Cross-border bank credit and global financial stability

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This article looks in detail at one aspect of global liquidity: cross-border credit provided by banks. Cross-border banking can potentially have considerable benefits, especially by diversifying the available sources of lending and borrowing, and by increasing banking competition. But such flows can also amplify risks in times of stress. As this article sets out, cross-border bank lending contributed to the build-up in vulnerabilities before the recent crisis, and exacerbated the bust once the crisis hit. The article then considers possible policy responses, arguing in particular that policymakers need to ensure that they can properly monitor these flows, from the point of view of recipient countries and the global system as a whole.

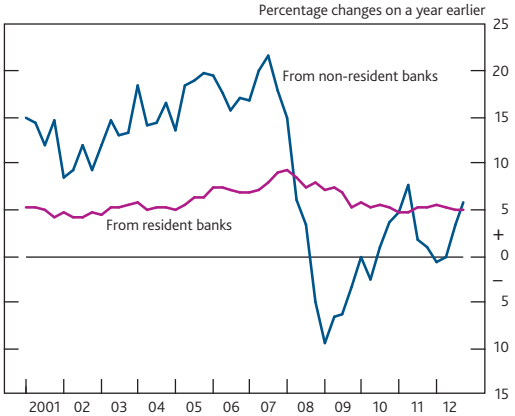
The concept of 'global liquidity' has played a part in some of the more contentious international policy debates in recent years. Nevertheless, the G20 has made the analysis of global liquidity a key policy priority. Similarly, the Committee on the Global Financial System (CGFS) (a central bank forum for the monitoring and examination of financial markets and systems) has also considered global liquidity in its work. It has distinguished between two types of global liquidity: (i) *official* liquidity, which is created by central banks, and can be accessed cross-border via instruments such as foreign exchange reserves and swap lines between central banks; and (ii) *private sector* liquidity, which is typically created by the cross-border operations of commercial banks and other financial institutions.[2] This article looks in more detail at one aspect of private liquidity: cross-border credit provided by banks.

The prudent expansion of cross-border credit can have considerable long-run benefits. It can help to diversify the available sources of borrowing and lending in an economy. To the extent that this reduces the concentration of banks' and non-banks' exposures to domestic shocks, it might reduce the volatility of domestic lending and the vulnerability of domestic banks.[3] And cross-border banking tends to increase competition in the domestic banking market, which may also be beneficial for financial stability.[4] These advantages help explain the structural trend towards greater global banking integration seen in recent decades.

Nevertheless, cross-border bank flows can also give rise to financial stability risks through increasing the vulnerabilities of domestic banks and non-banks to external shocks. Rather than attempting to assess the overall costs and benefits of cross-border banking, this article focuses on the role that it can play in the build-up of risks that come to fruition in times of stress, and the policy responses to prevent or mitigate such a scenario. This article focuses on the most recent crisis period. It is worth noting, however, that booms and busts in international bank lending have been a feature of many previous crises, for example, the Latin American debt crisis of the early 1980s and the East Asian crisis in 1997–98.[5]

In 2007–09, cross-border lending was a much more volatile form of borrowing for non-banks than credit from domestic banks (**Chart 1**). As such, cross-border bank credit appears to

Chart 1 Annual growth in bank borrowing by non-banks (in 56 countries)[a][b]



Source: Bank for International Settlements (BIS) international banking statistics.

(a) Exchange rates are fixed at end-2012 Q4 levels.
(b) Sample of 56 BIS-reporting countries. Credit in all currencies. Non-banks include other financial companies, government and the non-financial private sector. 'Non-resident' includes lending by all BIS-reporting banks, except domestic banks for each country.

(1) The authors would like to thank Shaheen Bhikhu and Jack Grigg for their help in producing this article.
(2) See CGFS (2011) for a more detailed discussion of the different types of global liquidity.
(3) The term 'non-banks' is used here to cover the household, government and financial and non-financial corporate sectors.
(4) See, for instance, the discussion in Chapter 2 of Allen *et al* (2011).
(5) See, for example, Sachs and Huizinga (1987) and IMF (2009), respectively.

have played an important role in contributing to vulnerabilities prior to the recent crisis, and exacerbating the bust once the crisis hit (despite the fact that it accounts for a small part of the stock of lending in most countries). This makes cross-border credit flows particularly important for domestic policymakers to monitor. Yet national authorities find it more difficult to track cross-border bank flows than domestic ones. And, in any case, their policy tools tend not to apply directly to lenders resident abroad.

The effects of cross-border bank flows, in tranquil periods as well as in booms and busts, are international by nature. The United Kingdom nevertheless plays a particularly important role, both as the recipient of cross-border banking flows and as an originator: the UK private sector raises a material share of its bank financing, either directly or indirectly via domestic banks, from abroad. Moreover, internationally focused banks based in the United Kingdom — both UK and foreign-owned — are large gross providers of credit to the global economy.

This article is structured as follows. The first section defines cross-border bank credit and identifies some key stylised features of its cyclicality at the global level. The second section looks in more depth at the ways in which cross-border bank credit can impact on financial stability. It makes specific reference to the role these flows played in the recent pre-crisis and crisis periods, focusing in particular on the activities of European banks. The third section examines the implications for policy: improving surveillance of these flows, drawing lessons for the use of national policy tools, and considering a possible role for global tools and policy co-ordination. A box sets out the data currently available and some planned improvements.

What is cross-border bank credit?

Domestic and cross-border credit supply

A broad definition of bank credit is the stock of credit available to finance spending.(1) The supply of bank credit depends on a number of factors, principally:

(i) lenders' decisions about credit supply, which are typically based on a range of underlying factors, including: the perceived likelihood that the borrower will repay, linked to the quality of the borrower and expectations about macroeconomic conditions; microprudential and macroprudential policies and regulations; and the lender's 'risk appetite', for a given borrower quality;

(ii) the lender's ability to fund those decisions; and

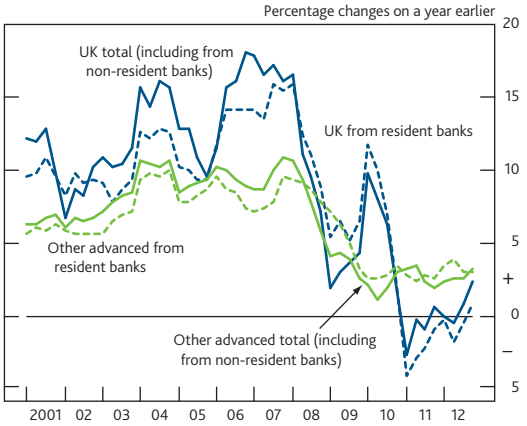
(iii) conventional or unconventional monetary policy, which also affects banks' funding costs.(2)

What is the distinctly cross-border element of this? Many banks operate internationally, and make decisions on credit provision on a global basis. So conditions in one country (for instance, easier access to wholesale funding) can affect the bank's lending decisions in another country. And since regulatory and monetary policies are typically set to meet domestic objectives, they may have unintended spillovers, through banks' behaviour, onto other countries.

The cyclicality of cross-border borrowing

Globally, the growth in borrowing by non-banks directly from abroad has, over the past decade, been a lot more cyclical than their borrowing from domestic banks (**Chart 1**). Focusing in particular on the United Kingdom, United States and the euro area, **Chart 2** shows that the strong pre-crisis bank borrowing by non-banks, and the weakness during the crisis, were both more pronounced when cross-border lending is included — as shown by the solid lines generally being more volatile than the dashed lines. This is despite the fact that resident banks account for a considerably larger share of the stock of bank borrowing by domestic non-banks (for the United Kingdom, about 80%).

Chart 2 Annual growth in bank borrowing by non-banks in advanced economies(a)



Sources: BIS international banking statistics, European Central Bank, Federal Reserve and Bank calculations.

(a) Other advanced economies: euro area and the United States. Credit in all currencies. Non-banks include other financial companies, government and the non-financial private sector.

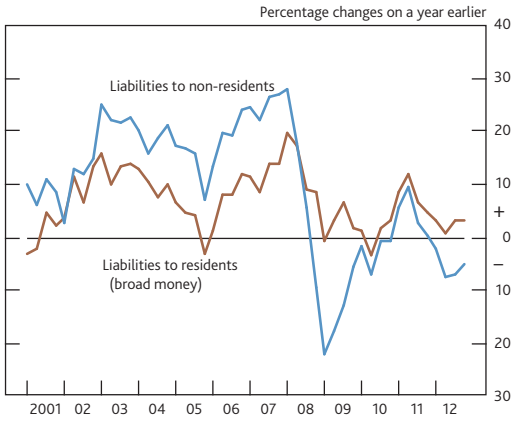
Like non-banks, domestic banks also borrow from banks abroad. This includes borrowing from within their own banking groups, which they often lend on to domestic non-banks. This interbank component has been even more volatile than cross-border lending directly to non-banks.

To fuel their lending activities in the run-up to the recent crisis, banks, in aggregate, in advanced economies relied heavily on wholesale funding — much of which may have come from

(1) For more detail on the drivers of credit supply, see for instance Bell and Young (2010).
(2) For more detail on the United Kingdom's quantitative easing policy and Funding for Lending Scheme, see Joyce, Tong and Woods (2011) and Churm *et al* (2012), respectively.

abroad. The evidence for this is suggestive: there are no cross-country data that split banking system wholesale liabilities into those funded from abroad rather than domestically. But separate data show that the share of advanced-economy banks' total liabilities that are external and wholesale both rose sharply in the run-up to the crisis and fell sharply subsequently.(1) To be more specific, advanced-economy banking systems' liabilities to non-residents grew more rapidly than their domestic liabilities in the pre-crisis period (**Chart 3**). And two commonly used measures of the importance of wholesale funding — the ratio of banks' domestic loans to deposits, and the ratio of wholesale funding to total liabilities, both rose sharply (**Chart 4**).(2)

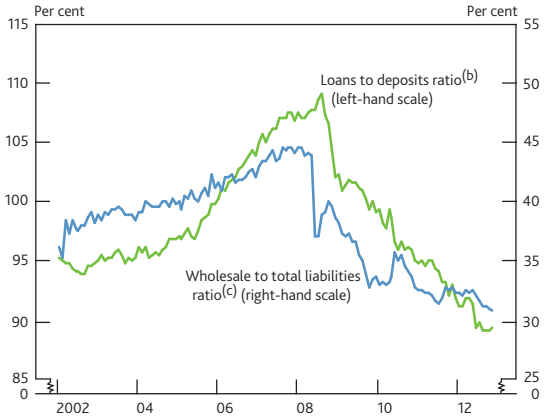
Chart 3 Growth in advanced-economy banking systems' liabilities to residents and non-residents(a)(b)(c)



Sources: BIS international banking statistics, IMF *International Financial Statistics* and Bank calculations.

(a) Advanced economies included are: Australia, Canada, Denmark, euro area, Japan, Sweden, United Kingdom and the United States.
(b) Broad money: domestic M2 (M3 for Australia and M4 for the United Kingdom) converted to US dollars. Broad money is in local currency only, so excludes banks' holdings of foreign currency denominated deposits (and domestic wholesale liabilities).
(c) Liabilities to non-residents: includes retail and wholesale deposits and securities issued.

Chart 4 Key funding ratios for advanced-economy banking systems(a)



Sources: BIS international banking statistics, IMF *International Financial Statistics* and Bank calculations.

(a) Countries include: Australia, euro area, Japan, Switzerland, United Kingdom and the United States.
(b) Loans to deposits ratio: loans made by the banking sector to the private sector divided by customer deposits at banks; weighted average by the size of each country's total deposits. A higher loan to deposit ratio shows that more liquidity is provided by the banking sector to the private sector.
(c) Wholesale to total liabilities ratio: bank liabilities (excluding equity) minus customer deposits divided by total liabilities; weighted average by the size of each country's total liabilities. The ratio measures the degree to which banks finance their assets using non-deposit funding: a higher ratio indicates that a higher portion of banks' assets is funded by non-core liabilities.

This cyclicality of the growth in borrowing by domestic banks and non-banks from banks abroad has a number of implications. It emphasises that, in the pre-crisis period, the growth in domestic banks' deposits from and credit to residents diverged significantly, since the latter was increasingly financed from wholesale markets. So, in many countries, the growth in domestic credit and monetary aggregates were giving different signals of monetary conditions. In turn, the growth in non-banks' borrowing from domestic banks was slower than the growth in their total bank borrowing, given the increasing share of cross-border borrowing.

The importance of cross-border bank credit for financial stability

Cross-border banking flows in the run-up to the crisis also had important implications for the risks faced by international banks. This section focuses on three aspects. First, on the asset side, large banks markedly increased their foreign exposures, which increased their vulnerability to credit risk — all the more so, to the extent that this reflected higher leverage. Second, on the liability side, banks' increasing reliance on borrowing from abroad, especially from other banks, made them more vulnerable to funding risk. And third, the normal maturity risk that banks face — by borrowing 'short' and lending 'long' — was exacerbated by the fact that much of the expansion of banks' balance sheets abroad was in foreign currency. So banks, and in some cases economies more broadly, were vulnerable to shortages in foreign currency. To illustrate this, we focus on the role of European banks, since the expansion of their cross-border activity prior to the crisis was particularly notable.(3)

Vulnerabilities in the recent crisis

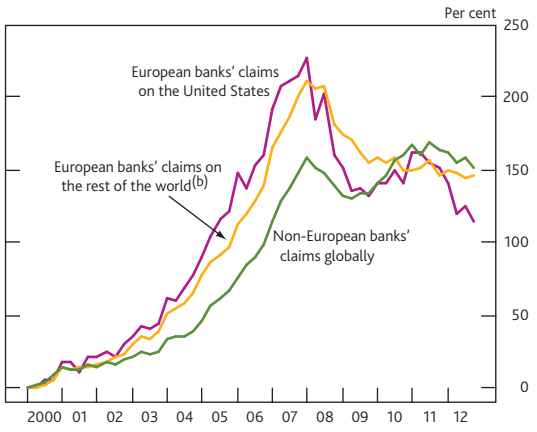
Growth of cross-border exposures

In the run-up to the crisis, major European banks, in aggregate, increased their cross-border assets sharply. Although banks from other countries also increased their cross-border lending, as shown in **Chart 5**, this trend was particularly pronounced for banks resident in Europe. A similar picture emerges when measured instead on a consolidated banking group basis.(4)

There are a number of potential explanations for the expansion of banks' cross-border assets during the pre-crisis period. One possibility is that it reflected banks' perception that the global macroeconomic environment had improved. Another possibility is that as the environment became more stable and uncertainty fell, banks' appetite for risk-taking increased.

(1) On the cross-border dimension, see Hoggarth, Mahadeva and Martin (2010).
(2) For definitions used here, see the footnotes to **Chart 4**.
(3) Unless otherwise stated, 'European' refers to banks from Denmark, euro area, Sweden, Switzerland and the United Kingdom.
(4) See the box on pages 134–35 for the distinction between measuring banking system external claims on a resident versus a consolidated basis.

Chart 5 Cumulative growth in BIS-reporting resident banks' gross cross-border claims[a]

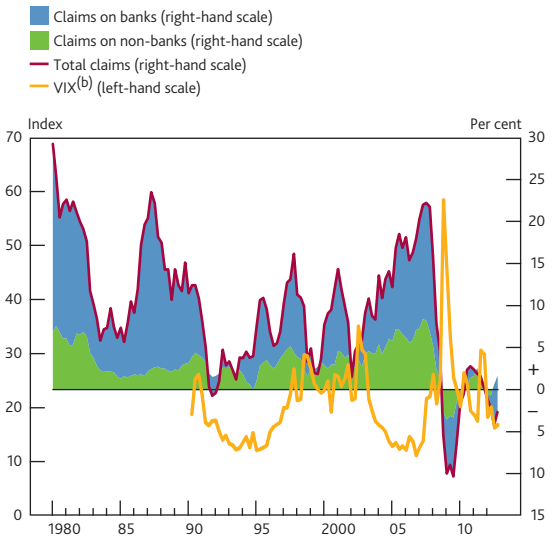


Sources: BIS international banking statistics and Bank calculations.

(a) Exchange rates are fixed at end-2012 Q4 levels.
(b) Includes intra-European cross-border claims.

Lower volatility in financial asset prices also reduced banks' measured market risk and, therefore, the amount of capital they needed to hold to meet regulatory requirements. This would imply, among other things, a greater appetite for cross-border assets. As shown in **Chart 6**, there was a strong, negative relationship between the growth in global banks' cross-border lending and the VIX index — a frequently used proxy for creditor aversion to risk.(1) Bruno and Shin (2012) find empirically that a decline in the VIX was a key explanatory factor in determining global banks' large increase in cross-border borrowing.

Chart 6 Contribution to the annual growth in aggregate cross-border claims of all BIS-reporting banking systems[a]



Source: CGFS (2011).

(a) Claims: financial assets (on balance sheet items only) including, as a minimum, deposits and balances with other banks, loans and advances to non-banks as well as banks, and holdings of debt securities.
(b) Quarterly average.

Many banks also increased their leverage — their assets relative to equity. This enabled them to achieve a higher return on equity, for a given operating performance, but it intensified losses in the downturn. Some banks had to rely, in particular, on cross-border lending and wholesale funding to achieve this increased leverage, especially banks from countries with a limited local lending and depositor base. Rapid balance sheet growth also seems partly attributable to the perception that financial innovation had reduced the risks on certain assets, but not the return. The strong credit ratings of major banks also meant they had access to cheap funding on international markets. Greater leverage, therefore, implied larger cross-border exposures.

But why was the pre-crisis growth in cross-border lending particularly high, in aggregate, for European banks? One possibility is that, in the early 2000s, European creditors started off with a low share of foreign exposures, and so may have wanted to diversify their portfolios geographically.(2) In addition, the depreciation in the dollar against the euro and other European currencies from mid-2001 onwards meant that European creditors needed to increase their lending to the United States if they wanted to maintain the relative share of US exposures unchanged in their portfolios. Also, given the generalised search for returns, it was in the United States that the vast majority of new financial assets, such as asset-backed securities (ABS), were being produced. These assets were offering higher returns, while apparently being as safe as Treasury bonds. They were usually AAA-rated.

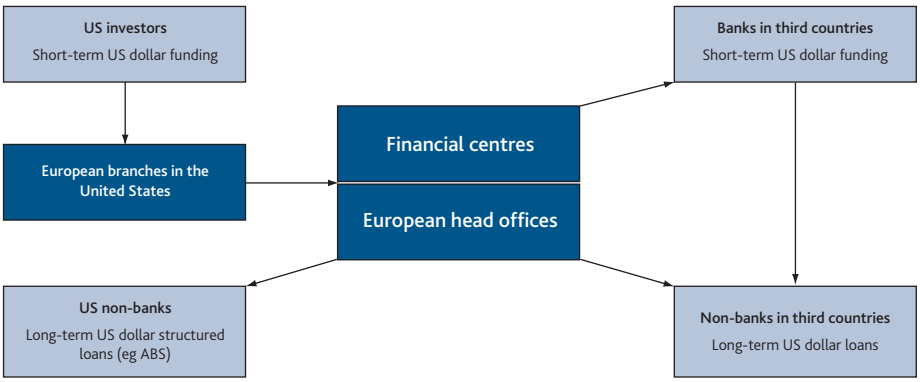
So-called 'regulatory arbitrage' is also likely to have played a role. Banks were holding these assets off balance sheet via special purpose vehicles. The regulatory capital requirements were lower than if they had been held on balance sheet, which is likely to have encouraged the demand for these products.(3) It is also possible that, pre-crisis, European commercial banks faced weaker restrictions on leverage than US ones. European banks may thus have had both the ability and the desire to expand their balance sheets in the United States and elsewhere.

Financing the balance sheet expansion

This balance sheet expansion was partly financed via the branches of European banks located in the United States. These, in turn, increased their short-term dollar liabilities. Moreover, most foreign branches in the United States are legally prevented from raising insured deposits. Instead, they relied on short-term wholesale funding — especially from money market funds. This meant that in the pre-crisis period, European banking groups increased both their borrowing from,

(1) The VIX is the Chicago Board Options Exchange Market Volatility Index. This measures the implied volatility of S&P 500 index options and is a commonly used indicator of the market's expectation of equity market volatility over the next month.
(2) See Bertaut *et al* (2011) for estimates of the degree of European creditors' 'home bias'.
(3) See Acharya and Schnabl (2010).

Figure 1 The global transmission mechanism of liquidity during the pre-crisis boom via European banks(a)



(a) Arrows denote lending flows.

and lending to, the US non-bank private sector, via the shadow banking system.(1)

Figure 1 shows a stylised representation of these flows. European banks raised wholesale funds from their affiliates in the United States. Via their head offices and/or financial centres, they lent those funds back to non-banks in the United States or in third countries, either directly or by funding local banks.

Importantly, increases in European banks' assets and liabilities in the United States largely netted out. So the marked increase in their gross lending to (and borrowing from) the United States in the pre-crisis period was not readily apparent from the net bilateral external balance sheet and current account positions.(2) Europe had an almost balanced current account position bilaterally with the United States prior to the crisis. Using the language of Shin (2012), there was — between major western advanced economies, at least — a (gross) bank 'credit glut' rather than a (net) 'savings glut'.(3)

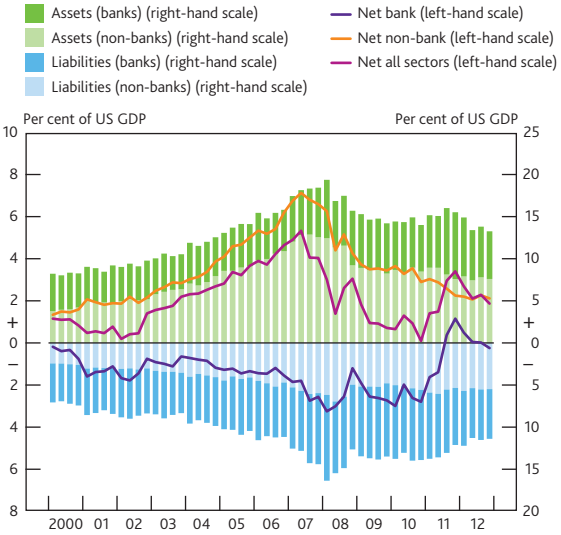
Maturity and currency mismatches

These developments generated mismatches on banks' balance sheets of both currency and maturity — vulnerabilities that often materialise during times of stress. European banks had expanded their balance sheets, in foreign currency substantially, in the United States. But their borrowing was mainly at a short-term maturity and their lending was long term. This made them vulnerable to a dollar liquidity shortage.

At the time, data limitations made it difficult to assess the precise scale of these foreign currency maturity mismatches. Still, with the benefit of hindsight, there were some signs from the limited available data of emerging risks during the boom period. And there were clear parallels to episodes of banking crises in emerging market economies (EMEs) that involved the realisation of liquidity and currency mismatches.(4)

What data were available? There was a sharp increase in the net cross-border assets of foreign affiliates in the United States held with the rest of their banking groups outside the United States over the 2005–08 period. These assets were most likely held mainly by European-owned banks.(5) It is also clear that, during the pre-crisis period, European banks increased sharply both sides of their external balance sheets with counterparties in the United States — by around 10% of annual US GDP. This is shown by the stacked bars in **Chart 7**.

Chart 7 European-resident banks' gross and net cross-border claims on the United States(a)(b)



Sources: BIS international banking statistics, US Bureau of Economic Analysis and Bank calculations.

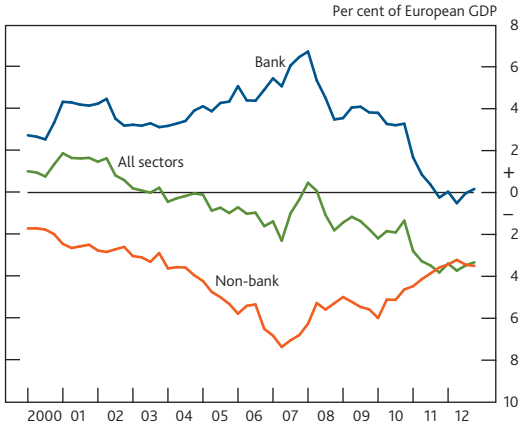
(a) Annualised quarterly values.
(b) Assets and liabilities to banks abroad include foreign central banks.

(1) See Bertaut *et al* (2011) for a more detailed description.
(2) See Borio and Disyatat (2011).
(3) This is not to deny that, in a number of other countries at this time, there was also a build-up of large current account imbalances that contributed to the vulnerability of the global financial system (see, for example, Astley *et al* (2009)).
(4) Many of the policy recommendations in Financial Stability Forum (2000), written in the wake of the East Asian crisis, could have been written today after the recent global crisis, for example 'one of the central lessons of crises in EMEs over the past few years is the importance of prudent management of liquidity', page 1.
(5) Time-series data on exposures to a country split by nationality of individual foreign banking system are not available.

In addition, **Chart 7** shows a growing divergence during the pre-crisis period between European banks' *net lending to non-banks*, on the one hand, and their *net borrowing from banks* in the United States, including from their own affiliates, on the other. This sectoral mismatch was indicative of a maturity mismatch, because lending between banks is usually at shorter-term maturities than lending to non-banks. In other words, this suggests that European banks were acquiring longer-term dollar assets, funded by shorter-term dollar borrowing.(1)

A similar picture emerges when looking at European banks' global cross-border net liabilities (including intra-Europe ones) denominated in dollars. There was a growing divergence in advance of the crisis between their net borrowing from banks and net lending to non-banks in dollars (**Chart 8**).

Chart 8 European-resident banks' net US dollar-denominated liabilities to all countries(a)



Sources: BIS international banking statistics, IMF *World Economic Outlook* (April 2013) and Bank calculations.

(a) Includes intra-European cross-border claims.

When the crisis hit, European banks faced problems on both sides of their external balance sheets. Credit risks materialised on the asset side as, in particular, their ABS assets fell sharply in value. On the liabilities side, European banks operating in the United States began to see a withdrawal of their access to wholesale funding from 2007, and particularly after the failure of Lehman Brothers in the autumn of 2008. In addition, the functioning of the dollar foreign currency swap market was impaired at the time. This meant that many European banks faced a large global dollar shortage. Overall, they had financed longer term, or at least illiquid, dollar assets abroad through short-term dollar liabilities and through the swap market. This caused a dollar funding crisis, which ultimately resulted in the Federal Reserve stepping in to offer a temporary dollar swap facility to a number of major central banks.(2) This did not, however, prevent a reduction in European banks' dollar-denominated assets.(3)

Since 2008–09, European banks have continued to unwind their pre-crisis positions abroad. Just as they had helped to ease credit conditions in the United States and other countries before the crisis, European banks' cross-border retrenchment since has contributed to a tightening in global credit conditions (**Chart 5**).

Policy implications

In this section, we examine some possible policy responses that could either prevent the build-up of the vulnerabilities discussed above, or mitigate their impacts. We focus first on actions that can be taken by national policymakers alone, and then turn to multilateral responses.

Domestic surveillance and policy

Any assessment of a country's domestic credit conditions that excludes credit provided cross-border may understate its cyclicality significantly. Yet in practice, partly due to data availability, policymakers often pay less attention to lending to the domestic economy provided by foreign banks from abroad.(4) So it is important for national authorities to monitor inward cross-border bank credit closely.(5)

Since the onset of the crisis, national supervisors have become much more aware of the liquidity risks posed by maturity and currency mismatches, both at the individual bank and system-wide level.(6) In the European Union, the European Systemic Risk Board has recommended that national supervisors should better monitor liquidity risk denominated in dollars.(7) In the United Kingdom, the Prudential Regulation Authority is now able to set minimum liquidity requirements by major currency, and the new Financial Policy Committee has a mandate to address any emergent systemic liquidity risks.(8) Reflecting a greater awareness of cross-border funding risks, the US authorities have recently proposed raising the required liquidity ratio at

(1) As a proxy for maturity, McGuire and von Peter (2009) use the counterparty split by sector, with interbank positions typically having a shorter maturity than positions *vis-à-vis* non-bank entities. They estimate that European-owned banks, in aggregate, had in mid-2007 a short-term dollar funding gap of at least US$1 trillion, and possibly a lot more.
(2) See CGFS (2010) for more details.
(3) Ivashina, Scharfstein and Stein (2012) show how the dollar funding shock resulted in European banks cutting back their dollar-denominated lending more than their euro-denominated lending.
(4) Part of the reason is that domestic and cross-border credit is reported at different frequencies and levels of timeliness and detail. Data on credit from domestic banks are produced by the domestic central bank. In the United Kingdom these data are reported by the Bank of England monthly, with a one-month lag and with detailed coverage (for example by sector). Cross-border bank lending is reported to the BIS by all (44 BIS-reporting) countries. These data are published quarterly with a four-month lag and only at very broad sectoral coverage.
(5) The Bank of England's new *Bank Liabilities Survey* covers the maturity and currency of banks' funding, although it does not specifically distinguish the cross-border element. See Bell, Butt and Talbot (2013).
(6) More generally, at the international level, the Basel Committee has proposed new liquidity rules — the Liquidity Coverage Ratio and the Net Stable Funding Ratio. See BCBS (2010).
(7) The European Systemic Risk Board published recommendations on lending in foreign currencies. See www.esrb.europa.eu/news/pr/2011/html/pr111011.en.html.
(8) See Tucker (2012) for a discussion of authorities monitoring and managing national balance sheet vulnerabilities more generally.

foreign branches and subsidiaries and moving them more in line with US-owned banks.(1)

Central banks may also have an important role to play in providing foreign currency liquidity as a last resort to their banking systems in a crisis. This can serve as a backstop against currency mismatches, once banks' own foreign currency liquidity buffers have been depleted. National authorities in principle can provide foreign currency to the domestic banking system in various ways: running down foreign exchange reserves; borrowing in financial markets or from the international official sector; or, if available, by accessing swap lines with reserve currency central banks (as discussed below, this proved very effective during the recent crisis).

It is difficult to assess the appropriate level of reserves for a country to hold, given that there is an opportunity cost to not using foreign exchange reserves. Judged against the standard metrics used to assess the appropriate level of foreign currency reserve cover in EMEs, most advanced economies fall a long way short.(2) This might not be very relevant: during a financial crisis, advanced economies have tended to be more able to access foreign currency from financial markets or through swap lines. Despite this, though, some advanced economies have recently increased their reserves holdings.

Multilateral surveillance and policy

Better surveillance and use of financial stability liquidity policy tools at the **national** level might not be sufficient to address the full set of **global** risks. In fact, national policies that reduce domestic risks may, in some cases, indirectly increase risks in other countries and banking systems.

In terms of surveillance, it is principally the job of national authorities to monitor cross-border credit to and from foreign banks into their own economies. But, at the global level, it is important that international bodies assess the risks from cross-border bank inflows and outflows.

Global data availability is critical here. The most comprehensive data on national banking systems' cross-border positions is provided by the BIS. An important programme is under way to improve the coverage of these data in response to the data limitations highlighted in the recent crisis (see the box on pages 134–35). Once fully implemented this should make a big difference. In an ideal world, further improvements could be made. In particular, it would be useful if national authorities were able to collect and report to the BIS additional data on exposures split by maturity as well as currency, which are available only to a very limited extent.(3) This would help in assessing a resident banking system's vulnerability to maturity mismatches in different currencies. The possible future development of these international banking statistics is discussed in more detail in CGFS (2012).

A second important area of focus is to improve the *analysis* of overall cross-border bank lending inflows and outflows, and the implications for global growth and financial stability. The IMF's comparative advantage means that it is well placed to monitor how these gross cross-border credit flows interact multilaterally, the role of national policies in affecting these spillovers, and the consequent impact on the global economy and financial system. The IMF has begun to do this, for example, in its innovative Spillover Reports. This analysis could usefully be developed.

A further possibility could be for the source and recipient countries of cross-border bank credit, including within banking groups, to work together to understand better the multilateral consequences of their policy actions. This would be intended to support rather than compromise national authorities' objectives, by helping them to take account properly of cross-border linkages and spillovers. Discussions of this sort already occur in the European Union, via the European Systemic Risk Board. There is an open question as to whether this could usefully be extended on a more global basis. If so, an appropriate forum might be an existing gathering of central bank governors, such as at the BIS, given that central banks are usually responsible for setting domestic monetary and macroprudential policies, which directly affect banks' global credit provision.(4)

More formal global policy mechanisms may also be beneficial. For example, in the provision of foreign currency liquidity, if countries *collectively* take as a lesson from the recent crisis the need to build up their foreign currency reserves, this could have adverse effects in both the short and long run: if all countries increase national savings at the same time, in an attempt to improve their current account position and thereby build up foreign currency reserves, this could dampen world demand and GDP. Since this would tend to push down on global government bond yields, higher global savings over time could also encourage pockets of excessive borrowing.

Multilateral mechanisms, such as formal international foreign currency liquidity arrangements, could potentially address this issue. For example, following the failure of Lehman Brothers, the temporary provision of dollars via a swap line from the US Federal Reserve to fourteen other central banks played an important role in stabilising the global financial system.

(1) The liquidity ratio is the size of a bank's high-quality liquid assets available to meet the expected amount of outflows in the short term under stress conditions. For the proposed changes in the US treatment of foreign banks, see Tarullo (2012).
(2) See IMF (2011).
(3) Some data are available on the maturity of claims on a consolidated immediate borrower basis (see **Table 1**). But these data are not split by currency, and there are no data on maturity of liabilities on this basis. So these data do not help much in assessing a banking system's asset and liability maturity mismatch (including by currency).
(4) The Committee on International Economic Policy and Reform (2011) makes a similar point.

Currently, there are temporary bilateral foreign currency swap lines in place between a number of major central banks.(1) Use of a swap line will expand the supplying country's money supply unless it takes offsetting policy action, so it may not always be a mutually acceptable strategy. For some countries that may not have access to foreign currency swap lines, the IMF's precautionary lending facilities could also play an important role as a global liquidity insurance mechanism.

Conclusion

This article has presented evidence that, notwithstanding its potential considerable long-run benefits, cross-border bank credit has in the past been especially procyclical and volatile. It played a material part in the build-up of vulnerabilities in advance of the recent crisis, and in transmitting the impact of the bust.

This suggests that policymakers need to take steps to ensure that they can properly monitor these flows, both from the point of view of the recipient country and of the global system as a whole. National and international authorities could also consider whether new facilities or greater international policy co-ordination might be warranted, both to prevent and respond to the vulnerabilities that cross-border bank credit can generate.

(1) See, for example, www.federalreserve.gov/monetarypolicy/bst_swapfaqs.htm.

BIS international banking statistics — definitions and planned data improvements

Locational versus consolidated data

The Bank for International Settlements (BIS) is the main source of data on the external balance sheet positions of national banking systems, at the aggregate level. Banking systems are defined on both a locational and consolidated basis. The BIS's **locational** data report resident banks' cross-border assets and liabilities (including intragroup). Resident banks consist both of domestically owned banks and locally operating foreign subsidiaries and branches. These data are consistent with the balance of payments and national accounts. Such financial flows may provide an indication of risks to the domestic economy arising, for example, from an externally funded credit boom in the domestic economy. We have primarily focused on these locational data in this article.

The consolidated data cover the foreign claims of banking groups globally, aggregated according to the nationality of the parent bank. So, from the perspective of a given country, these data exclude resident foreign banks but include the positions of subsidiaries and branches of domestically owned banking groups operating abroad. Data are consolidated, so they net out any intragroup claims. The consolidated data are most useful as a guide to the credit risks in individual foreign countries, for example vulnerable ones, faced by domestically owned banking groups as a whole. But data are not, for the most part, available for the external liabilities of banking systems on a consolidated basis.

Taken together, these data provide quite a comprehensive indication of changes in the external balance sheets of national banking systems. They are released on a quarterly basis, with a four-month lag. Some of the main features of the data are shown in **Table 1**.

The BIS and national central banks have been working together to enhance the scope of these data, and progress is already well under way. Ongoing and planned changes to the data that will be collected are highlighted in red in **Table 1**. There are plans to collect some additional data by maturity of cross-border liabilities by currency of banking systems, albeit only for liabilities of debt securities. The BIS-reporting banking systems have also agreed, starting from the end of this year, to collect more data along a number of other dimensions that should help in assessing banking system cross-border liquidity conditions.(1)

Planned improvements to the locational data

The granularity of the locational data by sector will be more detailed than the current broad split between banks and non-banks.

On the liability side, this should provide information on the likely flightiness of funding. Data on liabilities (and assets) of non-banks will be split into non-bank financial companies and the non-financial sector, which banks will be encouraged to disaggregate further into government, non-financial corporations and households. These additional sectoral breakdowns will be further broken down by major currency. This would help to separately identify the deposit liabilities from foreign bank-like institutions, such as money market funds. Banks' external liabilities to banks will also be disaggregated, allowing a distinction to be made between cross-border intragroup and interbank funding (and assets).

On the asset side, this greater sectoral granularity will help recipient countries know whether cross-border lending to the domestic economy is going to households and corporates — which is more likely to have direct implications for the domestic real economy — rather than to non-bank financial companies. So it should help national authorities to better monitor total credit growth from banks — both cross-border and domestically — to the real economy. As discussed in the main text, currently available data suggest that in many countries, cross-border lending to the domestic economy was much more cyclical than lending from domestic banks in the recent boom and bust.

Resident banks will also be split into domestically owned, foreign subsidiaries and foreign branches. This will help to assess how the funding and lending structure of these bank types differ.

Planned improvements to the consolidated data

On a consolidated basis, there will also be more granular reporting of claims. Currently, these data have a broad sectoral split — banks, government (including the central bank) and the non-bank private sector. The non-bank private sector data will also be split on a required basis into non-bank financial institutions and non-financial private sector. These more granular foreign claims data will help official and private sector analysts better able to assess the credit risk faced by each nationally owned banking system in different foreign markets and sectors.

Also, in the future, on a consolidated (immediate borrower) basis, banking groups will report some basic breakdown of their total — that is, external plus domestic — liabilities and assets.(2) This will help considerably in comparing across countries the vulnerabilities of the balance sheet as a whole, for example to liquidity and credit risk, of different nationally owned banking systems.

(1) For further details see CGFS (2012).
(2) Total liabilities will be reported split into deposits, debt securities, derivatives, other liabilities and total equity (and on an encouraged basis Tier 1 capital). In addition, securities will be split into those with less or more than one-year residual maturity. On the asset side, banks will report on a best-endeavours basis their total and risk-weighted assets. And on both an immediate and ultimate risk basis, banks will report their domestic and thus total claims.

Table 1 Comparison of (actual and prospective) BIS external banking statistics[a]

	Locational (by residence)	Consolidated
Reporters	Resident bank offices split into domestic banks, foreign subsidiaries and foreign branches.	Banks headquartered in the reporting home country.
Reporting countries	44	31[b]/24[c]
Reporting basis	Unconsolidated including intragroup.	Worldwide consolidated excluding intragroup but including positions of affiliates operating abroad.
Reporting positions	Cross-border claims and liabilities, local claims and liabilities in foreign currency and domestic currencies.	Claims: cross-border and of local offices. Liabilities: no cross-border data, liabilities of local offices in local currency.[b]
***Vis-à-vis* countries**	More than 200.	More than 200.
Currencies	Domestic, US dollar, euro, Japanese yen, sterling, Swiss franc.	Not available.
Sector	Banks of which interbank, intrabank and central banks. Non-banks of which financial and non-financial sectors of which (on a best-endeavours basis) households, non-financial corporations and government.	Banks, official sector, non-bank private sector of which financial and (on a best-endeavours basis) non-financial corporations and households.
Type of instrument	Loans and deposits, debt securities, other financial instruments.	Total claims. Other exposures:[c] of which derivatives, guarantees extended and credit commitments.
Maturity	Not available. For liabilities: debt securities less than one-year residual maturity.	Claims one year or less, one to two years, and more than two years (residual maturity).[b]

(a) Text in red is the planned changes to the cross-border data reported by the BIS. On a consolidated basis, banking groups will also report some basic breakdown of their total — external plus domestic — liabilities and assets (for further details see footnote (2) on the previous page and CGFS (2012)).
(b) On an immediate borrower basis.
(c) On an ultimate risk basis. The latter transfers the risk to the ultimate bearer.

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