



Structural and Cyclical Components in Emerging Markets' Growth Slowdown

Aims...

- » The ultimate aim of our exercise is to estimate how important are cyclical and structural factors in the ongoing growth slowdown in Emerging Markets (EMs)
- » We do so using different techniques to enable a comparison of the results
- » Before doing that, we will frame the discussion in terms of the observed recent EMs growth performance

2014 Credit Drivers for Emerging Markets (EMs):

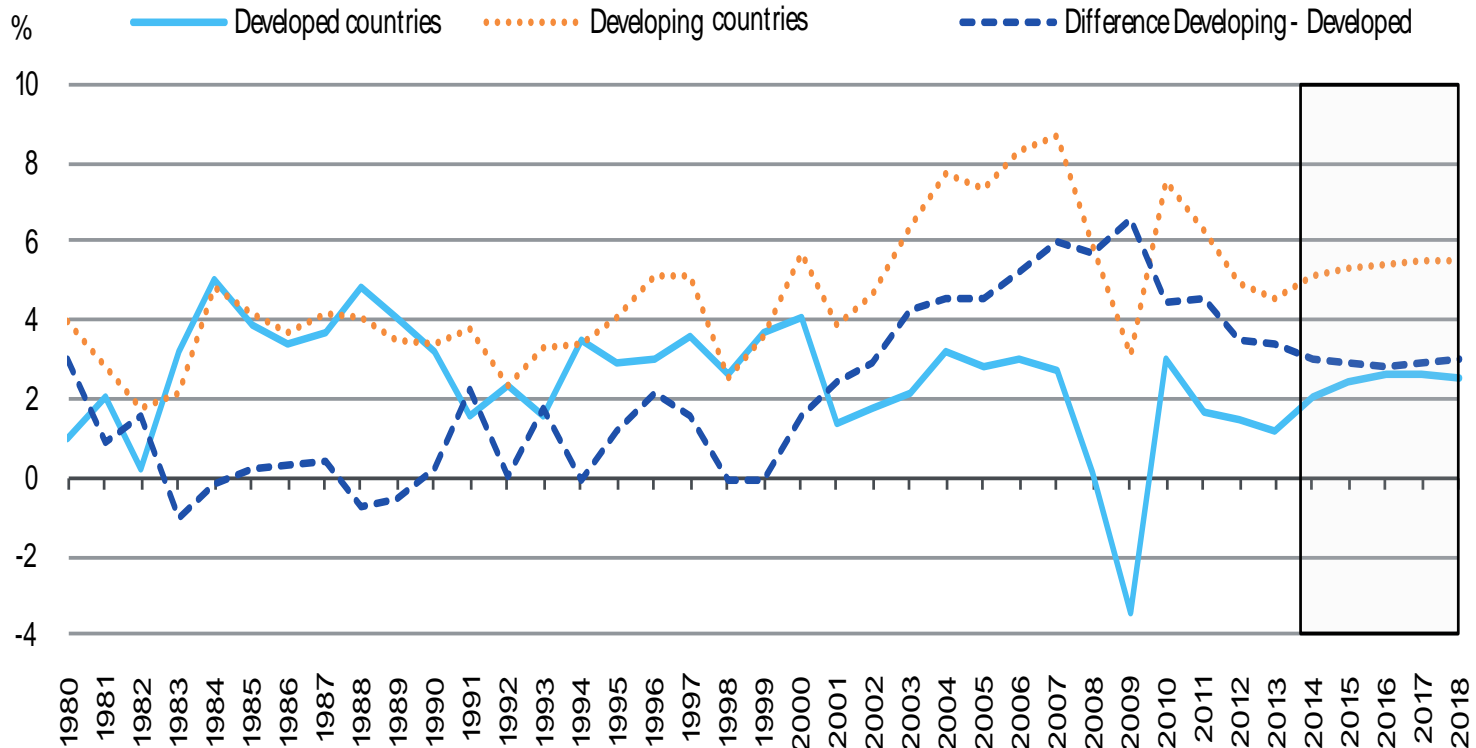
Below-trend growth, tightening liquidity & structural constraints

- » The ongoing growth slowdown in EMs was highlighted as one of the main potential drivers for 2014 sovereign stresses in Moody's last "Global Sovereign Outlook"
- » Emerging structural constraints in large EMs will continue to drive below-average-trend growth, weighing on commodities demand and government revenues
- » Meanwhile, a tightening of monetary policy in response to the tapering of the US Fed's QE programme is likely to *(temporarily)* depress growth *(and also affect the debt affordability for countries with large current account deficits and a weak policy framework)*

“Growth gap” still far above historical norm

- » Since the peak of the “growth gap” between advanced and EMs in 2009, the differential between advanced and EMs has almost halved
- » We expect the “growth gap” to further contract towards **3%** over the medium term, reflecting improving growth prospects for major advanced economies
- » However, even a **3%** difference remains very high by historical norms: the World Bank’s data on long-term GDP from 1960-2012 show an average difference of around **1.7%** annual growth in favour of EMs

Divergence in GDP growth peaked in 2009 – and has contracted ever since (%)



Source: Moody's Investors Service, based on IMF data

Cyclical vs Structural Components

- » The recent below-trend growth among EMs is partly due to temporary factors. While US growth has positive trade implications for EMs, the ongoing “tapering” of the US Fed liquidity stimulus means that EMs face challenges in adjusting to shifts in capital flows, with potentially negative short-term effects
- » As a result, the near-term growth outlook for many EMs has deteriorated, even if the longer-term consequences of the normalization of US monetary policy may be relatively mild and temporary in aggregate
- » Also, some EMs that have deeper trade-related economic links with the US (*e.g. Mexico*) should benefit from the US growth, counteracting tapering-related pressures
- » However, other EMs are more exposed: low levels of domestic savings make them relatively reliant on foreign capital flows

But Structural Constraints Also Affect Growth in Emerging Markets (EMs)

- » The below-trend growth in EMs is also a reflection of long-term structural constraints to growth
- » Those vary between countries, and include such constraints as falling and aging work forces, limited infrastructure (*itself a reflection of low investment rates*), and institutional shortcomings
- » We will perform here estimations of the relative importance of cyclical and structural components in the growth slowdown between 2010 and 2013, on a sample composed of the G20 EMs (*responsible for almost 68% of EMs' total GDP*)

How? Estimation Techniques

- » The combination of techniques used for the estimation are as follow:
 1. Statistical methods, namely the Hodrick-Prescott **(HP)** filter,
 2. Theoretically based methods, namely an aggregate production function **(PF)** approach

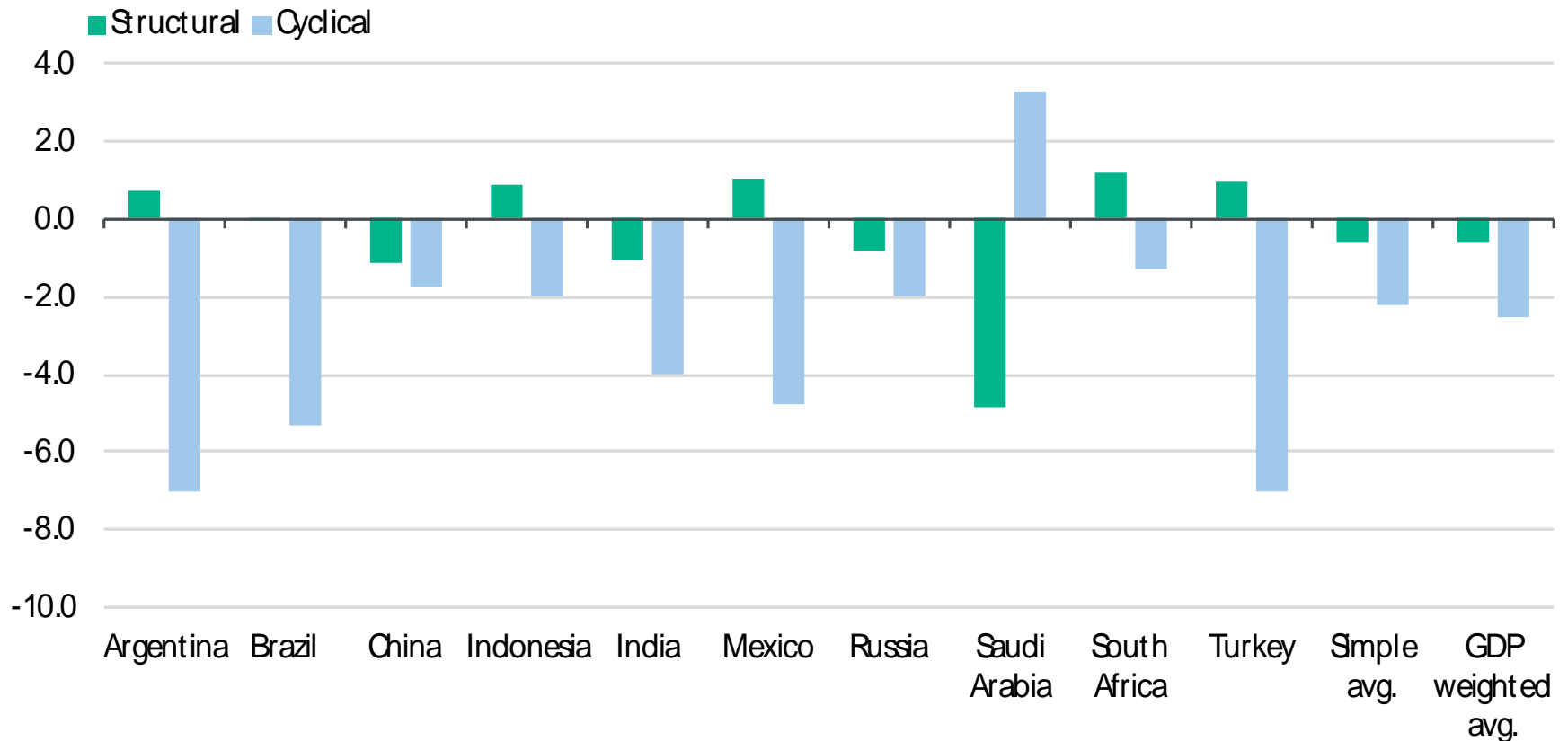
- » The techniques are further described in the Annexes

- » We do not take any *a priori* position on the size of the slowdown, nor on contribution and importance of cyclical versus structural factors, for either the aggregate of EMs or for individual countries: the analysis will reveal this

But before results, some initial data....

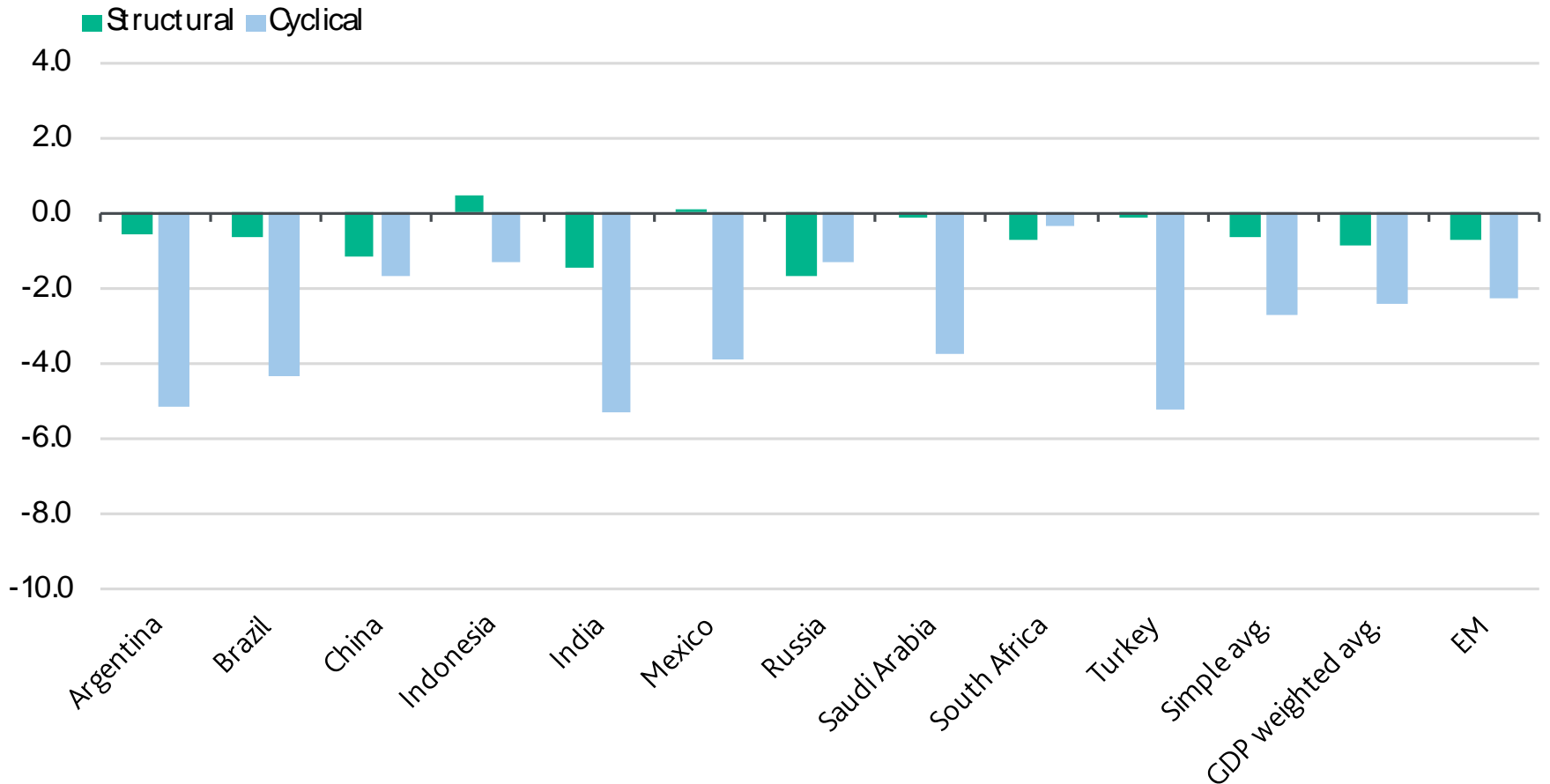
- » The aggregate growth deceleration in EMs between 2010 and 2013 is around **3%**
- » *All* G20 EMs countries experienced growth decelerations, with an average of **3.4%** growth deceleration over the same period
- » However, the slowdown was **5%** or more in several G20 EMs members—Argentina, Brazil, India and Turkey

Results: Production Function Approach (real growth %)



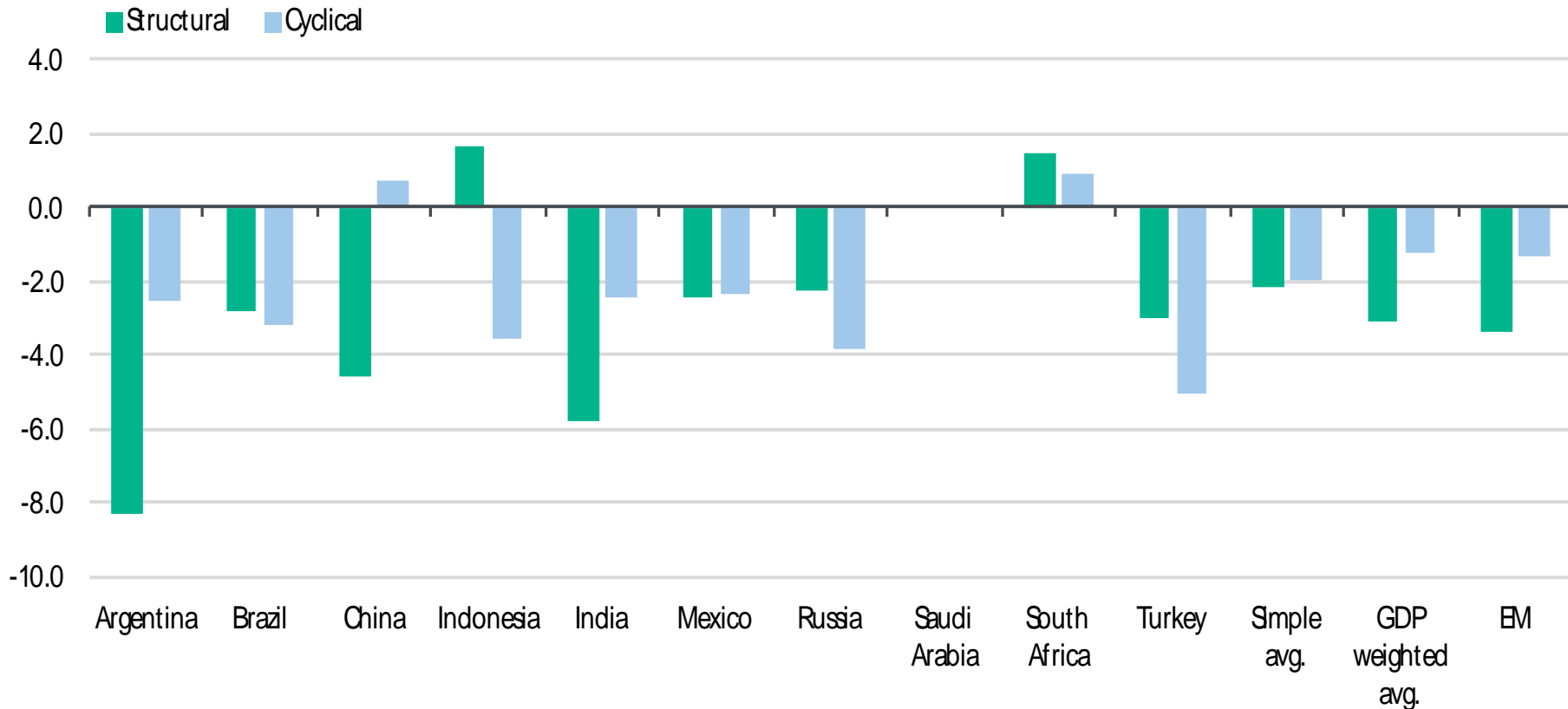
Source: Moody's Investors Service, based on IMF data, Penn World Tables, Conference Board

Results: HP-GDP Approach (real growth, %)



Source: Moody's Investors Service, based on IMF data

Results: HP-IPI Approach (using IPI as a GDP proxy)



Source: Moody's Investors Service, based on Haver data

Estimation Results Explained

- » Results suggest that the 2010-13 growth deceleration has both structural (*with the exception of Indonesia in all three methods, and Mexico and South Africa in two of them*) and cyclical components
- » The average size of the structural deceleration component varies between methodologies, from **20%** to **31%** in the production function and GDP-based HP filter results, to a hefty **50%** to **70%** in the IPI-based HP filter: in other terms, in most results, the bulk is cyclical
- » However, there are some specific countries where, regardless of the methodologies, the deceleration does seem to incorporate a large structural component (*incl. China and Russia*)

Aggregate Results for G20 EMs

	Production Function		HP-GDP		HP-IPI	
	<i>Simple avg.</i>	<i>GDP weighted avg.</i>	<i>Simple avg.</i>	<i>GDP weighted avg.</i>	<i>Simple avg.</i>	<i>GDP weighted avg.</i>
Structural growth slowdown (in p.p. of growth)	-1.0	-0.8	-0.7	-0.9	-2.1	-3.1
Cyclical growth slowdown (in p.p. growth)	-2.2	-2.3	-2.8	-2.4	-2.0	-1.2
Structural share of the slowdown						
	31.2	26.7	19.6	26.1	51.9	71.2

Source: Moody's Investors Service estimates

Country-Specific Results for G20 EMs

	Argentina	Brazil	China	Indonesia	India	Mexico	Russia	S. Arabia	S. Africa	Turkey
Change in real growth (IMF GDP), 2010-13	-5.7	-5.0	-2.8	-0.9	-6.8	-3.9	-3.0	-3.9	-1.1	-5.3
Change in potential growth (PF), 2010-13	0.7	0.0	-1.1	0.9	-1.1	1.0	-0.8	-4.8	1.2	1.0
<i>Structural as % of growth slowdown</i>	-11.1	0.1	38.9	-82.0	21.2	-27.9	29.0	313.8	-1282.9	-16.6
Change in trend growth (HP-GDP), 2010-13	-0.5	-0.6	-1.2	0.4	-1.5	0.1	-1.7	-0.1	-0.7	-0.1
<i>Structural as % of growth slowdown</i>	9.6	12.9	41.4	-45.5	21.8	-1.7	56.6	2.8	66.4	1.8
Change in trend growth (HP-IPI), 2010-13	-8.3	-2.8	-4.5	1.6	-5.8	-2.5	-2.3		1.5	-3.0
<i>Structural as % of growth slowdown</i>	76.6	46.9	119.3	-85.6	70.5	51.4	37.1		62.3	37.1

Source: Moody's Investors Service estimates

The Bottom Line

- » The growth deceleration among EMs is a fact, and it is significant
- » However, there are some exceptions to this overall trend (*but not among the larger EMs*)
- » On the other hand, the bulk of the deceleration on average may turn out to be cyclical in nature

Thanks for your
attention!



Appendix A: Methodology

Production Function (PF) Approach

» Cobb Douglas constant returns to scale production function

$$(1) \quad Y = AL^\alpha K^{1-\alpha}$$

Y: Output (Real GDP)

K: Stock of physical capital

N: Labor

A: Measure of Productivity
(a higher value of **A** means that the same inputs lead to more output)

α: Output Elasticity of Labor/Share of labor in output

» In log terms:

$$(2) \quad \ln(Y) = \ln(A) + (\alpha)\ln L + (1 - \alpha)\ln K$$

Appendix A: Methodology

Potential GDP calculations

» Potential Output can be calculated as:

$$(3) \quad \ln(Y^{POT}) = \ln(A^{POT}) + (\alpha)\ln(L^{POT}) + (1 - \alpha)\ln(K)$$

» A and L are de-trended using the HP-filter to estimate potential TFP and labor

» Subtracting (3) from (2)

$$\ln(Y) - \ln(Y^{POT}) = \ln(A) - \ln(A^{POT}) + (\alpha)(\ln(L) - \ln(L^{POT}))$$
$$(4) \quad \ln(Y^{POT}) = \ln(Y) - \{\ln(A) - \ln(A^{POT}) + \alpha(\ln(L) - \ln(L^{POT}))\}$$

» We rely primarily on Penn World Tables for the underlying data for labor capital stock, labor share and TFP. Conference Board data used to extend the K and L series to 2012 and 2013

» We calculate “potential” GDP by simply subtracting the sum of 1) the difference between log A and log of HP filtered A and 2) log L and log of HP filtered L from log of GDP

Appendix A: Methodology

HP filter

- » The HP filter is merely a statistical smoothing of a data time series to extract a “trend”

Appendix B: Advantages and drawbacks

- » A PF approach is theoretically much more robust, but requires more data availability
- » Also, technical progress is effectively usually indirectly estimated (due to the lack of consistent data series) as the residual of L and K
- » On the other hand, a HP filter is much less data demanding (just a GDP series would be needed), but lacks any theoretical underpinning
- » Also, it is subject to the so-called “end of sample” bias (namely, the estimates at the extremes of a series are subject to statistical uncertainty)

Appendix C: Data Sources

- » **Penn World Tables (annual):** GDP, L, K, A, α ; 1950-2011
- » **Conference Board (annual):** GDP growth rate, L growth rate, K growth rate, A growth rate; 1991-2013
- » **Haver:** IIP (monthly); 2000:01 – 2014:02
- » **IMF GDP (annual);** 1990-2013

Lúcio Vinhas de Souza
Managing Director-Sovereign Chief Economist
1.212.553.1117 tel
1.212.298.6458 fax

Lucio.VinhasdeSouza@moodys.com



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