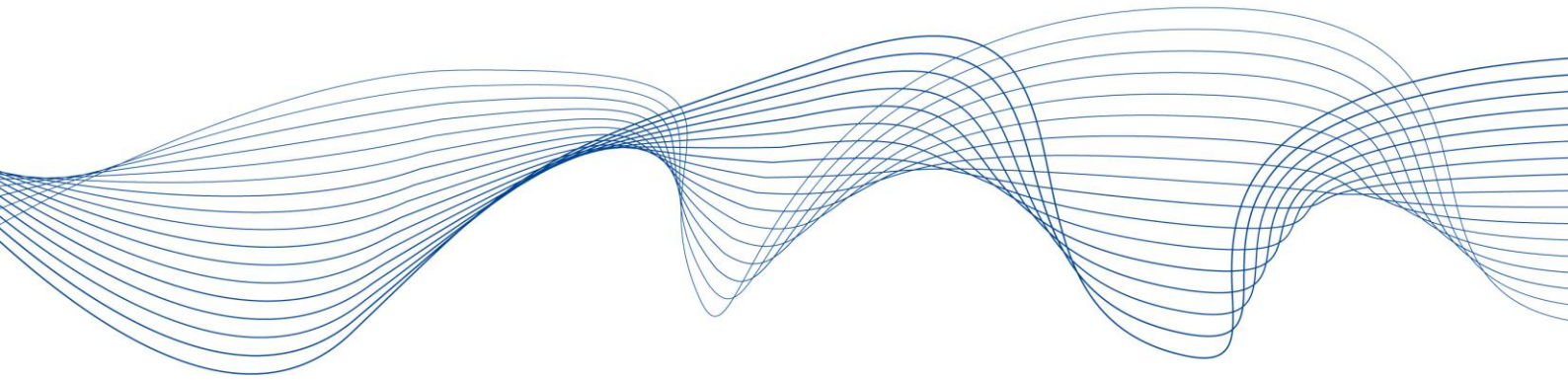
Macro-prudential Commentaries

Issue No 5
March 2013



European banks' use of US dollar funding: systemic risk issues

Bethany Blowers and David Forsman[*+]

European banks had a material part of their aggregate balance sheet denominated in US dollars at the start of the financial crisis that began in 2007. As the crisis developed, European banks faced severe strains in US dollar funding markets: counterparties that typically provided US dollar liquidity hoarded it instead, and some US dollar investors rebalanced their portfolios, with shifts away from Europe. Central banks took exceptional coordinated action to stop this systemic liquidity risk from affecting other financial markets and the real economy. Since the crisis, banks and policy-makers have taken action to seek to avoid similar strains if problems emerge again in the future; this includes improving data collection on US dollar liquidity risk, new prudential rules on the management of liquidity risk more generally and improved contingency planning. Recognising this systemic risk, the ESRB agreed to issue recommendations to national supervisory authorities in December 2011, with a view to consolidating the progress made since the crisis and improving micro-prudential policies for macro-prudential purposes. These focused on collecting and monitoring data on US dollar liquidity risk at European banks, particularly on concentration among providers of US dollar funding to European banks, and improvements to banks' contingency funding plans.

Keywords: European Systemic Risk Board, ESRB, US dollar funding, systemic risk, recommendation

* Bethany Blowers is a senior manager in the Financial Stability Department of the UK central bank (the Bank of England) and David Forsman is an adviser in the Financial Stability Department of the Swedish central bank (Sveriges Riksbank).

1 INTRODUCTION

In the financial crisis that started in 2007, European banks, like other banks worldwide, faced severe liquidity strains in US dollars. As those strains worsened, central banks took action to try to stop them spilling over to other financial markets, banks' liquidity positions and ultimately the real economy. A number of central banks established temporary swap facilities with the US Federal Reserve to improve liquidity in US dollars. Banks took action to reduce their reliance on short-term US dollar funding and regulators increased their monitoring of banks' funding positions. When the crisis then moved to a number of euro area sovereign debt markets, and there was a re-emergence of strains in short-term US dollar funding markets in Europe, the swap facilities were extended several times. When they were last renewed, these agreements were extended until February 2014.[1] In parallel, policy-makers considered initiatives to avoid similar strains in the future.

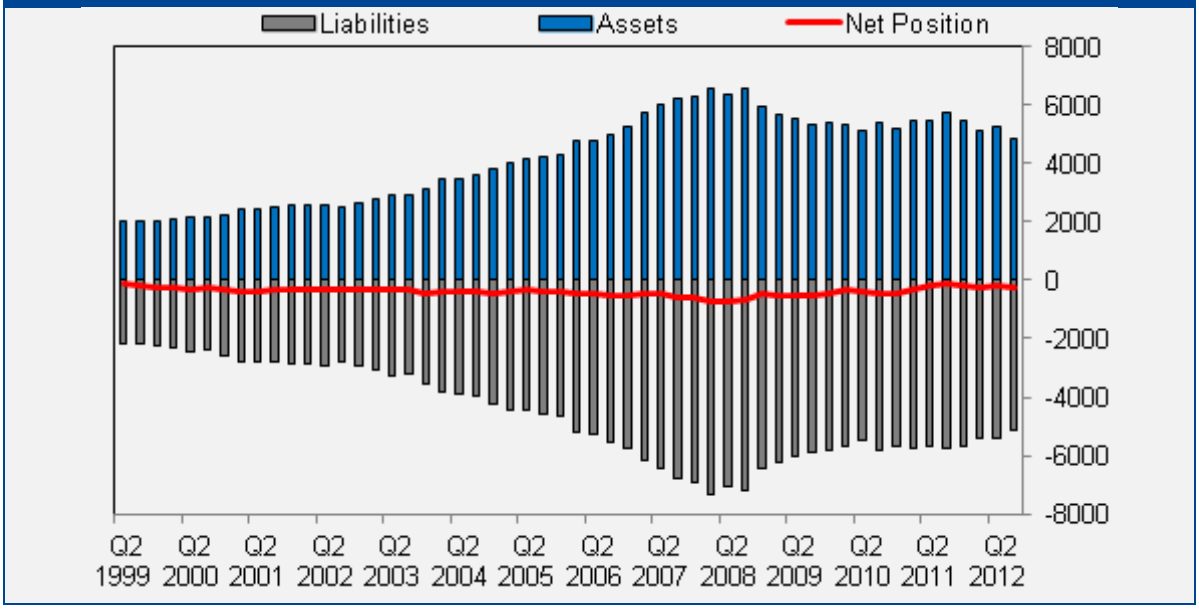
This Commentary outlines developments in European banks' use of US dollar funding prior to and during the crisis, the systemic risks associated with that use and the measures taken to reduce those systemic risks. Those measures include the recommendations made by the ESRB in 2011, which focused on monitoring the use of US dollar funding and assessing the effectiveness of banks' contingency funding plans in the event of a shock to their US dollar funding, both for individual banks and for the sector as a whole.

2 RECENT DEVELOPMENTS IN EUROPEAN BANKS' US DOLLAR FUNDING

European banks' US dollar funding increased significantly between 2000 and 2008 (see Chart 1); in the five years before the collapse of Lehman Brothers, European banks' US dollar-denominated balance sheets almost tripled. By the time of Lehman Brothers' collapse, US dollars accounted for a significant share of European banks' aggregate balance sheet.

Chart 1: Gross and net US dollar positions of European banks

USD billions; quarterly data



Source: BIS estimates.

[1] For the most recent announcement on the swap facility, see www.ecb.int/press/pr/date/2012/html/pr121213.en.html

By June 2011, when the ESRB considered the possible systemic risks stemming from European banks' US dollar funding, European banks' US dollar liabilities accounted for over 15% of their total liabilities – down slightly from the peak prior to the crisis, but still a significant amount. At the same time, US dollar funding accounted for around one-third of the total wholesale funding of European banks.

European banks typically borrowed US dollars for two reasons: to fund their US dollar assets (i.e. to avoid a currency mismatch); and to fund assets priced in other currencies. On the former, European banks' US dollar assets mainly fell into four categories: loans to non-financial global corporations (for international trade, project financing, shipping, etc.); secured and unsecured interbank lending; assets for trading; and deposits held with the Federal Reserve. On the latter, banks typically chose to use US dollar funding for more than just US dollar assets (and then swap the US dollars for the currencies they required) in order to diversify their funding base or use the US dollar funding market to reduce their costs. Some banks derived cost advantages from issuing debt in US dollars and then swapping it for the desired currency, rather than issuing debt directly in the desired currency in primary markets. Some banks earned a couple of basis points in profit by funding themselves in US dollars at short maturities and placing the funds with the Federal Reserve.

Maturity structure in US dollars

Most of the US dollar funding came from wholesale markets, particularly from the issuance of short-term securities (i.e. commercial paper and certificates of deposit) and repurchase agreements. US money market mutual funds (MMMFs) were key investors in these instruments. In aggregate, retail deposits – typically regarded as a 'stable' source of funding – made up a small percentage of European banks' total US dollar funding; not many European banks have a US dollar retail network.

In June 2011, around 75% of European banks' wholesale US dollar funding had a maturity of less than one month and only a small proportion of funding had a maturity of more than one year. In contrast, around one-third of US dollar assets had maturities of more than one year. Overall, the maturity mismatch on European banks' US dollar balance sheets looked to be more pronounced than the maturity mismatch for their all-currency balance sheets as a whole.[2]

Impact on European banks' US dollar funding as a result of the financial crisis

Highly creditworthy European banks could typically access funding direct from wholesale US dollar markets before the crisis, and smaller banks and other market participants relied on these banks and foreign exchange (FX) swap markets to obtain US dollars. The reduction in unsecured interbank lending after the collapse of Lehman Brothers meant that banks that typically issued straight into unsecured US dollar funding markets had to make more use of secured funding markets, particularly FX swaps and repurchase agreements.

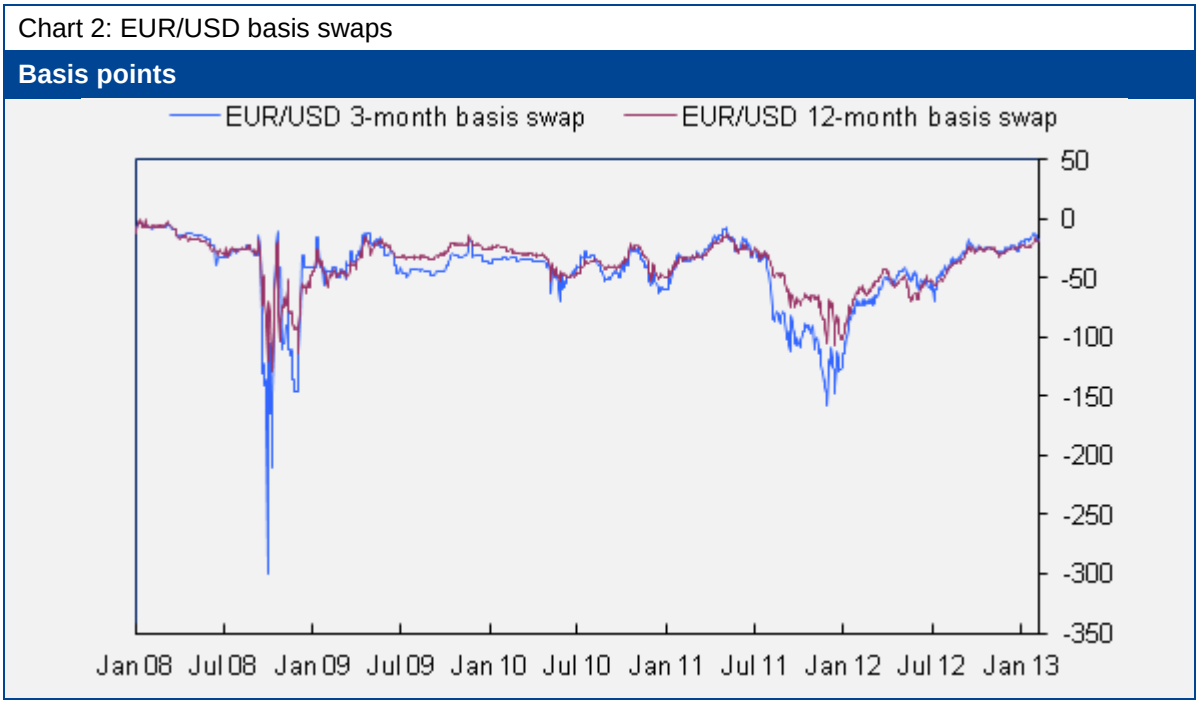
European banks' typical counterparties in US dollar funding markets also left the market as the crisis deepened. US MMMFs were particularly sensitive to perceived credit risk concerns relating to their counterparties, partly because of their own liability structure and partly because they were able to move quickly to rebalance their portfolios, and focus on other currencies, as they were investing at

[2] These findings stemmed from a one-off data collection exercise conducted by the ESRB in summer 2011 considering US dollar funding at European banks. That exercise also drew on data from the European Banking Authority (EBA).

very short maturities.[3] In addition, some suppliers of US dollar funding based in the United States were unwilling to lend or roll over funding to European banks until they had gained a good understanding of their own liquidity position for the day. Given the time difference, that was often in the middle of the US day as European markets were closing.

These reductions in the availability of US dollar funding, together with greater recourse to secured funding, led to impairments in US dollar funding markets – particularly the FX swap market. The cost of swapping euro for US dollars – an indicator of stress in US dollar funding markets – was at its highest in October 2008 (see Chart 2). Conditions started to deteriorate again in mid 2011, when the focus turned to sovereign debt problems in Europe.

Chart 2: EUR/USD basis swaps

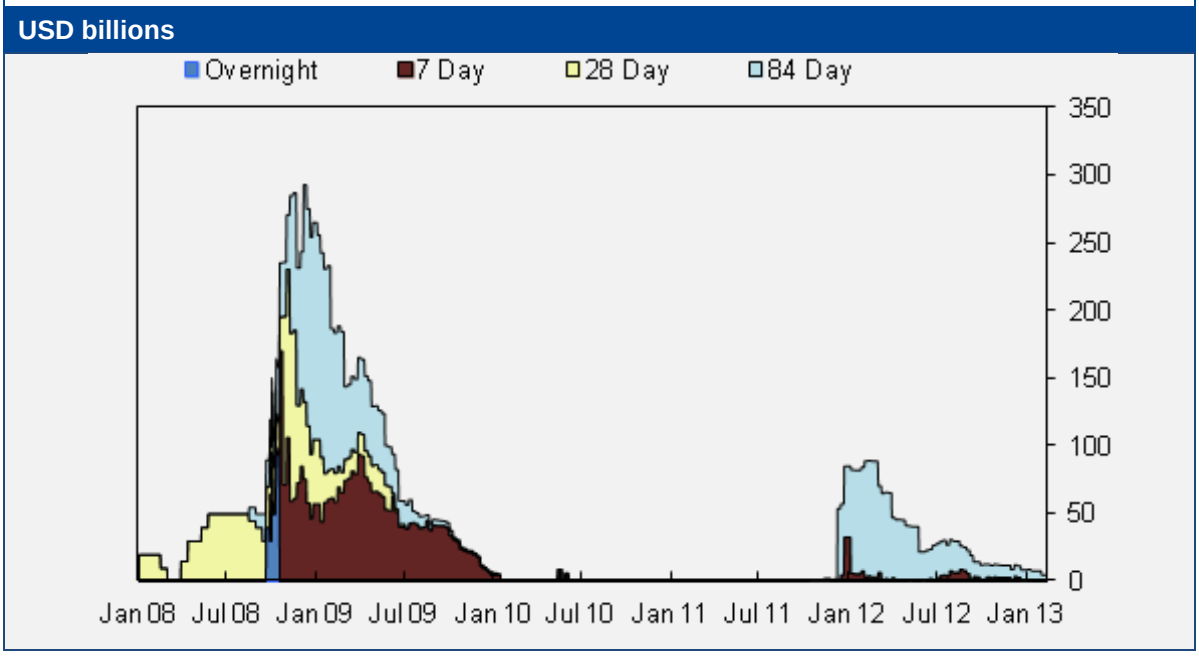


Source: Bloomberg.

During these severe strains in US dollar funding markets following the collapse of Lehman Brothers, the Federal Reserve established currency swap lines with a number of central banks, including the ECB, in order to supply US dollar liquidity to overseas markets. At its peak at the end of 2008, the volume of US dollars lent to central banks by the Federal Reserve reached around USD 550 billion, most of which went to central banks in Europe.[4] At the end of 2008, the outstanding amount of US dollar liquidity provided to Eurosystem counterparties by the ECB was almost USD 300 billion (see Chart 3), compared with Eurosystem reserves (in convertible foreign currencies) of around USD 200 billion. The swap lines were reactivated in May 2010 in response to the re-emergence of strains in short-term US dollar funding markets in Europe, as the sovereign debt crisis intensified.[5] At the beginning of 2012, the outstanding amount of US dollar liquidity provided by the ECB was around USD 90 billion.

[3] According to data from the US Securities and Exchange Commission, in August 2011 60% of US MMMFs' total exposures to the euro area had a maturity of one month or less.
[4] The ECB, the Bank of England and the Swiss National Bank.
[5] Swap lines were established with the ECB, the Bank of England, the Swiss National Bank, the Bank of Canada and the Bank of Japan.

Chart 3: ECB's use of the swap line with the Federal Reserve



Source: ECB.

Since the start of the crisis, banks have taken action to try to improve their US dollar funding structures. Evidence collected by the ESRB from market participants suggests that banks have sought to improve the stability of their US dollar funding by accessing secured funding and making use of EUR/USD swap markets. Some banks have also increased their US dollar liquidity buffers. Others have sold US dollar assets/portfolios – which has reduced their US dollar funding needs, but also caused concerns about possible falls in asset prices and adverse effects on the provision of financial services to the real economy.

3 RISKS STEMMING FROM EUROPEAN BANKS' US DOLLAR FUNDING

As outlined above, most of the European banks' US dollar funding in the run-up to the crisis was short-term wholesale funding. Available 'stable' US dollar funding was limited, and there was a significant maturity mismatch in US dollar balance sheets. A significant maturity mismatch means that banks have to renew their funding several times before they can receive the proceeds from their assets, which exposes them to frequent refinancing risk. The EBA estimated in 2011 that US dollar assets in European banks' liquid asset buffers were of lower quality than assets denominated in European local currencies.

In addition to the risks stemming from maturity mismatches, there was also evidence of concentration risks for European banks as a result of the structure of their US dollar funding, particularly at short maturities. For example, in June 2011, funding obtained from US MMMFs accounted for around 10% of some European banks' balance sheets. US MMMFs, one of the key sectors providing short-term US dollar liquidity to European banks, took similar action to each other during the financial crisis and appeared to act as a herd.[6] Furthermore, to the extent that the majority of entities providing US dollar funding to European banks were in the United States, some research

[6] For example, US prime MMMFs reduced their investment in the euro area by more than 60% between May 2011 and December 2011, according to the Investment Company Institute.

has shown that foreign investors tend to retreat more than domestic investors in times of stress.[7] This combination of strong concentration and flightiness made US MMMFs an unstable source of funding. Looking ahead, US MMMFs' willingness to invest in European banks could also be affected by proposals to strengthen the regulatory regime for such entities.

The ESRB tried to calculate a quantitative measure of European banks' possible cumulative net funding gap in US dollars in the presence of severe stress, using a one-off data collection exercise conducted in cooperation with national supervisory authorities and the EBA. That funding gap was calculated as the difference between banks' liabilities falling due in US dollars and their US dollar liquid assets. In a three-month stress scenario, using data from June 2011, the size of the funding gap ranged from €180 billion to €670 billion – with the range reflecting differing assumptions on the market liquidity of the liquid asset buffers. The method used in this calculation was necessarily approximate, but it is useful to compare it with the USD 300 billion of liquidity operations undertaken by the ECB during the crisis (see Chart 3).

As described earlier, the provision of liquidity in US dollars by central banks during the financial crisis was meant, in part, to mitigate the risk of the severe liquidity strains faced by European banks in US dollars spilling over to financial markets and the real economy more generally. Spillovers could, for example, occur if there were large-scale asset sales conducted at fire-sale prices by European banks to meet their increased US dollar obligations – which could, in turn, affect the functioning of the market and the solvency of other banks. And any impact on the resilience of banks more generally can significantly affect the provision of credit to the real economy.

However, as well as benefits, there are also potential risks resulting from the provision of this central bank liquidity. One is moral hazard and the risk that banks delay moving to a more robust funding structure in US dollars because they assume that the central banks will step in. Some market participants indicated to the ESRB that banks assumed that the central bank swap lines would be made available, and the ESRB found evidence that the contingency funding plans of some European banks did not contain explicit actions by management aimed at handling stress in US dollars.

Furthermore, use of the central bank swap lines to provide liquidity in non-domestic currencies relies on the willingness of central banks to provide them. The US dollar swap lines between the Federal Reserve and a number of central banks around the world were initially put in place in response to the systemic financial crisis and were established on a temporary basis. There is currently a network of two-way swap agreements in place between the Federal Reserve, the Bank of Canada, the Bank of England, the ECB, the Bank of Japan and the Swiss National Bank. When they were last renewed, these agreements were extended until February 2014. If swap lines were not available in the event of renewed funding strains in European banks, central banks in Europe that needed to provide liquidity insurance in non-domestic currencies would need alternative sources of foreign currency liquidity. With that in mind, Sveriges Riksbank, for example, has increased its foreign currency reserves twice in three years to maintain readiness to provide liquidity to the financial system in currencies other than the Swedish krona.[8] However, insurance of this kind has associated costs.

[7] See, for example, Claessens and van Horen, 2012, at: www.imf.org/external/pubs/ft/wp/2012/wp1210.pdf.
[8] In May 2009 Sveriges Riksbank increased its foreign currency reserves by USD 13 billion, a rise of around 50%. There was a further increase at the beginning of 2013 of USD 15 billion, a rise of 30%.

4 REGULATORY RESPONSE

Since the financial crisis, there have been a number of initiatives by policy-makers to try to mitigate the risk of similar strains arising in US dollar funding markets for European banks in the future. A number of these are a subset of broader cross-currency initiatives and fall into three main categories: data and monitoring; regulatory metrics; and contingency planning.

Data and monitoring

A number of international policy groups and national financial regulators have established new data requirements for banks on liquidity and funding risk; most of these require a foreign currency breakdown.[9] The requirements typically include cash-flow analyses, with a breakdown by currency, so that banks and regulators can conduct stress tests to calculate the length of time that banks could continue to meet their obligations in the presence of liquidity stress. These also give regulators information on the size, quality and currency breakdown of banks' liquid asset buffers. Some initiatives also require data on funding concentration, which would help, for example, to monitor concentration in US MMMFs' provision of short-term funding to European banks.

Those initiatives include a recommendation from the ESRB to national supervisory authorities encouraging them to monitor liquidity risk in US dollars and take action before risks become excessive. That was designed both to encourage countries that did not have a regular monitoring framework in place to implement one and to encourage countries that had introduced regular surveillance to continue it, even after the strains resulting from the crisis had subsided. Some countries have introduced a new legal framework to ensure the collection of these data – a recent example being Malta, where the Malta Financial Services Authority's rules on US dollar funding came into effect on 1 January 2013. Sweden is another example: Swedish banks are required to report frequent and detailed liquidity risk data for each significant currency, and Sveriges Riksbank has also recommended that banks increase disclosure on their foreign currency liquidity risk. Swedish banks now publish data on their liquidity coverage ratios (see below) in US dollars and the maturity profile of their US dollar-denominated assets and liabilities.

Regulatory metrics

Since the crisis, the Basel Committee on Banking Supervision has proposed new rules on the quantity and quality of the liquid assets that banks must hold (the "liquidity coverage ratio") and the proportion of bank funding that needs to be derived from sources that are thought of as stable (the "net stable funding ratio").[10] During the observation period for these metrics (i.e. before they are formally implemented), they will be monitored both at an aggregate level and broken down by major foreign currency.

Some European countries have already introduced liquidity regulation to address foreign currency liquidity risk. In January 2013, Sweden implemented binding liquidity coverage ratio requirements in US dollars for the largest Swedish banks.[11] Some countries (including the United Kingdom) have, as part of their liquidity regulation, the ability to set minimum requirements on the size of banks' liquid asset buffers for each major currency.

[9] For example, the Financial Stability Board's "Common Data Template for Global Systemically Important Banks" includes a currency breakdown for funding dependencies; see www.financialstabilityboard.org/list/fsb_publications/tid_157/index.htm
[10] See www.bis.org/publ/bcbs188.pdf and www.bis.org/publ/bcbs238.htm
[11] The Swedish LCR implementation applies for all currencies combined, as well as in Euro and US dollars separately.

Contingency planning

Initiatives to strengthen the financial system's resilience to shocks include requiring major firms to establish and maintain recovery plans that identify actions to restore financial strength and viability in the event that they experience severe stress. Such plans will, where appropriate, cover funding shocks in foreign currencies.[12]

The ESRB's recommendations on US dollar funding include a recommendation to national supervisory authorities aimed at ensuring that banks in their jurisdiction have measures in their contingency funding plans that would address shocks in US dollar funding markets. They also recommend that national supervisory authorities assess the feasibility of these plans (and ensure that banks do so, too), both at the level of the individual bank and at the level of the banking sector. This recognises that banks' plans in the event of an idiosyncratic shock might be ineffective in the case of a system-wide event.

5 CONCLUSION

One of the reasons why the liquidity problems that arose during the crisis did not have a greater systemic impact was the coordinated provision of US dollar liquidity by central banks via swap facilities. Some countries in Europe are currently looking at how they would handle future problems in US dollar funding markets in the event that those swap facilities were not available. There is a risk that banks' assumptions that central banks will step in, either using foreign currency reserves or establishing swap facilities, could mean that they delay moving to a more robust funding structure in US dollars. Banks and policy-makers have therefore initiated action aimed at avoiding the kinds of strains in European banks' US dollar liquidity that were seen during the financial crisis. That includes two recommendations made to national supervisory authorities by the ESRB on the basis of its view that European banks' US dollar liquidity structures could be a source of systemic risk for the European Union.

[12] The Financial Stability Board's "Key Attributes of Effective Resolution Regimes", which were agreed by G20 leaders as an international standard in November 2011, require recovery and resolution plans for at least the global systemically important firms identified by the Financial Stability Board. Section 11 and Annex III outline the essential elements of a recovery plan, including measures to secure sufficient funding while ensuring appropriate diversification of funding sources and adequate availability of collateral in terms of volume, location and quality. The EBA issued in January 2013 a recommendation on recovery planning for major EU groups.

ESRB
European Systemic Risk Board
European System of Financial Supervision

THE ESRB'S RECOMMENDATIONS

Recommendation A: Monitoring of US dollar funding and liquidity

The ESRB recommended that national supervisory authorities closely monitor the funding and liquidity risks taken on by their credit institutions in US dollars as a specific element of their overall monitoring of liquidity and funding risks. The ESRB also recommended that national supervisory authorities encourage banks to take steps to manage these risks before they reach excessive levels.

Within this overall recommendation, the ESRB outlined four more detailed areas in which national supervisory authorities need to focus their monitoring:

- the extent of the maturity mismatch in US dollars for each bank;
- the extent to which there is funding concentration for a given counterparty type – not just an individual counterparty – within a bank's funding sources;
- the use of US dollar currency swaps and the extent of banks' reliance on those markets;
- intra-group exposures in US dollars.

Recommendation B: Contingency funding plans for shocks in US dollar funding markets

The ESRB recommended that national supervisory authorities ensure that banks improve their contingency plans aimed at handling future shocks in US dollar funding markets. To do this, banks need to include specific measures addressing shocks to their US dollar funding in their plans.

The ESRB also recommended that national supervisory authorities conduct an aggregated analysis of their banks' updated contingency funding plans. This aims to look at whether the actions that banks are planning to take individually would make sense if a number of banks needed to implement them at the same time. Within their individual plans, banks also need to consider their actions from a system-wide perspective.

The recommendations are available at:
http://www.esrb.europa.eu/pub/recommendations/html/index.en.html.