

Benoît Cœuré: The importance of money markets

Speech by Mr Benoît Cœuré, Member of the Executive Board of the European Central Bank, at the Morgan Stanley 16th Annual Global Investment seminar, Tournettes, Provence, 16 June 2012.

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I wish to thank Marie Hoerova for her contribution to this speech. I remain solely responsible for the opinions contained herein.

Ladies and Gentlemen,

It is a great pleasure for me to speak at this Morgan Stanley Global Investment Seminar.

In my remarks today, I would like to share with you some concerns about the present state of the euro area money markets, which are characterised by segmentation between cash-rich and cash-poor banks and a fragmentation along national lines. I would also like to offer some thoughts on how proper money market functioning can be restored.

As you know, money markets around the world came under severe stress during the recent financial crisis and in the subsequent sovereign debt crisis, with interest rate spreads jumping to unprecedented levels and market activity declining significantly in many market segments. In my remarks today, I'll first consider the functioning of money markets before the crisis and their *malfunctioning* during the crisis, highlighting specifics of the euro area's situation compared with that of the US.

Tensions in the money markets led banks to seek to replace money market funding with central bank funding. Central banks have, since the beginning of the financial crisis, increasingly become intermediaries for interbank transactions, as witnessed by the steep increase in the size of their balance sheets.

These developments give rise to the following questions. First, if central banks are providing funding to banks in crisis times, when money markets are malfunctioning, why don't they also do so in normal times? In other words, what useful functions do decentralised money markets perform? I will argue that these markets are essential to ensure price discovery, information aggregation and peer monitoring.

Given these important benefits, a second question that arises is, how can the proper functioning of money markets be restored? I'll discuss policies that can help to revitalise money markets in the euro area later on. Such policies must be directed towards reducing counterparty risk concerns. This can be achieved by restoring adequate capital ratios and reducing the heterogeneity in the capitalisation of banks, as well as taking decisive steps towards a banking union. In the end, lending is an act of trust and there is no alternative but to restore full confidence in the soundness of bank and government finance.

Secured and unsecured money markets: the US and the euro area experience

Money markets are vital funding markets for financial institutions. I would like to highlight some key developments across various money market segments from the onset of the financial crisis to its most critical point in the autumn of 2008, and the trends that have been observed since then. While my main focus will be on the euro area, I will allude to some US developments as well, not only because the crisis had its origins in the US sub-prime market, but also to underscore the importance of the different structural characteristics of the two financial systems in determining which money market trends affected banks' access to funding most.

The start of the financial crisis in the summer of 2007 was triggered by a sudden re-pricing in the US sub-prime mortgage market, on account of risks not being properly reflected in the price of the related instruments, in particular mortgage-backed securities and collateralised debt obligations. A market-wide reassessment of financial risk led to sharp increases in premia and spreads across credit markets.

Opacity in banks' balance sheets, coupled with uncertainty about the real valuation of their assets, led to acute tensions in the markets for credit instruments. The crisis became systemic when these tensions spread to money markets worldwide in early August 2007. Some banks were facing direct exposures to "toxic" sub-prime assets; others needed liquidity to be able to honour committed credit lines to so-called conduits, bank-sponsored investment funds. These off-balance sheet entities, a part of the large shadow banking sector in the US, became unable to roll over short-term financing in the US asset-backed commercial paper market (ABCP) amid great uncertainty about asset valuations.¹ These events reinforced each other and generated uncertainty about both the solvency and liquidity of money market participants, as the extent of sub-prime exposures was unknown and counterparties could not distinguish good banks from bad.²

Longer-term unsecured money markets, the most heavily exposed to counterparty credit risk, showed signs of stress, as signalled by the spread between the three-month unsecured interbank rate (Libor for the US and Euribor for the euro area) and the overnight index swap in three months' time (OIS), a standard measure of tensions in unsecured markets.³ Chart 1 shows the spread for the euro area (red line) and the US (blue line) from January 2007 to the first week of June 2012. The spreads had been fairly stable at around five (euro area) and eight (US) basis points before August 2007. After the crisis erupted, two "regime shifts" could be seen for both the euro area and the US. First, in August 2007, the spreads jumped and remained mostly elevated at above 50 basis points. Second, after the Lehman collapse in autumn 2008, the spreads reached all-time highs of 186 and 365 basis points for the euro area and the US, respectively.

In addition, there were indications that liquidity was no longer flowing from cash-rich banks to cash-poor banks. Towards the end of September 2008, euro area banks with a surplus of liquidity seemed to prefer to "hoard" liquidity by depositing excess funds with the Eurosystem, rather than lending it through the market to banks with a liquidity shortage. Banks facing a shortage demanded high amounts of liquidity from the ECB. Chart 2 shows the amounts of liquidity deposited by banks with the Eurosystem (blue bars, daily averages per week in billions of euro), together with the Euribor-OIS spread (red line). While the amounts deposited with the Eurosystem rose dramatically (also reflecting an increased liquidity provision by the ECB in response to market tensions),⁴ the average daily volume in the overnight unsecured interbank market in the euro area almost halved by late September 2008, suggesting that even the very short-term money markets were coming under stress.⁵

¹ Covitz et al. (2012) document "runs" on ABCP programs during the second half of 2007 in the US; see D. M. Covitz, N. Liang and G. Suarez, "The Evolution of a Financial Crisis: Collapse of the Asset-Backed Commercial Paper Market", *Journal of Finance*, forthcoming.

² The effects of asymmetric information and counterparty credit risk on the interbank market functioning are analysed in F. Heider, M. Hoerova and C. Holthausen, "Liquidity hoarding and interbank market spreads: The role of counterparty risk", ECB Working Paper No 1126, 2009.

³ The OIS is a measure of what the market expects the overnight unsecured rate to be over a three-month period. Since interest rate expectations are present in both variables, the difference between EURIBOR (or LIBOR) and OIS reflects other factors, such as liquidity effects and credit risk.

⁴ A rise from a daily average of €0.09 billion in the week starting 1 September 2008 to €169 billion in the week starting 29 September 2008.

⁵ At the onset of the crisis in August 2007, the overnight interbank market actually saw an increase in volume. The average daily volume was €41 billion in the year prior to 9 August 2007. It increased by 27%, to

The US overnight unsecured interbank market also showed growing counterparty risk concerns following the Lehman bankruptcy, with poorly performing banks seeing an increase in the interest rates on their interbank loans.⁶

To prevent market-wide liquidity problems from turning into solvency problems for individual institutions, the Eurosystem introduced, as of October 2008, a fixed-rate full allotment regime in its refinancing operations, offering unlimited liquidity to banks at predictable cost against an expanded set of eligible collateral. This led to an excess supply of central bank liquidity, relative to the liquidity needs of the banking sector. The rise in the liquidity deposited with the Eurosystem after October 2008 (Chart 2) was a direct consequence of this new regime and a symptom of a malfunctioning money market. Let me add that many banks deposit their excess liquidity back with the Eurosystem as a result of a simple accounting identity; by itself this does *not* necessarily imply that banks are *not* injecting liquidity into the economy.

Since the onset of the crisis, the key money market trends affecting bank funding patterns were, for the US, the tensions in the secured markets (known as a “run on repo”) and, for the euro area, a shift from unsecured towards secured funding, as well as a fragmentation of money markets along national lines, further exacerbated by the emergence of the sovereign debt crisis.

The “run on repo” has been often seen as playing a key role in the collapse of the US shadow banking sector. This was a major cause for concern as the size of the US shadow banking sector, measured by the total amount of its assets, was comparable with that of the traditional, regulated banking system.⁷ Tensions in the secured markets manifested themselves in increased haircuts across collateral types. Recent empirical evidence suggests that most of the increase occurred on private sector securities, while haircuts on government bonds, which constitute the bulk of assets used as collateral in repo transactions, increased only modestly.⁸ However, some key dealer banks with large exposures to private sector securities were heavily affected by the contraction in repo. As a result, these institutions reduced lending to other players in the shadow banking system.

The shadow banking system in the euro area is less important than in the US, as it constitutes less than half of the total assets of the banking sector. (Assets held by shadow banking-related sectors in the euro area were estimated to amount to €10.8 trillion in the second quarter of 2011).⁹ A major fraction of intermediation in money markets occurs at the interbank level. Still, interbank markets in the euro area came under severe stress because of weaknesses in parts of the banking system: in some countries banks were heavily exposed to real estate and housing bubbles; in other countries banks suffered from sovereign risk exposure.

€52 billion between 9 August 2007 and 26 September 2008. This increase could reflect a shift towards more short-term financing in the interbank market. See Heider et al. (2009) cited above for details.

⁶ See G. Afonso, A. Kovner, and A. Schoar, “Stressed, Not Frozen: The Federal Funds Market in the Financial Crisis”, *Journal of Finance*, Vol. 66, No. 4, 2011.

⁷ For details, see K. Bakk-Simon, S. Borgioli, C. Giron, H. S. Hempell, A. Maddaloni, F. Recine, and S. Rosati, “Shadow banking sector in the euro area: An overview”, ECB Occasional Paper No 133, 2012.

⁸ Krishnamurthy et al. (2012) report that a full-scale “run on repo” did not seem to have occurred (unlike in the ABCP market). See A. Krishnamurthy, S. Nagel and D. Orlov, “Sizing Up Repo”, NBER Working Paper No 17768, 2012. This contrasts with previous studies, for example, G. Gorton and A. Metrick, “Securitized Banking and the Run on Repo,” *Journal of Financial Economics*, forthcoming.

⁹ See Bakk-Simon et al. (2012) cited above. The shadow banking aggregate corresponds to a sector comprising the other financial intermediaries (OFI) sector plus money market funds (MMFs) minus investment funds other than MMFs. The OFI sector comprises all financial institutions other than those included in the monetary financial institutions (MFIs) and the insurance corporations and pension funds.

Let me provide some evidence of key trends in euro area money markets with a series of charts.¹⁰

Stress in the unsecured money market segment continued beyond 2008, with a reduced turnover and preference for lending at shorter maturities, which carry relatively less risk for the lender (Chart 3). More generally, the share of interbank liabilities in the total assets of monetary financial institutions (MFIs) domiciled in the euro area has exhibited a declining trend since the fourth quarter of 2008 (Chart 4). The levels are still below those observed in the pre-crisis period.

The euro repo market also experienced tightening conditions in 2008, characterised by declining volumes, the exclusion of some securities from the pool of eligible collateral, as well as the exclusion of some counterparties by means of larger haircuts and margin requirements. After a drop in 2008, volumes started increasing from 2009 onwards, reflecting to some extent a shift from unsecured to secured funding, which gives lending banks more protection against counterparty credit risk.¹¹

Before the crisis, financial markets in the euro area were integrating rapidly. According to the financial integration indicators developed by the ECB, euro area money markets achieved the fastest and most complete integration.¹² However, as liquidity dried up in the money markets, a tendency for a “home bias” in interbank lending arose. This tendency intensified with the onset of the sovereign debt crisis for banks domiciled in fiscally strained euro area countries. The nationally based government support schemes may have contributed to this phenomenon.

Chart 5 shows that, after a steady decline since the end of 2004, the share of domestic interbank liabilities in total interbank liabilities in the euro area started rising in the first half of 2008. The unweighted average of the shares across euro area countries then stabilised around the same levels, while the weighted average (driven by the largest countries) continued along an upward path. With regard to cross-border euro area interbank liabilities (that is, interbank liabilities coming from other euro area countries), after a fall in the last quarter of 2008, the share remained broadly stable (Chart 6).

At the same time, dispersion in banks’ access to funding increased considerably in the euro area, with banks domiciled in countries under sovereign strains facing severe constraints even in obtaining secured funding. These trends led to an increased reliance by a part of the banking system on central bank funding. Chart 7 shows that, at the end of 2008, the Eurosystem’s funding (as a share of total deposit liabilities) to banks in some euro area countries increased markedly. After a mild improvement in euro area money market activity in the second half of 2010, increased borrowing from the Eurosystem was observed again in mid-2011, owing to the intensified sovereign debt crisis. At the end of the first quarter of 2012, average recourse to central bank funding by euro area banks in respect of total deposit liabilities stood at over 5%, slightly higher than the level observed after the Lehman collapse, with a very wide dispersion across euro area countries.

Central bank intermediation of interbank funds was necessary to ensure a smooth transmission of monetary policy across the euro area and to avoid a major credit crunch. However, it may have come at the cost of crowding out some market activity. It may take a long time before secured, and particularly unsecured, money market segments begin to function normally again. More importantly, money market transactions will not come back if the fundamental causes are not addressed.

¹⁰ For a detailed account of changes in the funding patterns of euro area banks see “Changes in bank financing patterns”, European Central Bank, April 2012.

¹¹ See the report “Changes in bank financing patterns” cited above.

¹² The full set of the indicators can be found in the ECB’s annual report “Financial Integration in Europe”.

Importance of money markets

I now turn to the more general question of why well-functioning, decentralised money markets are a crucial component of the financial system. Three factors explain the importance of money markets: their contribution to market efficiency and market discipline; their impact on financial stability and on financing conditions in the economy at large; and their role as an initial link in the chain of monetary policy transmission.

Deep and liquid money markets, not unlike other markets in the economy, play an important part in information aggregation and price discovery. Indeed, money market rates, such as Euribor and Libor, provide benchmark rates for the pricing of fixed-income securities and loan contracts throughout the economy.

Moreover, interbank money markets play a significant role in providing incentives for banks to conduct business in a safe and sound manner, thus ensuring market discipline.

Specifically, in the unsecured money markets, where loans are uncollateralised, interbank lenders are directly exposed to losses if the interbank loan is not repaid. This gives lenders incentives to collect information about borrowers and to monitor them over the lifetime of the interbank loan, making the loan repayment more probable. Therefore, unsecured money markets play a key peer monitoring role.¹³ The information banks acquire about each other may not be readily available to regulatory authorities and central banks.¹⁴

In the secured money markets, lenders mitigate credit risk exposure by requiring borrowers to post collateral, and by imposing haircuts on collateral values. While attenuated credit risk concerns may make it easier for borrowing banks to obtain credit, secured funding comes at the cost of acquiring and holding collateral, as well as relatively weaker incentives for lending banks to conduct monitoring.

Developments in money markets can have profound implications for financial stability and the functioning of the entire economy, for they affect the financing conditions faced by non-financial corporations and households. Being an essential source of bank funding, money markets have a significant impact on the size of the balance sheet of financial institutions and the amount of credit they can extend. As such, money markets can contribute to procyclicality and the so-called leverage cycles: at times of generalised optimism, high asset valuation, low haircuts and abundant liquidity in money markets can lead to higher leverage and credit expansion, whereas when bad shocks hit the economy asset prices drop, haircuts increase and liquidity can dry up.¹⁵

¹³ Rochet and Tirole (1996) emphasise the role of interbank peer monitoring in reducing borrowers' moral hazard and their excessive risk-taking ex post; see J.-C. Rochet and J. Tirole, "Interbank Lending and Systemic Risk," *Journal of Money, Credit and Banking*, Vol. 28, No. 4, 1996. Hoerova and Monnet (2011) view market discipline in the unsecured money markets as a provision of ex ante incentives to mitigate risk of borrowers' investments; see M. Hoerova and C. Monnet, "Money market discipline and central bank lending," presented at the workshop on the "Post-crisis design of the operational framework", European Central Bank, October 2011.

¹⁴ Money markets were among the first to respond to the arrival of bad news about the US sub-prime mortgage market, with rising interest rates and/or unwillingness to roll over maturing debt. When perceived risk and the distribution of risk in the financial system suddenly increase, the incentives of money market lenders to monitor their borrowers intensify, resulting in adjustments in the price and quantity of credit granted. Conversely, when risk is perceived to be low and relatively homogeneous, borrowers get refinanced easily. Smooth money market functioning in the run-up to the crisis was aided by generalised optimism and low risk aversion in markets, driven inter alia by a benign macroeconomic environment, ample liquidity in the financial system due to a "savings glut" and accommodative monetary policy, as well as agency problems in the financial sector.

¹⁵ See J. Geanakoplos, "Solving the Present Crisis and Managing the Leverage Cycle", Federal Reserve Bank of New York Economic Policy Review, August 2010.

If liquidity dries up, it can force banks to de-leverage, thus affecting the supply of bank credit, or to acquire liquidity by liquidating or selling assets. Asset liquidation can impose externalities on other players in the financial system through, for example, fire sales and financial contagion.¹⁶

From the monetary policy perspective, money markets play a central role in monetary policy transmission in the euro area. This is because the euro area financial system is largely bank-based and interbank money market interest rates represent the marginal cost of funding bank loans. When money markets function normally, the ECB can influence the longer-maturity rates, which are relevant for determining bank lending rates, by steering very short-term money market rates to keep them close to its official rates. A smooth functioning of money markets therefore guarantees that the impulse of monetary policy is transmitted across the financial system and to the real economy without impairments.

Revitalising money markets in the euro area

Given the significance of well-functioning money markets, their revival is essential for the euro area. Revamping money markets calls for a reversal of the aforementioned adverse trends of low and fragmented money market activity, and the resulting increased reliance on liquidity provision by the ECB. As these trends are driven by counterparty risk concerns in the banking system, restoring proper money market functioning and integration among different jurisdictions requires restoring confidence in banks' health. It also requires banking and market supervisors to resist the temptation to ring-fence liquidity and capital within national boundaries. This is a classic problem of collective action: uncoordinated national reactions to heightened uncertainty could be collectively lethal to the single market for capital.

Two sets of actions seem to be key in tackling these concerns at their root: one set to strengthen bank balance sheets and another set of actions to break the self-reinforcing loop between bank and sovereign debt risks and move to truly unified European supervision.

To strengthen bank balance sheets, first, adequate capital ratios must be reached in the banking system. The EBA Capital Exercise, with EU banks being expected to reach a core Tier 1 capital ratio of 9% by the end of this month, will be an important milestone. Regulators should then make sure that the subsequent transition to the Basel III framework does not result in a weakening of the capital buffers. The heterogeneity of capital ratios must also be reduced. The median core Tier 1 capital ratio of large euro area banks is not significantly lower than that of their global counterparts. However, the variation in this ratio across institutions is substantially wider in the euro area, introducing asymmetries in banks' access to funding and funding costs.

Second, leverage in the euro area banking system must be reduced. The aggregate leverage (asset-to-equity) ratio of large euro area banks remains comparatively high by international and historical standards.¹⁷

The adverse feedback loop between banks and sovereigns, in which doubts about the solvency of the sovereigns feed doubts about the solvency of the banks, and vice versa, will be broken more readily by the establishment of a true banking union.

¹⁶ See, for example, V. Acharya and S. Viswanathan, "Leverage, Moral Hazard and Liquidity", *Journal of Finance*, Vol. 66, No 1, 2011; F. Allen and D. Gale, "Financial Contagion", *Journal of Political Economy*, Vol. 108, No. 1, 2000; and M. Brunnermeier and L. H. Pedersen, "Market Liquidity and Funding Liquidity", *Review of Financial Studies*, Vol. 22, No 6, 2009.

¹⁷ For more information on the deleveraging process in the euro area banking system, see Special Feature A, *Financial Stability Review*, ECB, June 2012.

This should include the creation of a pan-euro area deposit insurance fund and a pan-euro area bank resolution framework, supported by a single supervisory system with centralised decision-making. If the European Stability Mechanism could inject capital directly into banks, with strong conditionality and control, this would also help to break the bank-sovereign loop. These new institutions would mitigate counterparty risk and promote a truly integrated approach to banking supervision. In addition, they would foster the integration of the banking system not only at the money market level, but also at the retail level: the emergence of truly pan-European banking institutions, provided they are properly controlled, would attenuate asymmetric shocks within Member States and favour risk-sharing.

Depending on how they are devised, some features of such a banking union, such as a single euro area deposit insurance or a single resolution fund to wind down failed banks, may result in additional sharing of fiscal risk among euro area countries. These mechanisms should come with the appropriate parliamentary controls. There should be no sharing of fiscal risks without democratic decision-making and accountability.

Money market functioning will also be affected by the incoming regulation. I have in mind in particular the new set of liquidity standards proposed by the Basel Committee,¹⁸ the moving of over-the-counter derivatives trading towards central counterparties (CCPs) and the reform of the shadow banking sector. The aim of the current regulatory reforms is to establish an incentive-compatible regulatory framework as well as to encourage banks to adopt business models that allow them to limit their risks and fulfil the regulatory requirements without relying excessively on central banks as liquidity providers.

In respect of liquidity, the Basel Committee proposed in December 2010 two new standards: the liquidity coverage ratio (LCR), which aims to ensure that banks hold sufficient high-quality liquid assets to withstand an acute stress scenario lasting one month; and the net stable funding ratio (NSFR), which aims to address banks' longer-term structural liquidity mismatches by requiring a minimum amount of stable funding (based on the liquidity characteristics of banks' assets) over a one-year period. It is important that the regulation does not hamper the functioning of funding markets. This applies in particular to the calibration of the run-off rates for interbank funding and to the asymmetrical treatment of liquidity facilities extended to financial firms.

The regulators' welcome push to move over-the-counter derivatives towards CCPs, which aims to limit counterparty risk and promote greater netting efficiency and transparency, may also have an effect on both the unsecured and secured money market segments. This is because such a move will lead to an increased need for high-quality collateral.¹⁹ However, the supply of safe assets is finite and the pool of "good" collateral is dwindling as the creditworthiness of certain sovereigns is questioned by market participants. The more good collateral is pledged to the CCPs, the less is left to use in the secured money market, and the fewer assets are available to other creditors in the event of default, making it difficult to obtain unsecured refinancing. This strengthens the need to find ways to identify or produce new assets that can be used as collateral and to mitigate the pro-cyclical consequences of credit ratings and of market valuation.

Lastly, money market functioning may be affected by the ongoing discussions on the regulation of the shadow banking sector, some parts of which provide funding to the

¹⁸ Basel Committee on Banking Supervision, "Basel III: A global regulatory framework for more resilient banks and banking systems", December 2010 (revised version of June 2011).

¹⁹ The higher demand can be driven by a number of factors including a current under-collateralisation of over-the-counter transactions, reduced re-hypothecation of collateral and CCPs only accepting relatively high quality collateral. Estimates of the demand for extra collateral vary. A recent report by Morgan Stanley and Oliver Wyman estimates the demand at USD 500–800 billion. Singh (2009) estimates the costs to be around USD 200 billion (see M. Singh, "Collateral, Netting and Systemic Risk in the OTC Derivatives Market", IMF Working Paper WP/10/99, 2009).

traditional, regulated banking system. For example, there is some evidence that US money market funds (MMFs) provide sizeable US dollar funding to European banks.²⁰ In this context, the changes in the US regulation on MMFs, which sets shorter maturity limits for securities held by MMFs and other liquidity requirements, may have a lasting effect on the US dollar funding conditions for European banks.

Conclusion

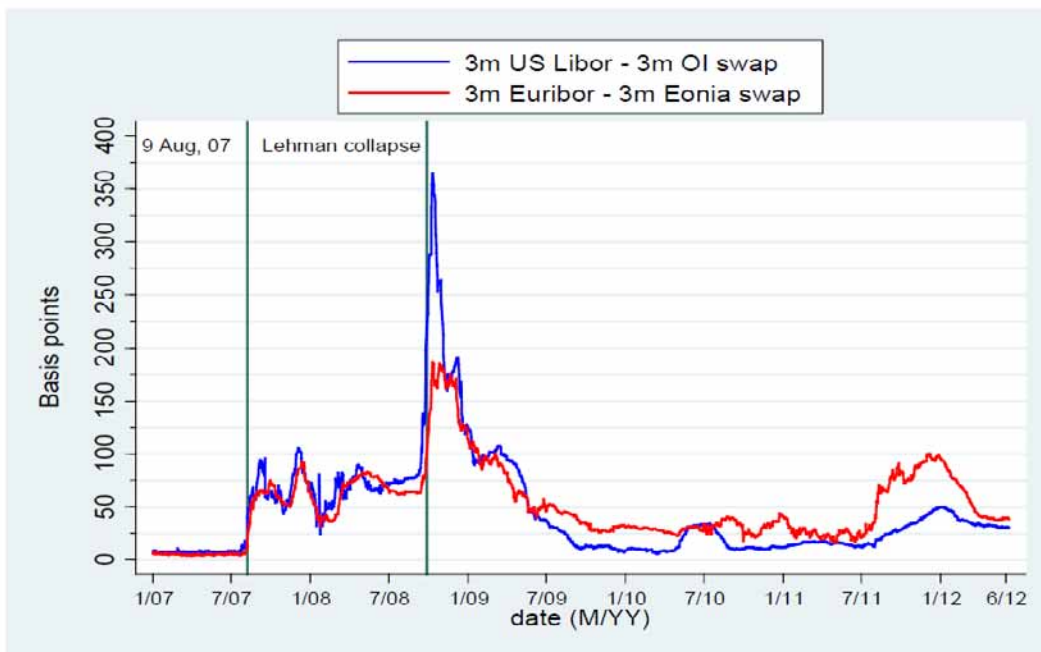
Let me conclude.

The importance of money markets for monetary and financial stability and for lending conditions in the economy calls for careful monitoring of recent money market trends to assess which trends are temporary and which are more structural, induced inter alia by the current regulatory overhaul. Restoring proper market functioning requires a series of actions to rebuild confidence in the creditworthiness of banks and governments, as well as the taking of decisive steps towards a banking union.

Thank you for your attention.

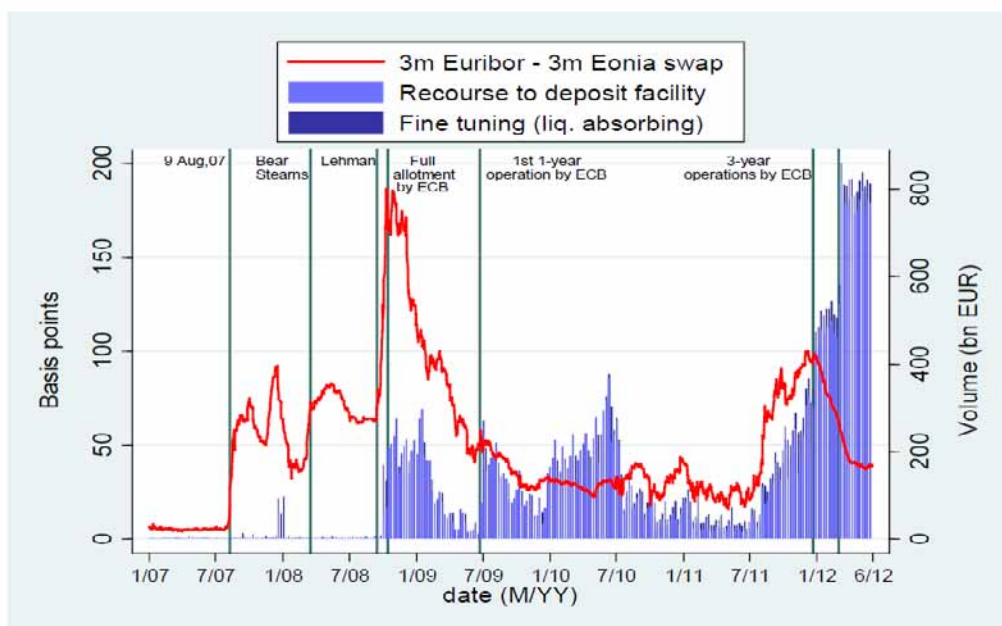
²⁰ See Bakk-Simon et al. (2012) cited above.

Chart 1: Three-month BOR-OIS spreads: US and EA



Source: Heider, Hoerova and Holthausen (2009), "Liquidity hoarding and interbank market spreads: The role of counterparty risk", ECB WP No 1126.

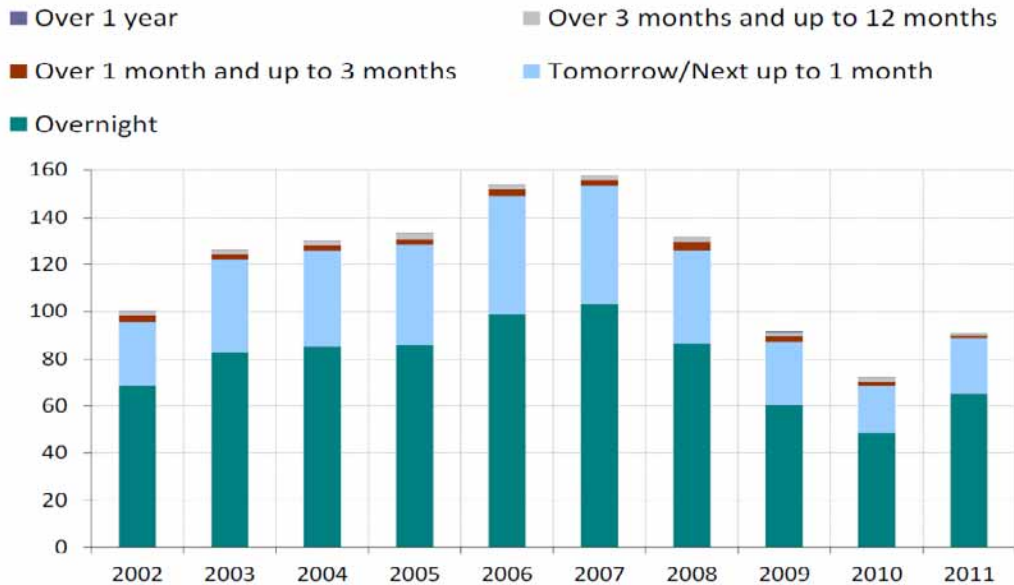
Chart 2: Three-month spread and liquidity absorption in the EA



Source: Heider, Hoerova and Holthausen (2009), "Liquidity hoarding and interbank market spreads: The role of counterparty risk", ECB WP No 1126.

Chart 3: Maturity breakdown for average daily turnover in unsecured borrowing

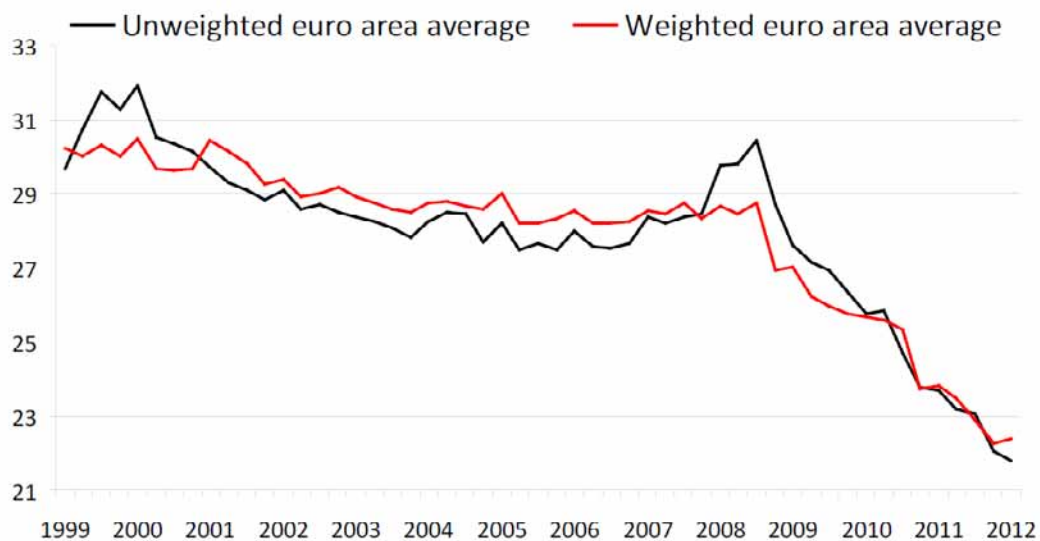
(2002 – 2011; cash borrowing volume in 2002 = 100)



Source: ECB

Chart 4: Ratios of interbank liabilities to total assets

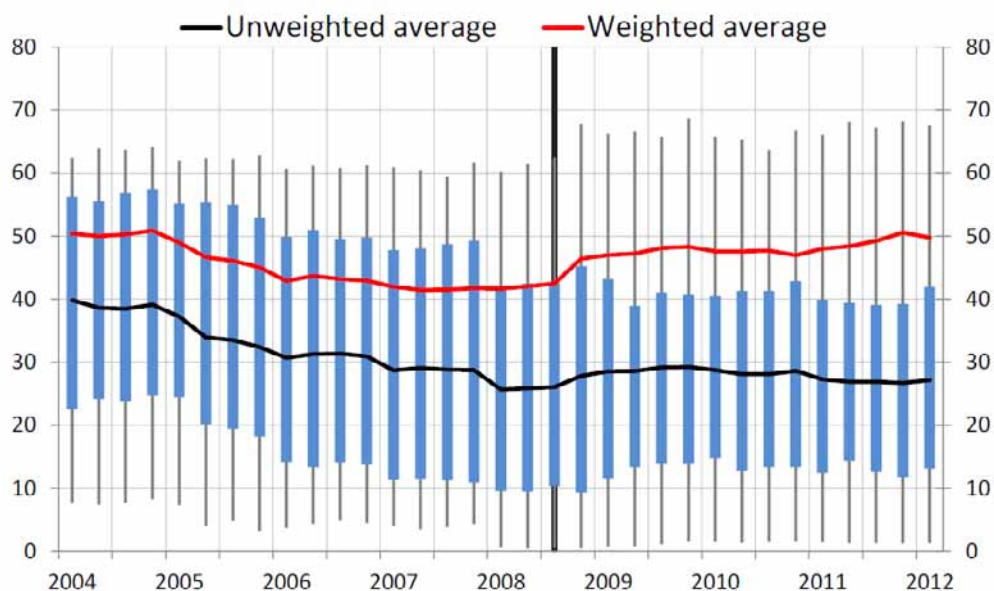
(Q1 1999 – Q1 2012 ; percentages)



Source: ECB

Chart 5: Domestic interbank liabilities in total interbank liabilities

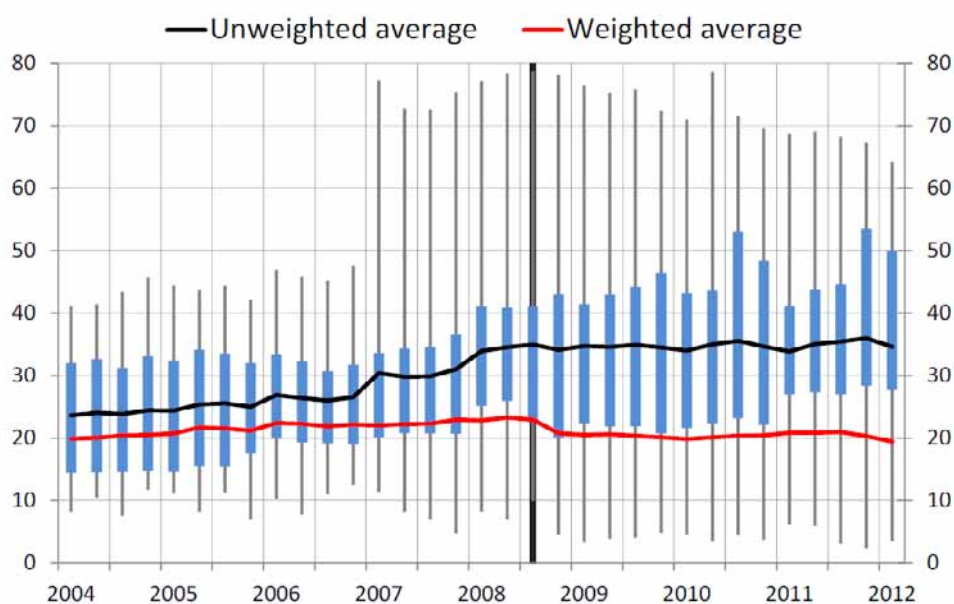
(Q1 2004 – Q1 2012 ; percentages; maximum, minimum and interquartile distribution across euro area countries)



Source: ECB

Chart 6: Other euro area interbank liabilities in total interbank liabilities

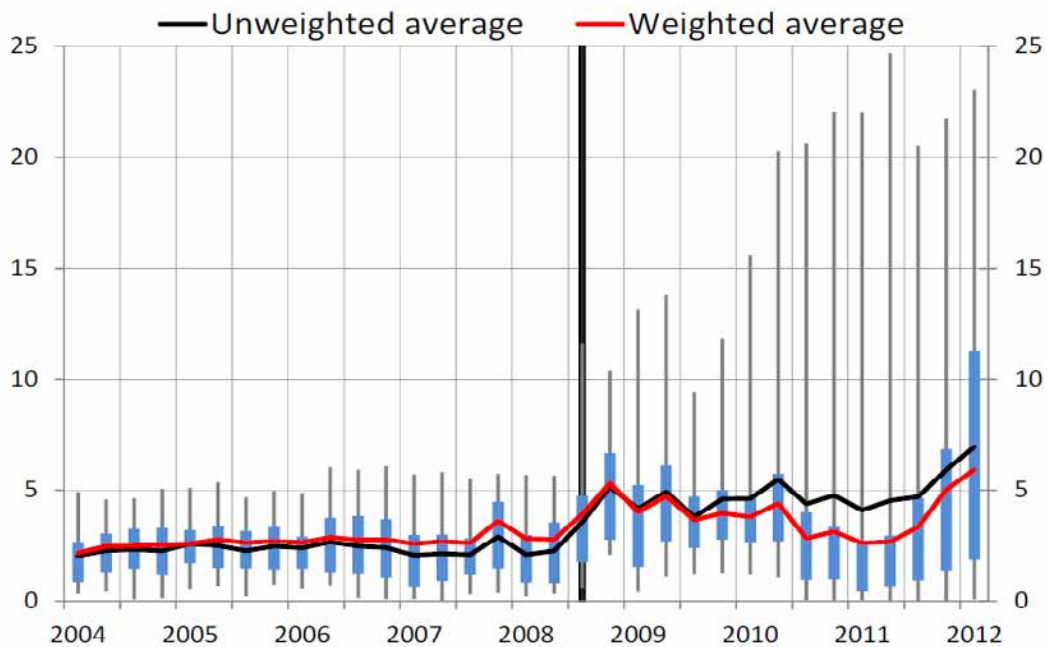
(Q1 2004 – Q1 2012 ; percentages; maximum, minimum and interquartile distribution across euro area countries)



Source: ECB

Chart 7: Eurosystem funding in total deposit liabilities

(Q1 2004 – Q1 2012 ; percentages; maximum, minimum and interquartile distribution across euro area countries)



Source: ECB