

# Interest Rate Lift-Off in the US: Moderate Impact To Date but Emerging Markets Should Brace Themselves

By Christoph Große Steffen

For the first time in almost a decade, the US Federal Reserve raised interest rates at the end of 2015—an initial step toward normalizing monetary policy which has been very expansive since the onset of the financial crisis. Ahead of the move, it was feared that the interest rate reversal might have a considerable impact on emerging markets because the hike would lead to more capital flows being diverted to the US. The present study concludes that this was not in fact the case: greater turbulence on the financial markets failed to materialize immediately after the first rate hike and the financing conditions for emerging markets did not initially deteriorate significantly. However, the interest rate will be raised further. In order to come through the contractionary cycle of US monetary policy unscathed, emerging economies with large current account deficits or those dependent on commodity exports in particular should brace themselves for possible fallout.

At the outbreak of the global financial crisis in 2007 and 2008, the US Federal Reserve reduced its base rate over a very short period from 5.25 percent down to a level of zero to 0.25 percent (see figure 1). In keeping with its mandate, the US Federal Reserve was attempting to stabilize employment and prevent deflation. The base rate in the US has remained at the zero lower bound since late 2008. Given that the US economy is recovering from the Great Recession by showing continued growth and a declining unemployment rate, the US Federal Reserve raised its base rate by 0.25 percentage points at its meeting in December 2015. This sees it continuing its course of normalizing monetary policy after discontinuing its strategy of quantitative easing—purchasing government bonds and other securities on a large scale—in October 2014.

The present report analyzes the impact of the US interest rate hike with a focus on its short-term effect on the financial markets of emerging economies.

## Interest rate lift-off in US monetary policy

The decision of the Federal Open Market Committee (FOMC) to raise interest rates was largely based on three assessments:<sup>1</sup>

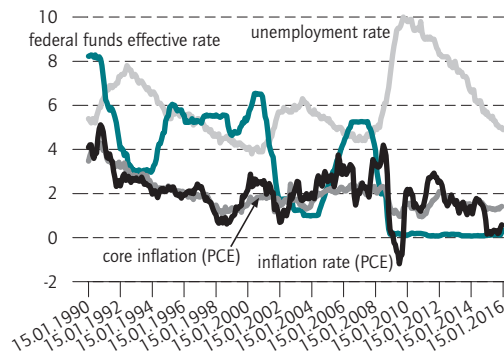
- First, central bankers viewed the situation on the labor market as sufficiently robust after the unemployment rate had fallen to five percent over the past year.
- Second, FOMC members were confident that inflation would rise in the medium term and move toward the target level of two percent.
- Third, it considered the upside and downside risks for the US economy and for the further development of the labor market to be balanced.

<sup>1</sup> Federal Reserve, news release, December 16, 2015.

Figure 1

**Unemployment, inflation, and US federal funds effective rate**

In percent



Source: Federal Reserve Board; Bureau of Labor Statistics; Bureau of Economic Analysis.

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Unemployment rate and core inflation indicate toward a sustained recovery in the US.

There was, however, criticism of the assessment of the labor market.<sup>2</sup> The decline of the participation rate in recent years and the high number of part-time workers had not been taken into account sufficiently and, consequently, the unemployment figures were artificially low. Further, the rate of inflation remained persistently below the target level. Critics posit that interest rates should only have been raised once prices and wages had actually increased more rapidly than in the past.<sup>3</sup>

Although these arguments were taken into account when the interest decision was taken, the FOMC still decided against the alternative path for monetary policy, which was to postpone a lift-off from the zero lower bounds. The main argument against a further deferral was due to the more rapid rate hikes that would have been necessary in the future. In addition, the reversal of interest rates also gives the Fed the prospect of regaining more policy options because further rate cuts at the zero lower bound are not possible.

**Implementing the lift-off was successful**

Enforcing the interest rate lift-off was not a no-brainer: since the banks had accumulated massive excess reserves

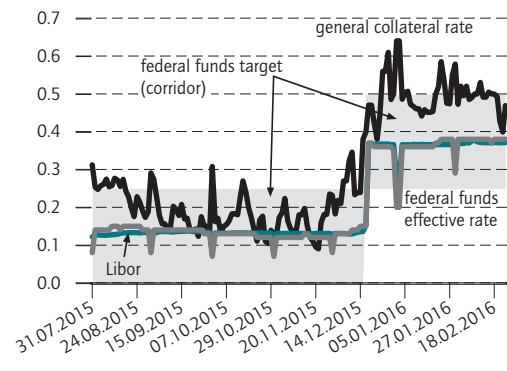
<sup>2</sup> D. G. Blanchflower and A. Levin, "Labor Market Slack and Monetary Policy," *NBER Working Paper* 21094 (2015).

<sup>3</sup> C. Lagarde, "U.S. Economy Returning to Growth, but With Pockets of Vulnerability," *iMFdirect* (blog), June 4, 2015, <https://blog-imfdirect.imf.org/2015/06/04/u-s-economy-returning-to-growth-but-pockets-of-vulnerability/>

Figure 2

**Fed funds target rate and money market rates**

In percent



Source: Federal Reserve; Datastream.

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Money market rates followed the Fed's decision immediately after the announcement.

amounting to 2.5 trillion US dollars, they might have lent themselves liquidity on more favorable terms than the US Federal Reserve. To prevent this, the Fed established an additional policy tool known as the Overnight Reverse Repurchase Agreement Facility (ON RRP). This instrument is used to pay interest on short-term repurchase agreements: banks then have the possibility to receive a minimum interest rate from the central bank for their excess liquidity – against high quality collateral. Thus, the ON RRP establishes an interest rate floor in the market. However, a larger expansion of reverse repurchase agreements (RRPs) was not required to implement the reversal in interest rates.<sup>4</sup> After the US Federal Reserve increased its interest rate target to between 0.25 and 0.5 percent at its December meeting, the interest rate at which US banks lent overnight central bank reserves also rose within the desired parameters (see figure 2). Other major market-based money market rates also followed the specifications.

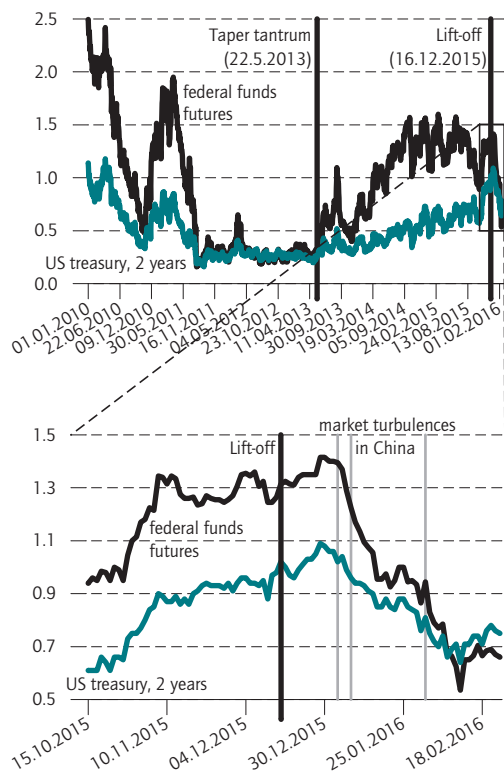
The reaction of the US bond markets to the decision by the US Federal Reserve was guarded: interest rates on US government bonds with a maturity of two years rose only slightly because market participants had already priced in the interest rate lift-off after the committee meeting in late October 2015 (see figure 3). A circumspect com-

<sup>4</sup> W. Dudley, "The US Economic Outlook and Implications for Monetary Policy," presented by William C. Dudley, President and CEO, Federal Reserve Bank of New York, at the Economic Leadership Forum, Somerset, New Jersey, January 15, 2016.

Figure 3

**Interest rates on US bond markets**

In percent



Source: Datastream; Own calculations.

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On US bond markets, the Fed's decision was anticipated prior to the announcement.

munication strategy that prepared the decision on interest rates well in advance prevented a repeat of the “taper tantrum” that took place in May 2013. At that time, Federal Reserve Chairman Ben Bernanke mentioned the possibility of an exit from the bond purchase program and triggered high volatility in global markets and in terms of interest rate expectations since the markets were surprised by the announcement and unprepared.

**Impact of the interest rate decision on emerging markets**

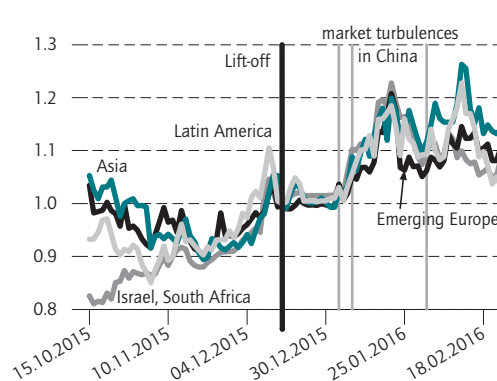
US monetary policy impacts on financing conditions in the public and private sectors of emerging markets through various channels. Studies show that, in addition, a considerable share of macroeconomic volatility can be attributed to changes in US interest rates.<sup>5</sup> One

5 M. Uribe and V. Z. Yue, “Country Spreads and Emerging Countries: Who Drives Whom?,” *Journal of International Economics* 69 (2006): 6–36.

Figure 4

**Interest rates in emerging markets**

Index, 16. Dec 2015 = 1



Returns to sovereign credit default swaps (CDS) as a proxy for financing costs in the public sector.

Source: Datastream; Own calculations.

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The financing costs for emerging markets where increasing moderately prior to the Fed's lift-off.

major transmission channel is the risk-taking behavior of banks.<sup>6</sup> Not only have the costs of lending risen for banks but also the risk appetite of financial institutions as a result of the interest rate hike: a more restrictive monetary policy is associated with a lower risk appetite among banks. The effects of the first rate hike by the US Federal Reserve are discussed next (see box).

**Financing cost for the public sector**

Similar to US government bonds, the markets also anticipated the impact of the rate reversal on financing costs for emerging markets (see figure 4). Moreover, volatility in the markets for government credit default swaps in the days after the decision to reverse the interest rates initially fell sharply (see figure 5). This is evidence of how significant the communication strategy of the US Federal Reserve was in preventing, or at least minimizing, turbulence in the financial markets when normalizing monetary policy. As in spring 2013 the US Federal Reserve announced its intention to prematurely end the bond purchasing program without first preparing the markets, the rates of government credit default swaps (CDS) rapidly became very volatile.

6 V. Bruno and H. S. Shin, “Capital Flows and the Risk-Taking Channel of Monetary Policy,” *Journal of Monetary Economics* 71 (2015): 119–132.

Box

**A macroeconomic model for emerging markets**

What effect will the lift-off in US interest rates have on economic development in the emerging markets? This question is analyzed here using a dynamic stochastic general equilibrium model (DSGE).<sup>1</sup> The model is based on the standard neoclassical model of a small open economy, complemented to fit emerging market data.<sup>2</sup> In order to take account of the fact that a large portion of cross-border movement of capital is channeled through the banking system, the model also includes a financial sector that finances its assets through domestic deposits and foreign wholesale funds.

The funding ratio of foreign to domestic bank deposits is determined in the model endogenously by two factors:<sup>3</sup> first, by the ratio of foreign to domestic financing costs and, second, by the level of indebtedness that is limited by a principal-agent problem between banks and their creditors. The mechanism that gives rise to an endogenous leverage ratio of banks is that due to an information advantage, banks can theoretically maximize their profits to the detriment of their depositors—that is, their creditors. In order to prevent this, creditors require banks to hold a minimum ratio of equity. Since foreign creditors demand this to a greater extent than domestic ones, banks prefer to assign deposits in the domestic country, although these are normally more expensive than

**1** The starting position of this analysis is a model by C. Große Steffen, "Business Cycles with Financial Intermediation in Emerging Economies," *SSRN eLibrary*, no. 2640121 (August 5, 2015), <http://ssrn.com/abstract=2640121>

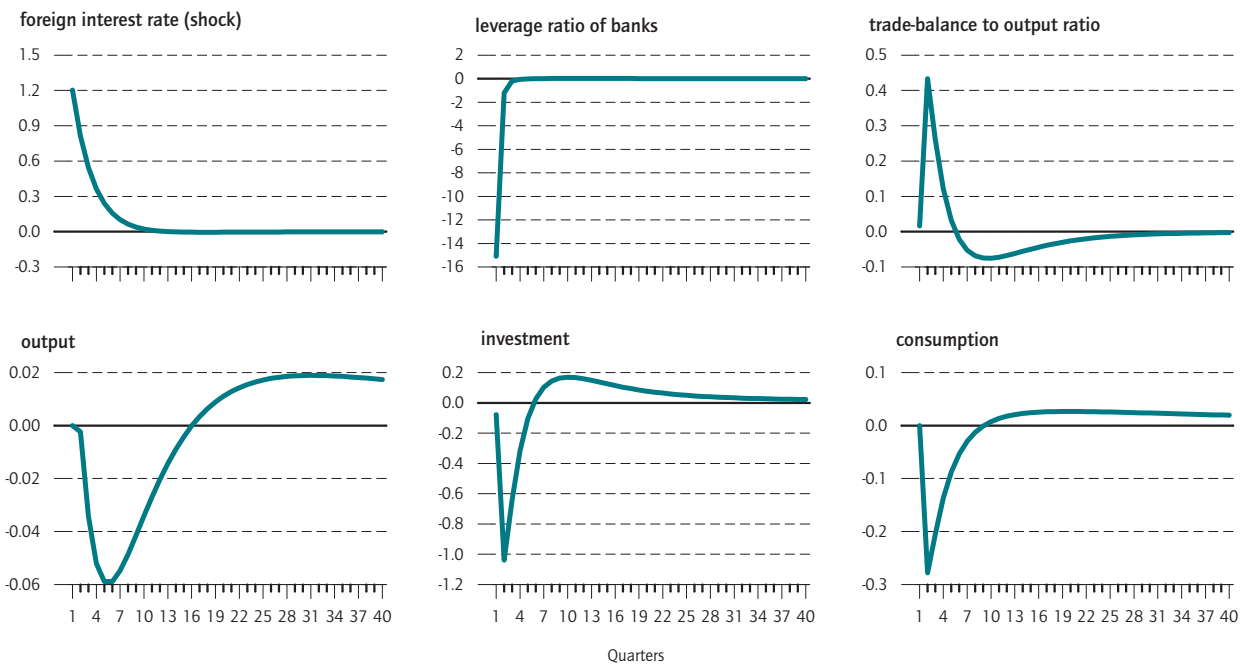
**2** J. García-Cicco, R. Pancrazi, and M. Uribe, "Real Business Cycles in Emerging Countries?," *American Economic Review* 100 (5) (2010): 2510–2531.

**3** Based on M. Gertler, N. Kiyotaki, and A. Queralto, "Financial Crises, Bank Risk Exposure and Government Financial Policy," *Journal of Monetary Economics* 59 (2012): 17–34.

Figure 1

**Effects of higher financing costs in the model (interest rate shock)**

Deviations from the long-run equilibrium level in percent



Impulse responses computed on the basis of parameters that have been estimated with Mexican data. There might be different parameters and effects for other countries.

Source: Own calculations.

those abroad.<sup>4</sup> This allows them to achieve a higher level of debt and yet still comply with the minimum capital ratio. The parameters of the model are estimated using Mexican data from 1994 to 2014.

Interest rate reversal in the model

The model allows us to analyze a US interest rate lift-off through a one-off interest rate hike which banks in emerging markets must pay to finance their assets (*interest rate shock*) (see figure 1). These are compared to the side effects of a lift-off in interest rates which would occur if international investors changed their risk behavior. In the model, this is simulated by not allowing banks in emerging markets to borrow as much overall since investors are less willing to bear the accompanying risk of high debt levels (*financial shock*) (see figure 2).

<sup>4</sup> In accordance with the assumption of a small open economy, the foreign interest rate is determined exogenously. However, domestic deposit rates are explained in the model and, after being calibrated in line with Mexican data, are higher than the foreign interest rate.

Effects

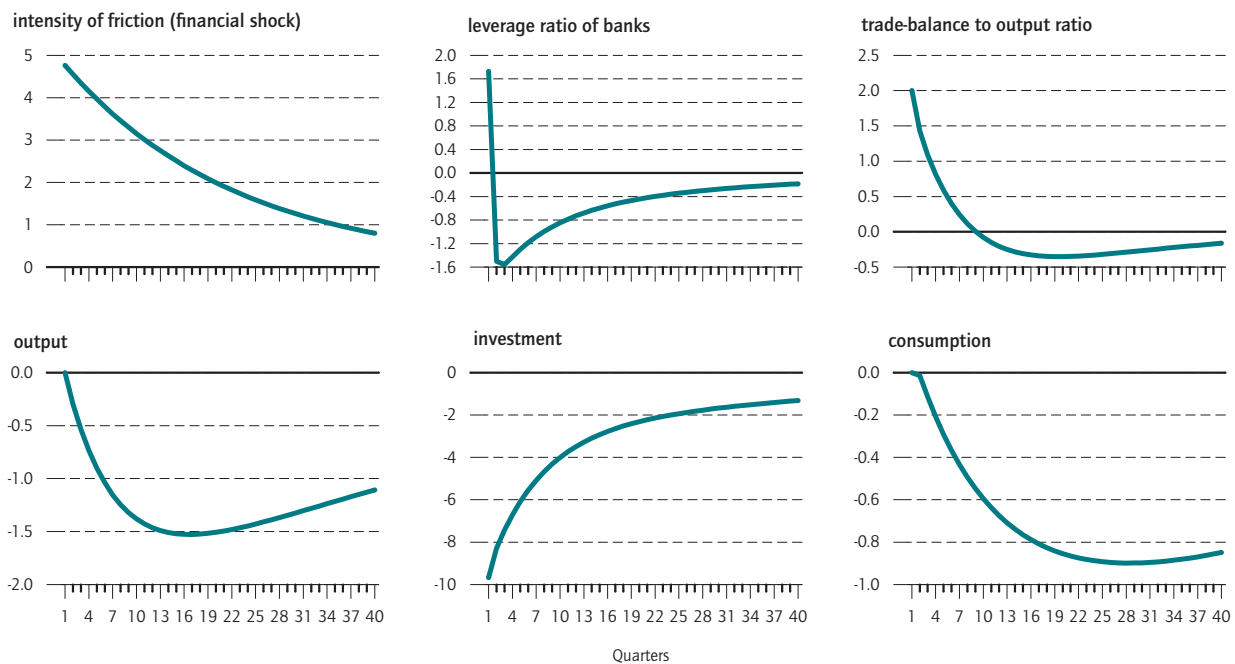
It would appear that the interest rate shock accompanying a US interest rate lift-off is, in itself, not likely to cause any appreciable quantitative effects. Although the banks reduce their leverage and provide less credit, which reduces investment and private consumption, this also decreases the current account deficit. The overall effect on economic production, however, remains extremely moderate.

Rather, the question arises as to whether the reversal in interest rates would also trigger a financial shock—possibly because the banks are now more risk averse. According to the model analysis, this would have far more vigorous quantitative effects as a result: foreign capital would be withdrawn on a much larger scale, resulting in investment and consumption taking a bigger hit. In addition, the shock would wear off more slowly, meaning that the knock-on effects would last longer. The overall impact on production would be considerably greater than that of the rate hike itself due to the change in investor risk behavior.

Figure 2

Effects of a less risk-taking in the model (financial shock)

Deviations from the long-run equilibrium level in percent

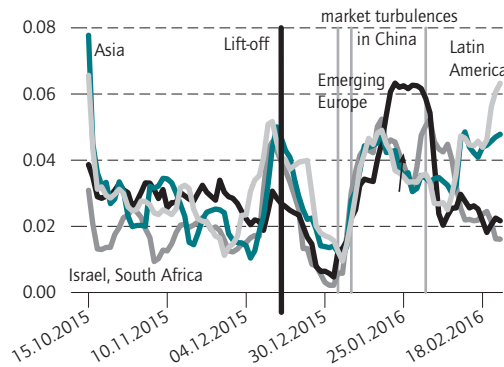


Impulse responses computed on the basis of parameters that have been estimated with Mexican data. There might be different parameters and effects for other countries.

Source: Own calculations.

Figure 5

**Volatility of sovereign CDS<sup>1</sup>**  
Standard deviation, 10-day moving averages



<sup>1</sup> As a measure for the financing costs of the public sector. Standard deviations in 10-day rolling moving averages.

Source: Datastream; Own calculations.

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Market volatility decreased following the interest rate announcement.

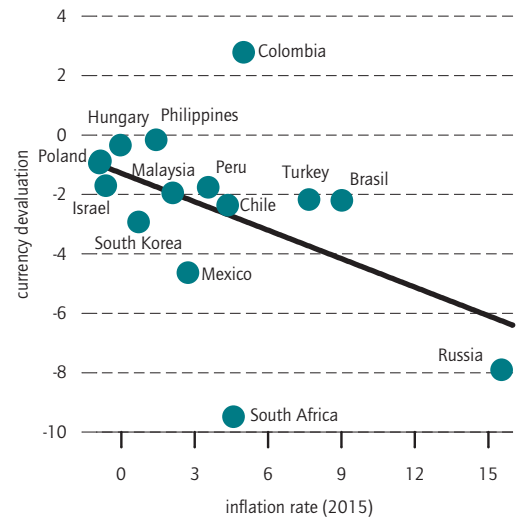
The moderate development of financing conditions for emerging countries immediately after the reversal in interest rates can also be attributed to the US Federal Reserve raising interest rates due to robust economic development in the US. A strong US economy generally has a stimulating effect on emerging markets through increased exports. An interest rate reversal primarily due to a high inflation rate would have placed a greater burden on financing conditions for emerging economies.

**Fundamentals play an essential role**

In addition to the US Federal Reserve’s communication strategy, the reaction to the US interest rate lift-off was mainly affected by economic fundamentals in emerging markets. Specifically, there is a relationship between the rate of domestic inflation and exchange rate depreciation resulting from the US Federal Reserve’s interest rate hike (see figure 6). In particular, the currencies of those countries with high rates of inflation in 2015 have been devalued on average by more than in countries with lower inflation rates. This can be explained in the following way: if the exchange rate falls, the prices of imported goods increase, fueling further inflation rises. This would in fact require a more restrictive monetary policy—which is a specific problem when the domestic economic cycle would actually require a more expansionary monetary policy stance. This currently applies to countries of Latin America, especially Mexico, Brazil, Peru, and Chile.

Figure 6

**Interplay of monetary policy<sup>1</sup>**  
In percent



<sup>1</sup> Depreciation of local currencies one month after the lift-off of US interest rates and average inflation rates 2015.

Source: Datastream; IMF; Own calculations.

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Following the US interest rate reversal, currencies in countries with higher inflation have devalued more on average.

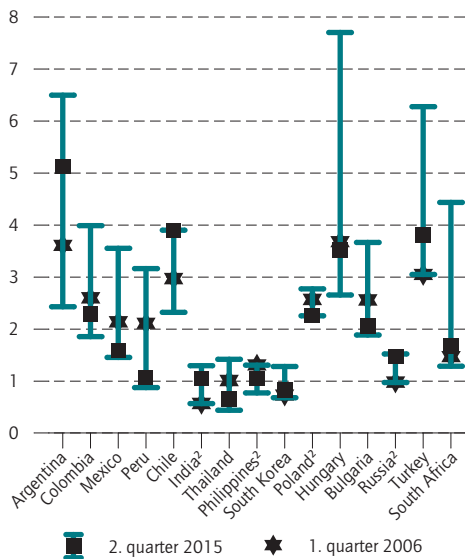
The devaluation of local currencies also plays a key role in the stability of domestic financial markets: many private and public borrowers took out loans in US dollars at the time of ultra-loose monetary policy by the US Federal Reserve, that is, in a foreign currency. This reinforced the problem of currency mismatch in many emerging markets from 2006 to 2015, for example, in Argentina, Chile, Russia and Turkey (see figure 7). If the local currency is devalued, this may lead to over-indebtedness—particularly if the revenue from projects is not also generated in a foreign currency but in the weaker local currency and the national central bank has insufficient currency reserves available. This could result in the number of depreciable and non-performing loans increasing in countries with a vulnerable financial sector to such an extent that the stability of the financial system is put at risk.

The US Federal Reserve’s ultra-loose monetary policy has induced many investors to divert their capital to emerging economies due to the higher interest rates with which these countries in some cases were able to service current account deficits. The US interest rate lift-off is expected to reduce or even invert capital inflows which could be particularly problematic for those countries with large current account deficits (see figure 8).

Figure 7

**Currency mismatch**

Multitude of foreign currency liabilities over official foreign currency reserves<sup>1</sup>



1 The bar denotes the spread of the ratio over the sample period.  
2 Later data than 2006q1.

Source: World Bank; IMF; Own calculations.

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Currency mismatches have increased since 2006, while the overall picture remains heterogeneous.

Finally, plummeting commodity prices at present are having an additional destabilizing effect on the macroeconomic conditions in emerging markets that are heavily dependent on exports of raw materials—especially crude oil. As a result, there is a difference between the Asian and Latin American emerging economies. While, as predominantly commodity-importing nations, Asian countries are benefiting from falling commodity prices, Latin American countries, as commodity exporters, also have to deal with another onerous challenge in addition to the US interest rate reversal.

**US monetary policy: what happens next?**

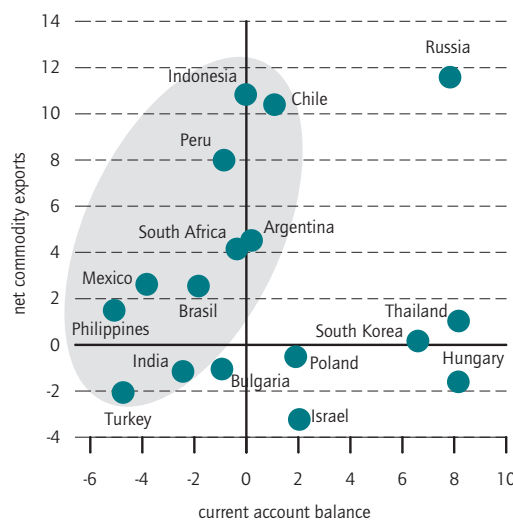
The US Federal Reserve emphasized in its announcement of the interest rate lift-off the need to carefully monitor its effects on the US economy.<sup>7</sup> Chair of the Federal Reserve Janet Yellen clarified in a press conference that it ought not be assumed the US Federal Reserve would

7 According to a news release from the US Federal Reserve, "The actual path of the federal funds rate will depend on the economic outlook as informed by incoming data."

Figure 8

**Dependence on commodity exports and the current account**

In percent of GDP



Source: IMF; Own calculations.

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In several countries (shaded area) high commodity exports are related to current account deficits.

automatically raise interest rates at regular intervals and by equal amounts.<sup>8</sup>

There are, however, some weak points in this communication strategy: developments in global financial markets are currently dominated by increased signs of a slowing economy in China. This has drastic consequences on interest rate expectations in the US: a further rise in interest rates is considered increasingly unlikely (see figure 3). Moreover, the financial markets in emerging economies are again showing a high degree of volatility since the repeated turbulence on China's stock markets early in the year (see figure 5).

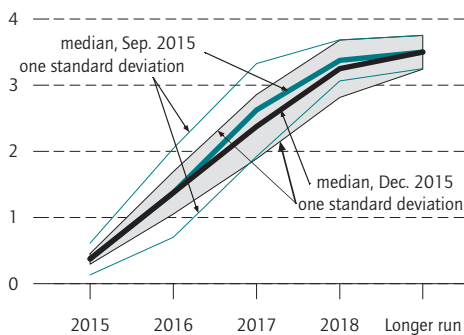
It is, therefore, highly uncertain what a further normalization of interest rates might look like. Nevertheless, the assessment of a robust labor market has proved to be accurate; some 200,000 new jobs were created in the US in

8 Janet Yellen: "I do want to emphasize that while we have said "gradual," gradual does not mean mechanical, evenly timed, equally sized interest rate changes. So that is not what the Committee means by it. My guess is that the economy will progress in a manner that is not sufficiently even that we will decide to make evenly spaced hikes." See Federal Reserve, of Chair Yellen's Press Conference, transcript, December 16, 2015, <http://www.federalreserve.gov/mediacenter/files/fomcpresconf20151216.pdf>, page 23.

Figure 9

**Fed funds rate expectations of FOMC members**

In percent



Source: Federal Reserve SEP; Own calculations.

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FOMC members' rate forecasts indicate a pronounced increase in US interest rates until the end of 2017.

January and February and the unemployment rate fell to 4.9 percent. However, the FOMC members' interest rate forecasts, according to which the majority of committee members assume US interest rates will rise throughout 2016 until they reach two percent, appear to be obsolete (see figure 9). The rapid decline of market-based interest rate forecasts in federal funds futures data would indicate this. The discrepancy between the path of monetary policy communicated by the US Federal Reserve and the market expectations holds the risk of high level of monetary policy uncertainty which—similar to the “taper tantrum” of May 2013—could unleash strong reactions in emerging markets.

The course taken by the US Federal Reserve of gradually adjusting the interest rate, which relies heavily on new information as it becomes available, is not particularly predictable for market participants. This may mean that even a relatively gradual return to normal US monetary policy could cause major reactions.<sup>9</sup> Particularly in

9 A. Alichì et al., “Avoiding Dark Corners: A Robust Monetary Policy Framework for the United States,” *IMF Working Paper* WP/15/134 (2015).

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JEL: E5,F3, F4

Keywords: US monetary policy; Emerging markets

an environment of increasing volatility in financial markets, it would be desirable if the actions of the US Federal Reserve were more predictable and thus helped calm the markets. Proposals on this issue have been around for quite some time advocating complementing the Fed's communication strategy, for example through the publication of a monetary policy report<sup>10</sup>—and now would be a good time to implement them.

**Conclusion**

In December 2015, the US Federal Reserve announced an interest rate hike, marking the phasing-out of its ultra-loose monetary policy. One concern ahead of this decision was that it might have a negative impact on emerging economies in particular. However, the scenario of a sudden reversal of capital flows and a sell-off of assets in emerging markets has not yet occurred. A major reason for this was that the US Federal Reserve announced its intentions well in advance, allowing financial markets to be sufficiently prepared for the interest rate reversal.

Whether or not the Federal Reserve's decision is only the first step toward normalizing monetary policy, there will be more to come, even if they are currently being postponed. In order to minimize the risk of negative consequences for emerging economies due to turbulence in the financial markets, it would be preferable for the US Federal Reserve to complement its communication strategy. In some regions, progressive adaptation to the changed monetary conditions in the US is already visible and regionally supported by net capital outflows. Emerging countries should therefore be prepared for a change in the capital markets, which is likely to result in more volatile financial markets and deteriorating financing conditions. This includes, among other things, strengthening private and public balance sheets by accumulating capital buffers. Micro- and macro-prudential regulatory measures which are likely to moderately curb credit growth should be implemented where imbalances and vulnerabilities exist. A flexible exchange rate and stable inflation rates would also be conducive for macroeconomic adjustment along the upcoming tightening cycle of US monetary policy.

10 C. Plosser, “Systematic Monetary Policy and Communication,” presented by Charles I. Plosser, President and CEO, Federal Reserve Bank of Philadelphia, at the Economic Club of New York, June 24, 2014.



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