



How can emerging market economies best cope with the current complex global economic environment?

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Introduction

In an environment of ultra-low policy rates, with negative yields on some advanced economies' (AEs) sovereign debt, issuers in emerging market economies (EMEs) might be tempted to believe that domestic and international investors would rush into any exposure that offers them even a small positive return. But that would be a mistake that leads to complacency.

To cope with the current complex global economic environment and still be seen as an attractive asset is not that easy. Although the global economic environment has shown some signs of improvement, risks remain and investor behaviour is cautious and selective. Long-term interest rates in major currencies are at, or near, record lows, but a snapback of bond yields is a risk with immediate and potentially serious consequences for relative risk-adjusted returns, spreads, capital flows, debt sustainability, and thus for financial stability. That would, of course, negatively affect EMEs in particular but also AEs with high debt levels.

And, as we can see for both AEs and EMEs, low funding costs, positive yield differentials and/or an outburst of sudden attraction does not necessarily mean higher investment in the real economy. Durable confidence is needed, and it seems more complicated to engineer than we thought. How can the animal spirits of investors in the real economy be revived? How could governance be improved? How could rent-seeking behaviour or other contributors to institutional instability at both the macro- and the microeconomic level be countered (Akerlof and Shiller (2009, 2016), Acemoğlu and Robinson (2012))?

The stability and soundness of the present and future macro environment are a precondition for profitable investment. In turn, the confidence that there is such an environment is what induces agents to transform lower funding costs into investment that creates jobs and income in the real economy. Patience and perseverance are needed to pursue sustainable macroeconomic policies that underpin both strong macro fundamentals and a credible track record. This seems to vindicate the findings of the old literature on macroeconomic populism (Dornbusch and Edwards (1991)). But putting your own house in order from a macroeconomic perspective, a useful metaphor for policymakers, is a necessary but not a sufficient condition. Now, more is needed: it is necessary to credibly show how a sustainable growth path can be found; that means also demonstrating willingness and capacity to undertake meaningful structural reforms. And, as we can see in both AEs and EMEs, the perception of soundness in debt dynamics can

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obviously be derailed, sooner or later, by doubts about whether the idiosyncrasies of the local political economy might create blocking coalitions, or make social welfare liabilities inconsistent with future revenue streams. The obvious consequence, stemming from a re-evaluation of the risk premia, is a re-estimation of growth prospects and repricing of assets. That seems to vindicate the findings of the literature on the more general role of the political economy in macroeconomics (Drazen (2000)) or, more recently, on resource-related populism (Matsen et al (2016)).

Also on the radar of foreign and domestic investors is the capacity of policymakers to be flexible, to adjust when needed and to engineer long-run productivity gains through reforms, as consensual as possible, that mitigate socio-political disruptions. This also implies that due consideration should be given to social inclusion and integration, and to the reduction of income inequality and the improvement of opportunities. This point relates to the role of “fairness” in contributing to confidence in a stable socio-economic equilibrium (Akerlof and Shiller (2009)). The perception of “fairness” by social actors (what we call agents in our macro models) might be an important factor in promoting sustainable reforms from a macroeconomic but also a socio-political perspective. This perception might be a necessary component of structural reforms in both AEs and EMEs, as “fairness” allows a “minimum social consensus” to be maintained, which, in turn, facilitates reforms. This difficult art of engineering productivity-led growth through socio-economic reforms is the key to confidence, without which investment and growth will not feed each other and the overall outlook will remain lacklustre.

In other words, to be perceived as a sound investment destination is not a simple question of current asset prices, yield differential or good intentions. It might, paradoxically, have become more challenging despite abundant apparent global liquidity.² The post-crisis world, with its rising social inequality, uncertainty and geopolitical security threats, and interconnectedness of global real and financial flows, brings more dimensions and complexity to the traditional decision-making of investors, both domestic and foreign. Taking various forms, capital mobility is an equal-opportunity menace for both EMEs and AEs (see the change of monetary policy regime in Switzerland in January 2015 and the Brexit question, which might have consequences for both the United Kingdom and Europe). That is arguably more challenging and affects both the real and the financial sectors in both EMEs and AEs. We are in a much more permanent and intractable “beauty contest” than politicians seem to think, including in some AEs.

These remarks are organised as follows: first, they outline the risk of a bond yield snapback; second, they ask how this risk can be compared with the aftermath of the taper tantrum, ie the repricing of assets and how it has affected EMEs’ inflationary patterns in distinct ways – in particular, the role that fiscal imbalances play in increasing risk premia and affecting the exchange rate; finally, some policy implications are drawn.

1. The global economy and the risk of bond yield snapback

There are still many risks for the global economy. The questions include: How will commodity prices behave, especially oil? Will there be a deceleration in global growth? Will monetary policy in major

² A similar argument can be made for why it is that low funding costs have not spurred greater innovation and investment into the real economy. That would require examining perhaps investment per sector, especially decomposing its purpose (eg pure maintenance, greenfield, innovation, new expansion of capacity). We need to explore, with more microdata analysis, the perceptions of confidence and what drives the animal spirits of investors in periods of uncertainty and/or depression.



currency areas remain accommodative, in particular in the United States?³ Will China transition smoothly to a different growth model? Will Brexit occur? How will the refugee crisis affect Europe? How will the geostrategic issues surrounding terrorism evolve? Could cyber-crime become a financial systemic threat? Etc.

More importantly, we are also living with other large risks resulting to a great extent from decisions taken and policies pursued in the aftermath of the global financial crisis. We are coming to the end of the maturing credit cycle in some economies after a post-crisis boom; and a significant portion of sovereign debt is trading at negative yields.

Despite the recent relative calm in financial markets, bond markets continue to experience extreme conditions. Government bond yields in major AEs have fallen further. Therefore one important risk in this overall context is that of a major bond yield snapback, especially for EMEs. There are two elements to the snapback risk of EME government bond yields. The first is the knock-on effect of a possible snapback in AE bond yields, much as we saw during the 2013 taper tantrum. The second, additional spur to a snapback in EME bond yields is a renewed strengthening of the dollar. It turns out that the exchange rate is a key determinant of EME bond yields, even for those denominated in local currency. As the sovereign yield curve is the basis for domestic interest rates, the exchange rate has a widespread effect on financial conditions more generally.

Bond yield decompositions¹

In per cent

Graph 1



¹ The dashed lines represent historical averages for the period 1990–2016 for the United States and 1999–2016 for euro area. ² Difference between 10-year nominal zero coupon yield and 10-year estimated term premium. ³ For the euro area, French government bond data are used.

Sources: Hördahl and Tristani (2014); Bloomberg; BIS calculations.

But first, why are bond yields low and stable? A **decomposition** of yields based on term structure models suggests that both low expected future nominal short-term rates and very low-term premia are playing a role (Graph 1, centre and right-hand panels). Currently, the **term premium** is estimated at close to zero in the United States, and negative, at -1.5%, in the euro area, indicating that investors are demanding virtually no, or even negative, compensation for interest rate risk on government debt.

³ If not, what would be the implications of diverging monetary policies for international capital flows and the value of the dollar (the value of dollar being one of the key drivers of commodity price fluctuations, according to variance decomposition exercises (Kohlscheen et al (2016, forthcoming)))?



To some extent, very low bond yields might be **structural**. Expected interest rates might have fallen due to downgraded expectations about long-term real interest rates as a result of a global savings glut or a secular stagnation in the core advanced economies. Expected future inflation may have shifted downwards as a result of persistent low inflation. Term premia might have fallen for the foreseeable future due to financial investors' structurally higher demand for safe bonds on account of favourable regulatory treatment and greater demand for collateral.

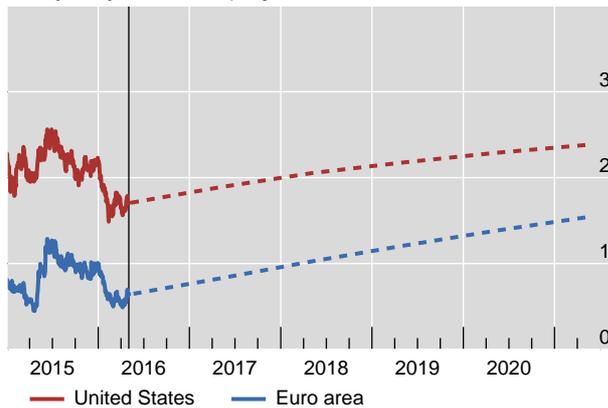
But current monetary policies seem to be playing a major role. Prolonged low (and even negative) policy rates and forward guidance, beyond what is predicated by economic fundamentals, have pushed down expected future short-term rates. Large-scale asset purchases have lowered term premia by absorbing duration risk, inducing portfolio rebalancing and reinforcing policy signals. Negative yields and central bank asset purchase programmes may have contributed to sizeable inflows into corporate debt markets. Large foreign official holdings of core bonds have weighed on yields. And the search for yield and safe haven flows have reduced them further post-crisis. Recurring spells of investor flight-to-safety have contributed to the persistence of ultra-low yields on government debt.

Financial market participants perceive snapback risk as low

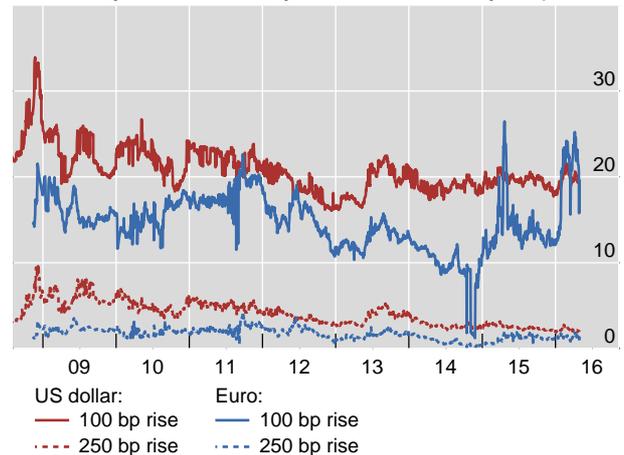
In per cent

Graph 2

Ten-year yield curve projections¹



Probability of a rise in 10-year rates over a 2-year period²



¹ Projections on 2 May 2016. Central projections are based on forward rates. ² The risk-neutral probabilities are derived from probability densities based on implied volatilities of swaptions with two-year expiries and a 10-year swap tenor.

Sources: Hattori et al (2016); Bank of America Merrill Lynch; Bloomberg; JPMorgan Chase; BIS calculations.

Consistent with expectations of a gradual normalisation of monetary policy in major currency areas, **financial market participants** expect only a very modest increase in core bond yields in the coming years (Graph 2, left-hand panel). In five years' time, market prices point to US 10-year yields at just above 2% and euro area rates at slightly above 1%, only marginally higher than currently. And the implied probability of sharp increases in core bond yields over the next two years is small (Graph 2, right-hand panel). The implied probability that bond yields would register a large increase, of 250 basis points, is virtually zero (broken lines). That of a 100 basis point rise is non-negligible, although at only around 20% in both the United States and the euro area (solid lines).

Another important feature is that **EME bond markets have become increasingly exposed** to the portfolio allocation decisions of foreign investors. The share of foreign investors in the local government bond market grew at a very fast pace in many EMEs up to the time of the taper tantrum, driven in part by a search-for-yield motive (Graph 3). Since then, the evolution has been more heterogeneous, although foreign participation remains well above the level 10 years ago in virtually all

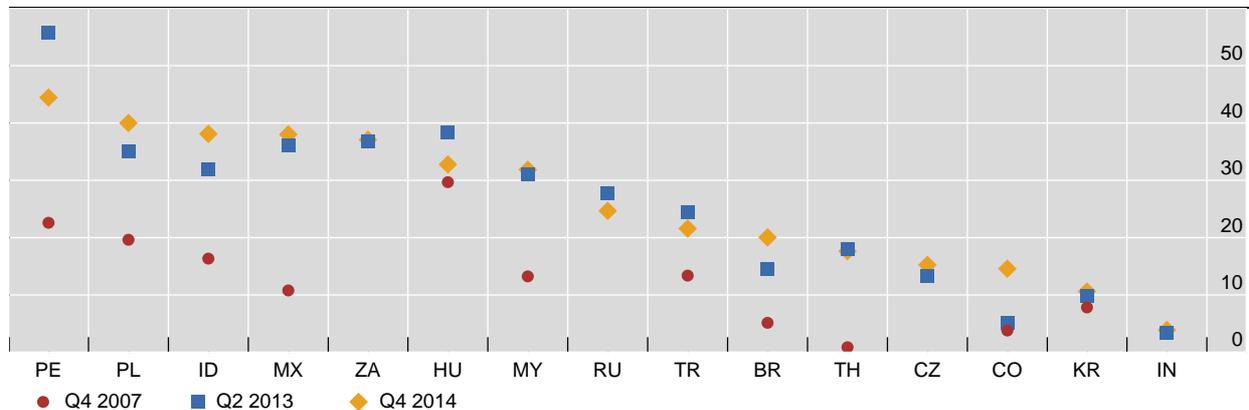


countries. The portfolio decisions of global investors have therefore become much more important for most EMEs than during past Fed tightening cycles. While EMEs have benefited from greater access to a much larger savings pool, they are now much more exposed to the global financial cycle.⁴

Foreign investors' share in the local government debt market

In per cent

Graph 3



BR = Brazil; CO = Colombia; CZ = Czech Republic; HU = Hungary; ID = Indonesia; IN = India; KR = Korea; MX = Mexico; MY = Malaysia; PE = Peru; PL = Poland; RU = Russia; TH = Thailand; TR = Turkey; ZA = South Africa.

Source: Institute of International Finance.

Despite these low current probabilities, a snapback of bond yields can occur. It could be preceded by a number of early warning signals, eg a surge in inflation, consistently positive data. The overall **macroeconomic and financial stability impact** of a rise in long-term rates in core economies would depend on the trigger, the context and the management of the process.

An orderly and gradual change in expectations commensurate with macroeconomic developments could, in principle, be positive for global financial stability. After all, this would be the happy ending for unconventional monetary policy and vindicate its supporters. Such a normalisation would alleviate the potentially malign effects of persistently low interest rates on the financial sector and mitigate the build-up of financial imbalances that has occurred in many countries around the world. In essence, it requires a resumption of **stronger growth before inflation picks up in AEs**. But there are reasons to be pessimistic.

- First, for example, we are still **struggling with our understanding of post-Lehman inflation in AEs**. Corporate pricing behaviour could have been influenced by credit conditions, debt burden, asset liquidity and market-share strategies⁵ (Gilchrist et al (2016)), where some firms cut prices but some apply markups. Firms could shift to a different pricing behaviour and markups could rise. In this scenario, **headline and/or core inflation could spike much earlier than growth in AEs**.

⁴ Particularly in countries where (partially) publicly owned corporates need to retrench, the consolidated fiscal position of the government might deteriorate, leading to an increase in tail risks.

⁵ More work with adequate micro data linking firms' balance sheets with their pricing policies during the global financial crisis is needed. It might explain the current low inflation environment and give hints about the probability of a snapback. Gilchrist et al (2016) use a micro-level data set linking goods-level prices in the PPI with firms' balance sheet. They show that the price-setting behaviour of firms that are constrained by liquidity (debt repayments) differs from that of firms that are not.



- Second, another scenario in which inflation would pick up before growth is a supply shock that pushes up oil prices.
- Third, the bond snapback can also be viewed as the reversal of asset prices that are too dependent on central banks. The low rates and valuations observed in markets as of now are not necessarily equilibrium rates.

In any of these scenarios, expectations might change abruptly and trigger comparable abrupt changes in monetary policy expectations. Once this process is in motion, concerns about overvaluation in bond markets could most likely lead to a sell-off. And it is precisely the fact that such a scenario is not being priced in that could render such an adjustment disruptive.

An abrupt rise in long-term bond yields could adversely affect the macroeconomy and financial stability through various mechanisms:

- First, there would be significant **cross-market effects**. **Corporate bond yields** would rise, potentially alongside credit spreads as a result of higher risk aversion and a darkening macroeconomic outlook. **Equity markets** might also be affected: low bond yields have been supporting current high stock market valuations, making them more vulnerable. That said, historically the correlation between bond and equity prices has varied substantially.
- **Second, capital flow reversals** and global portfolio adjustments would give rise to further significant cross-border spillovers. Changes in US Treasury yields, in particular, have significant effects. International debt securities worth almost \$6.5 trillion issued by non-US nationals are priced off the US Treasury curve. And foreign local currency bond yields are very sensitive too, as indicated by the evidence of large and statistically significant global interest rate spillovers from the United States (Obstfeld (2015), Hofmann and Takáts (2015)).
- Third, exchange rate movements tend to further amplify these spillovers. Rising US yields are commonly associated with a US dollar appreciation which, in turn, tends to increase the perceived credit risk of foreign dollar debtors, driving up their credit spreads.⁶

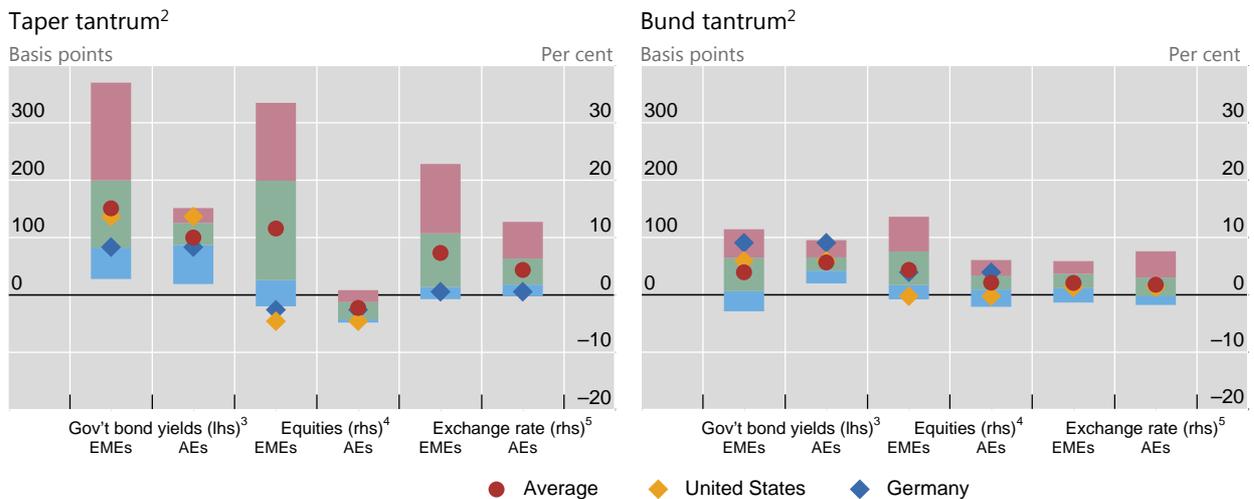
The initial impact of a snapback could be amplified through **feedback loops** arising from investor behaviour and **deteriorating market liquidity**. Leveraged positions are especially sensitive to changes in valuation from sudden changes in interest or exchange rates and associated spikes in volatility. But non-leveraged non-bank market participants (such as mutual funds) can also work to amplify market movements when benchmarking and short-term performance pressures induce correlated position adjustments. Redemptions by ultimate investors would further strengthen such procyclicality. These portfolio adjustments could create strains in market liquidity, especially if market-makers themselves are highly leveraged.

Cases in point are two recent **bond market tantrums**. During the April–September 2013 **taper tantrum**, expectations of an imminent slowing of Fed asset purchases triggered a rise in the 10-year Treasury yield of about 140 basis points (Graph 4, left-hand panel). EME bond yields rose by 150 basis points on average; bond yields in other advanced economies rose by about 100 basis points. At the same time, the US dollar appreciated significantly, on average by about 7.5% against EME and by almost 5% against AE currencies. Stock markets plummeted in EMEs, but proved more resilient in advanced economies. More recently, in an episode referred to as the **bund tantrum**, 10-year bund yields rose from below 10 to almost 100 basis points between April and June 2015, driven by macroeconomic news and changes in investor sentiment (Graph 4, right-hand panel)

⁶ For instance, empirical estimates suggest that the depreciation of EME currencies against the US dollar of roughly 30% between early 2013 and end 2015 has added some 50–70 basis points to EME bond and credit risk spreads (the exchange rate risk-taking channel). See Hofmann et al (2016) for more details.

Bond tantrum impacts¹

Graph 4



The bars represent distribution (upper quartile, interquartile range and lower quartile) of the countries in the regions.

¹ EMEs: Brazil, China, Chinese Taipei, Colombia, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, Singapore, South Africa, Thailand and Turkey. AEs: Australia, Canada, Denmark, Germany, Japan, New Zealand, Norway, Sweden, Switzerland and the United Kingdom. ² Taper tantrum: changes between 1 May and 5 September 2013; bund tantrum: changes between 20 April and 10 June 2015, or the closest alternatives depending on data availability. The dates determine the trough and peak of the 10-year US (left-hand panel) or German (right-hand panel) government bond yields in the respective episode. ³ Changes in 10-year government bond yields, in local currency. ⁴ A positive value represents a fall in the index value. ⁵ Left-hand panel: bilateral exchange rates against USD; right-hand panel: bilateral exchange rates against EUR. A positive value represents a depreciation of the local currencies.

Sources: Bloomberg; Datastream; national data; BIS calculations.

A snapback would inflict significant **losses on bond holdings**. During the taper tantrum, for instance, the market value of global bond portfolios dropped by more than \$1 trillion. The potential loss could now be even higher, as the effective duration of investors' portfolios has lengthened further, given the exceptionally low yields. Many investors will have transferred interest rate risk exposure to other investors through **hedging**. Such hedges, however, may not prove effective during a disorderly snapback. Counterparty risks can easily increase, as the private sector as a whole cannot eliminate the aggregate exposure to interest rate risk except to the extent that it is transferred to the public sector.

The adverse market dynamics that can be triggered by the losses of unlevered investors can render certain **financial markets dysfunctional**. Losses on bond holdings could also weaken the **intermediation capacity of commercial banks**, as they hold, in some jurisdictions, a significant share of their assets in government bonds, often in the banking book. The absence of a corresponding Pillar 1 capital charge in current international standards may have weakened banks' incentive to manage interest rate risk sufficiently, unless supervisory practices have been tight enough.

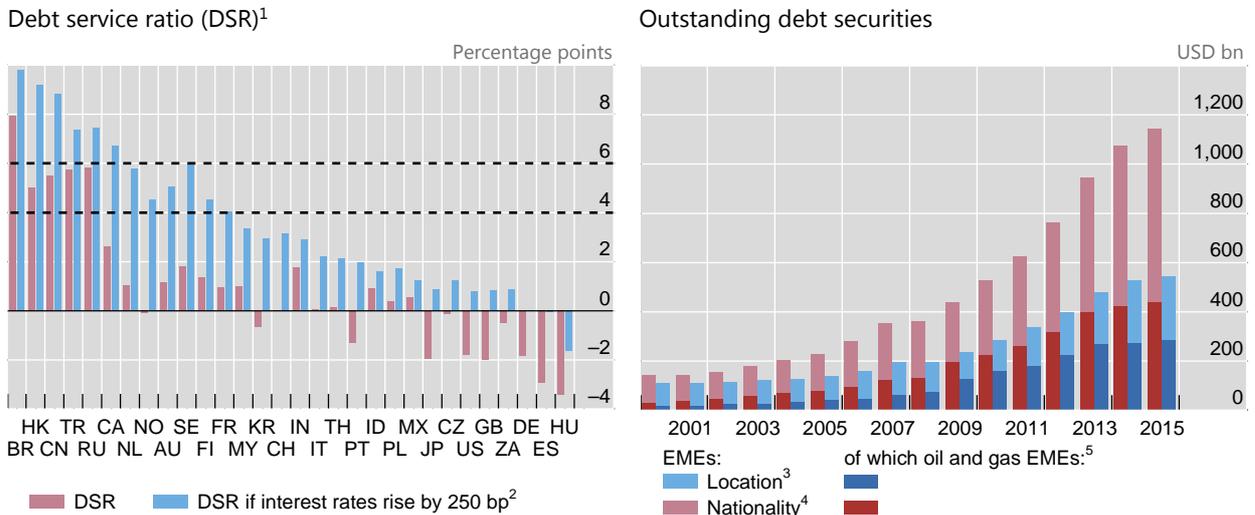
A sharp tightening of financial conditions in the wake of a snapback could raise **debt service burdens for firms, households and governments**. To be sure, the near-term direct impact of higher long-term bond yields on loan rates would be limited. However, exchange rate depreciation might in many countries trigger policy rate hikes and hence increases in short-term interest rates. Debt service ratios for households and firms are already significantly above their long-run averages in a number of EMEs (red bars in Graph 5, left-hand panel), reflecting a strong increase in private debt in recent years. A stress testing scenario of a 250 basis point rise in the *average* rate on the outstanding stock pushes many EMEs' as well as a number of AEs' debt service ratios into uncomfortable zones – those often seen in the past just before the outbreak of a financial crisis (blue bars in Graph 5, left-hand panel). This would not happen overnight



but might take time, more so in countries with long-term debt and fixed rates, less so in those with variable rates or short-term debt.

Debt burdens increase in EMEs

Graph 5



¹ For the DSR series and methodology, see www.bis.org/statistics/dsr.htm. Difference of DSRs from country-specific long-run averages since 1999 or later, depending on data availability and when five-year average inflation fell below 10%. The dashed lines represent thresholds of 4 and 6 percentage points. ² Assuming that interest rates increase 2.50 percentage points and that all the other components of the DSR stay fixed. ³ Non-financial corporation headquarters, by residence of issuer. ⁴ Non-financial corporation headquarters, by nationality of issuer. ⁵ EMEs with oil production above 1 million barrels per day, namely Brazil, China, Colombia, Indonesia, Kazakhstan, Kuwait, Malaysia, Mexico, Nigeria, Qatar, Russia, the United Arab Emirates and Venezuela.

Sources: IMF, *International Financial Statistics*; BIS international debt securities statistics; BIS locational banking statistics; BIS; BIS calculations.

Additional credit risk often arises through **liability dollarisation**, in particular in EMEs. A depreciation of the domestic currency makes servicing the US dollar debt more costly if debtors do not have stable US dollar revenues and if exposures are insufficiently hedged. In recent years, corporate debt security issuance drove rising dollar borrowing in EMEs, in particular by firms in commodity-producing countries (Graph 5, right-hand panel). Commodity exporters appear to be naturally hedged against currency depreciations, as their revenues are generally dollar-denominated. However, the dollar price of commodities is often negatively correlated with the dollar so that exporters' dollar revenues might fall in the face of dollar appreciation, increasing the burden of their dollar liabilities.

Sovereign risk might rise too. Higher interest rates push up public sector debt service burdens, possibly to levels that are unsustainable in highly indebted countries. Greater sovereign risk weakens the financial system in several ways. It undermines the credibility of deposit guarantees and other financial backstops; weakens banks' balance sheets through losses on their holding of public debt; and limits the ability of authorities to run countercyclical policies. The close two-way link between banks and public sector balance sheets also creates the potential for an adverse feedback loop, with sovereign and financial risks reinforcing each other, as highlighted in several euro area countries since 2010 and in EMEs in the past.

One lesson from the two bond tantrums is that **sound financial and economic fundamentals** do make a difference. Indeed, the large cross-country differences in the impact of the two (Graph 4) can in part be related to financial and macroeconomic fundamentals. During the taper tantrum, for instance, there is evidence that investors initially shed EME exposures indiscriminately, but subsequently penalised countries with financial imbalances and large current account deficits. This suggests that sound economic and financial fundamentals might cushion the impact of a bond yield snapback. It also means, however,



that, against the background of turning financial cycles, weaker growth and high US dollar debt, many EMEs might currently need to strengthen their policies.

2. Inflation in EMEs after the taper tantrum: why were outcomes so different?

In addition to the above-mentioned negative effects of a bond yield snapback on financial stability, EMEs (and some AEs) need also to understand the effects of global forces (including financial ones) on their own inflation environment – which conditions their monetary policy response.

Indeed, inflation has been outside the central banks' comfort zone in many economies, both AE and EMEs (Graph 6). In some cases inflation has been above, in other cases below the targeted inflation objective or range. The local inflationary consequences of the taper tantrum episode described above were especially interesting to study. In that light, we will look at two key global proximate determinants of inflation in recent years – commodity prices and exchange rates – and try to ascertain how they both influenced local inflation: the inflation outcome in EMEs displays a large variance after the recent episodes of depreciation and asset repricing.

Two global forces were at play. First, commodity prices, in particular oil prices, fell sharply between mid-2014 and early 2016, although they have rebounded somewhat since (Graph 7, left-hand panel). Part of the decline probably reflects weaker demand, but supply factors have also played a key role, particularly for oil.

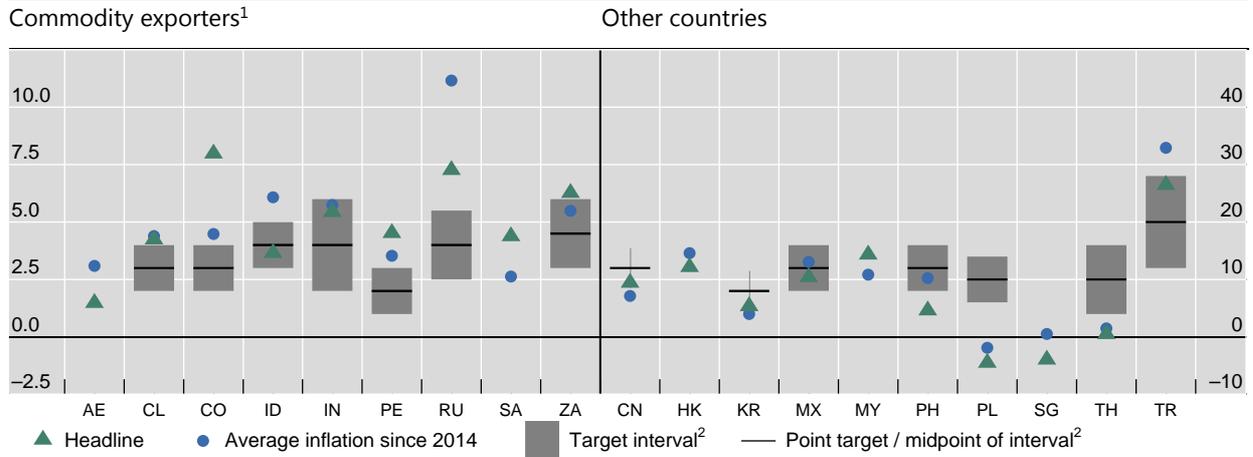
Second, against the backdrop of a strengthening US dollar in anticipation of the normalisation of monetary policy in the United States, most EME currencies have depreciated. They fell sharply against the dollar during the taper tantrum in 2013 and continued to trend down until early 2016 (Graph 7, right-hand panel). In trade-weighted terms, the depreciation was generally much smaller, as most trading partners' currencies also weakened. That said, most trade tends to be invoiced in US dollars, so trade-weighted exchange rates may understate the inflationary pressures from the depreciation.



Headline inflation and inflation targets

In per cent

Graph 6



AE = United Arab Emirates; CL = Chile; CN = China; CO = Colombia; HK = Hong Kong SAR; ID = Indonesia; IN = India; KR = Korea; MX = Mexico; MY = Malaysia; PE = Peru; PH = Philippines; PL = Poland; RU = Russia; SA = Saudi Arabia; SG = Singapore; TH = Thailand TR = Turkey; ZA = South Africa.

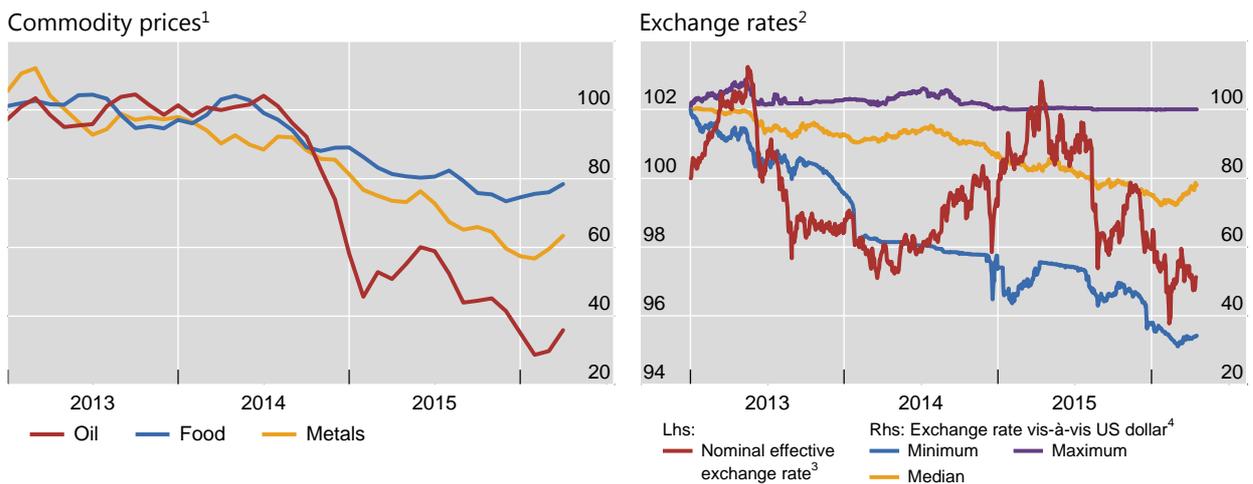
¹ Commodity exporters are countries for which more than 40 per cent of the exports are commodities. ² For countries following an inflation targeting strategy.

Sources: Datastream; national data; BIS calculations.

Lower commodity prices and a stronger US dollar directly affect many prices in an open economy, but their impact on inflation depends on a whole range of other factors, structural and cyclical, fundamentals and idiosyncratic (eg indexation). Obviously, they also depend, last but not least, on the local policy response and the credibility of the policy framework.

Commodity prices and exchange rates

Graph 7



¹ The IMF's primary commodity prices; oil = crude oil (petroleum), price index: 2005 = 100, simple average of three spot prices: Dated Brent, West Texas Intermediate and Dubai Fateh; for food, food price index: 2005 = 100, includes price indices of cereal, vegetable oils, meat, seafood, sugar, bananas and oranges; for metals, metals price index: 2005 = 100, includes price indices of copper, aluminium, iron ore, tin, nickel, zinc, lead and uranium. ² An increase signifies appreciation of the local currency. ³ Aggregate for emerging economies; weighted average based on the GDP and PPP exchange rates of Argentina, Brazil, Chile, China, Colombia, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, Thailand and Turkey. ⁴ Bilateral exchange rates; beginning of 2013 = 100.

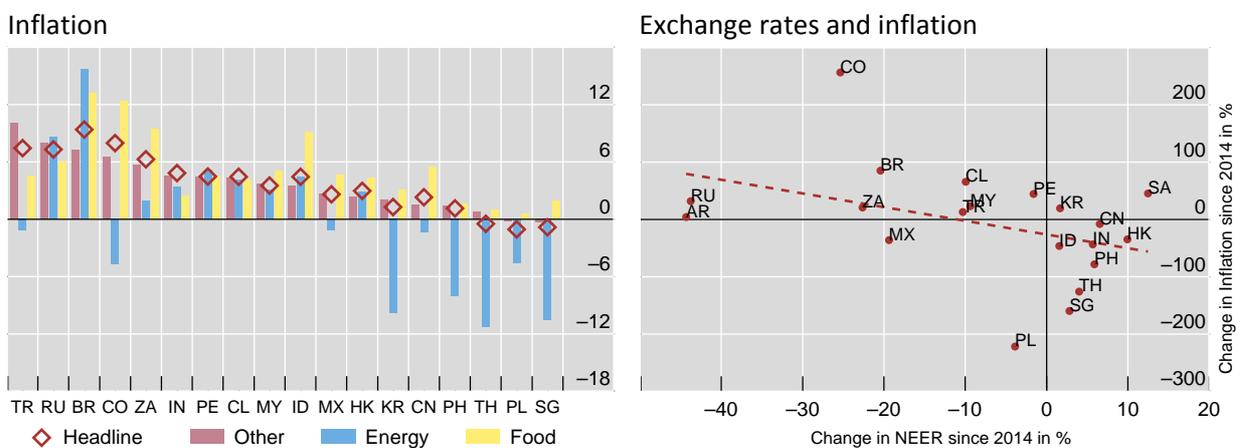
Sources: IMF, Primary Commodity Prices Database; national data; BIS calculations.

Tumbling energy prices contribute to dragged headline inflation especially in Asian economies, but inflation of other goods categories also tended to be quite weak (Graph 8, left-hand panel). In part, this reflected the (relative) strength of these currencies. While they have depreciated against the US dollar in recent years, they have appreciated in effective terms (right-hand panel).⁷ Some governments have taken advantage of the fall in the oil prices to cut energy consumer price subsidies in their economies, thereby countering the terms-of-trade shock. None, however, has added a “green tax” that would raise energy prices taking into account environmental (eg climate change, carbon footprint) damage.

The picture looks very different in countries that experienced sharp exchange rate depreciations. There, energy prices actually increased in domestic currency terms. Most commodity-exporting economies recorded energy price increases that exceeded headline inflation.

Exchange rates and inflation

Graph 8



AR = Argentina; BR = Brazil; CL = Chile; CN = China; CO = Colombia; HK = Hong Kong SAR; ID = Indonesia; IN = India; KR = Korea; MX = Mexico; MY = Malaysia; PE = Peru; PH = Philippines; PL = Poland; RU = Russia; SA = Saudi Arabia; SG = Singapore; TH = Thailand; TR = Turkey; ZA = South Africa.

Sources: National data; BIS; BIS calculations.

Interestingly, lower international food prices appeared to have a negligible impact on headline inflation. In fact, food prices rose in all countries, in most cases *more* than headline. This could be because food is mostly produced and consumed locally, with the international markets affecting only a limited subset of prices. Moreover, pervasive trade barriers for foodstuffs may contribute to a decoupling of domestic and international prices. And, in some countries, sharp depreciations more than offset the decline in international food prices. In a few countries, the elimination of import duty on food affected food prices.⁸

⁷ Overall, the relationship between exchange rate depreciation and inflation shown in the right-hand panel of Graph 8 does not change much if one uses bilateral US dollar exchange rates. The main change is that countries tend to move somewhat to the left, ie towards larger depreciations.

⁸ It may also be that, irrespective of whether primary food products are produced locally or imported, the bulk of food CPI is made on non-tradable services (wholesale and retail trade services, transport services etc) so that changes in the price of food itself have little influence on the final food CPI.



Changes in the inflation process in EMEs

Overall, it appears that the inflation process in EMEs has changed considerably in recent decades with four important developments: (i) a decline in inflation persistence; (ii) a flatter Phillips curve (ie a lower responsiveness of inflation to domestic slack); (iii) the increased role of inflation expectations; and (iv) a lower exchange rate pass-through.

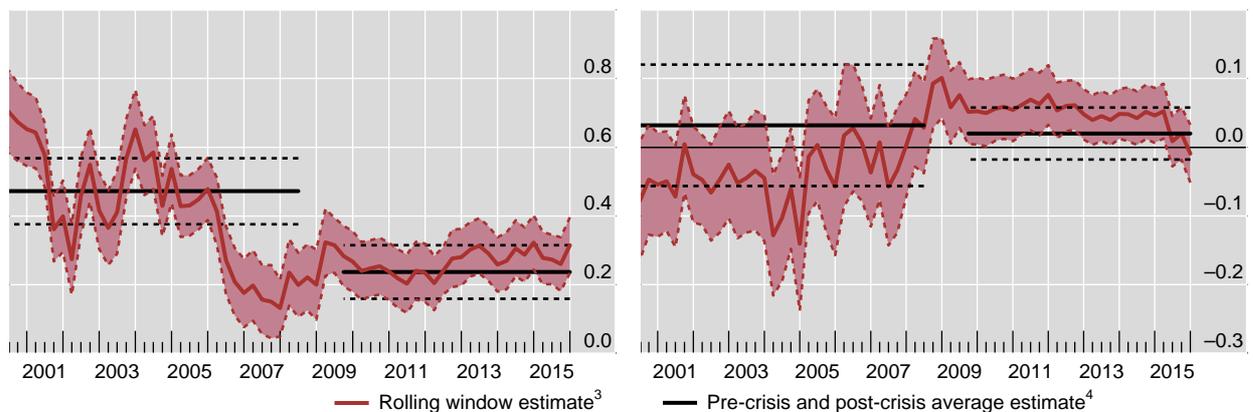
Econometric estimates generally find a **decline in inflation persistence**. One interpretation is that inflation returns more quickly to its long-run equilibrium rate after a shock. Panel estimates suggest a statistically and economically significant drop in persistence around the 2008–09 financial crisis (Graph A, right-hand panel).[ⓐ]

Changing inflation dynamics

Graph A

Inflation persistence¹

Output gap²



¹ Persistence is defined as the autoregressive coefficient in the inflation process, ie δ from the equation: $\pi_{it} = \alpha_i + \beta_t + \delta\pi_{it-1} - \sum_{j=0}^3 \gamma_j \Delta NEER_{it-j} - \sum_{k=0}^3 \mu_k \Delta NEER_{it-k}^2 - \sum_{l=0}^3 \nu_l \Delta NEER_{it-l}^3 + \phi ygap_{it} + \varepsilon_{it}$, where π_{it} is the log change in CPI in country i in quarter t ; α_i are country fixed effects and β_t time fixed effects; $ygap_{it}$ is the domestic output gap; and $NEER_{it}$ is the log change in the nominal effective exchange rate in country i in quarter t . The estimates are obtained in a dynamic panel-data setup using the generalised method of moments following Arellano and Bover (1995) and Blundell and Bond (1998) for Argentina, Brazil, Chile, China, Colombia, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, Thailand and Turkey. ² The impact of the domestic output gap is defined as the coefficient ϕ from the equation in footnote 1. ³ Results for six-year rolling window. ⁴ Results for periods Q1 2000–Q2 2008 (pre-crisis) and Q3 2009–Q2 2015 (post-crisis).

Sources: Jašová et al (2016); IMF, *International Financial Statistics* and *World Economic Outlook*; CEIC; Datastream; national data; BIS calculations.

One possible explanation for lower persistence is the decline in inflation itself. Inflation persistence tends to be highly correlated with the level of inflation, perhaps because of inflation inertia embedded in explicit or implicit contract indexation or backward-looking expectations. There are some signs that the degree of inertia has gone down, although it is still far from negligible in some economies where backward-looking indexation of contracts still prevails. In addition, a more credible anti-inflation commitment could also have played a role. But one cannot rule out that at least part of the decline reflects luck, with a string of favourable shocks driving down both inflation and persistence and/or less persistent shocks themselves.

The results also suggest that we are dealing now with a **flatter Phillips curve**, although the evidence is mixed, as the Phillips curve appears to have become flatter only in some economies and estimates are plagued by difficulties in measuring potential output, especially in EMEs.

There are many possible ways to explain the diminishing marginal influence of domestic slack on inflation (especially relevant for AEs). First, it may be a consequence of globalisation, as documented in the way global value chains affect the way large global firms set up their pricing policies. Adding a measure of the global output gap to the



Phillips curve often considerably increases the explanatory power in single-country regressions (Borio and Filardo (2007)). But this was not the case at the panel level, where the coefficient on a global output gap turned out to be insignificant. Again, this could be due to measurement problems or to the pooling of countries with very diverse experiences.² Second, it might also be the consequence of a number of “improvements” in social welfare such as more financial inclusion (eg access to credit can change our traditional view of permanent income) that are not, per se, undesirable.

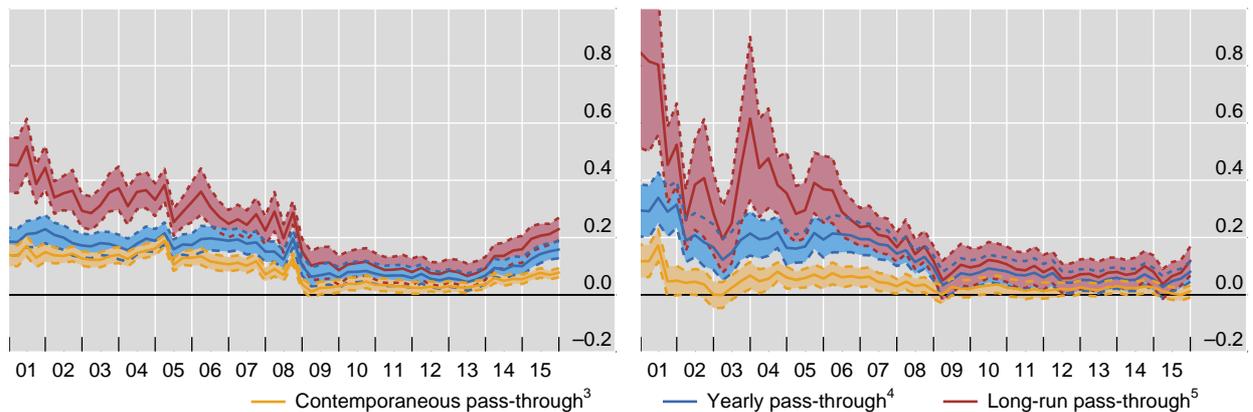
There is also somewhat stronger evidence for the **greater role of inflation expectations**. Indeed, inflation expectations themselves appear to have become more forward-looking. The finding that inflation expectations matter more for inflation than in the past also appears to hold at the global level. The inclusion of household inflation expectations improves the fit in the estimation of both global (Friedrich (2014)) and US Phillips curves (Coibion and Gorodnichenko (2015)). Central banks have recognised the greater role of inflation expectations and are collecting more numerous and diverse measures than in the past (Sousa and Yetman (2016)).

Exchange rate pass-through

Graph B

Pass-through estimates for linear specification¹

Pass-through estimates for non-linear specification²



¹ Pass-through results are derived from the equation: $\pi_{it} = \alpha_i + \beta_t + \delta\pi_{it-1} - \sum_{j=0}^3 \gamma_j \Delta NEER_{it-j} + \phi ygap_{it} + \varepsilon_{it}$, where π_{it} is the log change in CPI in country i in quarter t ; α_i are country fixed effects and β_t time fixed effects; $ygap_{it}$ is the domestic output gap; and $NEER_{it}$ is the log change in the nominal effective exchange rate in country i in quarter t . The estimates are obtained in a dynamic panel-data setup using the generalised method of moments following Arellano and Bover (1995) and Blundell and Bond (1998) for Argentina, Brazil, Chile, China, Colombia, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, Thailand and Turkey. ² Results are derived based on the equation from footnote 1 extended with non-linear exchange rate terms, ie $\pi_{it} = \alpha_i + \beta_t + \delta\pi_{it-1} - \sum_{j=0}^3 \gamma_j \Delta NEER_{it-j} - \sum_{k=0}^3 \mu_k \Delta NEER_{it-k}^2 - \sum_{l=0}^3 \nu_l \Delta NEER_{it-l}^3 + \phi ygap_{it} + \varepsilon_{it}$. ³ Contemporaneous pass-through is defined as the quarterly coefficient in the inflation process, ie γ_0 . ⁴ Yearly pass-through is defined as the sum of yearly coefficients in the inflation process, ie $\gamma_0 + \gamma_1 + \gamma_2 + \gamma_3$. ⁵ Long-run pass-through is defined as the sum of yearly coefficients in the inflation process, ie $(\gamma_0 + \gamma_1 + \gamma_2 + \gamma_3)/(1 - \delta)$.

Sources: Jašová et al (2016); IMF, *International Financial Statistics* and *World Economic Outlook*; CEIC; Datastream; national data; BIS calculations.

The **decline in the exchange rate pass-through** is well documented. Traditionally, the exchange rate pass-through, over both the short and the long term, has been higher in EMEs than in AEs. A key factor behind the greater importance of pass-through was higher, more volatile and more persistent inflation. But, with inflation low and stable, prices and wages tend to change less frequently, which should reduce pass-through.³

Panel econometric estimates find that the pass-through appears to have fallen in the early 2000s and remained stable post-crisis (Graph B). Admittedly, estimates using a linear model show some increase in pass-through after the taper tantrum (left-hand panel). But this appears to reflect large exchange rate depreciations rather than a



structural change, as estimates from a non-linear model are much more stable (right-hand panel). In general, large depreciations – such as the ones experienced by many EMEs in recent years – tend to feed more quickly into domestic prices. This could be due to a combination of menu costs – the benefits of small price adjustments may not exceed their costs – and a wish to keep windfall gains of higher profits on imports after an appreciation but protect margins after a depreciation. So even if pass-through is structurally lower today than it was 20 years ago, it could still be quite substantial. There is also some evidence that firms are resetting their prices more frequently than in the past, with some retailers passing on depreciation costs.

Such econometric estimates have obvious limitations. They are reduced-form and assume that exchange rate movements are exogenous, taking no account of the underlying reason for the move. And they are sensitive to the policy regime. There is also significant heterogeneity across countries. Estimating pass-through equations for single countries requires a fairly long sample, making it difficult to test for stability over time with a reasonable degree of confidence. However, some heterogeneity already emerges when considering country groups.

Overall, in combination with the usual domestic factors, global factors such as the sharp decline in commodity prices, in particular the price of oil, have pushed down inflation around the world. But in many EMEs, a sharp currency depreciation (related to the taper tantrum) has more than offset this force, pushing inflation above target.

① The full results are presented in Jašová et al (2016). ② In Europe, an increasing fraction of services is traded across borders, thus strengthening the link between inflation in one economy and the degree of slack in others. In Asia, global and regional factors appear to reinforce each other. In Singapore, global factors have lost some ground to regional factors, as production networks in Asia have become more integrated and business cycles more synchronised. ③ One indication of the relevance for macroeconomic stability of a low exchange rate pass-through comes from the fact that the pass-through for non-tradables in many EMEs is only marginally lower than that of tradable goods.

So which force dominated the final outcome? And why? One way to better understand this issue is to look at two polar cases: (i) countries where the depreciation occurred without a weakening of fundamentals, the emblematic case being a net-oil-importing EME with low or at least sustainable debt, a crisis-proof traditional macroeconomic framework (eg floating exchange rate, fiscal resilience and a typical inflation targeting rule) and a resilient, well managed financial sector; and (ii) countries where the depreciation went hand in hand with an increase in risk premia and a weakening of fundamentals, the emblematic case here being a commodity exporter and/or countries that experienced a severe deterioration of fundamentals (eg an increase in debt, private and public, sometimes caused by excessive external corporate borrowing or excessive public debt due to countercyclical policies undertaken during the global financial crisis).

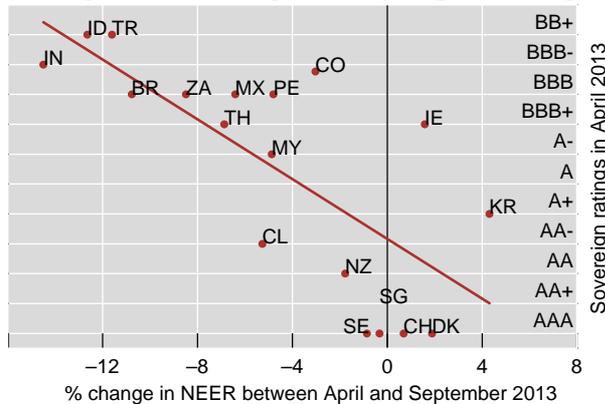
As an illustration of this, we show in Graphs 9 and 10 the relationship between the depreciation (measured by the change in the nominal effective exchange rate (NEER)) and the perceived country risk premia (measured by long-term foreign currency country ratings and sovereign CDS spreads). Also related to the transmission of external shocks, we also plot the relationship between the depreciation against measures of factor market rigidities and contestability (eg indices of product market regulation, including labour markets).



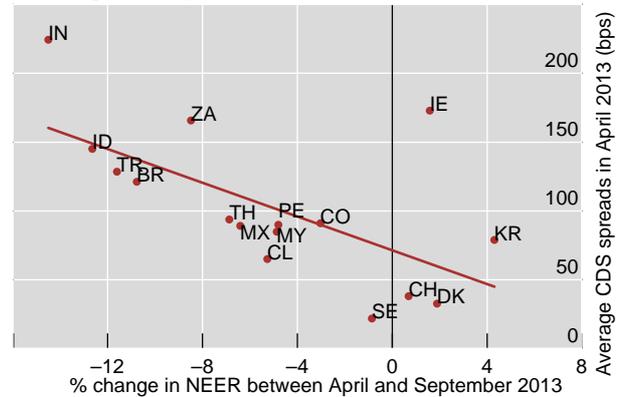
Nominal effective exchange rate, sovereign ratings and CDS spreads

Graph 9

Exchange rates and foreign currency long-term ratings



Sovereign CDS spreads



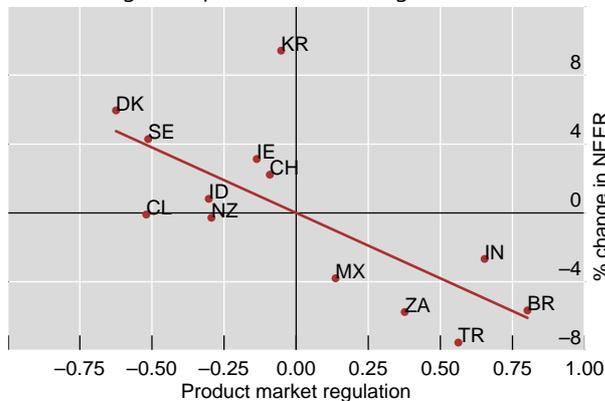
BR = Brazil; CH = Switzerland; CL = Chile; CO = Colombia; DK = Denmark; ID = Indonesia; IE = Ireland; IN = India; KR = Korea; MX = Mexico; MY = Malaysia; NZ = New Zealand; PE = Peru; SE = Sweden; SG = Singapore; TH = Thailand; TR = Turkey; ZA = South Africa.

Sources: Bloomberg; Markit; national data; BIS; BIS calculations.

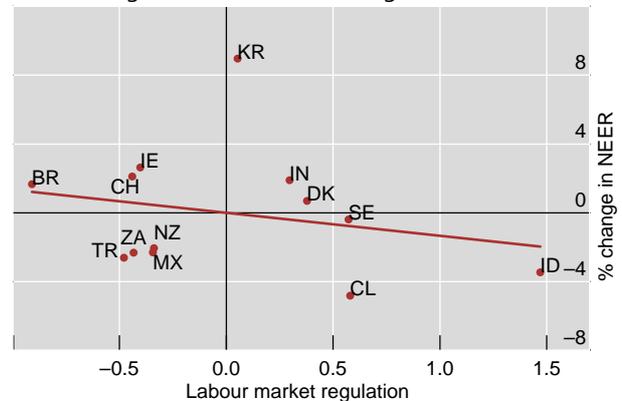
Nominal effective exchange rate and measures of factor market flexibility¹

Graph 10

NEER change and product market regulation²



NEER change and labour market regulation³

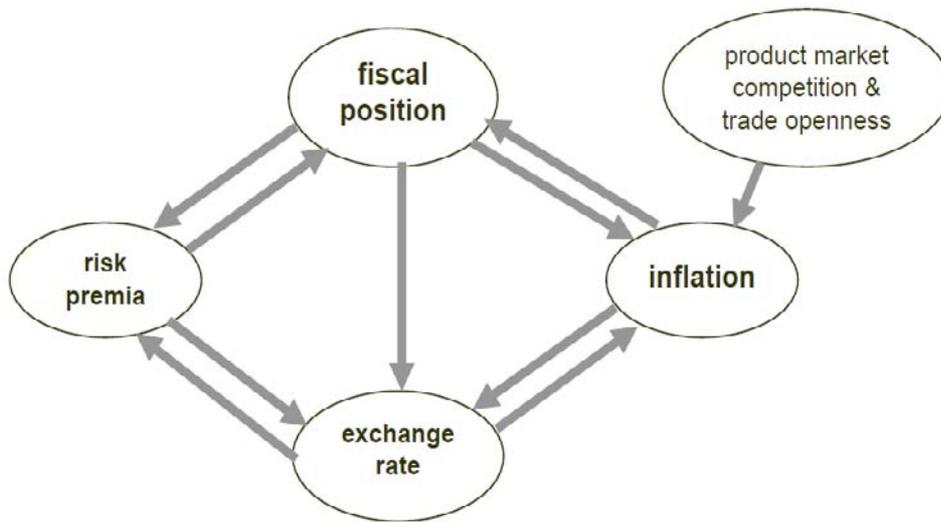


BR = Brazil; CH = Switzerland; CL = Chile; DK = Denmark; ID = Indonesia; IE = Ireland; IN = India; KR = Korea; MX = Mexico; NZ = New Zealand; SE = Sweden; TR = Turkey; ZA = South Africa.

¹ In both cases, higher readings of the index indicate tighter regulation. The NEER percentage change is measured from April 2013 to Oct 2013. ² The product market regulation index is the simple average of 3 sub-indexes: (i) state control (in 2013, the OECD average was 2.18); (ii) barriers to entrepreneurship (in 2013, the OECD average was 1.70); (iii) barriers to trade and investment (in 2013, the OECD average was 0.52). ³ The labour market regulation index measures the protection of permanent workers against dismissals. At the beginning of 2013, the OECD average was 2.03

Sources: OECD, BIS, BIS calculations.

In a nutshell, the **pass-through of global forces driving inflation through the exchange rate into inflation can be affected by risk premia and compounded by local market rigidities** (eg factor market contestability and specificities in labour markets). These additional factors help to explain the variance of inflation across EMEs (see diagram below). Indeed, inflation can be higher than simply output gap-related expected inflationary pressure.

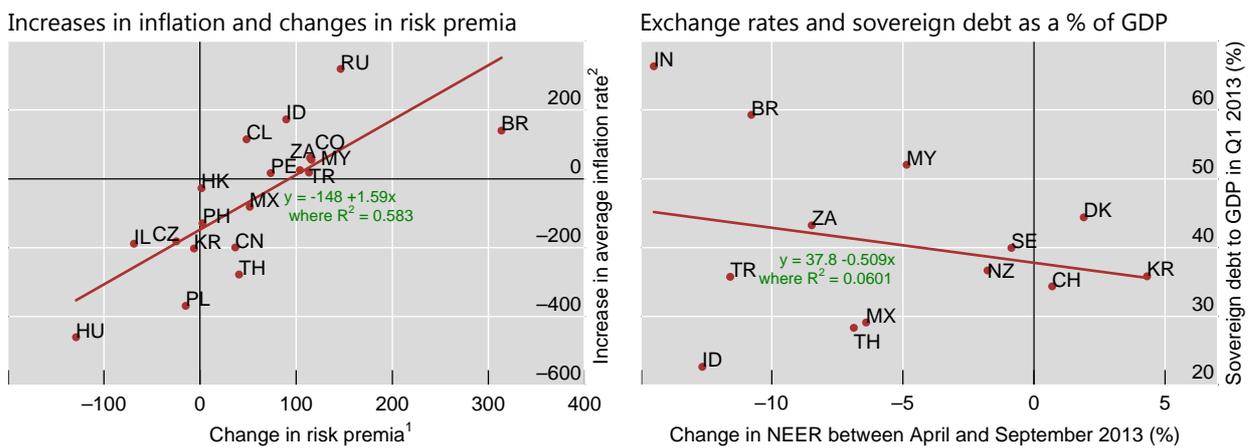


The plots above show that, while monetary policy is still the main determinant of inflation, other channels have also been relevant in EMEs recently. Openness to trade and competition are important factors in containing inflation (Auer and Fischer (2010), Auer (2015)). In other words, greater integration and a more competitive market structure could reduce the burden of monetary policy.

Last but not least and without necessarily discussing whether or not some EMEs are under fiscal dominance, a reasonable degree of fiscal discipline and a sustainable set of debt dynamics are key for control of inflation (Blanchard (2004), Favero and Giavazzi (2004)). This “old tale” is also confirmed by recent evidence. A better fiscal position diminishes risk premia, and in EMEs lower risk premia are associated with lower inflation (as shown in Graph 11).

Inflation and changes in risk premia, direct relation and underlying debt levels

Graph 11



BR = Brazil; CH = Switzerland; CL = Chile; CN = China; CO = Colombia; CZ = Czech Republic; DK = Denmark; HK = Hong Kong SAR; HU = Hungary; ID = Indonesia; IL = Israel; IN = India; KR = Korea; MX = Mexico; MY = Malaysia; NZ = New Zealand; PE = Peru; PH = Philippines; PL = Poland; RU = Russia; SE = Sweden; TH = Thailand; TR = Turkey; ZA = South Africa.

¹ Change in 5 year CDS risk premia, in basis points. ² Change in average CPI inflation over last 3 years, in basis points.

Sources: E Kohlscheen; national data; BIS; BIS calculations

The above discussion raises the question as to which factors can counteract the widening of risk premia in EMEs. A quantile regression exercise, along the lines of Koenker and Bassett (1978) and Koenker



and Hallock (2001), is informative in this respect (Table 1). The relative importance of the different contributing factors changes as one moves from low-risk to high-risk country-year observations. In particular, it becomes clear that the benefits of fiscal contraction in terms of spread reduction are twice as high when risk is high (ie the spread is at the 90% percentile), when compared with the estimate at the median. Also, at median risk level, a fiscal tightening of 1% of GDP diminishes risk about as much as a 1% increase in GDP growth. At the high end of the risk distribution, the contribution of fiscal contraction is far more important than growth.

These results confirm that there are good reasons for EMEs to experience different outcomes from the same global forces, namely commodity prices and exchange rates. Although some of the factors that were identified in the box (ie lower inflation persistence and lower pass-through) might be good news, others (expectations and a flatter Phillips curve) might signal a more difficult environment in which to control inflation. That is especially the case in EMEs, where inflation expectations can be affected by a perception of higher fiscal imbalances, since in EMEs a responsible fiscal stance is associated with lower inflation.

Determinants of sovereign risk premia in EMEs (five-year sovereign CDS spread) Table 1
Q1 2000 to Q4 2015

Estimated at	10% percentile (low CDS spread)	25% percentile	Median CDS	75% percentile	90% percentile (high CDS spread)
CPI inflation	0.062*** 0.005	0.063*** 0.016	0.107*** 0.022	0.156*** 0.021	0.157*** 0.021
Fiscal balance / GDP	-0.051*** 0.008	-0.050*** 0.013	-0.066*** 0.016	-0.090*** 0.022	-0.130*** 0.031
GDP growth	-0.030*** 0.008	-0.037*** 0.011	-0.067*** 0.014	-0.087*** 0.017	-0.075*** 0.022
US GDP growth	0.003 0.012	-0.001 0.016	0.059*** 0.02	0.112*** 0.029	0.105*** 0.039
Log of VIX	0.425*** 0.045	0.595*** 0.074	0.860*** 0.098	1.028*** 0.127	1.500*** 0.192
FX reserves / imports	-0.081 0.111	-0.205 0.129	-0.416** 0.192	-1.194*** 0.287	-1.772*** 0.489
Estimation method	quantile reg.	quantile reg.	quantile reg.	quantile reg.	quantile reg.
Fixed effects	yes	yes	yes	yes	yes
Observations	1068	1068	1068	1068	1068
Pseudo R2	0.3631	0.3498	0.3379	0.3746	0.4777

Estimated on quarterly data. All explanatory variables are lagged. */**/** denote statistical significance at 10/5/1% confidence level, respectively. Standard errors obtained via bootstrapping. Countries covered are Brazil, Chile, P.R. China, Colombia, the Czech Republic, Hong Kong, Hungary, India, Indonesia, Israel, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, Singapore, Thailand, Turkey and South Africa.

Source: E Kohlscheen

3. Policy implications: strong macro fundamentals but also structural reforms

EMEs need to be particularly vigilant while the potential exists for a snapback of bond yields. As we have discussed, this precaution also applies to some AEs. There is a need to put or keep one's house in order to benefit from strong macro fundamentals. Doing so also creates conditions that allow structural reforms to be implemented as needed and as much as possible in a consensus-building manner. That should promote a stable and sustainable growth horizon for both domestic and foreign investors.

Currently, a bond yield snapback represents an important challenge to macro and financial stability for EMEs and some AEs. It has a low probability as of today, but this could change and a snapback would pose many challenges. These would include understanding better the current determinants of



inflation and inflation expectations in AEs and how there could be possible changes in corporate pricing behaviour and/or in energy (oi) prices. In addition, policy normalisation creates new challenges for monetary policy communication. Communication about unconventional measures is inherently more complex and multidimensional. This relates not just to the timing, but also to the mix and sequencing of different measures. Naturally, the central banks of AEs are and will remain ready to support robust liquidity conditions in fixed income markets. They continue to be able to take measures to stabilise markets through forward guidance or liquidity provision, even under volatile and adverse financial market reactions.

The classic recipe for sailing through the volatility that a bond yield snapback threatens is to strengthen fundamentals. This remains a necessary condition, and EMEs have in general adapted pragmatically. The classical recourse to a floating exchange rate regime, preserving the credibility of macro policies and maintaining a sustainable fiscal policy, has allowed most EMEs to preserve monetary policy independence. The pragmatic additional touch induced by the global financial crisis was to add macroprudential policies to strengthen the financial sector, including, when need be in exceptional cases, capital flow management (Obstfeld (2015)).

Indeed, stronger and countercyclical financial regulation (eg countercyclical capital requirements, reserve and liquidity buffers) was rediscovered and brought over from its microprudential role into a macroprudential function, with a view to making economies more resilient to financial cycles. We now understand much better how these tools interact with monetary policy and their importance and effectiveness in general equilibrium frameworks (Agénor et al (2014), Agénor and Pereira da Silva (2013)). We also understand better (Bruno and Shin (2015)) how financial imbalances grew in the run-up to the crisis. The role of US dollar liabilities in funding risky dollar assets held by European banks explains why – despite large US current account deficits – the crisis prompted a surge in demand for dollars and the currency's consequent strengthening instead of – as predicted by some – a depreciation in the wake of falling prices of those dollar assets. In a sense, the stock of liabilities in a funding currency matters more than flows when firms have to recognise losses and deleverage. From a policy perspective, this has focused more attention on the need for prevention during upswings in global financial markets. Hence, small open economies and some EMEs have understood the role that FX interventions can play in limiting excessive currency appreciation and in contributing to financial stability. In a pragmatic way, but exceptionally if need be, capital controls or capital flow management have become accepted by market participants when EMEs have been confronted with unwarranted spillover effects of large capital inflows and the excessive cost of reserve accumulation. Therefore, the new, more pragmatic policy framework revolves around a combination of aggregate demand management instruments (fiscal and monetary policies) and a set of prudential instruments capable of smoothing financial cycles applied in conjunction with tools to manage capital flows, including various forms of FX intervention and prudent limits to FX borrowing – particularly for sectors that do not have stable FX revenues.

With this framework in place, are EMEs and advanced smaller open economies better equipped to face the challenges of a bond yield snapback? Yes, with sound fundamentals they might use FX interventions to reduce volatility and financial instability. However, even large foreign exchange reserves may not necessarily provide sufficient insulation. A large part of dollar borrowing in recent years has been done directly by firms in capital markets. Even if a firm operates in a country whose central bank holds large FX reserves, there is the question of how the dollars can be transferred from the central bank to the firm itself. Short of that, helping to hedge FX risk could also help and can be done in efficient ways, directly or indirectly, through derivative instruments and/or offering of spot FX to settle short-term debt and to avoid disorderly adjustments or even the more severe currency and banking crises that we have seen in the past.

With sound fundamentals, a strong financial sector and adequate FX instruments, central banks in EMEs can improve their capacity to “see through” temporary shocks. Overall, in recent years the inflation process in EMEs appears to have become more similar to that in advanced economies. All four changes documented here – lower persistence, a flatter Phillips curve, a bigger role for more forward-looking



expectations, and lower exchange rate pass-through – are reminiscent of the experience of AEs since the 1990s. If these changes turn out to prove durable, then they represent a fundamental change in how the economy responds to shocks, which in turn has a bearing on how policy should be set. Low inflation persistence implies that the effects of transitory shocks to inflation fade away more quickly. Similarly, a flatter Phillips curve and lower exchange rate pass-through imply that fluctuations in domestic output and exchange rates have a smaller impact on inflation. All this should increase the ability to “see through” shocks to inflation and react only to possible second-round effects – so long as medium-term inflation expectations remain anchored around the central bank’s target. That said, possible second-round effects or shocks that prevent inflation from returning to target may call for a more forceful response.⁹ But “seeing through” is also a test for the effectiveness of a central bank’s communication and the overall credibility of its policy stance.

This brings us back to the greater role of inflation expectations in EME inflation dynamics. They create potential multiple equilibria, especially if fundamentals weaken too much and/or too rapidly, especially as noted, if the fiscal position deteriorates the perception of sustainability of the public debt. In such cases, the stabilising properties of the exchange rate may vanish, or even go into reverse. A variety of factors¹⁰ might increase risk premia and contribute to accelerate depreciation and to worsen expectations, leading to potential feedback loops. Hence, in order to generalise the benefits of a real exchange rate depreciation and to be fully capable of “seeing through” an external shock, an EME needs to have strong macro and financial fundamentals, especially, as we argued above, its fiscal stance.

The other nostrum for sailing through global volatility is to strengthen growth potential by enacting structural reforms, improving the overall institutional framework, making the public sector balance sheet more sustainable in the medium to long run, and increasing the flexibility of factor markets. The caveat here is that successful structural reforms might require some degree of socio-political consensus to be implemented. We suggested above, for example, that greater openness and factor market flexibility helps to lessen the transmission of global inflationary pressure into local markets. But these are precisely the areas that are highly contested in political economy terms. If one wants to engineer structural reforms in those areas, some perception of “fairness” is needed to avoid the classical “war of attrition” scenario described in the political economy of adjustment literature (Alesina and Drazen (1991)). Conversely, sometimes reforms have to be done in more difficult conditions. When people have heard too many promises, expectations are high; anything that comes in below their expectations could be perceived as unfair.

This notion of “fairness” (Akerlof (1982)) is complicated, since it seems to depend on how people relate changes not only to the status quo but also to other reference points. There is a large literature that relates the perception of fairness to reference points vis-à-vis other individuals or groups. Agents might accept or disagree with wage or tax increases and/or a required additional effort after comparing them with a reference. Adding burdens, costs and efforts in a disproportionate way vis-à-vis this reference would be perceived as unfair. An area where this notion has been applied is the efficiency wage hypothesis. For example, the “fair wage-effort hypothesis” (Akerlof and Yellen (1990)) suggests that workers have a notion of the fair wage, and calibrate their work effort accordingly.

⁹ The changes to the inflation process documented above are not necessarily benign. Lower inflation persistence and exchange rate pass-through may reduce the likelihood of second-round effects, but the flattening of the Phillips curve could make monetary policy less effective in smoothing the economy, as it would worsen the trade-off between inflation and economic activity. If, for instance, inflation expectations were to rise, a larger fall in economic activity would be needed to contain rising inflation.

¹⁰ These factors include excessive debt denominated in foreign currency and also the risks arising from domestic public debt dynamics caused by unsustainable fiscal and/or para-fiscal responses to the crisis. In this case, the tightening of credit constraints brought about by the combination of lower commodity prices and a depreciated exchange rate may result in stagflation: lower output, high inflation, and very little room for manoeuvre for the central bank.



This discussion brings us to the related but broader area of the **political economy of stabilisation and reforms**. We know that any stabilisation policy has significant distributional implications (eg expenditure cuts and/or tax increases to reduce large budget deficits). Therefore, it is natural that some groups will attempt to pass on to other groups the costs of stabilisation. Hence, any process of reforms or macro stabilisation has the propensity to become a “war of attrition” where special interest groups try to block and/or delay the process. There is a “wait-and-see” attitude where socio-economic groups engage in lobbying efforts to make others accept as high a share of the adjustment as possible.

Structural reforms have become even more difficult today because the global financial crisis and commodity boom have left a legacy of debt to be serviced. And it has been very difficult to find the right “political economy” equilibrium to define the right formula for burden-sharing and to start much needed reforms that could ignite a new sustainable growth cycle. The difficulties extend even to using a more balanced policy framework, using both fiscal and monetary policies (Pereira da Silva (2016)).

The recognized complexity of implementing structural reforms might have been a contributing factor in explaining the difficulty to re-establish business and consumer confidence. It might help to understand why we keep facing the same conundrums, ie the persistence of weak growth prospects despite unprecedented monetary stimuli, and the still relatively subdued credit multipliers despite low funding costs amid ultra-low and even negative interest rates. And it might complement the other well-known explanations for the current slower or low growth environment in AEs and EMEs that range from “secular stagnation” to “middle-income growth traps”. We have a great deal of clarity, from a macro perspective, about what needs to be done: further debt deleveraging, fiscal consolidation, factor market reforms and a rebalancing of policy responses. But we have less clarity on how to do it because many of these policies require structural reforms and hence changes in attitudes and in local political economy conditions. Therefore and perhaps, an appropriate balance needs to be struck between the perception of fairness in the reform process and the determination to pursue structural reforms. The adjustment burden will hardly be perceived as equitably shared if income inequality is still too large, and/or if vested interests subvert the decision-making process and paralyse it. While we might need to improve the odds for more consensus for reform for their part, policymakers will also need to display resolve when necessary. The balanced combination of both elements is perhaps what could bring back confidence, trigger productivity-enhancing investment growth and a more sustainable social-political equilibrium in our societies.



References

- Acemoglu, D and J Robinson (2012): *Why nations fail: the origins of power, prosperity, and poverty*, Crown Publishers, New York.
- Agénor, P-R, K Alper and L Pereira da Silva (2014): "Sudden floods, macroprudential regulation and financial stability in an open economy", *Journal of International Money and Finance*, vol 48, pp 68–100.
- Agénor, P-R and L Pereira da Silva (2013): *Inflation targeting and financial stability: a perspective from the developing world*, Inter-American Development Bank and Centro de Estudios Monetarios Latinoamericanos, <http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=38367231>.
- Akerlof, G (1982): "Labor contracts as partial gift exchange", *Quarterly Journal of Economics*, vol 97, pp 543–69.
- Akerlof, G and R Shiller (2009): *Animal spirits: how human psychology drives the economy and why it matters for global capitalism*, Princeton University Press.
- (2016): *Phishing for phools: the economics of manipulation and deception*, Princeton University Press.
- (1990): "The fair wage-effort hypothesis and unemployment", *Quarterly Journal of Economics*, vol 105, no 2, pp 255–83.
- Alesina, A and A Drazen (1991): "Why are stabilizations delayed?", *American Economic Review*, vol 81, no 5, pp 1170–88.
- Arellano, M and O Bover (1995): "Another look at the instrumental variable estimation of error-components models", *Journal of Econometrics*, vol 68, pp 29–51.
- Auer, R (2015): "Exchange rate pass-through, domestic competition, and inflation: evidence from the 2005–08 revaluation of the renminbi", *Journal of Money, Credit and Banking*, vol 47, no 8, pp 1617–50.
- Auer, R and A Fischer (2010): "The effect of low-wage import competition on US inflationary pressure", *Journal of Monetary Economics*, vol 57, no 4, pp 491–503.
- Blanchard, O (2004): "Fiscal dominance and inflation targeting: lessons from Brazil", *NBER Working Papers*, no 10389.
- Borio, C and A Filardo (2007): "Globalisation and inflation: new cross-country evidence on the global determinants of domestic inflation", *BIS Working Papers*, no 227, May.
- Bruno, V and H S Shin (2015): "Capital flows and the risk-taking channel of monetary policy", *Journal of Monetary Economics*, vol 71, pp 119–32.
- Blundell, R and S Bond (1998): "Initial conditions and moment restrictions in dynamic panel data models", *Journal of Econometrics*, vol 87, pp 115–43.
- Coibion, O and Y Gorodnichenko (2015): "Is the Phillips curve alive and well after all? Inflation expectations and the missing disinflation", *American Economic Journal: Macroeconomics*, vol 7, no 1, pp 197–232.
- Dornbusch, R and S Edwards (1991): *The macroeconomics of populism in Latin America*, University of Chicago Press.
- Drazen, A (2000): *Political economy in macroeconomics*, Princeton University Press.
- Favero, C and F Giavazzi (2004): "Inflation targeting and debt: lessons from Brazil", *NBER Working Papers*, no 10390.
- Friedrich, C (2014): "Global inflation dynamics in the post-crisis period: what explains the twin puzzle?", Bank of Canada, *Staff Working Papers*, 2014-36.



- Gilchrist, S, R Schoenle, J Sim and E Zakrajsek (2016): *Inflation dynamics during the financial crisis*, http://people.bu.edu/sgilchri/research/GSSZ_inflation.pdf.
- Hattori, M, A Schrimpf and V Sushko (2016): "The response of tail risk perceptions to unconventional monetary policy", *American Economic Journal: Macroeconomics*, vol 8, pp 111–36.
- Hofmann, B and E Takáts (2015): "International monetary spillovers", *BIS Quarterly Review*, September, pp 105–18.
- Hofmann, B, I Shim and H S Shin (2016): "Sovereign yields and the risk-taking channels of currency appreciation", *BIS Working Papers*, no 538, January.
- Hördahl, P and O Tristani (2014): "Inflation risk premia in the euro area and the United States", *International Journal of Central Banking*, vol 10, pp 1–47.
- Jašová, M, R Moessner and E Takáts (2016): "Exchange rate pass-through: what has changed since the crisis?", mimeo.
- Koenker, R and G Bassett, Jr (1978): *Econometrica*, vol 46, no 1, pp 33-50.
- Koenker, R and K F Hallock (2001): "Quantile Regression", *Journal of Economic Perspectives*, vol 15, no 4 pp 143-156
- Kohlscheen, E and R Sousa: (2016) "On the macroeconomics of commodity exporters: some empirical estimates", mimeo.
- Matsen, E, G Natvik and R Torvik (2016): "Petro populism", *Journal of Development Economics*.
- Obstfeld, M (2015): "Trilemmas and trade-offs: living with financial globalisation", *BIS Working Papers*, no 480, January.
- Pereira da Silva, L (2016): "A possible way out from the 'New Normal': Rebalancing fiscal-monetary policies by picking 'Low-Hanging Fruit' to engineer more confidence", speech at the Eurofi High Level Seminar, Amsterdam, 20–21 April.
- Sousa, R and J Yetman (2016): "Inflation expectations and monetary policy", *BIS Papers*, mimeo.