Goldman Sachs | Economics Research

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CEEMEA Economics Analyst

The slowdown in CEEMEA productivity growth

- Productivity levels are relatively low across CEEMEA economies. As a percentage of US levels, labour productivity in Israel is 59%, Poland 43%, Turkey 42%, Czech Republic 39%, Hungary 30%, Russia 26%, South Africa 23%, Romania 20%, Ukraine 15% and Nigeria only 11%.
- And, while productivity levels in CEEMEA economies are relatively low, productivity growth rates have also slowed since the financial crisis. From 2008, productivity growth has averaged close to zero in Israel, Turkey, the Czech Republic, Hungary, Russia, South Africa and Ukraine. Only Poland, Romania and Nigeria have recorded any meaningful increase in productivity levels.
- The disappointing post-crisis performance of productivity in CEEMEA has important implications for economic welfare and asset prices in these economies. Had productivity growth been sustained at its pre-crisis pace, real income levels in CEEMEA countries would be around one-third higher, on average, than they currently are and equilibrium real effective exchange rates (REER) would be significantly higher.
- That productivity growth has slowed so significantly in CEEMEA (and across emerging market economies more generally) also reveals something about the causes of the global productivity slowdown.
- According to one influential school of thought, global productivity growth has slowed because of a reduction in the pace of technological innovation. However, if the slowdown in productivity growth had been due to slower tech innovation, one would expect this effect to be felt most acutely in economies that are close to the productivity/technological 'frontier'. Farther away from the frontier, where there are substantial productivity gains to be won by simply implementing and replicating pre-existing technologies, one would expect productivity growth to have continued relatively unimpeded.
- Using data for 122 countries, we show that this has not been the case. This argues against the 'techno-pessimist' view of the productivity slowdown and implies that the problem lies more in the diffusion of technological progress.

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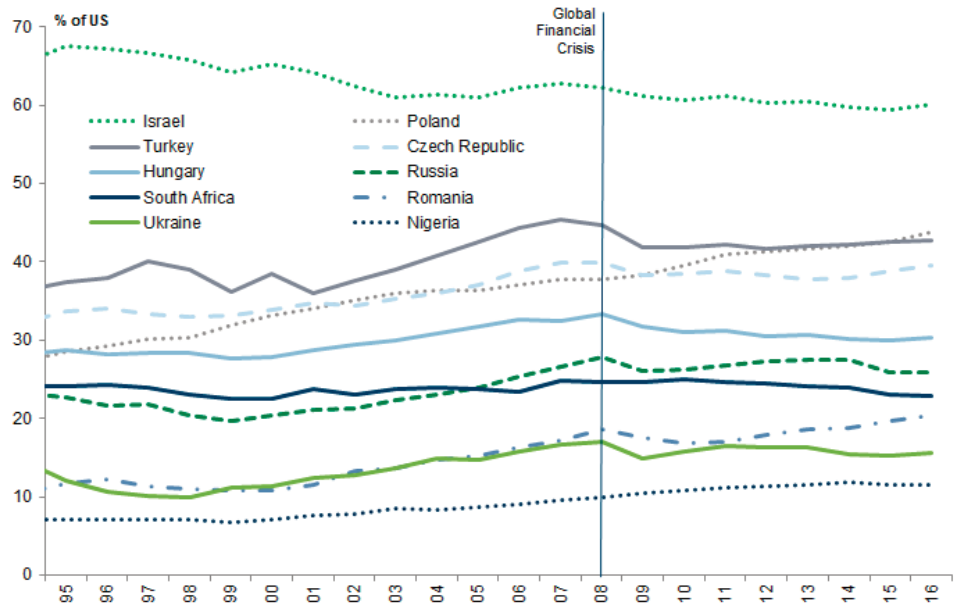
Productivity growth in CEEMEA stalls

Labour productivity – output per worker – is the key determinant of a country's living standards. In a cross-sectional sample of 122 countries based on data for 2015, differences in productivity account for more than 90% of the variation in income per capita levels.[1] To quote one of economics best-known truisms: "productivity isn't everything, but in the long run it is almost everything."[2]

While there is significant variation in productivity (and GDP per capita) levels across CEEMEA countries, productivity in these countries is generally low. Exhibit 1 displays the level of whole-economy labour productivity in ten CEEMEA economies, expressed as a percentage of US productivity levels (the US is commonly used as a benchmark in comparisons of this type, because it is viewed as representing the productivity/technological 'frontier'). In descending order, labour productivity (in 2015) in Israel stood at 59% of US levels, Poland 43%, Turkey 42%, Czech Republic 39%, Hungary 30%, Russia 26%, South Africa 23%, Romania 20%, Ukraine 15% and in Nigeria only 11%.

Exhibit 1: The level of productivity is less than half that of US productivity in CEEMEA economies
Productivity (output per person) as a % of US productivity



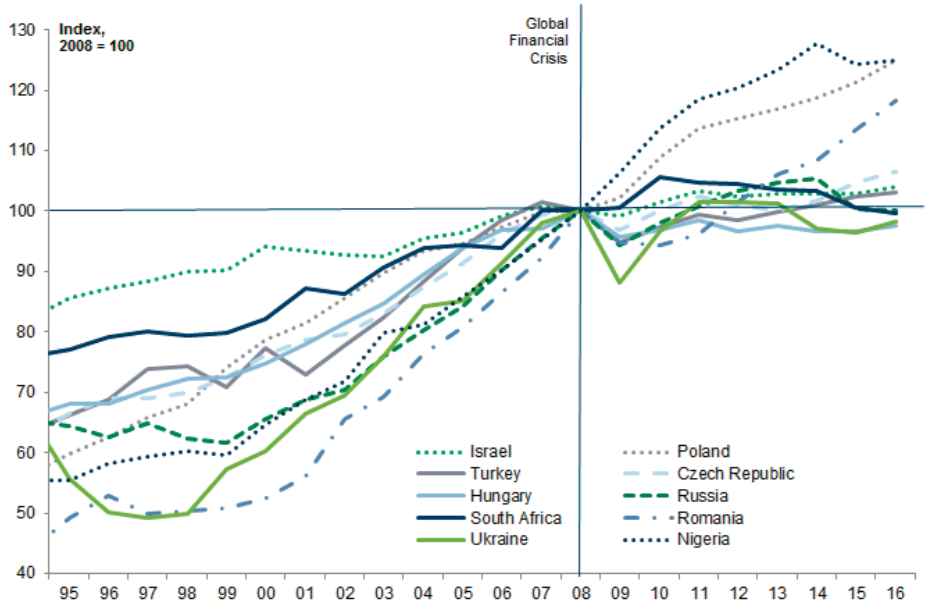
Source: The Conference Board, Goldman Sachs Global Investment Research

And, while the level of productivity in CEEMEA economies is relatively low, the rate of productivity growth in these economies has also slowed significantly in the past decade. Exhibit 2 displays the evolution of productivity in absolute terms in the same ten economies, indexing their levels to 100 in 2008 (the worst year of the Global Financial Crisis). In seven of the ten (Israel, Turkey, the Czech Republic, Hungary, Russia, South Africa and Ukraine), productivity growth has averaged close to zero in

1. The source data used in this comparison and in all the subsequent analysis in this paper is taken from The Conference Board's Total Economy Database.
2. Paul Krugman, The Age of Diminishing Expectations (1994)

the seven years since the crisis (2008-2015) and is projected to be weak again this year. Only Poland, Romania and Nigeria have recorded any meaningful increase in the level of productivity since the crisis struck.

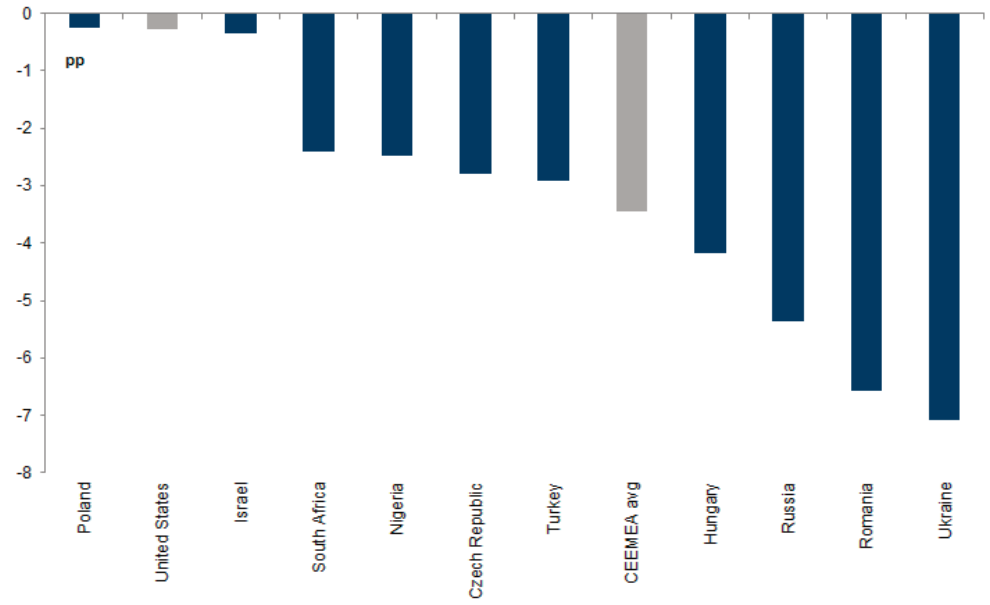
Exhibit 2: Productivity growth has stalled in most CEEMEA economies since the Global Financial Crisis (with the exception of Poland, Nigeria and Romania)
Level of productivity (output per person), 2008 = 100



Source: The Conference Board, Goldman Sachs Global Investment Research

Finally, even in the countries that have recorded productivity growth over this period, the rate of productivity growth has nevertheless slowed materially. Exhibit 3 displays the change in average annual productivity growth in the post-crisis period (2008-2015) vs. the eight years preceding the crisis (2000-2008). The slowdown in productivity growth has averaged 3.4 percentage points (pp) across CEEMEA as a whole, with the smallest slowdown in Poland (0.2pp) and the largest slowdown in Ukraine (7.1pp). In some of these economies, exceptional factors have contributed to the weakness in productivity growth (Ukraine and Russia being two obvious examples). But the persistence and ubiquity of the slowdown is nevertheless striking.

Exhibit 3: Productivity growth has slowed significantly in CEEMEA economies since the Global Financial Crisis (with the exception of Poland and Israel)
Change in average labour productivity growth 2008-2015 vs. 2000-2008 (pp)



Source: The Conference Board, Goldman Sachs Global Investment Research

What are the implications of the disappointing productivity performance in CEEMEA economies? The most obvious implications have been for economic welfare: had productivity growth been sustained at its pre-crisis pace, real income levels in CEEMEA countries would be around one-third higher, on average, than they currently are.

In addition, the slowdown in CEEMEA productivity growth also has important implications for asset prices and, in particular, equilibrium real exchange rates. An economy can only sustain real effective exchange rate (REER) appreciation in the long run if productivity growth in that economy is outpacing its trading partners (this is referred to as the Balassa-Samuelson effect). If productivity growth comes to a halt and convergence is reversed, equilibrium real exchange rates will tend to drift lower.

Global lessons from the EM productivity slowdown

The slowdown in productivity growth has not been unique to CEEMEA – it is part of a worldwide phenomenon that has persisted since the crisis. What has caused this slowdown and how best to respond to it has been the subject of considerable debate among economists and policymakers. There have – broadly speaking – been two opposing schools of thought:

- Supply-side optimists, who argue that the slowdown in productivity growth has been due to a combination of insufficient demand and problems related to the provision of finance in the aftermath of the Global Financial Crisis. According to this view, if appropriate measures are taken to boost demand and alleviate the headwinds that have persisted in the aftermath of the crisis, productivity growth is likely to accelerate over time.

- Supply-side pessimists, who argue that the slowdown in productivity growth is due to a reduction in the pace of technological innovation, one which is likely to be relatively permanent in nature and which policymakers can do little to alleviate.[3]

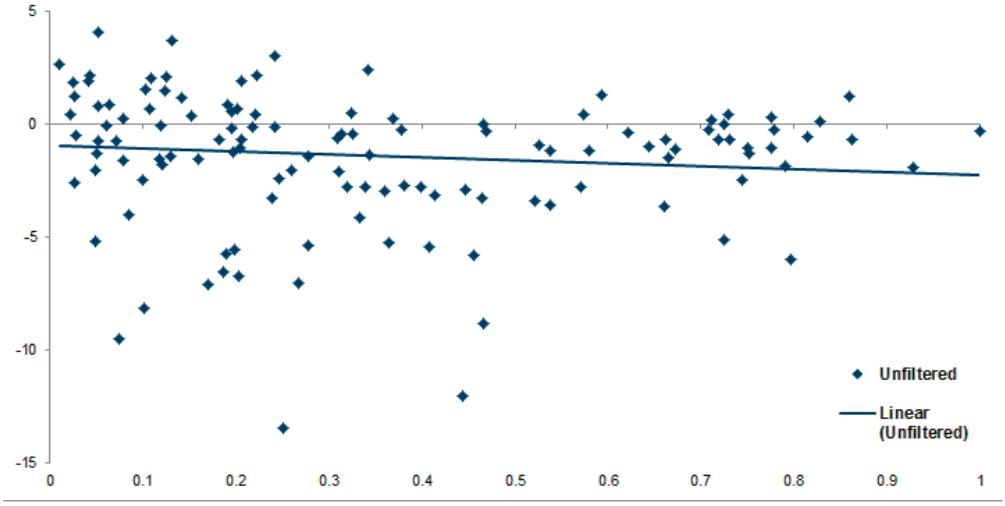
As the years have passed since the crisis and the weakness of productivity growth has persisted, the supply-side pessimist view of the slowdown has gained in authority – with unemployment approaching historical lows in many economies, it has become increasingly difficult to argue that the weakness in productivity growth is due to cyclical/demand-related weakness.

Set against this, however, it is difficult to reconcile the slowdown in productivity that has taken place in relatively low income economies with the techno-pessimist view of global productivity. If the slowdown in global productivity growth had been due to a reduction in the pace of technological innovation, one would expect this effect to be felt most acutely in economies that are close to the productivity/technological 'frontier'. Farther away from the frontier, where there are substantial productivity gains to be won by simply implementing and replicating pre-existing technologies, one would expect productivity growth to have continued relatively unimpeded.

An examination of productivity data for 122 countries suggests that this has not been the case. Exhibit 4 plots the change in average annual productivity growth in the post-crisis period (2008-2015) vs. the eight years preceding the crisis (2000-2008), against the productivity level of each country relative to the frontier (proxied by the United States). The average decline in productivity growth across the sample as a whole has been 1.3pp and this decline has been statistically significant. However, it is not the case that the slowdown in productivity growth has been greater in economies that are relatively close to the productivity frontier (the slope of best fit is only marginally negative and it is not statistically significant).

[3] The leading proponent of the techno-pessimist view is the economic historian Robert Gordon. His argument is essentially that, for all the technological wizardry of recent innovations (such as smart phones and social media), their contribution to productivity growth is more limited than the generation of innovations that preceded them.

Exhibit 4: No significant relationship between the change in productivity growth and the distance from the productivity 'frontier'
Change in labour productivity growth (pp) 2008-2015 from 2000-2008, plotted against the labour productivity level relative to the US (2008)

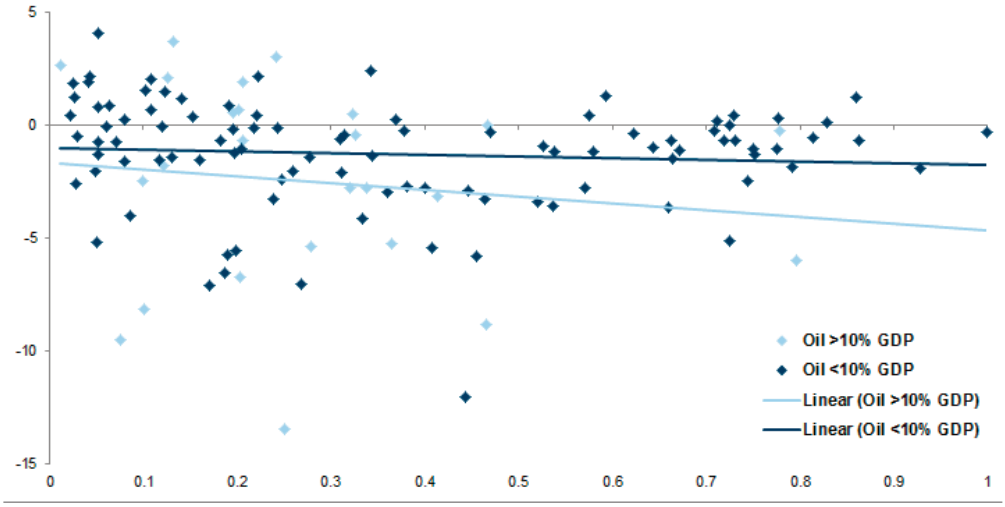


Source: The Conference Board, Goldman Sachs Global Investment Research

Of course, there is significant heterogeneity among the 122 countries in the sample and this heterogeneity extends beyond differences in income levels. Therefore, to check the robustness of our result, we run two additional comparisons.

- First, to control for potential distortions from the 2006-2014 boom in commodity prices, we separate the sample into countries whose oil revenues have represented more than 10% of GDP during the post-crisis period and those that did not (Exhibit 5). No clear picture emerges, however, as neither subgroup exhibits a statistically significant relationship between change in productivity growth and the relative productivity level.

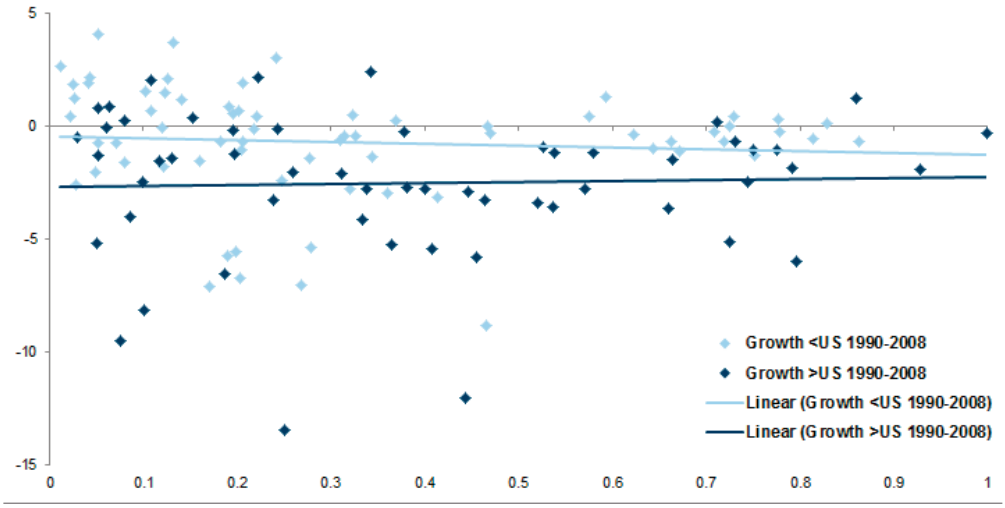
Exhibit 5: Conditioning on oil production as a fraction of GDP does not lead to a signficant relationship
The data are filtered according to average oil revenues as a proportion of GDP, with a 10% threshold imposed to indicate significant reliance



Source: The Conference Board, Goldman Sachs Global Investment Research

- Second, in order to consider countries displaying evidence of convergence or divergence separately, we split the sample into countries that exhibited higher and lower rates of productivity growth than the US in the period preceding the crisis (Exhibit 6). While it is the case that productivity growth tended to slow more in economies that exhibited relatively rapid growth prior to the crisis, there is no evidence in either sample of a statistically significant relationship between the extent of the slowdown and the level of productivity.

Exhibit 6: Splitting the sample into convergent and divergent economies does not result in a significant relationship
The data are filtered by the annualized growth rate relative to the US over the period 1990-2008



Source: The Conference Board, Goldman Sachs Global Investment Research

A breakdown in productivity diffusion

If the slowdown in global productivity growth has neither been due to cyclical/demand-related weakness (as the historically-low levels of unemployment across many economies imply) nor to a reduced rate of technological innovation (as the uniformity of the reduction in productivity growth in low and high income economies would suggest), then what has it been due to?

A number of papers have recently argued that the weakness of global productivity growth can be attributed to a breakdown in the diffusion of new technology from global 'frontier firms' to firms that lie below the productivity frontier (the latter tend to be more domestically-oriented and/or exist in relatively sheltered sectors).[4] The argument is based on evidence that productivity in 'frontier firms' has risen just as rapidly since the crisis as it did before the crisis, and that whole-economy productivity has been dragged down by particularly sluggish productivity growth in firms that lie below the frontier. Because frontier and non-frontier firms exist in both advanced and emerging economies, this argument can help to explain the slowdown in productivity that has occurred in both.

4. A recent OECD report – "The Future of Productivity" – provides a good summary of the academic literature underlying this view.

In common with explanations that focus on the rate of technological innovation, the tech-diffusion account of the global productivity slowdown is also one that emphasises the weakness of supply rather than demand. However, this is a supply-side failure that could more easily be addressed through policy action.

One contributor to the post-crisis breakdown in productivity diffusion has been the weakness of investment spending in many economies since the crisis. Technology is embedded in capital so, in the absence of investment in new capital, the diffusion of new technologies is likely to slow.

If productivity growth is to recover in both DM and EM economies, the implication is that policies should be directed towards increasing investment spending. However, while investment spending remains weak across many economies, global productivity growth appears likely to remain subdued.

Kevin Daly and Vassili Bazinas*

**Vassili is an intern in the CEEMEA Economics Team*

Conviction Macro Views

Turkey: Closing our constructive view on rates

We close the constructive conviction view on Turkish rates. Following the attempted coup last weekend, we have changed our FX forecast from 2.95/3.05/3.25 in 3/6 and 12 months to 3.1/3.1 and 3.25 respectively, due to the expectation of a higher risk premium. Given the risk of a downgrade by Moody's in particular and Turkey losing its investment grade, forced selling could result in a further widening of credit spreads and, in turn, to a further weakening of the TRY. Thus, while we have not changed our longer-term forecasts for rates or the exchange rate, we close our conviction view on rates given the current risks.

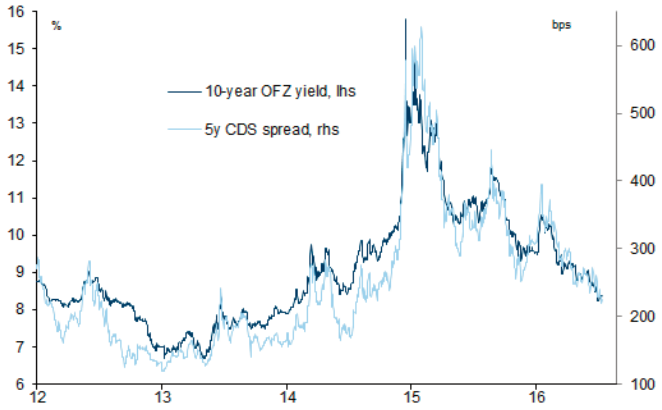
Russia: Still constructive on Ruble, carry adjusted, and positive on equities as growth surprises to the upside

We remain constructive on the Ruble due to positive carry, while we see little upside in nominal terms as rates are cut. We forecast the Ruble flat through year-end at 66, and at 62 vs. the USD in 12 months, well inside the forwards. While we expect the CBR to continue to cut rates (we forecast a 50bp cut in each of the next nine meetings), arguably much of that is priced in the near term, and thus unlikely to have much of an impact on the Ruble. Year-to-date consensus inflation estimates have started to decline in line with the CBR's recent downward revision of its end-year forecast to 5.5%. While we remain out of consensus with our 4.5%yoy forecast for the end of 2016, arguably our views on growth now differ more sharply from consensus and market pricing than on inflation. As a result, from here we expect consensus (and the market) to be surprised by the better growth. We continue to forecast +0.5% growth for this year (vs. consensus -1.2%) and +3% in 2017 (vs. consensus 1.0%). Hence, we expect equities geared to domestic demand to outperform but with RUB upside nominally limited, equities of exporters should also perform.

Hungary: Bullish on sovereign credit

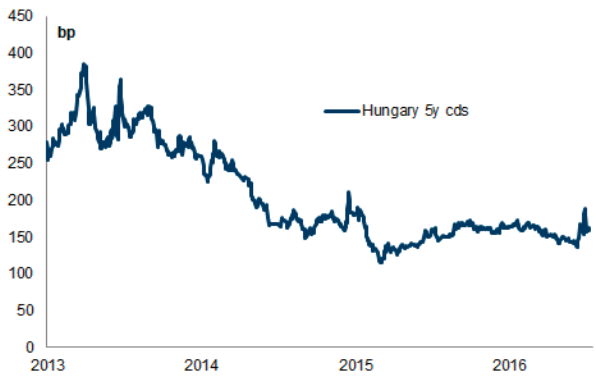
Macroeconomic vulnerabilities have decreased substantially in the post-crisis period, with prudent (albeit unorthodox) policies reducing the stocks of public and external debt and improving cyclical dynamics. With our expectation of an acceleration of growth to 3.3% in 2017 and 3.9% in 2018 owing to fiscal stimulus and easy financial conditions, and with interest rates remaining near post-crisis lows, public debt is likely to continue to decline. Hungarian assets have historically been relatively more sensitive to global risk than CEE peers, but our analysis suggests that this is now changing and Hungary is becoming relatively lower-beta. In our view, Hungary is likely to regain its investment grade credit rating in the coming months. Improving fundamentals and a positive comparison to regional peers – against a backdrop of very accommodative global monetary conditions – will enable Hungarian sovereign credit to outperform and valuations continue to look attractive, in our view. In addition, positive cyclical dynamics and strong external balances have caused us to turn more positive on the Florint, implying upside risks to our forecasts.

Russia: 5-year CDS spread, 10-year OFZ yield



Source: Bloomberg, Goldman Sachs Global Investment Research

Hungary: 5-year CDS spread



Source: Bloomberg, Goldman Sachs Global Investment Research

Romania: Steeper curves and cautious on duration

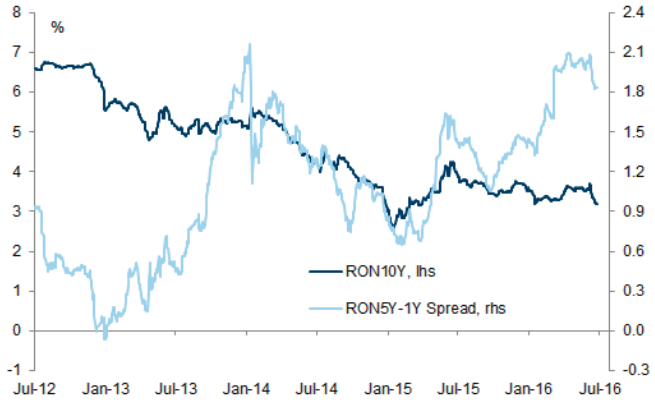
GDP growth accelerated to 1.6%qoq in 2016Q1 and we forecast full-year growth of 5.2%, on the back of pro-cyclical tax cuts and public wage increases supporting consumption. With the output gap closing and real wage growth having accelerated to around 15%yoy, we expect demand-side price pressures to increase. This calls for a tightening of monetary policy, in our view, and we forecast a narrowing of the rate corridor by 50bp, as well as rate hikes in 2016H2. However, given below-target inflation, the de-synchronisation of Romania's business cycle from CEE and Euro area, and elections later this year, we believe risks are skewed towards later but steeper rate hikes and the NBR falling behind the curve. In either case, we expect local curves to steepen further, and maintain a cautious view on RON duration. In addition, with growth accelerating, rates rising and capital flows becoming structurally more supportive, we forecast an appreciation of the Leu. In the short term, however, the influence of accommodative global monetary conditions may ultimately outweigh the steepening effects of local dynamics on the curve.

Poland: Assets to remain sensitive to political uncertainties, while macro outlook remains solid

Polish yields and the Zloty have faced renewed pressure in recent months, as a consequence of (1) political concerns, related to the government's plans for fiscal policy and proposals for an FX exchange on Swiss Franc-denominated mortgages; and (2) a weakening in official activity data in Q1, which poses downside risks to the National Bank of Poland's (and our own) relatively upbeat views on growth.

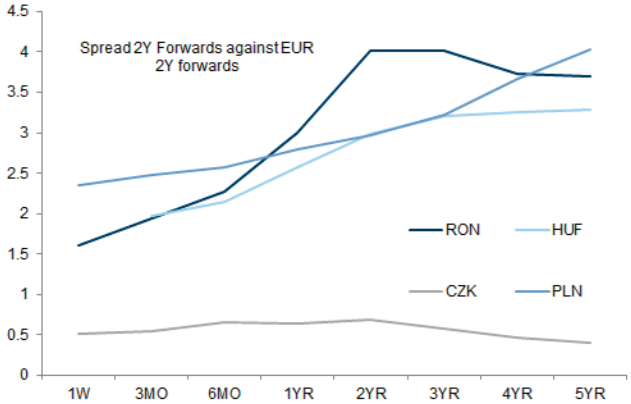
We expect the uncertainty over the government's policies to persist. However, we are less concerned by the weakness of Q1 GDP data for two reasons. First, much of the weakness was driven by one-off factors that appear likely to be reversed; and, second, it is difficult to reconcile the weakness of GDP data in Q1 with the relative strength of business surveys and other indicators of economic activity.

Romania: 10-year bond yield, 5y-1y slope



Source: Haver Analytics, Goldman Sachs Global Investment Research

Poland: FX and rates remain sensitive to risk sentiment and policy measures, despite solid macro backdrop and ECB easing



Source: Bloomberg, Goldman Sachs Global Investment Research

Macroeconomic forecasts

CEEMEA Main Macro Forecasts

We use average %yoy CPI forecasts for Ukraine

	GDP (%yoy)						Consumer Prices (%yoy, eop)					
	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
Czech Republic	2.7	4.5	**2.5**	**2.9**	**2.6**	**2.7**	0.1	0.1	**1.2**	**1.5**	**1.4**	**2.0**
Hungary	3.7	2.9	**2.4**	**3.3**	**3.9**	**2.8**	-0.9	0.9	**1.9**	**2.0**	**3.2**	**3.0**
Israel	2.6	2.5	**2.4**	**3.0**	**2.9**	**2.7**	-0.2	-1.0	**1.2**	**1.5**	**1.7**	**1.9**
Poland	3.2	3.6	**3.1**	**3.4**	**3.2**	**3.2**	-0.8	-0.7	**-0.3**	**1.6**	**1.6**	**1.6**
Romania	3.0	3.8	**5.2**	**4.0**	**3.5**	**3.5**	0.8	-0.9	**1.2**	**2.5**	**2.4**	**2.5**
Russia	0.7	-3.7	**0.5**	**3.0**	**2.3**	**1.8**	11.4	12.9	**4.5**	**4.0**	**4.0**	**4.0**
South Africa	1.6	1.3	**0.2**	**0.9**	**1.3**	**1.5**	5.3	5.2	**7.9**	**6.1**	**5.7**	**5.3**
Turkey	3.0	4.0	**2.9**	**3.2**	**3.6**	**3.5**	8.2	8.8	**6.0**	**7.5**	**7.0**	**7.0**
Ukraine	-6.6	-9.9	**2.0**	**1.5**	**2.5**	**3.1**	24.9	43.3	**23.9**	**12.6**	**9.8**	**10.0**

Source: Goldman Sachs Global Investment Research, Haver Analytics

CEEMEA Policy Rate Forecasts

			Forecast (%, eop)							
		Current	Q3 16	Q4 16	Q1 17	Q2 17	2016	2017	2018	2019
Czech Republic	2-week repo rate	0.05	0.05	0.05	0.05	0.05	0.05	0.25	1.50	2.50
Hungary	3-month deposit rate	0.90	0.90	0.90	0.90	0.90	0.90	0.90	2.40	3.40
Israel	Repo rate	0.10	0.10	0.10	0.10	0.10	0.10	0.10	1.25	2.25
Poland	Reference rate	1.50	1.50	1.50	1.50	1.50	1.50	1.50	2.00	3.00
Romania	1-week repo rate	1.75	1.75	2.00	2.00	2.25	2.00	2.75	3.75	4.00
Russia	Min 1-week repo rate	10.50	10.50	9.50	8.50	6.50	8.50	6.00	6.00	6.00
South Africa	Repo rate	7.00	7.25	7.50	7.50	7.75	7.50	8.00	8.00	8.00
Turkey	1-week repo rate	7.50	7.50	7.50	7.50	9.00	7.50	9.00	9.50	10.00

Source: Goldman Sachs Global Investment Research, Bloomberg

Interest rate and exchange rate forecasts

CEEMEA Exchange Rate Forecasts
*Close 21 July 2016

			3-Month Horizon		6-Month Horizon		12-Month Horizon	
		Current*	Forward*	Forecast	Forward*	Forecast	Forward*	Forecast
Czech Republic	EUR/CZK	27.0	27.0	**27.3**	27.0	**27.3**	27.0	**27.3**
Hungary	EUR/HUF	313.8	314.9	**325.0**	316.0	**320.0**	317.8	**320.0**
Israel	USD/ILS	3.84	3.83	**3.80**	3.82	**3.90**	3.80	**4.00**
Poland	EUR/PLN	4.36	4.38	**4.45**	4.41	**4.35**	4.45	**4.25**
Romania	EUR/RON	4.47	4.47	**4.40**	4.48	**4.35**	4.51	**4.30**
Russia	USD/RUB	64.0	65.5	**68.0**	66.9	**66.0**	69.5	**62.0**
South Africa	USD/ZAR	14.2	14.5	**17.0**	14.8	**17.3**	15.3	**18.0**
Turkey	USD/TRY	3.07	3.12	**3.10**	3.19	**3.10**	3.32	**3.25**
Ukraine	USD/UAH	24.8	26.1	**25.5**	27.4	**27.0**	28.9	**30.0**

Source: Goldman Sachs Global Investment Research, Bloomberg

Global Interest and Exchange Rate Forecast
* Close 21 July 2016

			3-Month Horizon		6-Month Horizon		12-Month Horizon	
		Current*	Forward*	Forecast	Forward*	Forecast	Forward*	Forecast
Swap Rates (%)								
Euro Area	3M	-0.3	-0.4	**-0.2**	-0.4	**-0.2**	-0.4	**-0.2**
	10Y	-0.2	0.4	**0.5**	0.4	**0.6**	0.5	**0.8**
US	3M	0.7	0.7	**0.9**	0.7	**0.9**	0.8	**1.4**
	10Y	1.4	1.3	**1.9**	1.4	**2.1**	1.4	**2.3**
Exchange Rates								
EUR/$		1.10	1.11	**1.08**	1.11	**1.04**	1.12	**1.00**
EUR/¥		116.6	116.6	**124.2**	116.6	**124.8**	116.5	**125.0**
EUR/CHF		1.09	1.09	**1.09**	1.08	**1.09**	1.08	**1.10**
EUR/£		0.83	0.84	**0.90**	0.84	**0.86**	0.84	**0.80**

Source: Goldman Sachs Global Investment Research, Bloomberg

Disclosure Appendix

Reg AC

We, Kevin Daly, Clemens Grafe, Andrew Matheny and Sara Grut, hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

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