



INTERNATIONAL MONETARY FUND

Strategy, Policy, and Review Department

## **EMERGING MARKETS IN TRANSITION: GROWTH PROSPECTS AND CHALLENGES**

Prepared by Luis Cubeddu, Alex Culiuc, Ghada Fayad, Yuan Gao, Kalpana Kochhar, Annette Kyobe, Ceyda Oner, Roberto Perrelli, Sarah Sanya, Evridiki Tsounta, and Zhongxia Zhang

Authorized for distribution by Siddharth Tiwari

June 2014

**DISCLAIMER: This Staff Discussion Note represents the views of the authors and does not necessarily represent IMF views or IMF policy. The views expressed herein should be attributed to the authors and not to the IMF, its Executive Board, or its management. Staff Discussion Notes are published to elicit comments and to further debate.**

JEL Classification Numbers: E32, F43, O11, O47

Keywords: emerging markets, growth, potential growth, convergence, heterogeneity, structural reform, productivity

Contact Authors' E-mail

Addresses: lcubeddu@imf.org, coner@imf.org

# CONTENTS

Executive Summary .....	3
Why Was Emerging Market Growth High in the Last Decade? .....	4
Why Are Emerging Markets Slowing Down? .....	9
A. External and Domestic Demand Factors .....	10
B. Cyclical and Structural Factors.....	11
Medium-Term Prospects for Emerging Markets.....	12
Policy Priorities Going Forward .....	15
A. Macroeconomic Policy Priorities .....	15
B. Rebalancing Growth .....	16
C. Improving Growth Prospects through Structural Reforms .....	17
Conclusion.....	19
Annex 1. Organizing the Emerging Market Universe: The Role of External Linkages.....	21
Annex 2. Structural Reforms: Lessons from Four Case Studies.....	24
Annex 3. Prospects for the “Next” Emerging Markets?.....	27
Analytical Appendix .....	29
A. Supply-Side Decomposition of Growth and Estimating Potential Growth.....	29
B. Impact of External Factors on Emerging Market Growth.....	30
C. Domestic and External Factors Explaining the Current Slowdown.....	32
References .....	33

## EXECUTIVE SUMMARY<sup>1</sup>

After decades of stalled and even regressed convergence, emerging markets (EMs) started closing the income gap with advanced economies in the last decade. This “return to convergence” was facilitated by supportive external conditions, improved policy frameworks, and growth-enhancing reforms of the previous decade in many EMs. It was also a widespread phenomenon, with nearly half of all EMs growing at higher rates in the 2000s compared to the 1990s.

However, EMs are now entering a period of slower growth. After swiftly rebounding from the global financial crisis, their growth rates in the last few years have fallen not only below the post-crisis peak of 2010-11, but also below the levels seen in the decade before the crisis. The external conditions that supported their convergence over the last decade—namely, buoyant global trade, high commodity prices, and easy financing conditions—are not expected to prevail in the coming years. And more recently some large EMs have come under market pressure as their growth outlook relative to advanced economies started to look less rosy, advanced economies began to normalize their monetary policy, and external financial conditions started to tighten.

This Staff Discussion Note delves deeper into the factors behind EMs’ strong growth performance over the last decade and the more recent slowdown to shed further light on their growth prospects. It complements the analysis in the IMF’s April 2014 *World Economic Outlook* (and the forthcoming *Spillover Report*), exploring the role of supply-side factors, external conditions, and macroeconomic policies on growth for a larger sample of EMs. We find that higher growth rates during the 2000s reflected increased productivity in most countries. On the demand side, a confluence of favorable external conditions added to EM growth, though the effect of these conditions varied across EMs depending on their external linkages and policies. To better understand these differences, throughout our analysis we assess the role of (i) trade and financial openness; (ii) advanced markets versus emerging markets as trading partners; and (iii) commodity dependence and changes in terms of trade. Annex 1 attempts to organize the highly heterogeneous EM universe.

What do these findings tell us about the medium-term growth prospects for EMs? Since part of the recent slowdown in EMs reflected cyclical factors, including weaker demand from trading partners, we anticipate a recovery in EM growth as demand from advanced economies strengthens. Beyond the cyclical recovery, attaining the high growth rates of the last decade over the medium term will require concerted policy effort. Tighter external financing conditions are likely to increase

---

<sup>1</sup> This paper was presented at the IMF/World Bank Annual Meetings Conference on October 8, 2013 entitled “[Emerging Markets: Where Are They, Where Are they Headed?](#)” Under the guidance of Kalpana Kochhar, the paper was prepared by a staff team led by Luis Cubeddu and Ceyda Oner and including Alex Culiuc, Ghada Fayad, Yuan Gao, Annette Kyobe, Roberto Perrelli, Sarah Sanya, Evridiki Tsounta, and Zhongxia Zhang. The paper has benefited from comments by the conference participants, in particular, Tim Adams, Anders Åslund, Luis Miguel Castilla, Ricardo Hausmann, Sri Mulyani Indrawati, David Lipton, Manuel Ramos-Francia, and Nouriel Roubini.

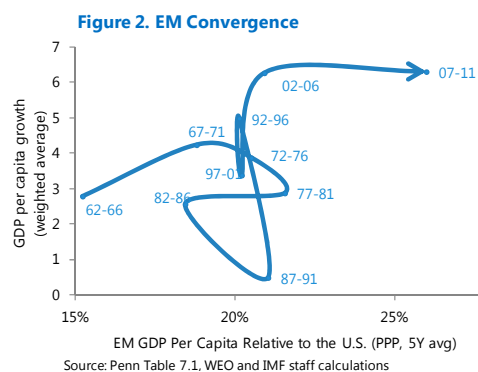
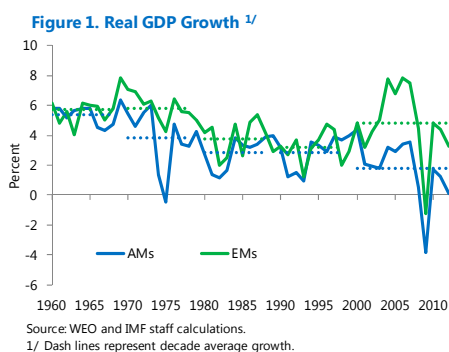
investment costs and debt service burdens, and less supportive commodity prices may dampen investment in commodity-exporting EMs. Supply-side constraints and weaker employment expansion could hold back growth where binding. Finally, in countries where external and financial imbalances were allowed to build, growth in the coming years will slow as economies address risks to their balance sheets.

How should policies respond to this prognosis? With the prospect of a less-supportive external environment, EMs' growth engines of the last decade will need to be reoriented to sustainable domestic sources and revitalized through structural policies to improve factor allocation and boost productivity. And while policies should be tailored to country-specific circumstances, we highlight the general contours of macroeconomic and structural policies necessary to mitigate the effects of changing external conditions so that EMs can sustain or restore growth.

## WHY WAS EMERGING MARKET GROWTH HIGH IN THE LAST DECADE?

*The last decade provided strong external tailwinds that, when combined with broadly improved fundamentals, helped EMs grow robustly. The surge in productivity enabled EMs to restart closing the income gap relative to advanced economies. However, the overall strong EM performance masks important heterogeneity across countries, reflecting differences in external linkages and also policies.*

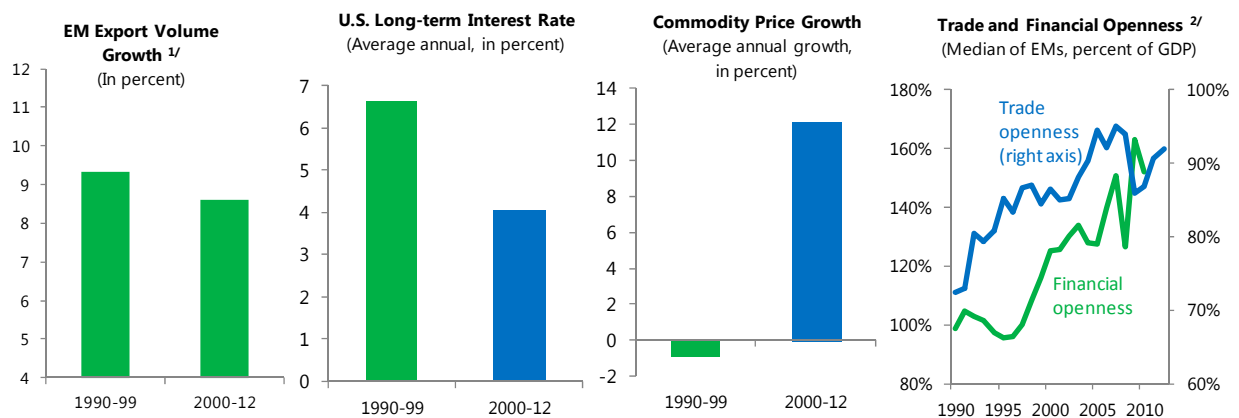
**EMs went through a growth spurt in the last decade and now account for half of global output.** After suffering important setbacks during the 1980s and 1990s, starting with the Latin American debt crises of the early 1980s and continuing with the Asian crisis of late 1990s, EMs enjoyed strong and robust growth in the 2000s. EM growth increased by an average of 4¾ percent between 2000 and 2012, about 1 percentage point higher than the average observed during the previous two decades (Figure 1).<sup>2</sup> This strong growth performance was fairly broad-based, with 60 percent of EMs having higher growth in the 2000s compared to the previous decade. Moreover, this growth spurt took place when growth in advanced markets (AMs) remained stable. As a result, EMs now account for about half of global output in purchasing power parity (PPP) terms and have returned to a convergence path to higher income status (Figure 2).



<sup>2</sup> By focusing on 2000-12, which covers EM crises in the early 2000s, the boom years, the global financial crisis and recovery, we abstract from cyclical fluctuations and analyze the broad trends.

**Favorable external conditions, along with improved policy frameworks, played a major role in driving this strong growth performance.** During 2000-12, except for a short-lived setback during the global financial crisis, EMs benefited from (i) rising global trade, reflecting expanding supply chains; (ii) easy financing conditions driven by low interest rates in AMs; and (iii) high and rising commodity prices (Figure 3). These favorable conditions, coupled with continued trade and financial liberalization, facilitated a surge in capital flows and investment, resulting in higher productivity. In addition, many EMs also used the decade to implement structural reforms, strengthen policy frameworks, reduce vulnerabilities and build buffers. These efforts resulted in lower public and external debt and sovereign spreads, improved international reserve coverage, and more flexible exchange rate regimes in a number of EMs (Figure 4).

**Figure 3. Favorable External Conditions and Increased Integration, 1990-2012**

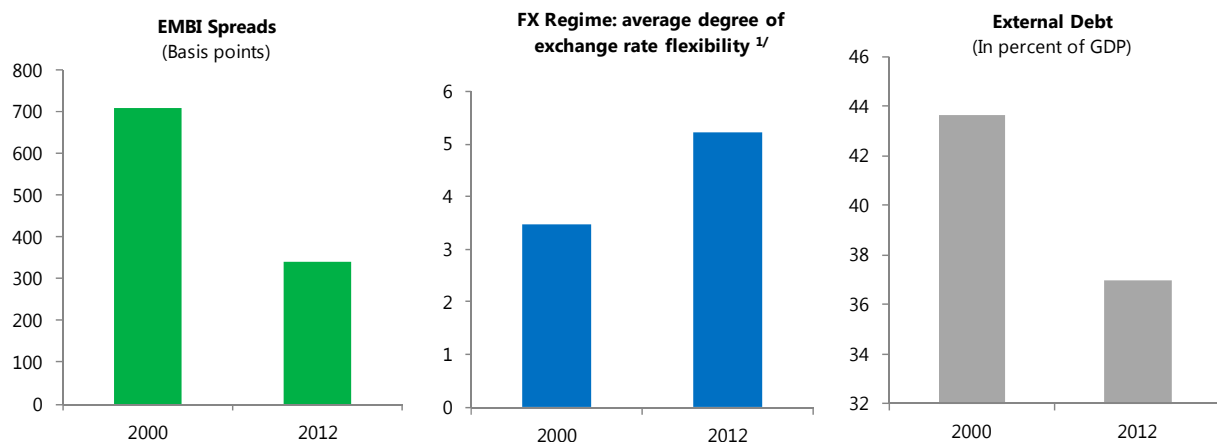


Source: WEO and IMF staff calculations.

1/ The 2000-12 average is weighed down by 2008-09, when trade collapsed because of the global financial crisis. The 2000s average is higher than the 1990s excluding these years or excluding post-2008.

2/ Financial openness is defined as total external assets plus liabilities. Trade openness is defined as total exports plus imports.

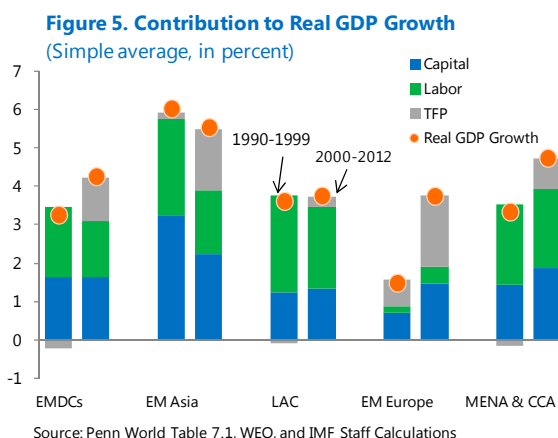
**Figure 4: EM Fundamentals**



Source: AREAER database, Bloomberg, WEO and IMF staff calculations.

1/ FX regime index is from 1 to 10. No separate legal tender=1, Free floating=10.

**Higher productivity growth facilitated the leap in convergence.** Using a production function approach to decompose growth, we find that higher total factor productivity (TFP) explains 1½ percentage points of the 1¾ higher average growth rate in EMs in the last decade compared to the 1990s (Figure 5; see Analytical Appendix, Section A).<sup>3</sup> In fact, TFP growth turned positive in EMs across all regions over the last decade after declining in both Latin America and the Middle East and North Africa (MENA) region in the 1990s. Notwithstanding this boost in TFP, factor accumulation remained the main driver of output growth in EMs throughout the 2000s. Strong terms of trade growth and easy financing conditions in particular facilitated higher investment, and thereby capital accumulation, in a number of EMs (Tsounta, 2014).



**The increase in productivity growth likely reflects a number of factors,** including (i) gains from reforms of earlier decades (e.g., increased trade and financial liberalization, labor market reforms, deregulation); (ii) reallocation of factors to higher productivity sectors; and (iii) spillovers from increased direct investment (in turn facilitated by favorable external conditions).<sup>4</sup> Such productivity gains are likely to be temporary to some extent, since productivity measures tend to be procyclical and are often overestimated during boom years (Basu and Fernald, 2001).<sup>5</sup> More importantly, the impact of each of these factors to EM productivity varies substantially across countries and has been analyzed in other studies, including a recent Staff Discussion Note (Dabla-Norris, et al., 2013). That said, more work is needed to understand productivity growth and its procyclicality in EMs.

**Favorable external conditions explain nearly half of the leap in EM growth.** Using long-term growth regressions, we estimate the historical impact of external factors on EM growth. The approach follows Arora and Vamvakidis (2005) and uses a panel dataset of 66 EMs for the period 1990-2010, in which variables are averaged over consecutive five-year periods (see Analytical Appendix, Section B). Key dependent variables include trading partner growth, changes in terms of

<sup>3</sup> TFP measures the efficiency with which factors of production (capital, labor, and human skills) are used in the production process. It is defined as the residual of output growth and the growth in factor accumulation.

<sup>4</sup> The structural transformation differed across regions. In Asia (China, Thailand, and Malaysia) the employment shifts have been out of agriculture and into higher productivity manufacturing, while in Europe the shift has been away from central planning towards the previously underdeveloped services sector (World Bank, 2008).

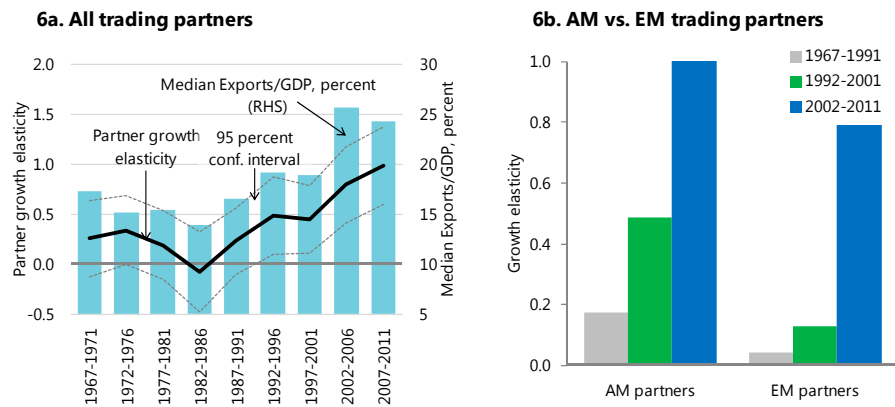
<sup>5</sup> Not all favorable external conditions translated into higher productivity. For example, in Chile, despite higher metal prices, TFP growth turned negative in the last decade, in part reflecting the expansion of mining production into areas of lower marginal productivity where production has become profitable due to higher commodity prices. This is consistent with the experience in commodity-exporting advanced economies like Australia, Canada, and Norway.

trade and in long-term U.S. interest rates, country-specific fundamentals like the degree of commodity dependence, trade and financial openness, and public and external balance sheets. Focusing on five-year averages allows us to analyze longer-term relations and avoid endogeneity issues.<sup>6</sup> Broadly speaking, we find that external demand (facilitated by rising liberalization), lower global interest rates, and higher commodity prices accounted for about half of the increase in growth across EMs in the 2000s relative to the 1990s. We differentiate our results by economic fundamentals below.

**External demand was an increasingly important growth driver, particularly in more open economies.** Rising global trade volumes, coupled with further trade liberalization, boosted growth in more non-commodity export-oriented EMs. We estimate that about 25 percent of the higher growth registered in the average non-commodity EM in the 2000s (compared to the previous decade) was due to contributions from external demand—a combination of increased trade openness and marginally higher trading partner growth. As expected, this share rises with the country’s trade openness. For example, EMs in the top quartile in trade openness (i.e., exports above 35 percent of GDP) grew on average 2 percentage points more in the 1990s, and nearly 40 percent of this increase can be explained by higher external demand. Reflecting the trend of continued trade liberalization, the

sensitivity of EM growth to demand from trading partners has been rising since the 1990s (Figure 6a). The higher sensitivity is found with respect to both AM and EM trading partners, the latter reflecting rising trade with EMs (Figure 6b).

**Figure 6. Trading Partner Growth Elasticities**



Source: WDI and IMF staff calculations.

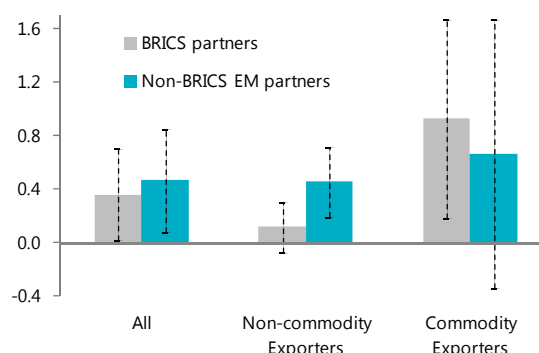
**Demand from AMs continued to matter more for EM growth.** While the sensitivity of EM growth to EM trading partners rose rapidly over time, EM growth remained more sensitive to demand from AMs (a one percentage point increase in AM trading partners’ growth would increase growth by around 1 percentage point). Demand from AMs continues to dominate, since rising within-EM trade partly reflects growing supply chains that ultimately meet final demand from AMs.

<sup>6</sup> At the same time, the external conditions that we explore could be endogenous with respect to each other, potentially biasing results upward.



**For commodity exporters, demand from large EMs played a more prominent role.** We assess whether the rising sensitivity of EM growth to EM trading partners reflects Brazil, Russia, India, China, and South Africa's (BRICS) growing prominence in the global economy. Our long-term historical regressions yield, on average, no significant difference between demand from BRICS or other EMs in explaining EM growth (Figure 7). However, this average result conceals an important finding: commodity exporters' growth is found to be highly sensitive to demand from BRICS countries, confirming the growing importance of these large EMs' demand on global commodity prices.<sup>7</sup>

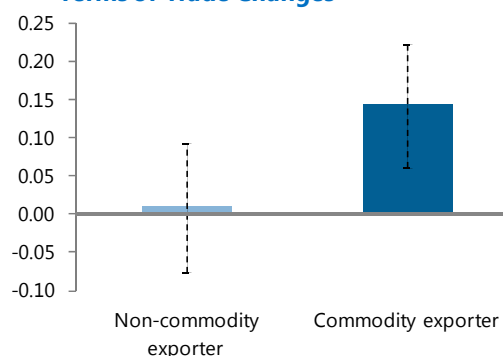
**Figure 7. Elasticity of EM Growth to BRICS vs. other EM trading partners**



Source: WDI and IMF staff calculations.

**Favorable terms of trade helped commodity-exporting EMs.** The large and sustained increase in commodity prices raised investment and GDP growth in most commodity-exporting EMs, many of which enjoyed an unprecedented income windfall. For the average commodity-exporting EM, the 5¼ percent annual improvement in terms of trade over the last decade contributed to a ¾ percentage point increase in growth – about a quarter of the higher growth seen in the 2000s. On the other hand, the rise in commodity prices did take a toll on growth for the average commodity importer, whose growth was nevertheless supported by other factors (Figure 8).

**Figure 8. Elasticity of EM Growth to Terms of Trade Changes**



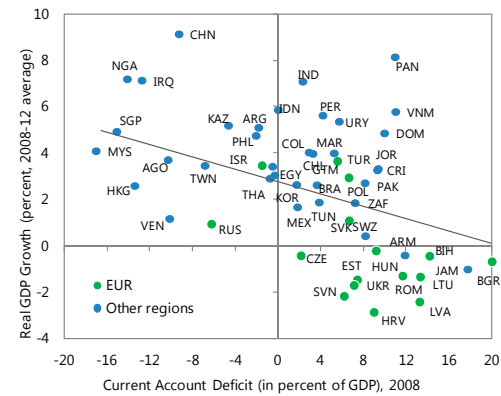
Source: WDI and IMF staff calculations.

**Easy financing conditions boosted investment and growth in financially open EMs.** Lower global interest rates and tightening of borrowing spreads (the latter also reflecting improved fundamentals) helped to boost domestic demand in EMs, particularly in the more financially open EMs. For the median financially open EM, we find that the 170 basis point decline in global real interest rates in the 2000s (as proxied by the 10-year U.S. T-bond rate) raised GDP growth by ¼ of a percentage point – about 15 percent of the higher growth these countries saw in the 2000s. Again, the impact varied widely across countries depending on their financial openness; those in the top quartile of financial openness grew on average by a ½ percentage point more in the last decade owing to these lower global interest rates.

<sup>7</sup> The significance of BRICS' growth for non-commodity EMs is sensitive to the estimation period of choice. Figure 7 presents results for the period covering 1992-2011. Research focusing on the more recent past finds a larger role for BRICS, particularly China (IMF, 2014c, 2014d).

However, EM performance since the global financial crisis has been affected by how well they have managed these “good times.” As has been documented in other studies (e.g., Blanchard, Das, and Faruqee, 2010), EMs that allowed the buildup of financial and external imbalances and vulnerabilities have seen much weaker growth since 2008. Specifically, countries that entered the crisis with excessively large current account deficits, like those in Eastern Europe, have taken a much longer time to recover as they deleverage and repair their balance sheets (Figure 9).<sup>8</sup> Countries that had less procyclical policies in the lead-up to the global financial crisis were able to use their policy space and recover faster.

Figure 9. Current Account Deficit 2008 vs. Growth 2008-12

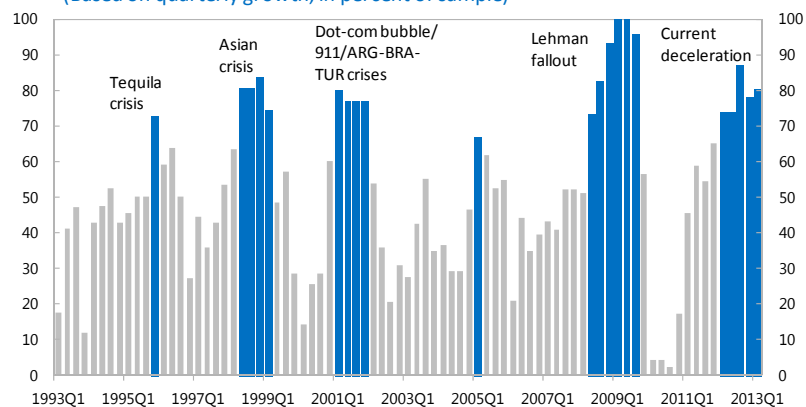


Source: WEO and IMF staff calculations.

## WHY ARE EMERGING MARKETS SLOWING DOWN?

**Growth in most EMs has been slowing since 2010-11.** Their recovery from the global financial crisis peaked in 2010-11, and since then growth has been decelerating across EMs. In fact, 80 percent of EMs decelerated in 2012, and by end-2013, EM growth was on average 1½ percentage points lower than in 2010-11. This synchronized slowdown is comparable in its breadth and persistence to earlier crises, when growth in over 70 percent of EMs slowed at the same time for a period of 4-6 quarters (Figure 10). What is different this time, though, is that the episode is not due to a crisis. While the synchronized nature of this slowdown points to potential common factors, such as weaker external demand and/or the normalization of domestic demand from post-crisis peaks, its persistence suggests that structural factors may also be at play. There are also important differences in the magnitude of the slowdown across countries. For example, since 2010-11 China’s output growth slowed by 2¼ percentage points (to around 7¾ in 2013), Brazil’s slowed by 2¾ percentage points (to a mere 2¼ percent), while South Africa’s deceleration has been more tamed.

Figure 10. Share of EMs Decelerating Simultaneously, 1993-2013<sup>1/</sup>  
(Based on quarterly growth, in percent of sample)



Source: Haver, WEO and IMF staff calculations.  
1/ Blue bars show periods when the share of EMs’ deceleration is larger than 65%.

<sup>8</sup> The same inverse relation is found between the cumulative current account deficits in the five years before 2008 and growth in the five years after 2008.

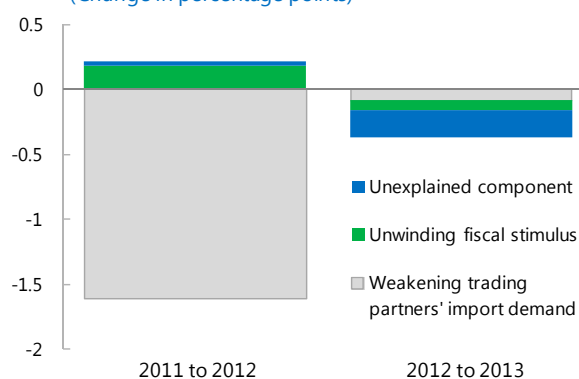
## A. External and Domestic Demand Factors

**What role did external and domestic factors play in explaining the recent slowdown?** To answer this question, we estimate a pooled panel ordinary least square (OLS) regression for a sample of 24 EMs for the period 2010-13 (see Analytical Appendix, Section C).<sup>9</sup> We study how the size of the slowdown is explained by external and domestic factors. External conditions are proxied by a trading partner's real import demand, the change in terms of trade, the U.S. 10-year bond yield, global risk aversion (measured by the VIX index), and capital flows (measured by the ratio of the financial account balance to GDP). Domestic conditions are proxied by the fiscal policy stance (measured by the change in the cyclically adjusted primary balance to potential GDP), the monetary policy rate, and the exchange rate regime. Initial conditions (in 2010) include each country's exchange rate deviation from fundamentals, the output gap, and the degree of financial openness (measured ratio of external assets and liabilities to GDP). Controlling for initial conditions also allows us to analyze the slowdown in growth beyond what would be implied, if any, by the natural convergence process.

**Our analysis suggests that much of the slowdown is explained by weaker external demand.**

The growth slowdown since 2010-11 is largely explained by lower demand from trading partners through 2012 playing a smaller (yet still statistically significant) role in 2013 (Figure 11).<sup>10</sup> When trading partners are split into AMs, China, and other EMs, we find that AMs and China explain most of the change in external demand for EMs. Other external factors (changes in terms of trade, and external financial conditions), were not statistically significant in explaining the growth slowdown during the 2011-13 period, even after controlling for the degree of commodity dependence, financial openness, and the exchange rate regime. This is likely due to the annual averages of terms of trade, VIX, and U.S. 10-year yields being relatively stable during this period.

**Figure 11. Contributions to Slowdown**  
(Change in percentage points)



Source: WEO and IMF staff calculations.

<sup>9</sup> A larger sample is truncated to 24 EMs owing to limited data on output gaps and cyclically adjusted fiscal balances; see Fayad and Perrelli (2014) for details.

<sup>10</sup> The importance of external factors in explaining the bulk of variance of growth dynamics in EMs was established in IMF (2014c), based on a VAR analysis on quarterly data for 1998-2013. IMF (2014c) also finds that the influence of internal factors has increased in recent years and that these factors appear to be reducing growth rather than spurring it. Fayad and Perrelli (2014) obtain similar results using growth surprises, rather than growth outturns, as their explanatory variable, and for country-specific decompositions of external vs. domestic sources of slowdown.

**Domestic factors also played a role in explaining the recent slowdown, although their contributions varied across time and countries.** The role of fiscal policy in particular changed over these years; policy stance turned contractionary in 2013 in many countries, reflecting the unwinding of stimulus enacted in response to the global financial crisis. After controlling for initial conditions in 2010, EMs that were overheating prior to the slowdown (proxied by positive output gaps and overvalued exchange rates) were also found to experience sharper growth slowdowns. Other idiosyncratic factors not found significant in the regression (the unexplained component in Figure 11), such as the monetary policy stance, were important for a group of EMs, especially in 2013.

## **B. Cyclical and Structural Factors**

**The persistence of the slowdown would depend on whether it is driven by cyclical or structural factors.** A slowdown driven by structural factors (i.e., a decline in the economy's potential growth rate) would be harder to reverse, and thus more persistent, while a cyclical downturn would be more temporary. However, discerning the extent of structural and cyclical factors is a complex exercise and subject to much uncertainty. It requires estimating an economy's potential growth rate, which is unobservable and time varying. Potential growth tends to be procyclical, rising during good times as investment and capital accumulation rises and TFP also improves, and similarly declining in bad economic times.

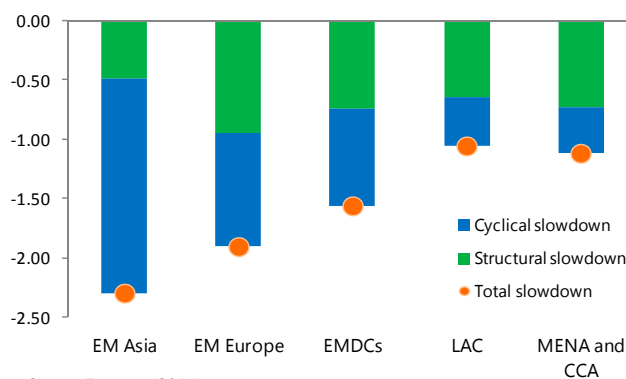
**Notwithstanding limitations, we attempt to decompose the current slowdown into cyclical versus structural components** (see Analytical Appendix, Section A and Tsounta, 2014). We estimate potential growth rates for 70 EMs individually over 1980-2018 based on standard (Solow-style) growth accounting methodologies (Sosa, Tsounta, and Kim, 2013). First, we decompose the sources of actual output growth into accumulation of factors of production (capital and quality-adjusted labor, that is, human capital) and TFP and make assumptions for the path of factors or production and TFP based on historical trends and demographic projections for the period 2013-18. To obtain potential growth estimates for each year, we then use a battery of commonly used filtering techniques to measure the trend of the subcomponents of output (namely, capital, labor, and TFP), smoothing out cyclical fluctuations. The structural component of the slowdown is estimated as the change in the potential growth rate from a historical average (e.g., 2000-12 versus 2013-18). The cyclical part of the slowdown is the residual from the change in actual growth rates (between 2010-11 and 2012-13) and the structural change.<sup>11</sup>

---

<sup>11</sup> We use the average for 2010-11 as a starting point since most EMs experienced a slowdown from their cyclical peak, either in 2010 or 2011.

**We find that, on average, cyclical and structural factors are equally important in explaining the recent growth slowdown in EMs.**<sup>12</sup> This result implies that some of the slowdown would be transitory—the cyclical component—and that stronger growth would resume as growth picks up in trading partners (mostly AEs). In contrast, the slowdown due to lower potential growth rates is more persistent and would require concerted policy efforts to counter. As noted earlier, the decline in EM potential growth is more difficult to explain, and likely reflects country-specific factors, the unwinding of very simulative external conditions, and the permanent impact of the global financial crisis on growth potential in EMs or their AM trading partners. Having said that, the relative roles of cyclical versus structural factors in explaining the slowdown varies significantly across EMs (Figure 12). For example, structural factors appear to weigh more on growth in Emerging Europe, where the gains from liberalization may have raised the level of potential output rather than growth, while cyclical factors appear to be more dominant in Emerging Asia (see Tsounta, 2014, for country-specific analysis).

**Figure 12. Composition of the Recent Growth Slowdown**  
(Growth change 2012-18 versus 2003-11, percentage points)



Source: Tsounta (2014).

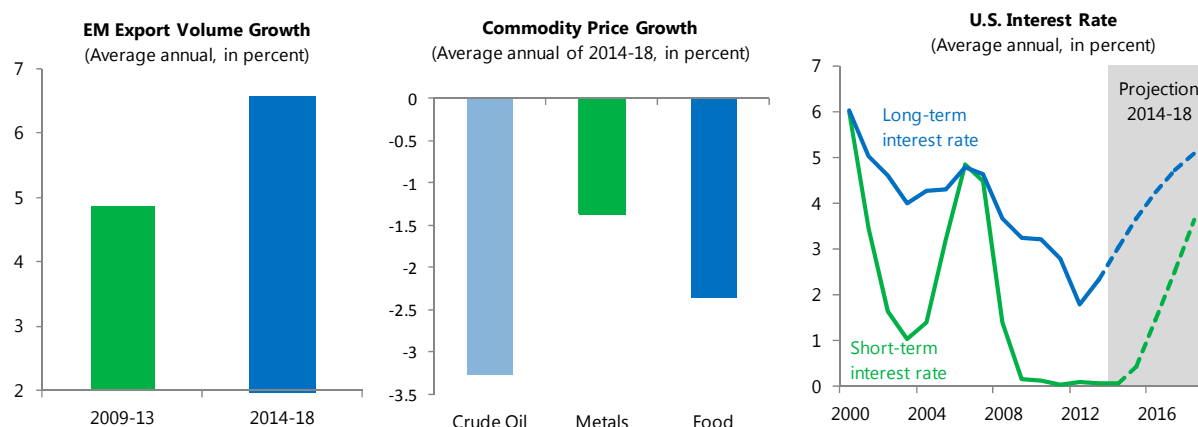
## MEDIUM-TERM PROSPECTS FOR EMERGING MARKETS

**Over the medium term, external conditions are projected to turn less favorable for most EMs.**

On the upside, the outlook for the global economy as outlined in the April 2014 *World Economic Outlook* (IMF 2014c) envisages that AMs will continue to recover from the global financial crisis, albeit at different rates (Figure 13). As advanced economies recover, EMs would also bounce back from the cyclical downturn, drawing strength from higher external demand. At the same time, AMs are not expected to go back to the debt-fueled growth rates seen before the crisis, and the amplifying effects of trade liberalization are likely to be one-off. Potential growth in AMs, particularly in core European countries, may also be lower given the structural impact of the crisis. Moreover, the gradual recovery in AMs will come with tighter global financial conditions as they normalize monetary policies, with bouts of volatility similar to those experienced since May 2013. Commodity prices are also likely to soften somewhat in the coming years, reflecting in part China's projected gradual slowdown and rebalancing. While this is welcome news for commodity importers, it will take some of the steam out of growth in commodity exporters.

<sup>12</sup> See IMF (2013, 2014a) for a breakdown of cyclical versus structural roots of the recent slowdown in the BRICS and ASEAN-5, respectively.

**Figure 13. WEO Projections of Medium-term External Conditions, 2014-18**



Source: WEO and IMF staff calculations.

**These changing external conditions are likely to affect factor allocation and productivity growth.** Physical capital accumulation is expected to moderate as the low global interest rates that facilitated large capital flows to EMs start to rise and financing investments becomes more costly. Softer commodity prices would reduce the expected returns from expanding capacity further in the commodity sectors, slowing down investment in commodity-exporting countries. Balance sheet repair in euro zone countries will continue to weigh on investment in emerging Europe, while continued political tensions could affect investment in MENA countries. Further contributions from labor accumulation may also be limited in the coming years by aging populations in a number of EMs and by limits in reducing natural rates of unemployment.<sup>13</sup> TFP growth may be lower over the medium term in the absence of growth-enhancing reforms as well, given its cyclical nature.

**These in turn imply lower potential growth in EMs over the medium term relative to the 2000s.** Following the production function methodology outlined in the previous section (and Analytical Appendix, Section A), we estimate potential growth for 2013-17 assuming capital and TFP grow at the same average annual rate for 2000-12, although this assumption might be optimistic given that both TFP and capital accumulation growth were high in the 2000s owing to conditions that are not likely to persist. As for labor, we assume that it grows in line with the working-age population (UN Population Projections database) adjusted by unemployment rate projections (April 2013 WEO). We also assume that labor force participation rates are unchanged and that the human capital component increases at the same pace as in 2005-10. We find that the strong growth momentum of the last decade may not be repeated in the coming years if recent historical trends for factor accumulation and TFP continue, despite this assumption being optimistic (Figure 14). Potential GDP growth rates in EMs are estimated to average roughly 3½ percent during 2013-17,

<sup>13</sup> Favorable demographics and low participation rates (particularly for women) present opportunities for increasing potential growth rates in some EMs, especially in the MENA and Caucasus and Central Asia (CCA) regions.

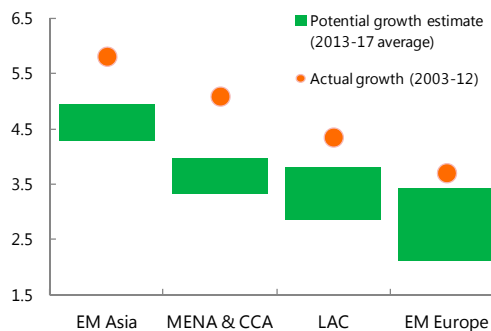
1¼ percent lower than for 2003-12. Transitioning towards a slower potential growth rate may not be necessarily negative for all EMs, particularly if this means moving to growth rates that are more sustainable and balanced.

**The less favorable external conditions will lower growth, with the impact differing depending on external linkages.**

- Changing external demand.** For many EMs, the recovery of AM demand is likely to outweigh the negative impact of lower EM growth. For the median EM (with exports/GDP of 36 percent), we find that a 1 percent increase in AM trading partner growth would boost EM growth by nearly 0.9 percent, while a 1 percent decline in EM trading partner growth would lower average growth over the medium term by 0.6 percent.<sup>14</sup> The impact of trading partner growth also increases with the degree of trade openness (Figure 15). For commodity exporters, lower EM growth (particularly by BRICS) would likely offset any gains from improved AM prospects.
- Tighter external financing conditions.** For the median EM with external assets and liabilities constituting 114 percent of GDP, the 110 basis point increase in the real U.S. 10-year bond rate for 2014-18 (over 2009-13) projected in the April 2014 WEO would lower GDP growth by less than 0.2 percentage points (Figure 16). One channel through which higher global interest rates affect EM growth going forward is higher borrowing costs and lower capital accumulation. The effect of external tightening would be felt in more financially open economies, with EMs in the top quartile of financial openness seeing a decline of

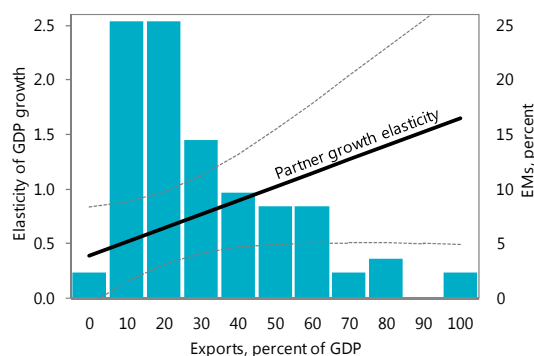
**Figure 14. Potential Growth Rate Range Estimates**

(Annual average of 2013-17, in percent)



Source: Tsounta (2014).

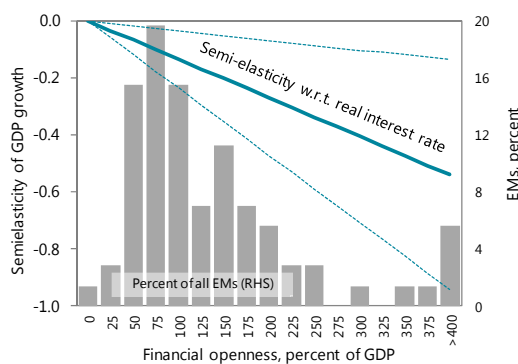
**Figure 15. Trade Partner Growth Elasticity by Degree of Export Dependence<sup>1/</sup>**



Source: WDI and IMF staff calculations.

1/ Dash lines represent the 95 percent confidence intervals.

**Figure 16. U.S. Interest Rate and EM Growth<sup>1/</sup>**



Source: WDI and IMF staff calculations.

1/ Dash lines represent the 95 percent confidence intervals.

<sup>14</sup> Given the endogeneity between AM and EM growth, the combined effect of growth shocks would be better answered within a dynamic stochastic general equilibrium (DSGE) framework.

about 0.4 percentage points over a five-year horizon. The impact is partial, however, since real rates would rise only when AM growth picks up, which would concurrently support EM growth.<sup>15</sup>

- **Softer or flat commodity prices.** Drawing on the elasticity estimates presented earlier, the 3 percent decline in the terms of trade for the median commodity exporting EM projected in the April 2014 WEO would reduce growth over the medium term on average by about ½ percent, whereas the impact is estimated to be negligible for non-commodity exporters. The impact on the large commodity exporters could be larger; IMF (2014b) estimates that even with commodity prices remaining at their current levels, commodity exporters in Latin America could see growth lower by 1¼ percentage points relative to the boom years (2003-11).

## POLICY PRIORITIES GOING FORWARD

*Going forward, as global conditions turn less supportive, countries will need to rely both on sound macroeconomic policies aimed at addressing imbalances, and on structural reforms to sustain or restore growth potential. While reform priorities depend on each country's circumstances, some key policy contours are highlighted.*

### A. Macroeconomic Policy Priorities

**Recent market turmoil once again underscored the need to maintain sound macroeconomic policies and buffers.** Starting in May 2013, changing expectations about monetary policy normalization in AMs in the context of slowing growth in key EMs led to a sharp re-pricing of EM risks. While the sell was initially broad-based, markets quickly began to differentiate according to economic fundamentals and policy credibility. The immediate challenge for EM policymakers is to strengthen macroeconomic frameworks. In some cases tighter monetary policy will be needed to contain inflation and strengthen confidence. Fiscal policies may also need to be tightened where the fiscal stance is procyclical or adds to funding pressures and where current account deficits are too high. Exchange rate flexibility should serve to buffer shocks, although foreign exchange intervention could be used to reduce excessive volatility where reserves are adequate.

**Policies can play a role in mitigating the impact of changes in external conditions on growth:**

- **Fiscal policy and commodity price shocks.** Our estimates suggest that the sensitivity of commodity exporters' growth to a decline in terms of trade can be reduced by 30 percent for countries able to implement countercyclical policies (Figure 17). This implies that countries that have saved a greater share of their commodity windfall over the previous decade will be in a

---

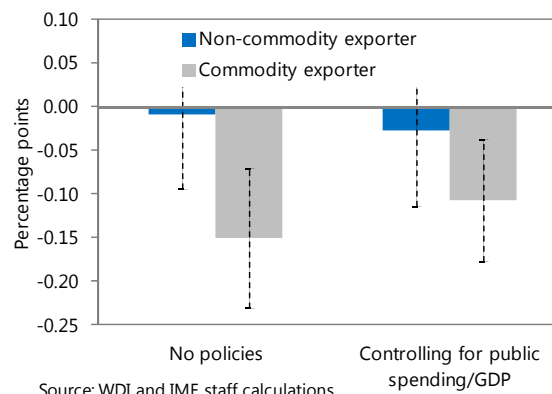
<sup>15</sup> Studies that estimate the combined effect of higher growth in the United States coupled with higher interest rates find that EM growth would be affected positively in net terms (IMF, 2014c).



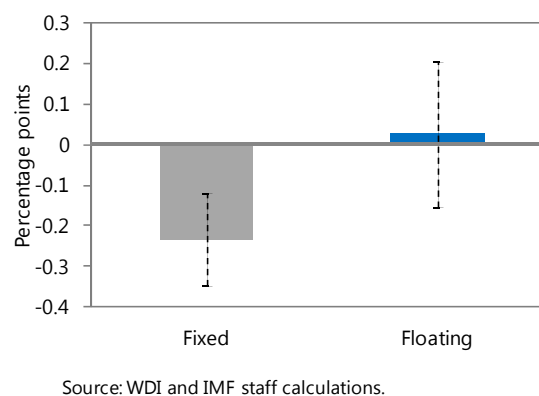
better position to cushion the effects of declining terms of trade. That said, reliance on demand-side policies should be limited given the persistent nature of lower commodity prices.

- Exchange rates and tighter global financial conditions.** We find that the impact of an increase in U.S. long-term interest rates can be mitigated by a flexible exchange rate regime. For the median EM with a fixed exchange rate, higher U.S. long-term interest rates have a statistically significant negative impact on growth both over a one-year horizon as well as over a five-year period, whereas the impact is not statistically significant for EMs with floating exchange rates (Figure 18). Our findings are similar to others in the literature (Frankel and Roubini, 2001; Reinhart et al., 2001; Reinhart and Reinhart, 2001) that have highlighted the role that flexible exchange rates can play in mitigating the growth effects of external financial shocks.

**Figure 17. Impact on average EM growth from 1 percent worsening in terms of trade**



**Figure 18. Median Growth Impact of a 100 bps Increase in Long Term Real U.S. Interest Rates**

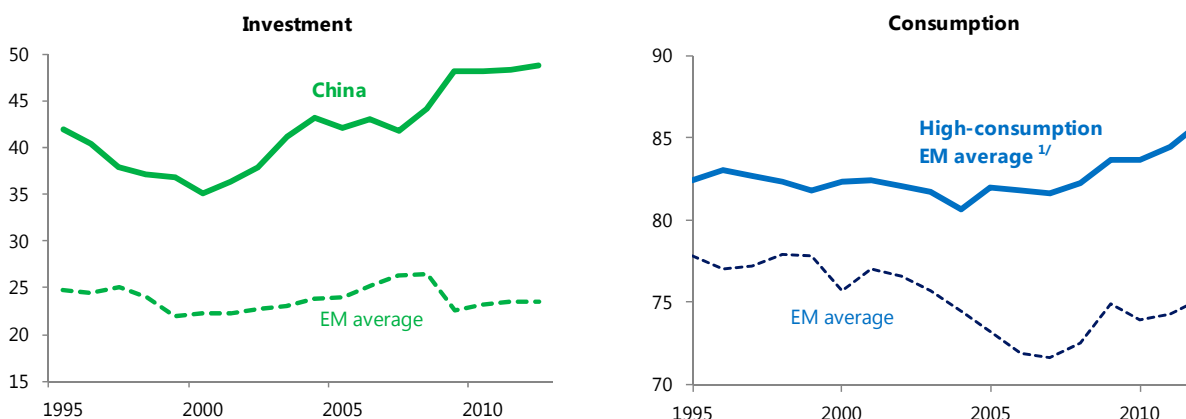


## B. Rebalancing Growth

### Internal rebalancing is needed to reorient economies to more sustainable growth models.

Avoiding a buildup of excess demand is one of the priorities to more sustainable growth paths. Excess demand is typically reflected in external imbalances that can lead to volatility or boom/bust cycles. To avoid such trends that can stall or derail the convergence process, different policy agendas are needed in different countries. For example, in China, it requires reducing investment (and credit growth) to more sustainable levels, factoring in permanently lower external demand in the tradable sector, increasing domestic consumption, and leveling the playing field for the domestic private sector (Figure 19). For other EMs whose growth models are built on high public or private consumption financed through external borrowing (e.g., Brazil, Turkey, and South Africa), the priority is to reduce consumption and boost savings to ensure that a larger share of investment is financed domestically, which would also reduce external structural deficits and the risk of boom-bust cycles.

**Figure 19. Consumption and Investment (in percent of GDP)**



Source: WEO and IMF staff calculations.

1/ Includes Armenia, Brazil, Costa Rica, Dominican Republic, Egypt, Guatemala, Morocco, Slovenia, South Africa, Tunisia, Turkey, Ukraine and Uruguay. Countries with consumption to GDP ratios near 80 percent in 2012.

## C. Improving Growth Prospects through Structural Reforms

**Revitalizing growth will require structural reforms.** Notwithstanding the extensive structural reforms some EMs undertook in earlier decades, the improvements to macroeconomic fundamentals and policy frameworks, and the leap in convergence achieved in the 2000s, most EMs continue to be in the middle-income range. Making the next leap of convergence to higher income levels in the absence of a supportive external environment will hinge on whether EMs can advance their reform agendas. The period of remarkable growth in many EMs masked the buildup of vulnerabilities and may have led reform efforts to languish. Moreover, factor accumulation in countries that have grown on an investment-driven model will hit diminishing returns. For other countries, gains from the earlier wave of structural reforms have been realized and a second-generation of reforms is likely to be needed.

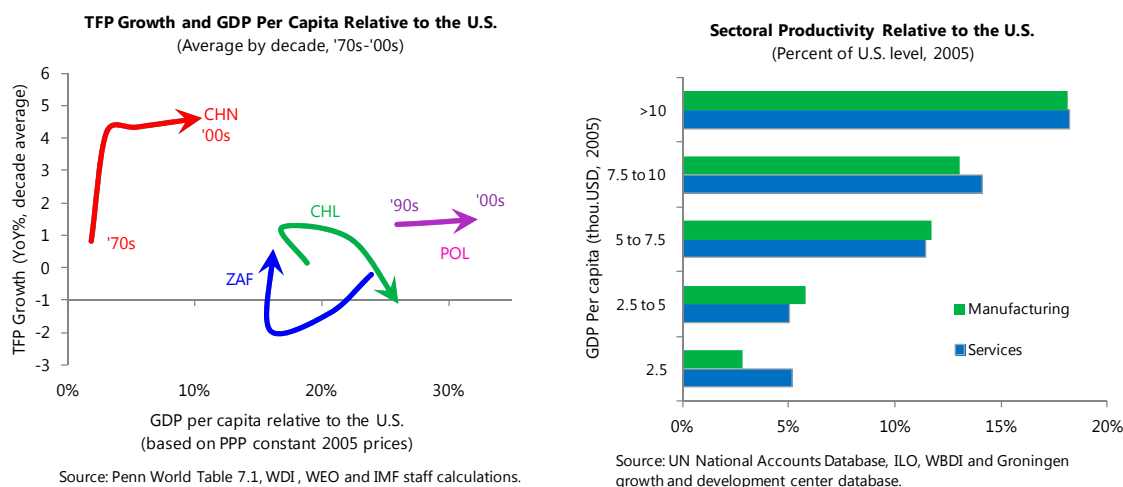
**Reform priorities are country-specific.**<sup>16</sup> Policies would need to address the particular structural impediments in each country that inhibit a more efficient allocation of resources, or limit productivity growth and factor accumulation. For example, at lower levels of development, higher productivity and growth can be achieved by adopting already-existing technologies and further accumulating factors of production, while for countries further along the development path, as diminishing returns to factor accumulation would set in, innovation rather than adopting existing technologies will be more important for productivity (Acemoglu et al., 2006). Indeed, the return to various reforms depends on where a country stands along the development path or its distance from the technological frontier (Dabla-Norris et al., 2013). To demonstrate countries' different reform needs, we explore four country cases—Chile, China, Poland, and South Africa—that are not

<sup>16</sup> For a detailed discussion of how structural reform priorities vary across emerging and developing economies, see Dabla-Norris et al. (2013).

just at different income levels, but have also experienced different productivity growth and convergence patterns over the decades (see Annex 2 for details). Drawing on the relevant literature and these countries' experiences, reform priorities can be set along the following key objectives:

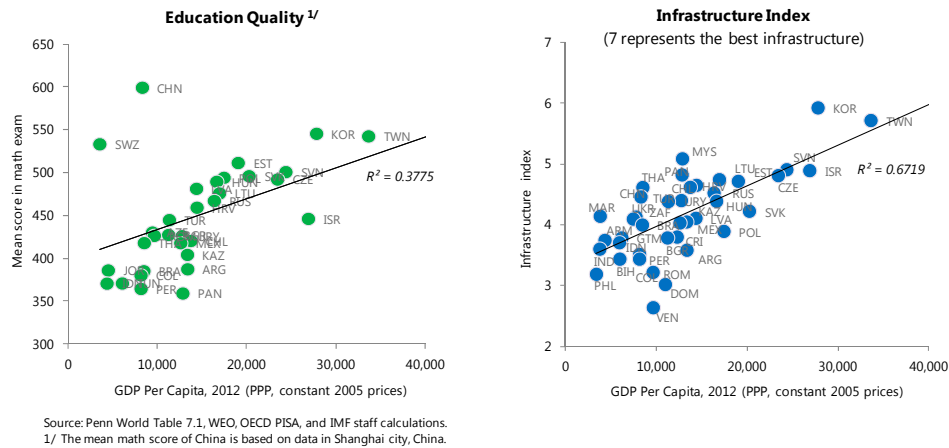
- Raising productivity.** For EMs that are closer to the technological frontier (e.g., Poland), sustaining growth will require increasing research and development spending and tertiary education to increase the absorptive capacity of the economy and promote innovation. For others at the lower end of the spectrum (e.g., China), moving up the value chain in production and exports can be facilitated by adopting new technologies. Despite improvements, productivity in EMs remains well below that of AMs and efforts will be needed to boost productivity in the service sector, as economies naturally shift resources from manufacturing toward services. Efforts to address market failures and improve factor allocation, including through increasing flexibility of labor markets and deepening financial sectors, will be important toward this end (Figure 20).

**Figure 20. Total and Sectoral Productivity Growth**



- Investing in human and physical capital.** A more educated workforce and better infrastructure increases the capacity of the economy to absorb and develop new technologies, increasing productivity growth (Easterly and Levine, 2001). For example, in South Africa poor education quality and energy and infrastructure bottlenecks, especially in electricity and railways, constrain growth. Easing these constraints would enable the country to mobilize its supply of excess labor. A better-educated workforce could also increase the labor force participation rate, i.e., there could be deep-rooted issues (lack of education or a skills mismatch between those looking for jobs and those hiring) that cause the low participation rate. Increasing investment in human and physical capital is a low-hanging fruit for a number of lower-income EMs (Figure 21).

Figure 21. Human and Physical Capital Measures, 2012



- Facilitating better resource allocation.** Addressing structural impediments that constrain labor force participation would add to productive capacity and help offset drags from unfavorable demographics. In the MENA countries, higher growth could come from including women in the workforce. In Poland, reducing structural unemployment would require addressing the skill mismatch problem, including by better aligning the education system to job needs. In Latin America, an overabundance of small informal firms lowers average productivity, and the gains from moving to the formal, more productive economy could be significant (Lora and Pagés, 2013). There is ample room in many EMs for improving the regulatory environment for domestic businesses, particularly small and medium-size enterprises (World Bank, 2013). Further capital market development to mobilize domestic sources to support private investment remains crucial, especially given that external funding is becoming scarcer. In particular, policies that encourage the formation and development of equity, bonds, and securities markets could be effective in facilitating the financing of new capital and innovation. Reducing financial repression (e.g., restrictions on the price or quantity of credit) could also help move resources to more productive uses.

## CONCLUSION

**After substantial progress in EMs the previous decade, the growth of these economies has slowed.** EMs' higher growth during the 2000s reflected increased productivity, partly as a result of earlier reforms bearing fruit, and was supported by favorable external conditions depending on countries' external linkages and policies. This strong growth performance facilitated narrowing the income gap with advanced economies, although most EMs remain in the middle-income range. Now that the favorable external conditions of the 2000s are waning, post-crisis stimulus policies are being rolled back, and productivity gains are leveling off, economic growth, has been slowing across the EM universe.

**Going forward, continuing income convergence will be more challenging.** The global financial crisis and its aftermath brought to light how policies in good times determined performance in difficult times. Now, once again, we see markets differentiating among EMs by how well policymakers are managing the transition to an era of less-favorable external conditions. Given the risks of facing a prolonged period of volatility in financial markets, policymakers will need to strengthen their macroeconomic policies and address their vulnerabilities.

**Sustaining strong growth will require renewed emphasis on structural reforms.** Reform priorities will depend on country-specific circumstances. Policymakers will need to identify reform priorities to remove supply bottlenecks, boost productivity, and move their economies up in the value chain of economic activities. For countries at lower income levels, including frontier economies (see Annex 3), the largest gains would come from reforms that prepare the economy to move up the value chain and develop new sectors, whereas at higher income levels, the gains would come from more innovation and technological development. Reforms are also required to reorient the sources of growth away from consumption in some cases (Brazil and Turkey) and away from investment in other cases (China).

**Challenges from opposition to reforms and implementation constraints cannot be underestimated.** The costs of reform are often incurred up front and concentrated on specific groups, whereas the benefits materialize later and are both more diffuse and less predictably allocated. A key challenge, then, is to create the political consensus to break powerful vested interests and the intertemporal problem (short-term pain for long-term gain). Moreover, even if reforms are approved, weak capacity and governance can hinder their implementation. While these issues are outside the scope of this paper, they deserve greater attention going forward.

**There is a need for decisive and timely policy action.** Given the time to reach consensus and implement structural reforms, as well as lags for those reforms to have real effects, rebounding from the current slowdown and reclaiming the higher growth of the last decade will not be quick, easy, or uniform across countries. Early and decisive commitment to tailored reforms will have significant benefits over the longer term.

## Annex 1. Organizing the Emerging Market Universe: The Role of External Linkages<sup>17</sup>

We use cluster analysis to develop a taxonomy to organize the highly heterogeneous EM universe along different economic and financial dimensions. These clusters are used in our empirical work to differentiate results across different types of EM groups.

**Country sample:** A total of 53 countries are selected for the analysis, including 43 major EMs, nine newly industrialized economies (NIEs), and two frontier markets. The nine NIEs (e.g., Czech Republic, Korea, Singapore) are currently classified as advanced economies by the IMF's *World Economic Outlook* (WEO); they are included as high-income references and as they face similar challenges as EMs. Vietnam and Nigeria are low-income countries included in the analysis as they have relatively deeper financial markets with active foreign participation. The complete country list is shown in Table 1.

**Table 1. Country Coverage in Taxonomy and Cluster Analysis**

1	Algeria	19	Hong Kong SAR	37	Peru
2	Angola	20	Hungary	38	Philippines
3	Argentina	21	India	39	Poland
4	Armenia	22	Indonesia	40	Romania
5	Azerbaijan	23	Iraq	41	Russian Federation
6	Bosnia and Herzegovina	24	Israel	42	Singapore
7	Brazil	25	Jamaica	43	Slovak Republic
8	Bulgaria	26	Jordan	44	Slovenia
9	Chile	27	Kazakhstan	45	South Africa
10	China, Mainland	28	Korea, Republic of		Taiwan (Province of
11	Colombia	29	Latvia	46	China)
12	Costa Rica	30	Lithuania	47	Thailand
13	Croatia	31	Malaysia	48	Tunisia
14	Czech Republic	32	Mexico	49	Turkey
15	Dominican Republic	33	Morocco	50	Ukraine
16	Egypt	34	Nigeria	51	Uruguay
17	Estonia	35	Pakistan	52	Venezuela
18	Guatemala	36	Panama	53	Vietnam

**Organizing EMs:** The taxonomy covers seven indicators to reflect differences in financial and trade openness, export destination, and commodity dependence (Table 2). A two-stage approach is taken to identify clusters of countries with similar attributes. In the first step, six clusters are identified for each indicator using Ward's linkage clustering method in Stata. Using a recursive approach,

<sup>17</sup> For more details, see Gao and Zhang (2014).

countries are grouped into clusters that minimize the errors sum of squares (or equivalently, maximize R-square) within each cluster. The numbers of clusters is determined by the choice of dissimilarity level. In the second step, the cluster numbers are refined through the use of judgment, although a robustness test using kernel density estimation is used to ensure consistency of the countries in the different clusters.<sup>18</sup>

**Table 2. Data Source of Taxonomy and Cluster Indicators**

Indicator Name	Description	Data Source	Period
Financial Openness	External assets plus liabilities, in percent of GDP, excluding reserve assets.	External Wealth of Nations Database, WEO Database	2000-10
Trade Openness	Exports plus imports (goods and services), in percent of GDP.	WEO Database	2000-12
Growth of Terms of Trade	Annual growth of terms of trade, in percent change	WEO Database	2000-12
Export Share to Euro Zone	Exports to euro zone, in percent of total exports of goods and services.	Direction of Trade Statistics (DoTS) Database	2000-12
Export Share to the United States	Exports to United States, in percent of total exports of goods and services.	DoTS Database	2000-12
Export Share to China	Exports to China in percent of total exports of goods and services.	DoTS Database	2000-12
Commodity Exporters	Net commodity exports, in percent of GDP	WEO Database	2000-10

The final cluster results are given in Table 3. Countries are ranked from highest to lowest value for each of the indicators. Non-colored cells at the bottom represent missing observations. We find 21 countries in the top two clusters of “Net Commodity Exports to GDP.”

<sup>18</sup> Despite failing the robustness test, Hong Kong SAR and Singapore (economies with exceptionally large values of financial and trade openness) are grouped in a cluster with other economies with “relatively” high values of openness (Panama, Jordan, Hungary, and Taiwan Province of China).

**Table 3. Final Cluster Output**

Financial Openness 1 (External A+L/GDP)	Trade Openness (TX+TM)/GDP	Growth of Terms of Trade	Export Share to Euro Zone	Export Share to U.S.	Export Share to China, Mainland	Net Commodity Export to GDP
Hong Kong SAR	Singapore	Venezuela	Tunisia	Mexico	Hong Kong SAR	Angola
Singapore	Hong Kong SAR	Azerbaijan	Czech Rep	Dominican Rep	Angola	Iraq
Panama	Malaysia	Angola	Bosnia and Herzegov	Venezuela	Korea, Rep of	Nigeria
Jordan	Swaziland	Algeria	Hungary	Guatemala	Chile	Kazakhstan
Hungary	Estonia	Russian Federation	Morocco	Costa Rica	Kazakhstan	Algeria
Taiwan Province of Ch	Slovak Rep	Chile	Poland	Colombia	Peru	Azerbaijan
Estonia	Hungary	Colombia	Romania	Panama	Vietnam	Venezuela
Latvia	Vietnam	Argentina	Croatia	Nigeria	Brazil	Russia
Israel	Thailand	Indonesia	Slovenia	Iraq	Thailand	Chile
Malaysia	Czech Rep	Peru	Algeria	Jamaica	Malaysia	Vietnam
Jamaica	Angola	Romania	Slovak Rep	Israel	Singapore	Argentina
Chile	Slovenia	Ukraine	Azerbaijan	Angola	Philippines	Indonesia
Uruguay	Jordan	South Africa	Bulgaria	Peru	Indonesia	Peru
Bulgaria	Bulgaria	Brazil	Turkey	Algeria	Uruguay	Malaysia
Argentina	Lithuania	Kazakhstan	Russia	Pakistan	Argentina	Colombia
Slovenia	Taiwan Province of	Armenia	Estonia	China	South Africa	Uruguay
Iraq	Ukraine	Croatia	Armenia	Philippines	Russia	Costa Rica
Swaziland	Latvia	Estonia	Latvia	Jordan	India	Ukraine
Angola	Tunisia	Lithuania	Lithuania	Brazil	Iraq	South Africa
Croatia	Bosnia and Herzegov	Bosnia and Herzegov	Kazakhstan	Vietnam	Pakistan	Brazil
Slovak Rep	Azerbaijan	Latvia	Egypt	Malaysia	Costa Rica	Guatemala
Czech Rep	Costa Rica	Malaysia	Nigeria	Hong Kong SAR	Jamaica	Latvia
Kazakhstan	Kazakhstan	Poland	Israel	India	Venezuela	Mexico
Russia	Jamaica	Singapore	Iraq	Thailand	Ukraine	Bosnia and Herz
South Africa	Korea, Rep of	Uruguay	South Africa	Korea, Rep of	Panama	Korea, Rep of
Tunisia	Croatia	Mexico	Brazil	Chile	Israel	Panama
Thailand	Iraq	Panama	Chile	Indonesia	Colombia	Dominican Rep
Azerbaijan	Philippines	Morocco	Pakistan	Singapore	Egypt	Egypt
Ukraine	Poland	Vietnam	Ukraine	South Africa	Jordan	Tunisia
Venezuela	Israel	Czech Republic	Panama	Armenia	Dominican Rep	Taiwan Province
Philippines	Romania	Slovenia	Uruguay	Uruguay	Armenia	Jamaica
Lithuania	Morocco	Hong Kong SAR	India	Argentina	Algeria	Estonia
Bosnia and Herzegov	Dominican Rep	Hungary	Peru	Egypt	Turkey	Romania
Peru	Armenia	Slovak Republic	Argentina	Turkey	Bosnia and Herzegov	Poland
Morocco	Chile	Bulgaria	Angola	Azerbaijan	Nigeria	Slovenia
Korea, Rep of	Panama	China	Philippines	Russia	Romania	Pakistan
Vietnam	Algeria	Egypt	Jamaica	Lithuania	Hungary	Philippines
Armenia	Guatemala	Thailand	Vietnam	Morocco	Morocco	China
Costa Rica	South Africa	Dominican Republic	Costa Rica	Estonia	Bulgaria	Bulgaria
Poland	Indonesia	Israel	China	Bulgaria	Mexico	Turkey
Egypt	Mexico	Costa Rica	Colombia	Hungary	Estonia	Armenia
Algeria	China	Guatemala	Korea, Rep of	Ukraine	Poland	Croatia
Romania	Russia	Philippines	Indonesia	Croatia	Azerbaijan	Hungary
China	Egypt	Pakistan	Thailand	Romania	Czech Rep	Israel
Indonesia	Uruguay	Korea, Republic of	Malaysia	Czech Rep	Slovak Rep	Czech Rep
Turkey	Turkey	Tunisia	Hong Kong SAR	Latvia	Tunisia	India
Brazil	Venezuela	India	Singapore	Slovenia	Guatemala	Morocco
Colombia	Peru	Turkey	Dominican Rep	Slovak Rep	Slovenia	Hong Kong SAR
Dominican Rep	India	Taiwan Province of	Venezuela	Poland	Latvia	Thailand
Mexico	Argentina	Jordan	Guatemala	Tunisia	Croatia	Lithuania
Guatemala	Pakistan	Jamaica	Mexico	Kazakhstan	Lithuania	Jordan
Pakistan	Colombia	Swaziland	Jordan	Bosnia and Herzegov	China	Singapore
India	Brazil	Iraq	Swaziland	Swaziland	Swaziland	Iraq
Nigeria	Nigeria	Nigeria	Taiwan Province of	Taiwan Province of	Taiwan Province of	Nigeria



## Annex 2. Structural Reforms: Lessons from Four Case Studies<sup>19</sup>

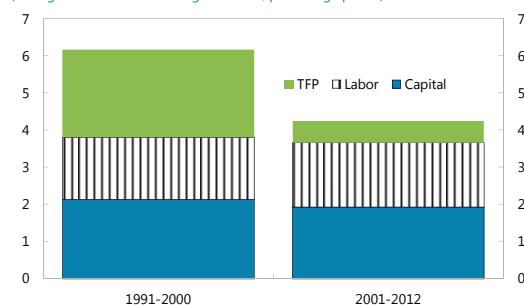
### CHILE

**Background:** The contribution of factor accumulation to growth has been broadly stable since the early 1990s, aided by increased labor force participation, especially among women. Total factor productivity (TFP), on the other hand, fell from an annual rate of roughly 2½ percent in 1991-2000 to about ½ percent in 2001-12, in part reflecting the aging of mining operations, and despite strong terms of trade. Going forward, growth will be constrained by subdued copper prices and weaker working-age population growth.

**Reform priorities:** Sustaining strong medium-term potential growth will depend on efforts to boost TFP and foster private investment. Education and labor market reforms could yield simultaneously higher productivity and wider distribution of growth benefits. This will require improving access to high-quality education and training and enhancing labor market flexibility. Strengthening Chile's energy generation and infrastructure will also be crucial for improving competitiveness and the enforcement of contracts.

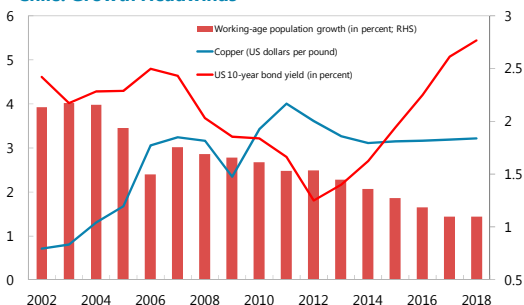
**Chile: Change in Growth Engines**

(average contribution to GDP growth rate; percentage points)



Sources: Central Bank of Chile, Ministry of Finance (Dipres) and Fund staff estimates

**Chile: Growth Headwinds**

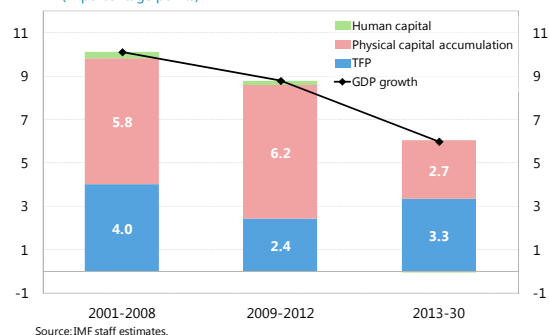


Sources: National Statistical Institute (INE), World Economic Outlook (IMF), and Fund staff estimates.

### CHINA

**Background:** China's growth model has relied on extensive factor accumulation and relocation of labor from the countryside to factories. In recent years, growth has moderated, even as investment has risen and reliance on credit has increased, pointing to diminishing returns on capital (the return on investment fell from 25 percent in the early 1990s to around 16 percent in recent years). Demographic trends point to declining labor force growth, which could hamper profitability in the private sector, leading to financial losses and deleveraging, which would in turn generate an adverse feedback loop that hampers employment and growth.

**China: Contribution to Growth by Input**  
(In percentage points)

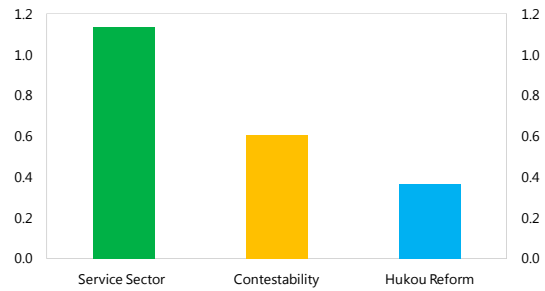


Source: IMF staff estimates.

<sup>19</sup> Based on inputs by country teams, including Christian Ebeke, Jose D. Rodriguez and Yinqiu Lu.

**Reform priorities:** Reforms are necessary to rebalance China’s growth away from credit-led investment and into consumption, while becoming more reliant on TFP. This requires reforms in the financial sector to contain the buildup of vulnerabilities and excesses. Service sector reform (deregulation and increasing the share of labor employed in services) is necessary to lift productivity growth. Hukou reform could support the urbanization process and boost productivity by enabling knowledge spillovers and specialization.

**China Reform Payoffs: Potential Increase in Average TFP Growth<sup>1</sup>**  
(In percentage points)

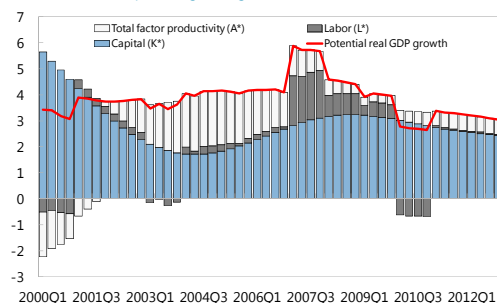


Source: IMF staff estimates.  
<sup>1</sup>Reforms envisage moving the national average of service sector employment share, contestability, and nonagricultural hukou share of population to the level of Shanghai in 2010.

## POLAND

**Background:** Economic liberalization and prudent policies since 1989 paved the way for Poland’s accession to the European Union in 2004. Thereafter, Poland benefited significantly from the inflows of EU structural funds, while continuing to expand financial and trade linkages with the rest of the EU, including successful integration into the German supply chain. Despite Poland’s resilience following the global financial crisis, potential growth is estimated to have declined by ½–1 percent over 2009–12, reflecting a structurally lower capital accumulation (resulting from reduced EU structural transfers) and structurally lower labor force contributions (resulting from an increase in structural unemployment).

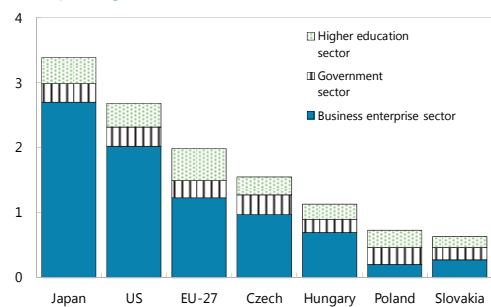
**Poland: Contribution to potential growth**  
(Year-on-Year percentage changes)



Sources: Polish authorities; and IMF Staff estimates

**Reform priorities:** Reforms should aim to boost investment and employment, while preserving productivity gains. Further capital market development is necessary to support private investment, and should be complemented by increased infrastructure investment and privatization. There is room to boost labor participation rates (especially among women) and to improve education to address skill mismatches. Reforms to better align special occupational pension schemes (notably for miners and farmers) with the regular pension system should help increase labor participation. Given Poland’s proximity to the technological frontier, pure cost-competitiveness gains cannot last indefinitely—moving up the value chain will require raising R&D spending, which is low relative to the country’s peers.

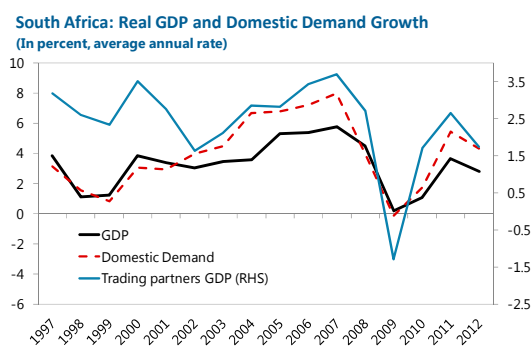
**Gross domestic expenditure on R&D by sector\***  
(as percentage of GDP)



Sources: Eurostat. (\*) Data as of 2010.

## SOUTH AFRICA

**Background:** Growth in the post-apartheid era was underpinned by a substantial increase in TFP growth and investment. Removal of sanctions and trade liberalization increased trade and financial linkages with the rest of the world, facilitated technology spillovers, and raised private investment. Institutional change reinforced fiscal and monetary policy discipline, contributing to macroeconomic stability and improved confidence. Over the past decade, South Africa benefited from strong terms of trade, although balance sheet repair since the global financial crisis has been a headwind to growth. Moreover, insider-outsider dynamics and barriers to entry have stifled competition in many sectors, pushed up labor costs, while low education attainment has led to pervasive skill mismatches. Energy and infrastructure bottlenecks are becoming increasingly binding. This has resulted in an increasingly capital-intensive economy, with limited job creation, and rising inequality.



Sources: Haver, and IMF staff calculations.

**Reform priorities:** Addressing longstanding rigidities in the product and labor market, strengthening the education system, and easing infrastructure bottlenecks, especially in electricity and railways, would enable South Africa to take advantage of its large supply of idle labor and reap the demographic dividend from improved health outcomes (including declining HIV-aids infection rates). At the same time, reforms to increase product market competition would boost competitiveness and spur greater innovation and investment.

### Annex 3. Prospects for the “Next” Emerging Markets?

**Rapid growth in a number of low-income countries (LICs) has positioned them for middle-income status.** These frontier LICs have grown rapidly for long periods, overcome periods of growth decline and backtracking, and subsequently made progress on convergence. Going forward, these rapidly growing economies have to ensure that the momentum is maintained so that they can graduate to middle-income status.

**The lessons from EMs also apply to these frontier LICs.** Growth slowdowns are not exclusive to middle-income countries; neither are the types of policies needed to ensure sustainable and strong rates of growth. At the forefront is the need to maintain sound domestic policies, address vulnerabilities in the financial system, implement wide-ranging reforms to increase productivity, and foster private sector development.

**Reform priorities need to be tailored based on structural bottlenecks:** Similar to EMs, the structural characteristics of these frontier LICs emerge as risk factors for a growth slowdown (Table 4).<sup>20</sup>

**Table 4. Risk Factors for a Growth Slowdown in Frontier Low-Income Countries**

Country	Institutions	Demography	Communication	Roads	Output composition	Macroeconomic Factors
Vietnam	Green	Green	Green	Green	Green	Orange
Angola	Green	Red	Red	Red	Green	Red
Mauritius	Green	Green	Green	Green	Green	Red
Kenya	Orange	Red	Red	Orange	Yellow	Yellow
Bangladesh	Green	Green	Red	Yellow	Orange	Green
Ghana	Yellow	Yellow	Yellow	Green	Red	Green
Zambia	Orange	Yellow	Red	Orange	Red	Yellow
Nigeria	Red	Yellow	Red	Green	Red	Green

Indeed, estimating the probability of a growth slowdown using a sample of frontier LICs and EMs highlights the following as potential risk factors:

- *Institutions:* It has been long acknowledged that institutions are crucial for growth. Recently, progress has been made in reducing the size of government and encouraging the emergence of the private sector, but there is still room to streamline cumbersome business regulations and strengthen institutions that promote property rights. Prudential regulations could limit the build-up of excessive risk in the financial system.
- *Demography:* A number of countries are at high risk of slowdown from unfavorable demographic trends due to a high dependency ratio and imbalanced gender participation in

<sup>20</sup> This analysis closely follows the methodology used in Aiyar et al. (2013).

the work force. To address this, policy priorities would be combating gender discrimination and pursuing inclusive education and labor market reforms.

- *Infrastructure (communications and roads)*: The positive impact of infrastructure on growth, especially when countries are moving toward middle-income status, is well established. That said, most frontier LICs stand a higher risk of a growth slowdown arising from lack of infrastructure including communications, transport, and a range of other needs, including energy generation.
- *Structural transformation (output composition)*: As an economy develops, it undergoes a structural transformation as labor moves from the initially dominant agricultural sector to manufacturing and services. This exposes the economy to a concomitant risk of slowdown. Managing this risk would involve reforms that enhance productivity, particularly in the nonagricultural sector
- *Macroeconomic factors*: A large variety of macroeconomic factors are associated with economic growth, although this analysis focuses on the risks from financial openness and overinvestment. Countries that have benefited from strong capital inflows need to be mindful of the risk of sudden stops that may also lower potential output levels permanently. (Cerra and Saxena, 2008). Also, overinvestment in certain sectors driven in part by high capital flows and commodity price gains will need to be scaled back and redirected to increase productivity in other sectors.

The lessons from EMs apply to these frontier LICs. These economies need to address vulnerabilities and maintain good domestic policies so that they can ensure sustainable growth and manage the transition to middle-income status while the global economy is going through transitions.

# ANALYTICAL APPENDIX

## A. Supply-Side Decomposition of Growth and Estimating Potential Growth<sup>21</sup>

Potential growth rates are derived following a growth accounting exercise based on the standard Cobb-Douglas production function:

$$Y_t = A_t K_t^\alpha (L_t h_t)^{(1-\alpha)}, \quad (1)$$

where  $Y_t$  represents domestic output in period  $t$ ,  $K_t$  the physical capital stock,  $L_t$  the employed labor force,  $h_t$  human capital per worker, and  $A_t$  total factor productivity (TFP).<sup>22</sup>

Using equation (1), we can decompose GDP growth as follows (denoting by  $\hat{x}$  the growth rate of a variable  $x$ ):

$$\hat{Y} = \hat{A} + \alpha \hat{K} + (1 - \alpha) \hat{L} + (1 - \alpha) \hat{h}. \quad (2)$$

We use annual data from Penn World Table 7.1 (PWT) for the period from 1980 until 2010 and other sources—mainly the IMF’s World Economic Outlook (WEO) database—for the subsequent years. Specifically, data on output, measured by real GDP, are obtained from PWT until 2010 and extended using WEO data for 2011–12. The capital stock series is constructed with investment data from the PWT using the perpetual inventory method until 2010, and investment data from WEO for 2011–12. Our labor input series (measured by employment) refers to inputs effectively used in the production process. The employment series is obtained using the labor force series from PWT and the employment rate (one minus unemployment rate) from WEO. For 2011–12, we assume that the labor force rises in line with the UN Population Projection database (constant fertility scenario) for individuals age 15 and above. To get quality-adjusted labor, we follow Bils and Klenow (2000) and Ferreira, Pessoa, and Veloso (2013) to model human capital as a function of the average years of schooling, using data from Barro and Lee (2010).<sup>23</sup>

The structural slowdown is represented by the change in the potential growth rate from a historical average, e.g., 2000-12, and 2013-18. The cyclical part of the slowdown is the residual from the change in actual growth rates and the structural change between 2012-13 and 2010-11.

---

<sup>21</sup> For more details, see Tsounta (2014).

<sup>22</sup> We assume a capital share of output,  $\alpha$  of 0.40 (in line with Gollin, 2002). Our main findings, however, are robust to a range of reasonable values for this parameter.

<sup>23</sup> When investment data for 2011-12 are not available from the WEO, we use nominal growth rates in investment and deflate by CPI. When education data are not available we use those of a similar country.

To estimate potential growth rates, we first estimate TFP using equation (1). We then obtain trend series for capital, labor, human capital, and TFP ( $K^T$ ,  $L^T$ ,  $h^T$ ,  $A^T$ ) for the period 1980–2017 using the Hodrick-Prescott (for both  $\lambda = 6.25$  and  $\lambda = 100$ ), Baxter and King (1999), and Christiano and Fitzgerald (2013) filters.<sup>24</sup> The following assumptions about the behavior of  $K$ ,  $L$ ,  $h$ , and  $A$  in 2013–17 are made: (i) we assume that both capital and TFP will grow by the average annual rate observed in 2000–12; and (ii) to project labor input, we use projected unemployment rates from the WEO and we assume that the labor force grows in line with the working-age population from the UN Population Projection database and labor force participation rates remain constant at their latest observation. Finally, our measure of human capital increases at the 2005–10 average annual growth rate. Potential output growth ( $\widehat{Y}^P$ ) is then computed as follows:

$$\widehat{Y}^P = \widehat{A}^T + \alpha \widehat{K}^T + (1 - \alpha)(\widehat{L}^T + \widehat{h}^T).$$

## B. Impact of External Factors on Emerging Market Growth<sup>25</sup>

The empirical approach uses a standard setup for analyzing determinants of growth: fixed effects growth regressions using macroeconomic panel data averaged over consecutive five-year periods.<sup>26</sup> Time fixed effects (dummies for each five-year period) are introduced to control for changes in global conditions not captured by the model. The regressions take the following general form:

$$\Delta \ln GDP_{i,t} = \beta_1' (External\ Conditions)_{i,t} + \beta_2' X_{i,t} + \gamma_i + \eta_t + \varepsilon_{i,t},$$

where:

$\Delta \ln GDP_{i,t}$ : First difference in the log of the real per capita GDP, i.e., per capita GDP growth

*External Conditions*: Variables measuring external conditions. We focus on three:

- External demand, measured by trading partner growth (the two terms are used interchangeably)
- International financing conditions interacted with the degree of financial openness, measured by changes in the real interest rate on the 10-year U.S. T-bond.
- Change in the log of terms of trade

$X_{i,t}$ : standard growth regressors (initial level of income, population growth, investment ratio, etc.) and other controls.

$\gamma_i$ : country fixed effect

$\eta_t$ : time fixed effect

<sup>24</sup> We include projections through 2019 to avoid the end-of-sample bias.

<sup>25</sup> For more details, see Culiuc (2014).

<sup>26</sup> The trade section builds and expands on Arora and Vamvakidis (2005), who analyze the growth impact of trading partner growth. Recent studies building on the same approach include Drummond and Ramirez (2009) and Dabla-Norris et al. (2013).

The panel covers the period 1962-2011, and regressions are restricted to countries with a population of at least 2 million people, which includes 129 countries: 66 EMs, 21 AMs, and 42 LICs.<sup>27</sup>

Following Arora and Vamvakidis (2005), partner growth is computed as the weighted average growth rate using as weights each partner's share in the reporting country's export basket. Export weights are computed as five-year averages from the IMF's Direction of Trade Statistics (DoTS) database for 1960-2011. Therefore, export partner growth for country  $i$  in year  $t$  is computed as follows:

$$Partner\ Growth_{i,t} = \sum_j \left[ \left( \frac{GDP_{j,t}}{GDP_{j,t-1}} - 1 \right) \times \left( \frac{1}{5} \sum_{s=t-4}^t \frac{Exports_{ijs}}{Exports_{is}} \right) \right],$$

$t = 1964 \dots 2011, \quad j = \text{all export partner countries}$

In addition, we recover export weights – and therefore partner growths – for countries that started reporting to DoTS relatively recently (e.g., China since 1978, Bulgaria since 1981) by using partners' import data. AM partner growth rates are computed analogously. However, EM partner growth is computed in two stages. First, an index is computed in a manner analogous to the one for AM partners. Second, the common component of AM and EM partner growths is excluded by running a simple OLS regression of EM partner growth on AM partner growth and only using residuals for subsequent analysis.

Other variables in the model (and sources from which they are derived) include:

- GDP growth series and commodity dependence come from the World Bank's World Development Indicators. A country is identified as a commodity exporter if net commodity exports (as measured by fuels and metals exports) averaged over 10 percent of GDP in the years 2002-11.
- The IMF's International Financial Statistics is the source for select macro variables (current account balance/GDP, investment/GDP, terms of trade), as well as the real interest rate on the 10-year U.S. T-bond, which is used to measure the international cost of capital.
- Trade data come from the DoTS.
- Financial integration is computed from the updated and extended version of the dataset constructed by Lane and Milesi-Ferretti (2007) as the sum of total external assets and total external liabilities net of international reserves.
- The exchange rate regime classification comes from IMF's AREAER Database.
- The PRIO Armed Conflict Dataset is used to identify episodes of war.

---

<sup>27</sup> The 2 million population threshold is used in order to eliminate small states, which are much more susceptible to show large output variation in response to events that are hard to capture in a growth regression framework (e.g., the bankruptcy of a single company, natural disasters). The population threshold is close to the one used in the 2013 IMF board paper on macroeconomic issues in small states (1.5 million people).



### C. Domestic and External Factors Explaining the Current Slowdown<sup>28</sup>

**Data sources and sample:** The analysis is based on staff calculations using data from the October 2013 WEO, the GEE and AREAER databases, and from the vulnerability exercise. Additionally, public sources (Bloomberg, IFS, and HAVER) are used. The sample uses annual data for 2011, 2012 and 2013 as well as initial conditions for 2010.

**Regression analysis and variables:** The EM slowdown regressions are simple pooled panel OLS. Country fixed effects were not included to allow for country-specific time-invariant initial conditions. Year fixed effects were also excluded due to the short time span of the sample, but changes in global factors/conditions are captured through the change in VIX index variable. The specification is as below (see Fayad and Perrelli (2014) for results):

$$Y_{i,t} = \alpha * \text{Domestic factors}_{i,t} + \beta * \text{External conditions}_{i,t} + \gamma * \text{Initial conditions}_{i,2010} + \phi * \text{Initial conditions}_{i,2010} * \text{Domestic factors}_{i,t} + \varphi * \text{Global conditions}_t + \varepsilon_{i,t}$$

The dependent variable is yearly real GDP growth rate. **Domestic factors** include policy variables and fundamentals, namely fiscal policy measured by the change in the cyclically adjusted primary balance to potential GDP and the exchange rate regime.<sup>29</sup> **Initial conditions**, all measured in 2010, include REER overvaluation, the output gap and a measure for financial openness. We **interact initial conditions (FO) with fundamentals (peg)**. **External factors** include a trading partner's real import demand.<sup>30</sup> **Global conditions** or global risk aversion are measured by the change in the VIX index. Other factors that were controlled for and that did not pass the significance test include (i) whether or not a country is a commodity exporter; (ii) monetary policy measured by a change in the policy rate; and (iii) additional external measures (such as terms of trade and the current account balance to GDP, as well as the interaction of terms of trade with net commodity exports to GDP).

<sup>28</sup> For more details, see Fayad and Perrelli (2014).

<sup>29</sup> We use a peg dummy equal to one when the exchange rate classification is below or equal to 8 (i.e., for all classifications except floats and free floats).

<sup>30</sup> Given the increased importance of EM-EM trade, we check the robustness of our results to potential circularity between the dependent variable (EM growth) and our measure of external demand (which includes all trading partners). For this purpose, we separate import demand from advanced economies and that from EMs, and include them separately in the regression. Our measure for EM import demand is the part of EM import demand that is not explained by AMs' import demand. Results, not reported here, show the robustness of our findings to this disaggregation.

## REFERENCES

- Acemoglu, D., P. Aghion, and F. Zilibotti, 2006, "Distance to Frontier, Selection, and Economic Growth." *Journal of the European Economic Association*, Vol. 4, No. 1, pp. 37-74.
- Aiyar, S., R. Duval, D. Puy, Y. Wu, and L. Zhang, 2013, "Growth Slowdowns and the Middle-income Trap," IMF Working Paper WP/13/71. (Washington)
- Arnold, J., G. Nicoletti, and S. Scarpetta. 2011, "Does Anti-competitive Regulation Matter for Productivity? Evidence from European Firms," Discussion Paper 551, Institute for the Study of Labor (IZA), Bonn.
- Arora, V., and A. Vamvakidis, 2005, "How Much Do Trading Partners Matter for Economic Growth?" *IMF Staff Papers*, Vol. 52, No. 1, pp. 24-40.
- Basu, S., and J. Fernald, 2001, "Why Is Productivity Procyclical? Why Do We Care?" In *New Developments in Productivity Analysis*, ed. by Charles R. Hulten, Edwin R. Dean, and Michael J. Harper (Cambridge, Massachusetts: National Bureau of Economic Research).
- Barnes, S., R. Bouis, P. Briard, S. Dougherty, and M. Eris, 2011, "The GDP Impact of Reform: A Simple Simulation Framework," OECD Economics Department Working Paper No. 834 (Paris: OECD Publishing).
- Barro, R., and J. Lee, 2010, "A New Data Set of Educational Attainment," NBER Working Paper No. 15902 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Baxter, M., and R. G. King, 1999, "Measuring Business Cycles: Approximate Band-Pass Filters for Economic Time Series," *The Review of Economics and Statistics*, Vol. 81, No. 4, pp. 575-93.
- Berg, A., J. Ostry, and J. Zettelmeyer, 2012, "What Makes Growth Sustained?" *Journal of Development Economics*, Vol. 98, No. 2, pp. 149-66.
- Bils, M., and P. J. Klenow, 2000, "Does Schooling Cause Growth?" *American Economic Review*, Vol. 90, No. 5, pp. 1160-183.
- Blanchard, O. J., M. Das, and H. Faruquee, 2010, "The Initial Impact of the Crisis on Emerging Market Countries," *Brookings Papers on Economic Activity*, Spring, pp. 263-307.
- Christiano, L. J., and T. J. Fitzgerald, 2003, "The Band Pass Filter," *International Economic Review*, Vol. 44, No. 2, pp. 435-65.
- Culiuc, A., 2014, "External Factors and Medium-term Economic Growth," IMF Working Paper (forthcoming).

- Dabla-Norris, M. E., G. Ho, K. Kochhar, A. Kyobe, and R. Tchaidze, 2013, "Anchoring Growth: The Importance of Productivity-Enhancing Reforms in Emerging Market and Developing Economies," Staff Discussion Note 13/8 (Washington).
- Di Giovanni, J., and J. Shambaugh, 2006. "The Impact of Foreign Interest Rates on the Economy: The Role of the Exchange Rate Regime" IMF Working Paper 06/37 (Washington).
- Drummond, P., and G. Ramirez, 2009. "Spillovers From the Rest of the World into Sub-Saharan African Countries" IMF Working Paper 09/155 (Washington).
- Easterly, W., and R. Levine, 2001, "What Have We Learned from a Decade of Empirical Research on Growth? It's Not Factor Accumulation: Stylized Facts and Growth Models," *World Bank Economic Review*, Vol. 15, No. 2, pp. 177-219.
- Fayad, G., and R. Perrelli, 2014, "Growth Surprises and Synchronized Slowdown in Emerging Markets—An Empirical Investigation" IMF Working Paper (forthcoming).
- Ferreira, P., S. De Abreu Pessoa, and F. A. Veloso, 2013, "On the Evolution of Total Factor Productivity in Latin America," *Economic Inquiry*, Vol. 51, No. 1, pp. 16–30.
- Frankel, J., and N. Roubini, 2001, "The Role of Industrial Country Policies in Emerging Market Crises," NBER Working Paper 8634 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Gao, Y. and Z. Zhang, 2014, "The State of Emerging Markets: A New Perspective on Clusters and Taxonomies," IMF Working Paper (forthcoming).
- Gollin, D., 2002, "Getting Income Shares Right," *Journal of Political Economy*, Vol. 110, No. 2, pp. 458–74.
- Heston, A., R. Summers, and B. Aten, 2012, *Penn World Table Version 7.1*, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, July.
- Hsieh, C., and P. J. Klenow. "Misallocation and Manufacturing TFP in China and India," *The Quarterly Journal of Economics*, Vol. 124, No. 4, pp. 1403-448.
- Inter-American Development Bank (IDB), 2013 "Rethinking Reforms: How Latin America and the Caribbean Can Escape Suppressed World Growth" (Washington: IDB).
- International Monetary Fund (IMF), 2006, "Asia Rising: Patterns of Economic Development and Growth," in *World Economic Outlook*, September (Washington).
- , 2008, "Structural Reforms and Economic Performance in Advanced and Developing Countries," IMF Research Department (Washington).
- , 2013, *World Economic Outlook*, April. (Washington).

- , 2014a, *Regional Economic Outlook: Asia and Pacific*, April (Washington).
- , 2014b, *Regional Economic Outlook: Western Hemisphere*, April (Washington).
- , 2014c, *World Economic Outlook*, April (Washington).
- , 2014d, *Spillover Report*, forthcoming.
- Lora, E., and C. Pagés. 2011, "Face-to-Face with Productivity," *Finance and Development*, Vol. 48, No. 1.
- Reinhart, C., and V. Reinhart, 2001, "What Hurts Most? G-3 Exchange Rate or Interest Rate Volatility," NBER Working Paper 8535 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Reinhart, C., G. Calvo, E. Fernández-Arias, and E. Talvi, 2001, "The Growth-Interest Rate Cycle in the United States and its Consequences for Emerging Markets," Research Department Publication 4279 (Washington: Inter-American Development Bank).
- Sosa, S., E. Tsounta, and H.S. Kim, 2013, "Is the Growth Momentum in Latin America Sustainable?" IMF Working Paper No. 13/109 (Washington).
- Tompson, W., and T. Dang, 2010, "Advancing Structural Reforms in OECD Countries: Lessons from Twenty Case Studies," ECO/WKP 13, Organization for Economic Cooperation and Development.
- Tsangarides, C. G., 2012, "Crisis and Recovery: Role of the Exchange Rate Regime in Emerging Market Economies," *Journal of Macroeconomics*, Vol. 34, pp. 470–88.
- Tsounta, E., 2014, "Slowdown in Emerging Markets: A Sign of a Bumpy Road Ahead?" IMF Working Paper (forthcoming).
- World Bank, 2008, *Unleashing Prosperity: Productivity Growth in Eastern Europe and the Former Soviet Union* (Washington: World Bank).
- , 2013, *Doing Business 2014: Understanding Regulations for Small and Medium-Size Enterprises* (Washington: World Bank).