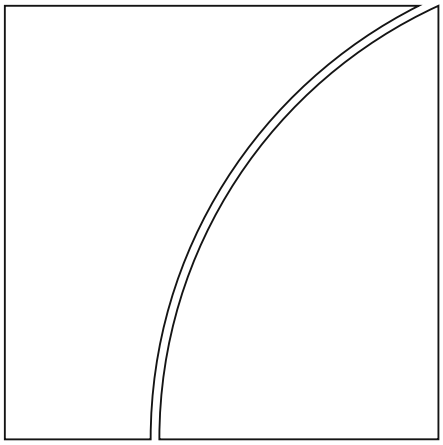

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The global long-term interest rate, financial risks and policy choices in EMEs

Philip Turner*

Abstract

The global long-term interest rate now matters much more for the monetary policy choices facing emerging market economies than a decade ago. The low or negative term premium in the yield curve in the advanced economies from mid-2010 has pushed international investors into EM local bond markets: by lowering local long rates, this has considerably eased monetary conditions in the emerging markets. It has also encouraged much increased foreign currency borrowing in international bond markets by emerging market corporations, much of it by affiliates offshore. These developments strengthen the feedback effects between bond and foreign exchange markets. They also have significant implications for local banking systems.

Keywords: Term premium, international corporate bonds, monetary policy triangle, currency mismatches

JEL classification: E43, E51, F30

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Contents

Introduction

The monetary and financial stability policy choices facing emerging market economies (EMEs) have been transformed by their greater access to bond market financing. During the 2000s, many EM governments became able to issue – and to sell to non-residents – long-term debt denominated in their own currency rather than in dollars. The development of a market-driven long-term interest rate has far-reaching implications – for both monetary policy and financial stability.

By borrowing in their own currency, governments avoided the currency mismatch risks created by heavy dollar (or other foreign currency) borrowing in previous decades. But over the last few years, EM corporations – many of which could not easily issue in their home markets – have increasingly replaced EM sovereigns in international bond markets. The massive expansion in EM corporate issuance in international bond markets in the past few years has probably increased forex risk exposures.

This expansion also means that indicators of vulnerability that are based only on international bank credit expansion do not fully capture financial system risks. As a recent Bank of England paper has shown, gross external debt – including that of corporations – has proved to be a better indicator of vulnerability than external banking debt considered on its own (Al-Saffar et al, 2013).[1] And a new IMF paper has developed a measure of global liquidity that incorporates the financial activities of non-financial corporations which straddle borders (Chung et al, 2014).

1. Three key trends

EM corporate borrowing on international bond markets

Since the financial crisis, EM borrowers have relied more on international bond markets and less on international banks.[2] Table A1 shows bank borrowing and bond issuance based on the **nationality** of the issuer. This definition includes issuance by overseas subsidiaries of the corporation – including its financing vehicles established in financial centres offshore. Note that this is different from the bond flows in the balance of payments statistics (or bond debt in the external debt statistics), which are compiled on a **residence** basis. It is also a better measure of the risk exposures of the borrower: the consolidated balance sheet of an international firm best measures its vulnerabilities.

[1] Hawkins and Klau (2000), reviewing indicators developed by the BIS in the 1990s to predict crises in emerging market economies, also found that it was countries with high external debt to GDP that were more prone to currency crises.

[2] It is possible to compare international bond finance with lending by international banks only at a very aggregate level. Because there is only a bank versus non-bank split in the counterparties reported in the international banking statistics, it is not possible to exclude governments. Note also that not all EMEs report their banks' international lending: neither China nor Saudi Arabia report at present and reports by some other EMEs are incomplete.

External financing of EMs: banks versus non-banks

$ billion over the period 2010–2013 H1 Table 1

	International bank borrowing	International bonds
Total	862.5	991.3
Banks	545.1	286.9
Non-banks	317.3	704.5

Source: Table A1.

Table 1 summarises the emerging markets aggregate. During the past 3½ years (that is, from 2010 to the first half of 2013 inclusive), EM borrowers have raised about $990 billion on international bond markets. Non-banks accounted for more than $700 billion. One simple summary of the greater importance of financing of non-banks by international bonds is that it is twice as large as cross-border lending by international banks.[3] But international banks are still heavily engaged in interbank business ($545 billion).

International EM corporate bond issuance[1]

By nationality of issuer Table 2

	2010	2011	2012	2013 H1	2013 H2	
	$ bn				$ bn	% change[2]
Total[3,4]	**151.5**	**167.1**	**284.0**	**185.3**	**150.3**	**55.2**
Banks	47.5	49.1	132.8	57.5	47.9	76.0
Non-banks	104.0	117.9	151.1	127.8	102.5	47.2
Other financials	50.7	54.1	80.1	76.0	61.6	48.6
Non-financials	53.2	63.9	71.0	51.9	40.8	45.5
China	23.6	42.8	48.3	50.6	46.8	133.8
India	3.4	6.3	5.2	11.3	5.3	38.6
Korea	7.7	18.6	13.8	-0.1	20.8	21.2
Other Asia[4]	15.3	2.2	27.4	28.2	18.7	54.4
Brazil	33.8	33.9	54.9	23.1	0.5	49.6
Mexico	7.5	16.6	21.9	6.5	18.2	66.2
Other Latin America	12.1	15.8	13.0	14.3	11.9	54.4
Russia	20.7	6.2	51.0	20.1	7.6	60.1
South Africa	4.9	5.8	3.7	0.1	3.3	18.5
Turkey	2.6	1.8	6.3	5.6	3.8	108.5
Other Europe[3,5]	5.6	2.6	9.4	6.5	5.3	49.1
Memorandum:						
Hong Kong SAR	7.8	0.6	26.6	7.1	-0.6	41.0
Singapore	3.9	8.9	13.5	8.7	7.1	48.4

Note: These estimates reflect data as available at end-January 2014.

[1] Net issues of international debt securities (bonds, medium term notes and money market instruments placed on foreign and international markets), corporations, in all maturities, by nationality of issuer. [2] Over outstanding amount at end-2011. [3] Including euro area member states Slovenia, Slovakia and Estonia. [4] Excluding international banking centres Hong Kong SAR, Macao SAR and Singapore. [5] Excluding Russia and Turkey.

Source: Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; BIS calculations

[3] Not quite comparable since lending by international banks, because of data limitations, does not include their lending to affiliates of EM corporations based in offshore markets.

Table 2 summarises international bond issuance excluding government and the central bank – and so corresponds approximately to the corporate sector. Some corporations, however, are wholly or partly owned by government so this is not equivalent to the private sector: some Brazilian and Chinese state-owned enterprises have been prominent issuers. Over the period 2010 to the first half of 2013 inclusive, corporate net issuance on a **nationality** basis amounted to $788 billion (of which, about $500 billion by non-banks). Despite turbulence in global bond markets from May 2013, net bond issuance remained quite strong in the second half of 2013.

Much of this borrowing was through these companies' overseas subsidiaries – including their offshore financing vehicles – rather than by entities in the countries where these firms are headquartered. This latter measure (ie residence-based) of bond issuance is shown in Table 3. The total from 2010 to the first half of 2013 amounted to about $410 billion (Table 3). Hence 48% of EME corporate issuance on a nationality definition during this period was through their overseas affiliates. (See the further analysis in McCauley et al, 2013).[4] To underline a point made earlier: borrowing through overseas subsidiaries are normally *not* included in balance-of-payments measures of capital inflows, which capture residence-based transactions.

International EM corporate bond issuance[1]

By residence of issuer Table 3

	2010	2011	2012	2013 H1	2013 H2	
	$ bn				$ bn	% change[2]
Total[3,4]	**80.4**	**98.9**	**143.5**	**85.7**	**75.6**	**45.1**
Banks	17.4	28.3	61.8	33.4	19.7	54.0
Non-banks	62.9	70.6	81.6	52.2	56.0	41.1
Other financials	12.4	13.1	20.3	10.2	14.8	37.9
Non-financials	50.6	57.5	61.3	42.0	41.1	42.2

Note: These estimates reflect data as available at end-January 2014.

[1] Net issues of international debt securities (bonds, medium term notes and money market instruments placed on foreign and international markets), corporations, in all maturities, by residence of issuer. [2] Over outstanding amount at end-2011. [3] Including euro area member states Slovenia, Slovakia and Estonia. [4] Excluding international banking centres Hong Kong SAR, Macao SAR and Singapore.

Source: Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; BIS calculations

Have the corporations that issued long-term foreign currency bonds used the proceeds to repay (usually short-term) foreign currency bank loans? If so, their currency mismatches would not have worsened and their short-term foreign currency liabilities would have been reduced. In the absence of good corporate data across countries, it is difficult to know. But the cross-country pattern of bond issuance provides no evidence of such a reassuring substitution – the correlation between the percentage change in international bond debt and that in cross-border bank debt from end-December 2010 to end-June 2013 is positive, not negative. Is it increased exports that have driven the increase in international bond issuance? The

[4] Note that most measures of currency mismatches (eg those developed by Morris Goldstein and me) and of gross external debt include only residence-based international bond issuance – and do not include bond issuance through offshore affiliates.

cross-country answer is again "no" – there is no relation across countries between the increase in international bond issuance and the increase in exports.[5] On the face of it, then, currency exposures of EM corporates *have* increased.

As they have borrowed more, EME corporations have also acquired assets on a large scale. The value of assets of EM corporations is often harder to measure than liabilities, and off-balance-sheet exposures escape detection. In some instances, they may have used cheap dollar funding to finance the acquisition of *domestic* assets: some EM property developers (eg in China) have raised dollars abroad in order to finance projects at home, creating currency mismatches. Acquiring *foreign* assets also entails risks. Because a corporation's foreign liabilities take a form different than its foreign assets, external risk exposures increase even if its net external liability position remains unchanged (Turner, 2013b). The opacity of such exposures – on the asset as well as on the liability side – is a big challenge for financial stability policies.[6]

Issuance by EM non-bank corporations on such a scale, and a possible "stop" at some point in the future, could affect the domestic banking systems in EMEs through at least three channels:

i. The first arises because **EM corporations have typically borrowed from local banks**. When extremely easy external financing conditions allow such firms to borrow cheaply from abroad, local banks have to look for other customers – so that domestic lending conditions facing most local borrowers actually ease more than the expansion in total domestic bank credit aggregates suggest. A tightening in external financing conditions would reverse this … small firms might then find it harder to get finance even if total domestic bank credit continues to rise.

ii. A second channel works through **wholesale funding markets** for banks. When EM corporations are awash with cash thanks to easy external financing conditions, they will increase their wholesale deposits with local banks.[7] This is also reversible. Such deposits are flighty – and a worsening of external financing conditions can therefore make it more difficult for domestic banks to fund themselves at home.

    There is extensive evidence, drawn from many different contexts, that the deposits of non-financial corporations are indeed more procyclical than other bank deposits.[8] Because changes in global non-financial deposits

[5] The regression over 19 large EMEs was

$$\log(IB) = 0.33 + 0.62 \log(BANK) - 0.26 \log(X) \qquad \text{Adj } R^2 = 0.32$$
$$\qquad\quad (1.9) \quad (2.7) \qquad\qquad (0.8)$$

where (all variables as % changes from 2010):
IB = International bond issuance, by nationality
BANK = External bank loans by BIS reporting banks
X = Dollar value of total exports

[6] In addition, some EM entities may issue foreign debt for idiosyncratic reasons such as: the evasion of local borrowing limits; tax or regulatory arbitrage and so on. This may be a rational choice for the individual firm but can create dangerous risk exposures for the country as a whole.

[7] Perhaps via short-term instruments in the shadow banking system.

[8] See, for instance, Chung et al (2014) for evidence from the EMEs and Hattori et al (2009) for evidence from Japan.

predict growth and trade, Shin (2013) argues that they deserve special attention in the construction of global monetary or liquidity aggregates.

iii. The third link is through the **hedging of their forex or maturity exposures**, often via derivative contracts with local banks. Even if the local banks hedge their forex exposures with banks overseas, they still face the risk that local corporations will not be able to meet their side of the contract. The upshot is that the domestic bank that thinks it has managed its risks, will find itself, if its corporate clients fail, with unhedged exposures vis-à-vis foreign banks.

As a result of these linkages, the central bank may face greater instability in its domestic interbank market whenever large corporations find it harder to finance themselves abroad. This can arise even if domestic macroeconomic conditions have not changed. The central bank that enjoys credibility could of course use local monetary policy to offset such destabilising forces. It could use its policy rate to resist any incipient rise in local money market rates; and it could relax its liquidity policies. But if corporate exposures are very large, the central bank may find itself contemplating measures of a scale or nature that might undermine its credibility.

Greater sensitivity to global long-term rates

The deeper integration of EMEs into global debt markets has made EM bond markets more sensitive to bond market developments in the advanced economies. A crucial change has been a transformation of local currency debt markets in EMEs over the past decade or so. The proportion of government debt denominated in local currency now dwarfs that of denominated in foreign currency. It has also become much easier for EM corporations to borrow in capital markets, local and foreign. World Bank estimates put total local currency debt – that is, private as well as government – in the emerging markets by the end of 2012, at $9.1 trillion, compared with $4.9 trillion at the end of 2008 (World Bank, 2013).

Local currency bond markets have, then, become much larger. They have also grown longer in maturity, and they are now, most important, closely integrated with global bond markets. Foreign holdings of EM local currency bonds have risen – the World Bank estimates that non-residents now hold 26.6% or more of local currency bonds, compared with 12.7% in 2008. There is clear statistical evidence that, since 2005, EM local currency bond yields have moved closely with US yields – which was not the case earlier.[9]

Declining term premium on 10-year US Treasuries

Global bond markets over the past decade have been dominated by a phenomenon that is not fully understood – the decline in the term premium in 10-year US Treasuries (Graph 1).[10] Before 2005, most would have expected the term premium to

[9] See Miyajima et al (2012) and pp 18–20 of Turner (2013a) for evidence that EM bond yields have moved much more closely with US yields during recent years than before 2005.

[10] Note that the term premium is different from the term spread (that is, the difference between the 10-year yield and the short-term interest rate). Its calculation requires the computation of expected future short-term rates, and measures the premium an investor would earn holding a 10-year bond over the returns from investing in a succession of short-term paper. The term premium is, therefore,

be between 100 and 200 basis points, where it had been for much of the 1990s and early 2000s. Since 2005 – that is, even *before* the recent crisis – it has generally been below 50 basis points.

Yields on 10-year US Treasuries

In per cent

Graph 1

[1] Sum of inflation and real yield risk premia in the 10-year US Treasury yield. These are calculated using the BIS term structure model.

Sources: Bloomberg; national data; BIS calculations.

Whatever the causes of this extraordinary and quite long-standing shift, the impact on long-term local currency government bond yields in EMEs has been remarkable. The average nominal long-term yield for major EM countries (that is, those countries with floating exchange rates and genuine long-term debt markets included in Graph 3 on page 13) fell from about 8% at the beginning of 2005 to around 5% by May 2013. Using the year-on-year change in consumer prices, this amounted to a real long-term interest rate of just 1%.

The borrowing costs of EM governments have therefore been greatly reduced; and holders of government bonds have enjoyed positive wealth effects. McCauley et al (2014) found that the term premium compression in US Treasuries has significantly stimulated offshore dollar credit (extended via bond markets, rather than by banks as in the past) in the post-crisis period. Low real long-term rates for some years must have had a pervasive impact on fixed investment and on financing decisions in EMEs.[11]

For about a year from early-2012, the US Treasury term premium was at *minus* 100 basis points. Then in May 2013, bond markets world-wide began a major correction. There was a sustained rise in global bond yields. By late 2013, the term premium in US Treasuries had moved up to around zero. This substantial rise in long-term rates happened without any change in the policy rate in the United States and in the face of assurances by the Federal Reserve of no near-term rise. It was not triggered by a rise in the policy rate – that is yet to come. What happened

a model-based construct based on market readings of expectations about future variables. When markets are illiquid or very volatile (eg around the failure of Lehman), there is a lot of noise in these readings. What is shown in Graph 1 is a BIS construction – but the broad trend is very similar to Federal Reserve calculations (Bernanke, 2013).

[11] The size of such impacts will depend in part on the reference interest rate in bank loans.

was that expectations about future Federal Reserve bond purchases changed. Graph 1 shows that the 5-year forward 10-year yield on US Treasuries – which should be free of changes in expectations about near-term short-term rates – rose from around 3½% in May to 4½% in late August. This is still below the 5% that the standard explanatory factors such as inflation expectations, trend GDP growth, expected future government debt and Federal Reserve purchases would suggest.[12] Then, when the FOMC decided not to taper in September, this yield fell back. In the past few months, it has hovered between 4% and 4½%.

2. The long-term interest rate and monetary conditions

It has long been recognised that monetary conditions in an open economy change not only when the short-term policy rate changes, but also when the exchange rate changes. Some central banks have even developed indices of monetary conditions based on summing these two variables.

Whether formalised in such a way or not, the exchange rate matters for monetary policy decisions in EMEs. Over much of the pre-crisis period, very low policy rates in the advanced economies led to strong exchange rate appreciation pressures in many EMEs. As currency appreciation lowers aggregate demand and the CPI, many felt that any domestic need to raise the local policy rate in EMEs had been eased by stronger exchange rates.

The new factor in many EMEs over the past decade is the greater importance of domestic long-term interest rate. This is strongly influenced by long-term interest rates in the main financial centres, notably the United States. And the long-term rate has recently become an important intermediate target of central banks in the advanced economies. Not only the Federal Reserve, but also the Bank of Japan and the Bank of England have all purchased government bonds on a massive scale to lower the long-term interest rate, and so stimulate aggregate demand. The recent finding of Gertler and Karadi (2013) that the changes in the term premium have come to play a significant role in monetary policy transmission underline the importance of the long-term rate.

This means that monetary conditions could be characterised along at least three dimensions:

i. Short-term policy rate;

ii. Exchange rate;

iii. Long-term interest rate on government bonds.

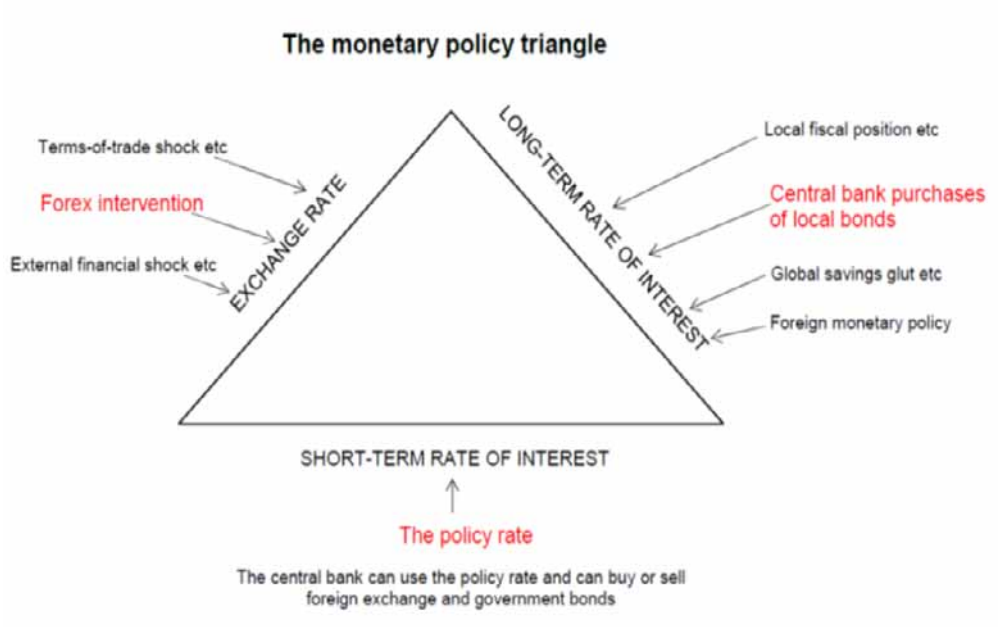
The relative importance of these dimensions is not constant over time. In normal circumstances, the policy rate would be pre-eminent. In strained macroeconomic or market circumstances, however, the exchange rate or the long-term interest rate can become so volatile, or move so far from long-term equilibrium, that these two dimensions can be decisive. For instance, there is clear evidence that overvalued exchange rates during cyclical booms increases the risk of financial crisis

[12] Such an equation is reported in Chadha et al (2013).

(Gourinchas and Obstfeld, 2012). Greater leverage has a similar effect. It is often in such circumstances that the costs of policy errors are greater.

The lesson of policies over the past (unusual?) decade is that the central bank balance sheet can be used in attempts to influence both (ii) and (iii). Hence some element of "monetary policy target" has been added to both the exchange rate and the benchmark long-term rate – although how effectively either can be controlled is an open question. There is, in short, a **monetary policy triangle**.[13] Graph 2 illustrates this triangle.

Graph 2



If this characterisation is correct, it would have three implications. The first one is very well known. It is that any **quantification of the stance of monetary policy must consider all three variables**. Hence the impact of a higher policy rate may on occasions be outweighed by a lower long-term interest rate driven by foreign, not domestic, conditions. This may well mean that the monetary policy stance in many EMEs has been much looser over the past two years (that is, before May 2013) than looking at just the policy rate would suggest – because of the substantial fall in real long-term rates.

If an indicator including both the short-term rate and the long-term rate indicates no change in the overall stance of policy – meaning in its impact on aggregate demand – could the central banks then relax? The answer is "no". The reason is that the policy rate and the long-term rate affect different components of real GDP. A higher policy rate lowers domestic consumption while a lower long-term rate may stimulate house building and other long-term investment projects. Similarly a higher interest rate lowers domestic demand while a higher exchange rate lowers external demand. Central banks and governments will not be indifferent between these different outcomes.

[13] For simplicity, the issues of changes in the *private sector's* credit spread or of its quantitative access to credit are left to one side.

The second implication is that **the stance of monetary policy becomes more uncertain**. The central bank may influence but cannot precisely determine either the long-term rate or the exchange rate. Sharp market-driven movements in either may be regarded as transitory so the central bank might prefer to wait before reacting. Or the central bank may wish to react pre-emptively if market expectations are extrapolative – and expectations often become extrapolative under heightened uncertainty.

A further complexity is that expectations about the exchange rate and the long-term interest rate are often jointly determined: expectations of currency depreciation, for instance, may also drive down the prices of local currency bonds. Such joint determination will be particularly evident after financial shocks – domestic or foreign. Graph 3 shows a simple average of movements in bond yields and in the exchange rate of several major EMEs. Long-term interest rates in major EMEs fell during 2011 and 2012. Then the FOMC statement of 1 May 2013 led bond markets worldwide to fall. Market volatility rose sharply. There was also a near simultaneous decline in the exchange rate of many EM currencies against the dollar.

Yields of local EM government bonds and the exchange rates[1] Graph 3

The black vertical lines correspond to 1 May 2013 (FOMC statement changing the wording on asset purchases).

[1] All 3 graphs show the simple average of Brazil, India, Indonesia, Malaysia, Mexico, the Philippines, Poland, South Africa and Turkey. [2] Yields on 5-year local currency bonds. [3] 180-day moving standard deviation of daily changes in yields. [4] In dollars per unit of local currency.

Sources: Bloomberg; national data; BIS calculations.

The source of market shocks also matters: for instance, a currency depreciation coming from a decline in export prices stabilises real income. But a sharp depreciation coming from a sudden-stop financial shock may not be so welcome on monetary policy grounds. Section 1 above, for instance, argued that a change in external financial conditions could force EM corporations to repay maturing foreign currency bonds issued abroad not by floating new foreign debt but by instead borrowing local currency from domestic banks (or drawing down their local bank deposits). Such refinancing decisions, particularly if sudden, could lead to a sharp drop of the exchange rate even if the country's current account position has not changed. Equally, increased worries about currency depreciation will lead corporations to substitute local currency for foreign currency debt.

Current pressures in both forex and bond markets in many EMEs illustrate the powerful feedback effects between bond and forex market. And they underline the

complexity of the policy dilemmas that arise. Depending on how expectations change, an increase in the policy rate has an ambiguous effect on such markets. And the impact of central bank balance sheet policies with respect to forex markets (or to government bond markets) is itself uncertain. Is the impact driven by portfolio balance effects (eg as the central bank alters the relative supply of short-dated and long-dated debt) or by signalling (eg forward guidance)? This remains an open question. A final complication is that, during episodes of market turbulence, the aggregate demand effects of exchange rate changes (currency depreciation providing stimulus) and of bond market changes (higher yields curbing demand) will be of opposite sign. All this uncertainty makes central bank decisions (and their communication) much harder.

The third implication is that **monetary policy independence is weakened**. Without capital controls, and assuming the country's credit standing is constant, the long-term rate in the local currency will be heavily influenced by developments in dollar bond markets. There is a loss of independence irrespective of the country's choice of exchange rate regime.[14] This conclusion is not new. Guillermo Calvo and others demonstrated in the early 1990s the importance of US interest rates for EM capital flows (Calvo, 2013). In the 1980s and early 1990s, it was *short-term* dollar rates – the funding and usually lending rate of international banks – that dominated because international bank lending was a key component of capital flows. Since the recent crisis, however, capital flows via bond markets have become more important – making *long-term* dollar rates crucial (McCauley et al, 2014).

As Chung et al (2014) argue, this fundamental role of dollar interest rates in international banking and capital markets explains why the choice of numeraire currency matters for the construction of global monetary or liquidity aggregates. A rise in dollar interest rates tends to drive up the foreign currency value of the dollar, reducing the dollar value of non-dollar local currency aggregates. Hence Chung et al (2014) find that it is their dollar global liquidity variable that is strongly positively correlated with real GDP growth.[15]

Arguments in favour of capital controls have always been controversial. Tucker (2014) reports that the Draghi Committee in 2000 agonised about whether to include in their executive summary the conclusion in the main text that "… in some circumstances, certain controls on inflows could serve prudential purposes and their use could, therefore, be considered." It decided to leave this sentence out of the executive summary. In 2009, a BIS Working Group agreed that capital controls could, "at least in the short-run, help monetary policy by moderating the size or the volatility of inflows and by modifying their composition in favour of more stable flows".[16] But what is entirely new in the current environment is that global long-term rates have been driven very low for a prolonged period of time. How controls would work in practice in the face of such a long-sustained anomaly in global financial markets – a zero or even negative term premium – is of course quite another story.

[14] See Rey (2013) for a recent stimulating exposition of this argument. Her emphasis, however, is on external *cyclical* elements (centred on movements in the VIX) but this paper underlines the *trend-like* movement in the long-term interest rate.

[15] See especially pages 12–20 of Chung et al (2014) for a detailed discussion of this evidence.

[16] See BIS (2009). The Working Group was chaired by Rakesh Mohan, then Deputy Governor of the Reserve Bank of India.

3. The long-term interest rate and financial stability

The long-term interest rate is also fundamental for financial stability. It is the foundation stone of the financial system and must be a key focus of any **macroprudential policy orientation**. As with exchange rate flexibility, market-driven volatility in the long-term rate serves to deter investors from building imprudent maturity exposures.

In the absence of sovereign default risk, the long-term interest rate on government bonds defines the credit risk-free maturity transformation over time. It provides the basic discount rate, and is thus central to the pricing of all long-term assets. When the long-term rate is "too low", the prices of long-term assets can rise "too high". In particular, it influences the market value of assets that potential borrowers have as collateral for getting new loans.

A negative term premium can become a systemic concern if sustained for very long. Households individually (and via their unregulated collective savings vehicles) may decide not to commit their savings to longer-term instruments. They may calculate that they can earn more by investing in, and rolling over, short-dated papers. But prudent borrowers will want to finance fixed capital formation (that is, in long-term physical assets) with long-term debt rather than short-term debt. Hence the financial system will be called upon, one way or the other, to bridge the wider gap between savers' preference for short-term assets and borrowers' preference for long-term debt. The terms on which financial intermediaries provide maturity transformation will influence the term premium. Exactly which bits of the financial system are doing maturity transformation now, we do not really know. There is not even an agreed, simple metric for measuring how much a particular bank or insurance company is doing. Nor is it known how much maturity transformation is done within a country, and how much done abroad.

A word of warning for the EMEs is that the severity of the recent financial crisis in the advanced economies owed much to excessive but largely hidden maturity transformation by firms that were ill-equipped for such a function. Some financial products masked true maturity risks. Many investors took highly leveraged positions in long-term assets with short-term finance. Before the last crisis, unusually low volatility in bond markets and a positive term spread seemed to offer investors an almost-assured profit from borrowing short to buy bonds. Central banks in EMEs will therefore have to think very carefully about the size of the term premium in the yield curve for their own government bonds, about the desirable degree of volatility in these markets and about how maturity transformation in their financial system is changing.

Conclusion

In recent months, many EMEs have grappled with a sharp simultaneous fall in their currency and in the prices of their government bonds. Graph 3 on page 13 shows the considerable swings in EM bond yields during 2013 – the sharp initial jump in yields during mid-year, the partial reversal after the Federal Reserve's decision in September not to reduce their monthly bond purchases and the renewed rise towards the end of the year. At the same time, EM currencies have fallen sharply against the dollar. Foreign investors holding EM bonds have been reminded once

again how exposed they are when global financial conditions change – even when the economic circumstances in the EME itself remain constant. And some EM corporate borrowers reportedly struggled to cope with currency mismatches as their domestic currencies fell just as bond financing costs jumped (see, eg, El-Erian, 2014, Wigglesworth, 2014, and World Bank, 2014).

This paper argues that movements in US long-term interest rates, which is the global benchmark, can have major implications for both monetary policy and financial stability in EMEs. The long period of declining long-term interest rates at the global level is over. At some point over the next few years, central banks in the advanced economies will both increase short-term interest rates and reduce their holdings of government and other bonds. How this policy shift will unfold is not known, and uncertainty about the policy path could unsettle global bond markets. Downward pressures on some EM currencies could be accentuated, increasing the local currency cost of servicing dollar debt. Higher long-term rates, currency depreciation and more volatile markets could make even more difficult the choices that EM central banks face on their policy rate, on the exchange rate, on the long-term interest rate and on the best use of their balance sheet.

The focus of this paper is on price variables, notably interest rates and the exchange rate. Chung et al (2014) draw similar conclusions from their analysis of the corresponding quantity variables. They show that their global liquidity variable which takes account of the balance sheets of non-financial corporations – not just the usual banking aggregates – deepens our understanding of vulnerability to financial crises. The present paper argues that a large rise in borrowing by EM non-financial corporations on international capital markets over the past three to four years has also indirectly eased local bank lending conditions for other borrowers at home. This link merits close attention.

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Annex

External financing of emerging economies

Bonds by nationality of issuer — Table A1

	2010		2011		2012		2013 H1		2013 H2	
	Bank lending[1]	Bonds[2]	Bank lending[1]	Bonds[2]	Bank lending[1]	Bonds[2]	Bank lending[1]	Bonds[2]	Bonds[2]	
	$ bn								$ bn	% change[3]
Total[4,5]	**319.1**	**207.7**	**224.2**	**214.5**	**46.3**	**371.2**	**272.8**	**197.9**	**203.4**	**44.6**
Banks	247.4	47.5	110.0	49.1	8.3	132.8	179.3	57.5	47.9	76.0
Non-banks	71.7	160.3	114.2	165.4	38.0	238.4	93.4	140.5	155.5	37.7
China	128.0	24.8	121.3	44.9	32.2	54.7	178.2	50.6	47.9	132.7
India	40.6	3.4	20.9	6.3	22.0	5.2	0.7	11.3	5.3	38.6
Korea	–9.2	7.7	9.4	18.6	–11.5	13.8	8.4	-1.1	21.7	20.2
Other Asia[5]	68.0	22.9	28.2	7.1	29.7	37.7	41.6	30.0	20.7	43.5
Brazil	50.8	33.3	41.6	34.4	–2.1	57.5	9.2	23.4	5.9	40.5
Mexico	14.0	9.8	2.5	18.0	–0.5	25.4	–2.9	6.9	22.9	46.8
Other Latin America	14.8	20.4	26.5	24.3	11.7	17.6	5.6	16.6	16.0	23.7
Russia	–4.3	25.0	14.6	7.6	0.9	62.7	29.3	19.4	13.9	59.1
South Africa	2.0	6.9	–3.5	6.6	3.8	4.2	0.5	-1.6	5.3	16.2
Turkey	16.7	6.5	2.6	4.0	6.6	13.2	14.5	7.3	8.0	45.8
Other Europe[4,6]	–24.4	24.5	–32.8	22.6	–38.3	44.4	–11.7	12.3	20.3	41.9
Memorandum:										
Hong Kong SAR	103.5	7.8	42.2	0.6	–6.7	26.6	16.1	7.1	-0.6	40.4
Singapore	63.6	3.9	37.1	8.9	47.4	13.5	–13.0	8.7	7.1	48.4

Note: These estimates reflect international banking data as published in December 2013 and international bond data as available at end-January 2014.

[1] External loans of BIS reporting banks vis-à-vis individual countries, estimated exchange rate adjusted changes. [2] Net issues of international debt securities, all issuers, in all maturities, by nationality of issuer. [3] Over outstanding amount at end-2011. [4] Including euro area member states Slovenia, Slovakia and Estonia. [5] Excluding international banking centres Hong Kong SAR, Macao SAR and Singapore. [6] Excluding Russia and Turkey.

Source: BIS locational banking statistics by residence; Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; BIS calculations.