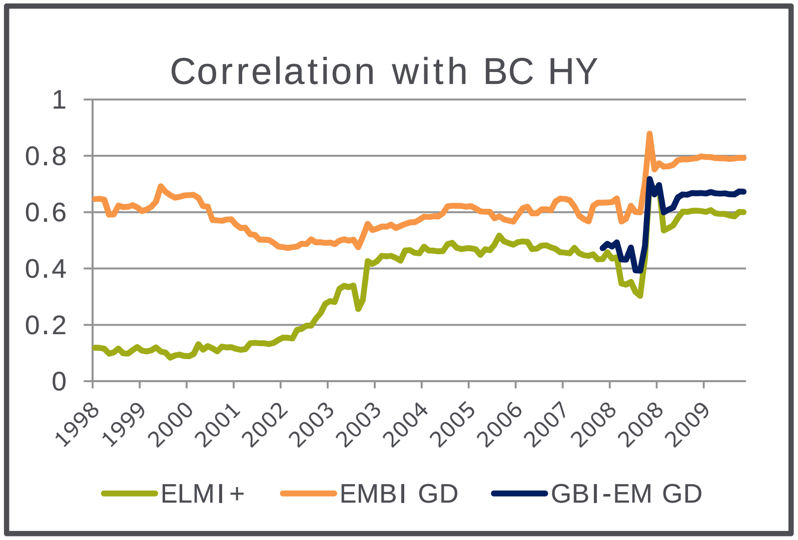


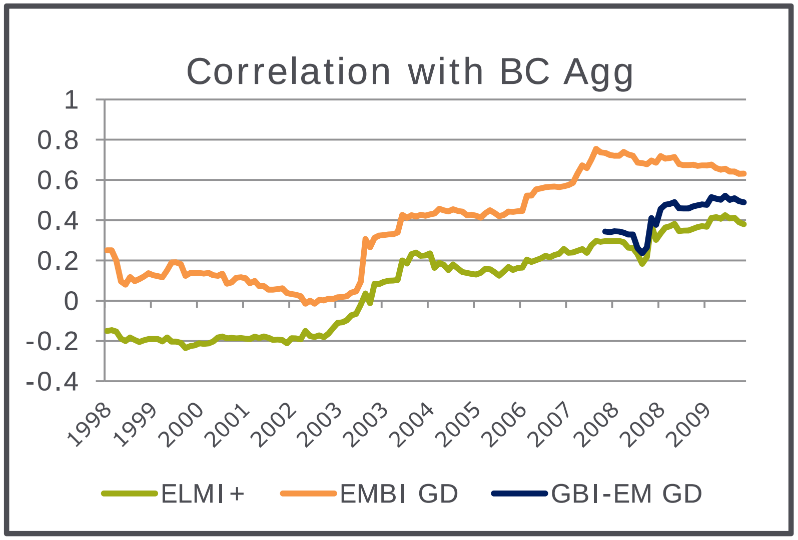
Source: eVestment Alliance, JP Morgan

EMD Rolling Five-Year Correlations with Major Asset Classes









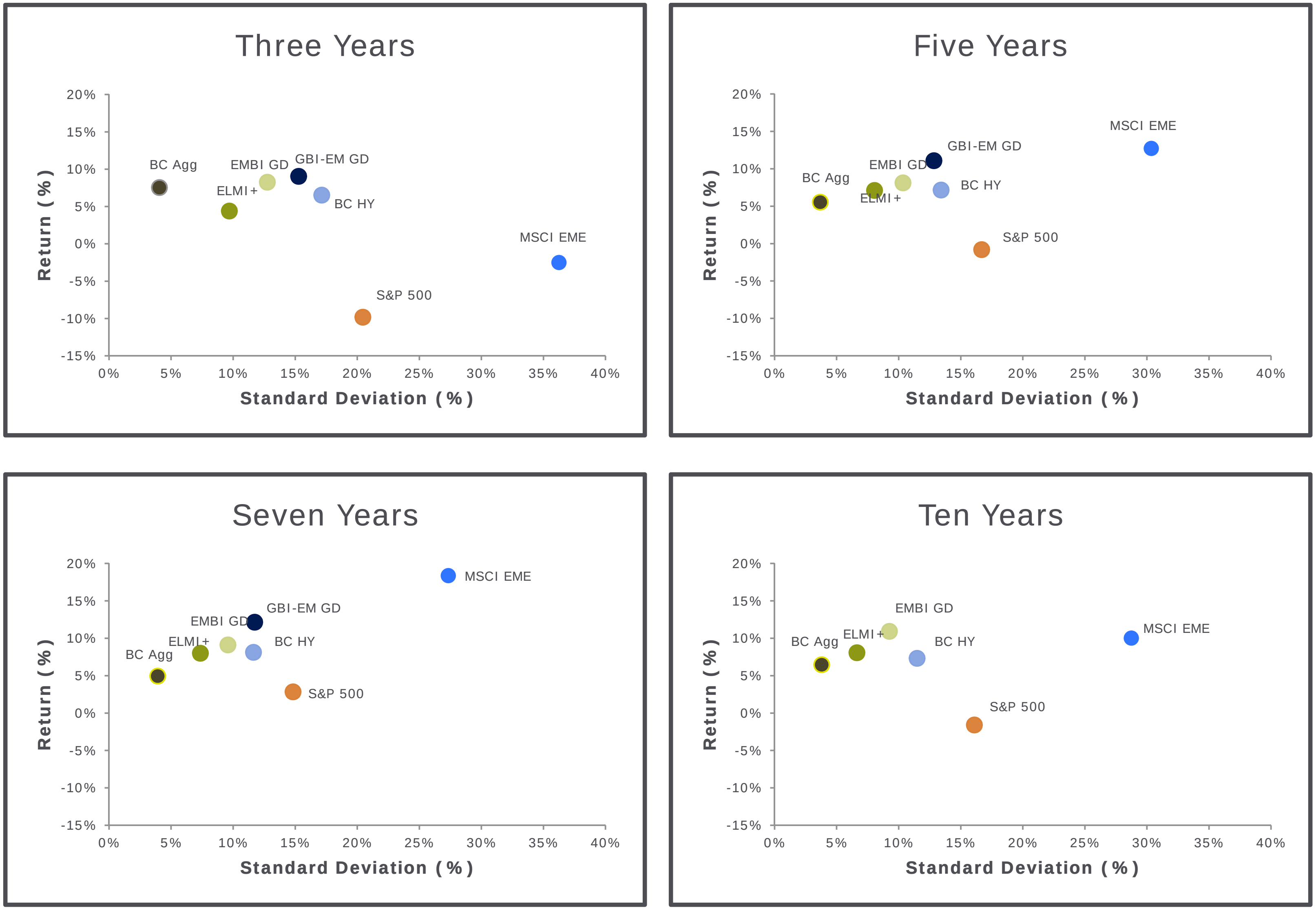
Source: eVestment Alliance, JP Morgan

Annual Returns

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 YTD
12.7%	9.7%	13.7%	55.8%	25.6%	34.0%	32.2%	39.4%	5.2%	78.5%	5.6%
11.6%	8.4%	11.4%	29.0%	23.0%	10.2%	15.8%	18.1%	-3.8%	58.2%	5.3%
2.0%	5.3%	10.3%	28.7%	14.8%	6.3%	15.2%	16.0%	-12.0%	29.8%	4.5%
-5.9%	3.2%	-1.4%	22.2%	11.6%	4.9%	12.3%	7.0%	-12.2%	26.5%	3.3%
-9.1%	-2.6%	-6.2%	15.8%	11.1%	3.2%	11.8%	6.2%	-26.2%	22.0%	-3.1%
-30.8%	-11.9%	-22.1%	15.5%	10.9%	2.7%	9.9%	5.5%	-37.0%	11.7%	-6.2%
			4.1%	4.3%	2.4%	4.3%	1.9%	-53.3%	5.9%	-6.6%

JP Morgan ELMI+
JP Morgan GBI EM GD
JP Morgan EMBI GD
Barclays Capital HY Index
Barclays Capital Aggregate Index
S&P 500
MSCI Emerging Markets Equity Index

Source: Evestment Alliance, JP Morgan


Three Years
BC Agg
EMBI GD
GBI-EM GD
ELMI+
BC HY
MSCI EME
S&P 500
Return (%)
Standard Deviation (%)
Five Years
MSCI EME
GBI-EM GD
EMBI GD
BC Agg
BC HY
ELMI+
S&P 500
Return (%)
Standard Deviation (%)
Seven Years
MSCI EME
GBI-EM GD
EMBI GD
ELMI+
BC HY
BC Agg
S&P 500
Return (%)
Standard Deviation (%)
Ten Years
EMBI GD
ELMI+
MSCI EME
BC Agg
BC HY
S&P 500
Return (%)
Standard Deviation (%)
20%
15%
10%
5%
0%
-5%
-10%
-15%
0%
5%
10%
15%
20%
25%
30%
35%
40%

Investment Managers and Products

- **Most managers expand the opportunity set beyond benchmark-eligible countries**
  - Adding currency-only positions diversifies country risk
  - Out-of-Benchmark positions in EM external sovereign and corporate debt
  - Investment styles will emphasize country selection and security selection
  - Some products completely decouple duration and currency decisions
    - Increases alpha opportunities, and allows for active positions where a manager likes currency valuations but is negative on interest rates (and vice versa)

- **Expect higher alpha opportunities than some other traditional long-only asset classes**
  - Higher dispersion amongst local markets allows for differentiation and stronger active views
  - Manager styles range from benchmark-aware to absolute return oriented

- **NEPC has a preference for sourcing managers with proven track records and experience investing in emerging markets**
  - A strong investment thesis related to gathering and processing information, and to understanding the risks of the asset class

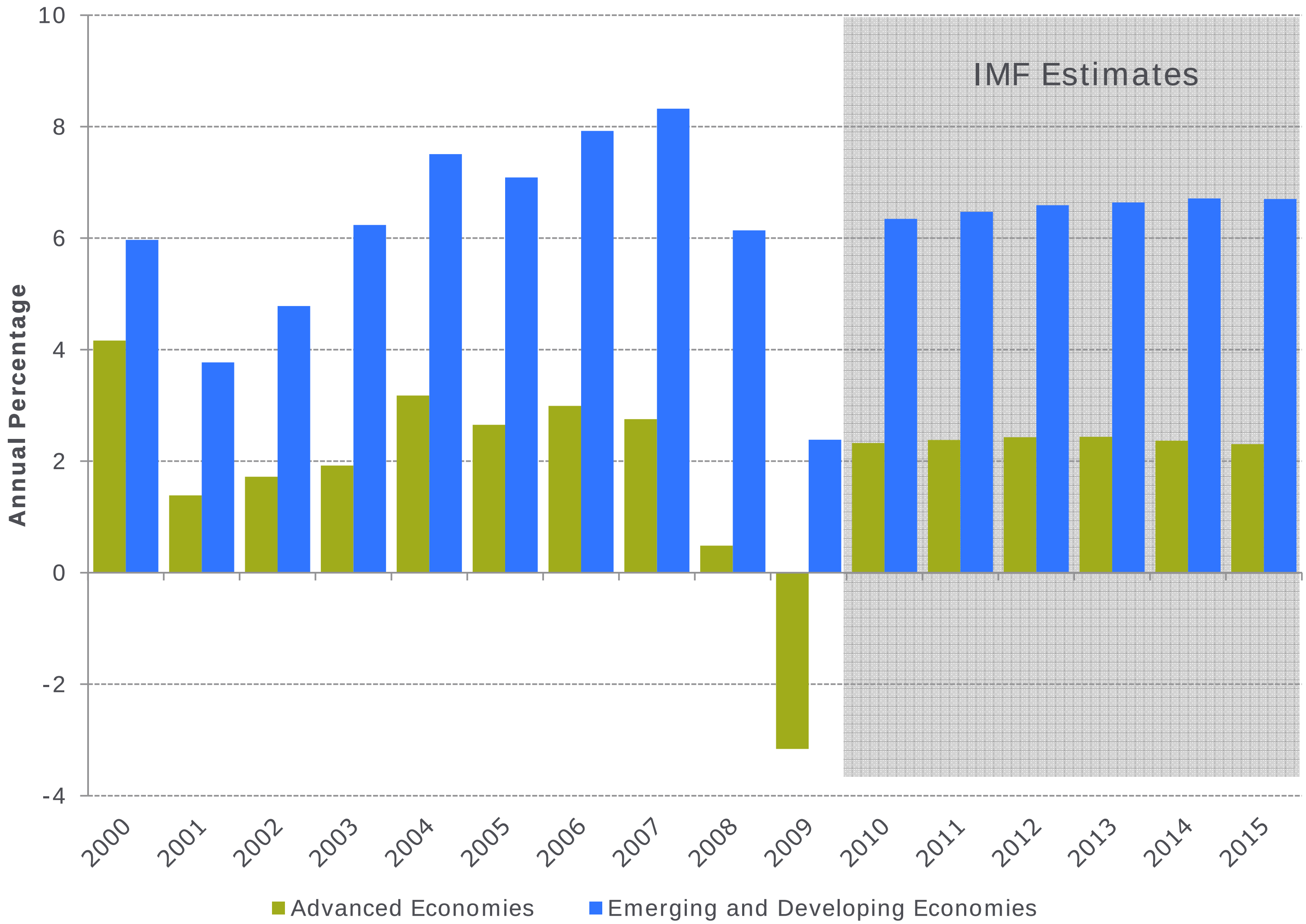
Appendix

Sovereign Credit Risk Increasing in Advanced Economies

	5-Year Sovereign CDS Spreads (bps)	Notches above speculative grade	Rating Actions Since 6/30/2007	Rating Agency Outlook	Gross Government Debt as a Percent of 2010 GDP
Australia	38	9	None	Stable	19.8
Austria	58	10	None	Stable	70.7
Belgium	58	9	None	Stable	100.1
Canada	NA	10	None	Stable	82.3
Denmark	34	10	None	Stable	51.2
Finland	25	10	None	Stable	49.9
France	50	10	None	Stable	84.2
Germany	33	10	None	Stable	76.7
Greece	427	0	9 Down	Negative	124.1
Iceland	412	0	11 Down	Negative	119.9
Ireland	155	8	5 Down	Negative	78.8
Italy	125	7	None	Stable	118.6
Japan	66	8	None	Negative	227.3
Korea	82	5	None	Stable	33.3
Netherlands	34	10	None	Stable	64.2
New Zealand	46	9	None	Negative	31.3
Norway	19	10	None	Stable	53.6
Portugal	160	7	2 Down	Negative	85.9
Spain	130	9	1 Down	Negative	66.9
Sweden	35	10	None	Stable	43.1
Switzerland	45	10	None	Stable	39.8
United Kingdom	77	10	None	Negative	78.2
United States	42	10	None	Stable	92.6

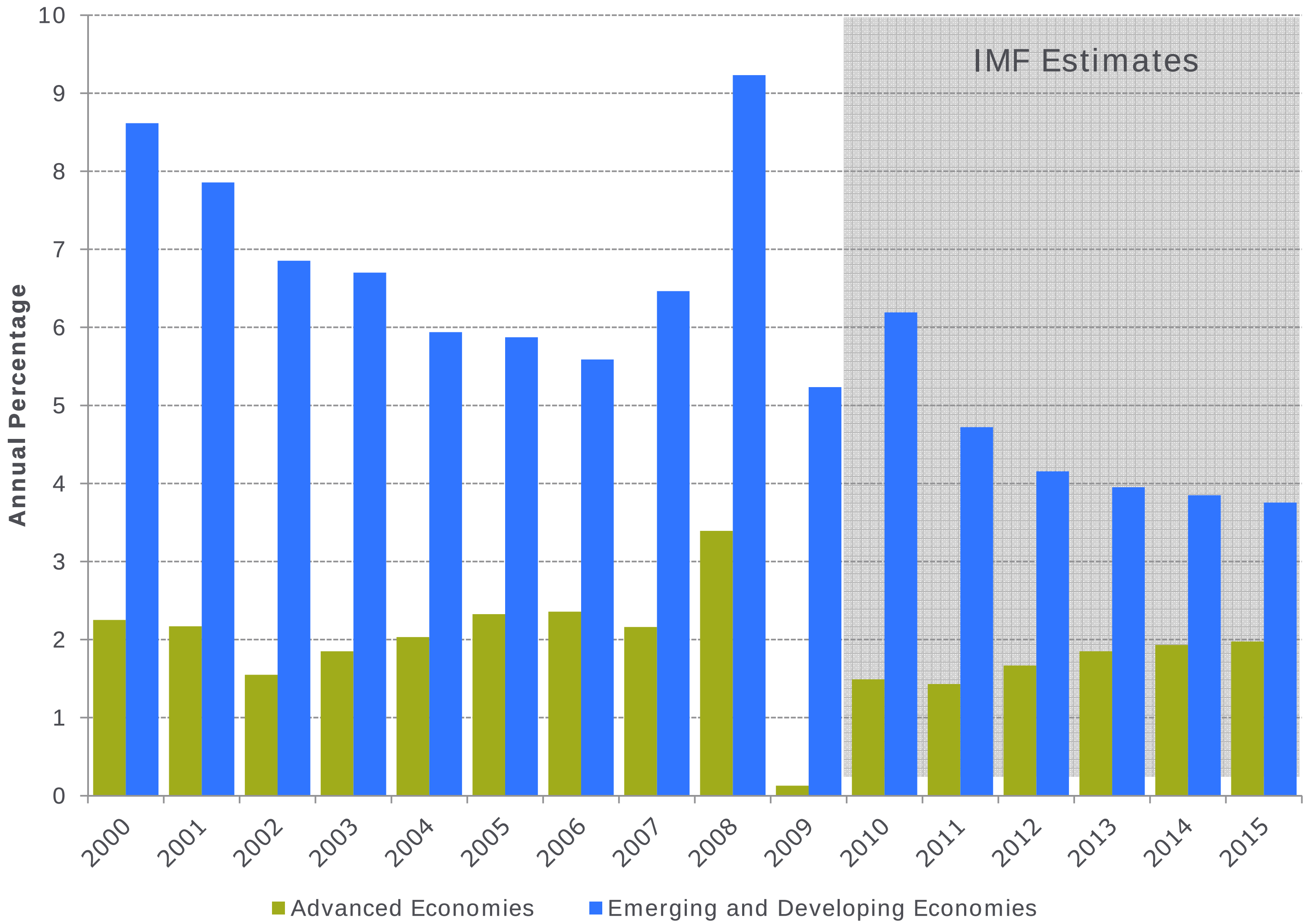
Source: International Monetary Fund's April 2010 Global Financial Stability Report, Bank for International Settlements, Bloomberg

World GDP (Constant Prices) – Annual Percentage Change



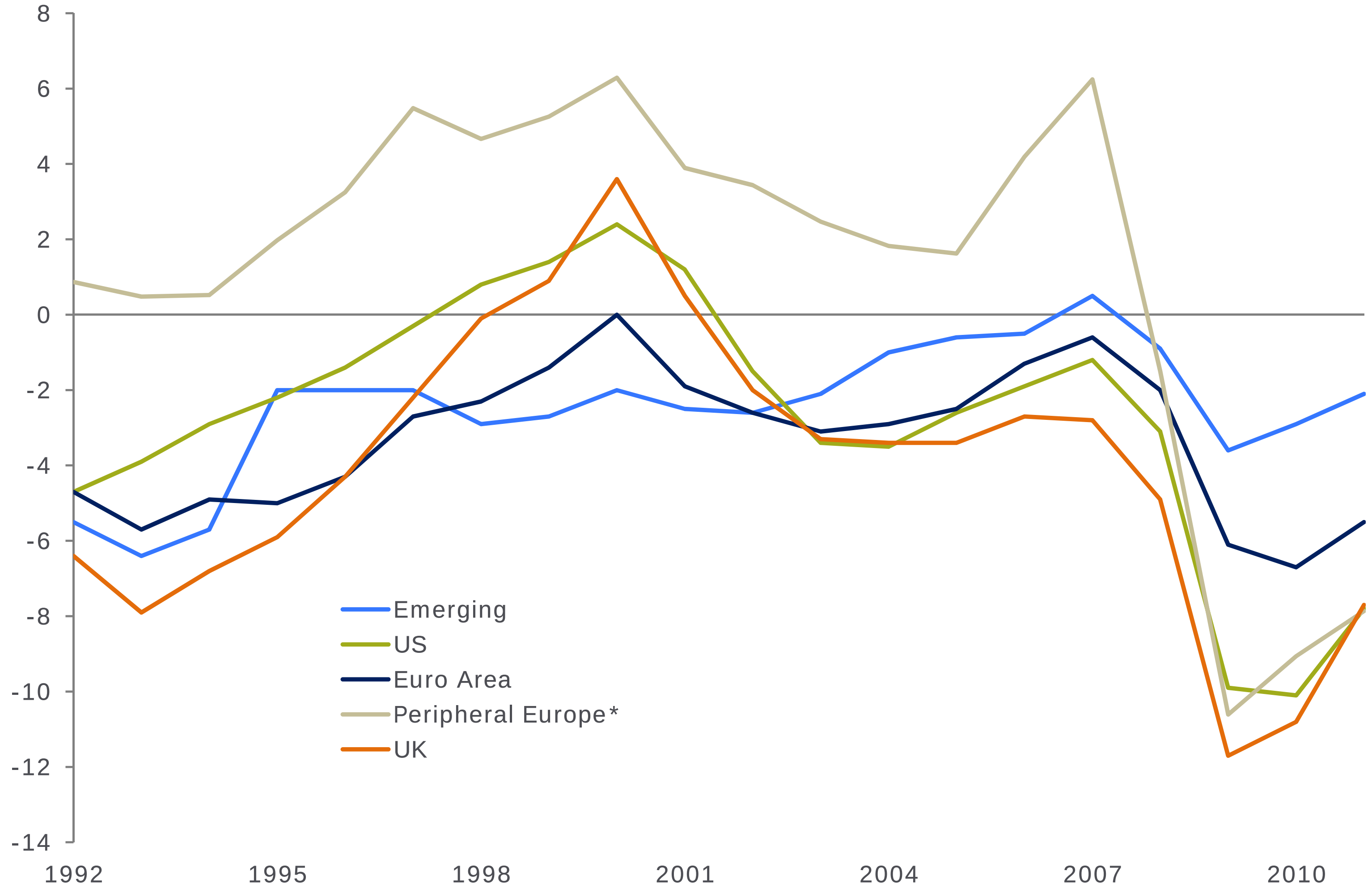
Source: International Monetary Fund

World Inflation – Annual Percentage Change



Source: International Monetary Fund

Fiscal Deficits Are Worse in Developed Countries



*Includes only Greece, Ireland, Italy, Portugal, and Spain

Source: JP Morgan, International Monetary Fund