"Macroeconomics and Liquidity"

Paris 24 – 25 June 2008

Round table discussion on the turmoil affecting financial market since summer 2007, introduced by Markus Brunnermeier (Princeton) on the basis of his paper "Deciphering the 2007/2008 Liquidity and Credit Crunch" and chaired by Jean Tirole (TSE). The discussants were: Olivier Blanchard (MIT), Jean-Pierre Landau (Banque de France), Georges Pauget (Crédit Agricole) and Peter Praet (Banque Nationale de Belgique)\(^1\).

How can the scale of the crisis be explained?

The losses incurred on US mortgage loans in the wake of the subprime crisis are estimated at approximately USD 500 billion. While this amount is substantial in absolute terms, it only corresponds in reality to a 3% decline in equity markets as a whole; this type of fluctuation occurs regularly without triggering a global financial crisis. Furthermore, liquidity crises are not new; in 1998, the Asian financial crisis and the Russian default had already caused financial market transactions to come to a standstill. But the situation rapidly returned to normal. How did the losses incurred on subprime loans lead to such major and persistent turmoil in the financial system?

This problem essentially stems from a significant maturity mismatch between long-term loans and their short-term funding. In complex securitisation transactions, banks (or more generally lending institutions) take loans off their balance sheets and place them in structures known as conduits or SIVs. These structures refinance themselves on financial markets by issuing 3-month commercial paper (ABCP) or 1-year notes (MTNs). They have no own funds and it is only the quality of the assets that guarantees the redemption of the securities issued. To hedge against the liquidity risk that may result from this maturity transformation, these specific structures hold credit lines with banks, which are generally those which originated the deal. Banks themselves engage massively in maturity transformation. Since a large share of their assets is removed from the balance sheet through securitisation operations, their liabilities have increasingly short maturities and they rely more

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\(^1\) This paper, as well as the other papers presented at the conference, may be downloaded from the Banque de France and TSE websites; [http://www.banque-france.fr/gh/publications/telechar/seminaires/2008/Brunnermeier.pdf](http://www.banque-france.fr/gh/publications/telechar/seminaires/2008/Brunnermeier.pdf)

\(^2\) This document summarises the round table discussions. It does not necessarily reflect the position of the institutions that the participants represent.
and more on overnight repos for funding. In recent years, bank liquidity has dropped significantly, with the share of liquid assets in the balance sheet total falling from 20% to 5%.

**Two types of liquidity risk are now present on a massive scale:**

- **Illiquid assets** (market liquidity risk): these are either real-estate loans that cannot be sold directly on a market or securitised loans that are assumed to be high-quality since they are AAA-rated and are therefore tradable but become illiquid if there is any doubt about their quality;

- **Necessary but random refinancing** (funding liquidity risk), which depends on investors’ appetite for ABCPs and MTNs and, when credit lines are drawn on instead of issuing ABCP or MTNs, on banks’ ability to refinance increasingly large amounts.

However, as soon as real-estate prices started to level off then decline, these products turned out to be of a much lower quality than their AAA rating seemed to suggest. How can this be explained?

The “Originate and Distribute” model in which loans are granted, repackaged and then passed on to other investors, with the accompanying financial innovations, responds to a real economic need, i.e. to be able to transfer risk to the agents that are best equipped to bear it. This led to the creation of structured products with low-risk AAA tranches sold for example to pension funds and riskier tranches to Hedge Funds. But its massive growth and the way in which it is applied stem in fact from many of the wrong reasons:

- attempting to sidestep constraints on regulatory capital established by the Basel Committee by removing liabilities from the balance sheet, either by transferring them to an off-balance sheet structure (credit lines) or, when the bank repurchased the instruments created by the securitisation, transforming a standard credit risk into a AAA risk to save on regulatory capital;

- seeking to minimise refinancing costs by adopting short-term refinancing strategies in a context where short-term interest rates are very low and by raising capital at the lower AAA interest rate associated with the securitisation, when the normal rating in banks’ balance sheets would have been A minus. This strategy made institutions especially vulnerable to a rise in interest rates and/or to a possible rating downgrade;

- poorly assessing the underlying risk. Some believed that the slicing and dicing of risk (many “small” housing loans generally covering the whole of the United States) would drastically diminish the overall risk; historically the correlation between the housing markets of the different regions of the United States was low and the risk of an overall housing market crash was therefore limited. Indeed, the great majority of investors relied on ratings agencies, which were supposed to reduce information asymmetries and assess, on the former’s behalf, the risk inherent in complex products;
• the search for yield through illiquid products in a very low interest rate environment where the rules governing the mark-to-model valuation of illiquid instruments remained for a long time reasonably flexible and where bonus schemes rewarded fund managers’ short-term performance.

Furthermore, by putting distance between the borrower and the final lender, the originate-and-distribute model led to a deterioration of lending standards since the loan originator had no real incentive to ensure that the borrower was creditworthy. This resulted in a massive worsening in the quality of mortgage loans, in particular in 2006 and 2007.

All in all, the development of the originate-and-distribute model inevitably paved the way for a deterioration of the quality of loans and liquidity problems. Yet, in a context where marking-to-market became increasing widespread, the liquidity crisis was amplified by a number of mechanisms:

• A balance sheet channel: when a refinancing problem arises, assets must be sold, resulting in a fall in their market value and thus highlighting the losses on outstanding positions. In turn, this accounting recognition of losses exacerbates refinancing difficulties, triggering a negative spiral. This spiral is especially negative since it goes hand in hand with two related mechanisms. First, the most liquid assets are initially sold and the average quality of the residual asset declines, thus increasing refinancing difficulties. Second, this price fall triggers further margin calls, which, in order to be met, requires additional demand for refinancing.

• A credit channel that consists of a sharp decline in refinancing offered by investors, due to a two-fold mechanism: the uncertainty of potential lenders as to their own future liquidity needs (possible drawing on certain credit lines), prompting them to hold an excess funding cushion as a precautionary measure, and the exacerbation of information asymmetries regarding the quality of borrowers that generates an adverse selection effect where in the end only the least creditworthy players seek refinancing on the market, while the sounder ones might defer their refinancing until a later date (variation of George Akerlof’s “Lemons problem”, in his study on the used car market).

Lastly, this resulted in a rise in risk premia, a decrease in money market transactions, or even their complete drying-up for certain maturities, and made some institutions unable to meet their commitments.

What actions did central banks take?

Central banks took co-ordinated action, intervening massively to restore liquidity on the money market by:

• increasing, in a quantitative manner, their refinancing operations: the Fed reduced its portfolio of Treasury securities and increased its direct refinancing to the banking system; the ECB raised the allotted volumes over and above the net requirements of the banking system while conducting overnight liquidity-absorbing operations;

• broadening the list of eligible collateral for their operations; in fact, the Fed and the Bank of England generally converged towards the
Eurosystem’s model in which good quality ABSs are included with a reasonable haircut;

- **extending the list of counterparties eligible** for central bank refinancing operations (broker dealers in the United States, providing US dollar funding to European institutions in the framework of the Term Auction Facility (TAF);

- **extending the maturities of refinancing operations** and conducting supplementary longer-term refinancing operations (3 months and 6 months in the Eurosystem);

- **allowing relatively illiquid securities** (ABS) to be exchanged for liquid securities (Treasury bills) in order to improve institutions’ liquidity.

Central banks also intervened to ensure the continued functioning of financial institutions undergoing difficulties. However, by no means were rescue operations carried out for the benefit of these institutions’ shareholders, who in reality lost all or most of the value of their shares. It is even possible that the Fed may gain from the Bear Sterns rescue operation, as the liquidation of the institution’s assets is expected to raise more than the 30 billion dollars in loans granted by the Fed.

**How can a repeat performance of such difficulties be avoided?**

**Regulations must be improved** in several areas.

- By concentrating on solvency issues, regulators disregarded liquidity issues, which they had not in fact correctly analysed. These issues must be brought to the fore, with the implementation of stricter regulation on financial institutions’ minimum liquidity requirements and the organisation of rigorous liquidity stress tests to measure financial institutions’ resilience.

- **Inadequate deposit insurance systems** such as in the United Kingdom, where only 90% of the deposits are very rapidly guaranteed, have led to bank runs (e.g. Northern Rock). These systems are currently under revision.

- Supervision has proven to be inefficient, as in the case of monoline insurers providing credit enhancement. In fact, this kind of structure is likely to be discontinued once the current deals are closed.

- The regulatory framework gives too much leeway to rating agencies, which are non-regulated entities. Reform proposals are being discussed both in the United States and in Europe.

Other changes should be planned, even if specific solutions appear less clear and require further research.

- The exchange of liquid assets (Treasury bills and notes) for illiquid assets is a procedure occasionally used by the Bank of England and the US Federal Reserve to ease tensions in the money market. Should an arrangement of this kind be set up permanently, outside periods of market turmoil in order to forestall liquidity crises? A list of assets automatically
eligible for exchange should be established ex ante with a fixed-rate discount relative to their intrinsic value, determined according to a valuation model and not according to their market value. The debate has not been conclusive in view of the difficulties encountered in establishing such a valuation model and due to the questions that would arise from such strong and structural public authority intervention (by governments or central banks) in the asset price formation mechanism.

- Valuation methods have changed considerably due to the widespread use of mark-to-market practices; this leads potential investors to defer their acquisitions until the price is no longer expected to fall. As a result, prices fall more rapidly and the liquidity crisis worsens, leading to a solvency crisis. It is therefore important to review valuation methods, particularly when there is no active market for the assets to be valued; however, the extent of this revision is still subject to debate.

- Hedge Funds, which were considered as a weak point in the financial landscape, in actual fact proved to be resilient during the crisis, due to the quasi-equity nature of a significant share of their resources, which were not automatically redeemable. Should excessive leverage be limited by demanding higher minimum capital adequacy requirements? The answer to this question probably depends on the outcome on the debate concerning valuation methods; it is clear that systematic use of mark-to-market practices leads to much higher minimum capital adequacy requirements in order to absorb short, sharp drops in market prices.

- The crisis also underscored the lack of standardisation of structured finance products, which makes product comparison, substitutability and netting difficult. In fact, even two AAA-rated securities are far from being equivalent; no two CDO contracts are alike. Consequently, the markets are inefficient. It would therefore be useful to harmonise to a certain extent these products and their processing in an organised market with netting. However, this should not be done to the detriment of financial innovation, which enables markets to cater to the needs of economic players.

Finally, the crisis highlighted the advantage, during periods of market turmoil, held by the most diversified financial institutions (losses in one sector are mitigated by gains in other areas) with a large client base (whose deposits limit refinancing problems). The current restructuring of the financial landscape will undoubtedly take this into consideration.