



Research-based policy analysis and commentary from leading economists

Search

Columns Covid-19 Vox Multimedia Publications Blogs&Reviews People Debates Events About

By Topic By Date By Reads By Tag

The Central Bank as the Market Maker of last Resort: From lender of last resort to market maker of last resort

Willem Buiter, Anne Sibert 13 August 2007

Last week's actions by the ECB, the Fed and the Bank of Japan were not particularly helpful – a classic example of trying to manage a credit crisis or liquidity squeeze using the tools suited to monetary policy-making in orderly markets. Monetary policy is easy; preventing or overcoming a financial crisis is hard; managing the exit from a credit squeeze without laying the foundations for the next credit and liquidity explosion is harder still. Central bankers should earn their keep by acting as market makers of last resort.

46

A A

When banks were the main providers of credit, the financial stability mandate of central banks could be summarised as their lender of last resort function: in times of crisis, lend freely, at a penalty rate and against collateral that would be good in normal times but may be impaired in times of crisis.¹ The counterparties of the central bank in these lender of last resort operations were commercial banks (shorthand for deposit-taking institutions whose main liabilities were deposits withdrawable on demand and subject to a sequential service (first-come, first served) constraint. Their main assets were illiquid loans. This financial structure invited bank runs when confidence in the banks was undermined, for whatever reason. In the days when banks were the dominant intermediaries, a credit crunch or liquidity squeeze manifested itself in the inability of banks to borrow; a lender of last resort that targeted banks was the right vehicle for dealing with liquidity crises and credit squeezes in that set-up.

These days are gone in the globally integrated modern financial systems characterising all advanced industrial countries and an increasing number of emerging markets.

Today, external finance to non-financial corporations and to financial institutions is increasingly provided not through banks but through the issuance of tradable financial instruments directly to the financial markets or indirectly to the financial markets through banks and other financial institutions whose assets are, thanks to securitisation and similar techniques, liquid *in normal times*. Now that financial markets (and non-bank financial institutions) have increasingly taken over the function of providing credit and all forms of finance to deficit spending units, a credit crunch or liquidity crunch manifests itself in a different way from the world described by Walter Bagehot's lender of last resort (see [Walter Bagehot \(1873\), Lombard Street: A Description of the Money Market](#)).

Today, a credit crunch or liquidity squeeze manifests itself as disorderly financial markets. Because of pervasive Knightian uncertainty (risk that is perceived as immeasurable and not possible to calculate or quantify), fear and in the limit, panic, little or no trade occurs in certain classes of financial instruments (say subprime mortgage-backed 'collateralised debt obligations' CDOs) because there is no market maker with both the knowledge to price these financial instruments and the deep pockets to credibly post buying and selling prices. The precise way in which such micro-market failure (the failure to match willing buyers and sellers at prices acceptable to both) occurs differs for exchange-traded instruments and over-the-counter financial instruments (instruments for which bilateral bargaining over a deal is the normal exchange mechanism), but the solution is the the central bank has to become the market maker of last resort.



Willem Buiter

Visiting Professor of International and Public Affairs, Columbia University and CEPR Research Fellow,



Anne Sibert

Professor of Economics at Birkbeck, University of London and CEPR Research Fellow

Don't Miss

Fostering FinTech for financial transformation
Beck, Park

Fintech and digital currencies RPN. The soul of the financial system
Niepelt

The ECB strategy: The 2021 review and its future
Reichlin, Adam, McKibbin, McMahon, Reis, Ricco, Weder di Mauro

Events

VfS-Annual Conference 2021 - Call for Papers
26 - 29 September 2021 / Regensburg University / Verein für Socialpolitik

7th Annual Monetary and Financial Policy Conference
28 September - 8 October 2021 / Online / Money Macro And Finance Society

Joint Workshop on Incentives, Management and Organization (IMO) & Entrepreneurship Economics (ENT)
7 - 9 October 2021 / Copenhagen, Denmark/ Online /

The mechanics of the market maker of last resort function

The market maker of last resort function can be fulfilled in two ways. First, outright purchases and sales of a wide range of private sector securities. Second, acceptance of a wide range of private sector securities as collateral in repos, and in collateralised loans and advances at the discount window.

Outright purchases and sales of illiquid private sector securities

The first and most direct way to discharge the market maker of last resort function is through open market operations in a much wider range of financial instruments, especially private sector securities, than central banks normally are willing to trade in. Open market operations here means outright sales and purchases of financial instruments (i.e. not collateralised loans or advances).

As regards making markets in private sector securities during times of crisis, central banks appear to have moved in the opposite direction to what the logic of financial system development would suggest. Since 1933, "...the Federal Reserve has gradually narrowed the scope of securities that it purchases (or with which it conducts repurchase agreements in the open market" (David H. Small and James A. Clouse (2004), "The Scope of Monetary Policy Actions Authorized under the Federal Reserve Act", Board of Governors of the Federal Reserve System Research Paper Series - FEDS Papers 20004-40, July; this is also the source from which the information on the Fed's eligible counterparties and eligible securities is taken; see also the [Federal Reserve Act](#) itself). There have been no purchases of state or local government debt since 1933 and of bankers' acceptances since 1977. Repos using bankers' acceptances were discontinued in 1984. Outright purchases of US agency debt ceased in 1981. Effectively, outright purchases and sales in the open market have in recent decades been restricted to gold and foreign exchange, and securities issued or guaranteed by the US Federal government and certain US government agencies.

For outright sales and purchases in the open market to be effective instruments with which to address a credit crunch, the Federal Reserve should be able to buy and sell outright a range of private sector credit instruments. The private instruments explicitly authorised for outright purchase and sale by the Federal Reserve Act are bankers acceptances and bills of exchange that meet certain "real bills criteria", derived from a now defunct, at best irrelevant, and in most of its versions internally inconsistent theory of credit and money. However, while the Federal Reserve Act contains no language authorising the Federal Reserve to purchase corporate bonds, bank loans, mortgages, credit-card receivables or equities, it also does not forbid it. After all, the Federal Reserve Act also does not authorise the sale or purchase of options, yet the Fed of New York sold options on overnight repo transactions with exercise dates around the 1999 year-end, to forestall any Y2K problems.

The history of the ECB, which did not start operations until January 1, 1999 is short. Its legislative mandate and operating practices are less encumbered by history than those of the Fed.

The ECB accepts, in principle, a very wide range of both marketable and non-marketable assets both for outright purchase and as collateral in repos or collateralised loans (see, [European Central Bank \(2006\), The Implementation of Monetary Policy in the Euro Area](#), September 2006; General Documentation on Eurosystem Monetary Policy Instruments and Procedures, ISSN 1725-714X (print), ISSN 1725-7255 (online)). The list of eligible instruments for outright open market operations (and the criteria for establishing that list) is effectively the same as that for instruments eligible as collateral in repos and discount window operations.

Among the marketable instruments it accepts are, for instance, many asset-backed securities (ABS) and mortgage-backed securities (MBS). As counterparties, it accepts central banks, public sector entities, private sector entities, or international or supranational institutions. The *issuer* must be established in the EEA or in one of the non-EEA G10 countries (this includes the USA, Canada, Japan and Switzerland).

There are some strange restrictions. For instance, in the case of ABS, the "cash flow-generating backing the asset-backed securities must "... not consist, in whole or in part, actually or fully, of credit-linked notes or similar claims resulting from the transfer of credit risk by means

CopenhagenMacro Days Conference
7 - 8 October 2021 / Hybrid
online/in-person, Copenhagen /

The ECB Strategy: the 2021 review and its future - Report launch and discussion
7 - 7 October 2021 / Online /

CEPR Policy Research

[Discussion Papers](#) [Insights](#)

Homeownership of immigrants in France: selection effects related to international migration flows
Gobillon, Solignac

Climate Change and Long-Run Discount Rates: Evidence from Real Estate
Giglio, Maggiori, Stroebel, Weber

The Permanent Effects of Fiscal Consolidations
Summers, Fatás

Demographics and the Secular Stagnation Hypothesis in Europe
Favero, Galasso

QE and the Bank Lending Channel in the United Kingdom
Butt, Churm, McMahon, Morotz, Schanz

Subscribe

 [@VoxEU](#)

 [RSS Feeds](#)

 [Weekly Digest](#)

of credit derivatives.” (ECB(2006)). Why credit risk, or derivatives based on credit risk would be treated differently from market risk, and derivatives based on market risk, is a deep mystery. Functionally, risk is risk; as long as it can be priced, it is fungible.

There is also the rather wimpish restriction that the debt instrument must be denominated in euro, which means that it cannot be helpful to BNP Paribas in establishing a market for the (presumably dollar-denominated) CDOs backed by pools of US subprime mortgages. Why would the ECB wish to avoid collateral denominated in currencies other than the euro? Exchange rate risk can be hedged. Whether it ought to be hedged, or to what extent, should depend not on the currency composition of the balance sheet of the ECB, but on the contribution of the currency risk of the entire financial system of the Eurozone to the optimal risk-return combination of that financial system – of which currency risk and return are but one component. Clearly, the ECB should accept collateral denominated in currencies other than the euro if it takes its systemic stability role seriously.

The minimum credit rating it requires for eligible securities is A (that is, nothing below A-). This could be quite restrictive in a liquidity crunch/credit crisis. On the other hand, if the three leading rating agencies could convince themselves (and the markets) that the higher tranches of CDOs secured against a pool of subprime home mortgages could be rated AAA, there might be no lower bound to the credit worthiness of instruments rated A. Even so it would seem desirable to permit central banks, under exceptional and extreme circumstances, to accept as collateral for rediscounting, loans, advances or repos, financial instruments with any credit rating or unrated (junk) securities, provided they are appropriately priced and have appropriate haircuts applied to them.

Fortunately, the list of eligible counterparties and eligible instruments for the ECB and the ESCB is not fixed by law. It is decided by the ECB's Governing Council and can be changed at the drop of the collective hat. We would argue that the hat has dropped and that, *in extremis*, the ECB should consider the broadest possible set of counterparties and the most unrestricted possible set of eligible financial instruments.

The practical implementation of the market maker of last resort function can be done in many different ways. In the simplest case, the central bank could announce that for the next N trading hours/days, it would buy at least X amount of a given type of credit-impaired, illiquid security with a risk-free price P, at a price $P_1 < P$ and/or sell at most Y amount of that security at a price $P_2 > P_1$. The discount relative to the risk-free price and bid-ask spread $P_2 - P_1$ would reflect the central bank's assessment of the risk fundamentals and of the penalty required to avoid moral hazard. Note that both the selling price and the buying price set by the central bank would be set without the benefit of a contemporaneous market price for the security.

Acceptance of illiquid private securities as collateral for repos and at the discount window

The second way for the central bank to act as a market maker of last resort is to accept illiquid private securities as collateral for repos and at the discount window. This, indirectly, requires the central bank to establish a valuation of these securities. By engaging in both repos and reverse repos for the same illiquid private financial instruments, the central bank could establish the same implicit buying and selling prices P_1 and P_2 as it can through outright purchases and sales of these instruments. In the case of repos, which would, in the simplest case, be at the policy rate of interest set by the central bank, the penalty component of the contract would be determined both by the relationship of P_1 and P_2 to the risk-free price, and by the 'haircuts' (additional liquidity discounts) applied to these valuations by the central bank.

For the ECB, this should be but a small step, because the ECB already accepts non-marketable assets as collateral in repos and collateralised loans, specifically credit claims and non-marketable retail mortgage-backed debt instruments. Extending the scope of assets eligible as collateral to assets that are marketable under normal conditions but have become non-marketable owing to the disorderly markets characteristic of extreme credit crunches and liquidity crises should be simple.

It is clear the Federal Reserve Act permits the Fed, under unusual and exigent circumstances, to lend or repo against any collateral, including dead dogs and illiquid CDOs backed by subprime mortgages.

der of last resort function and the discount window

While the market maker of last resort function is a defining function of the modern central bank, the traditional lender of last resort function can also be relevant in the resolution of a crisis. Repos are collateralised open market operations; we define the lender of last resort function as bilateral transactions between the central bank and a private counterparty at the discount window. With the diminished importance in the financial system of banks and similar deposit-taking institutions, it is important that the central bank be able to exercise this function also vis-à-vis a wider range of counterparties, and against a richer array of collateral than that traditionally offered by commercial banks.

Eligible counterparties and eligible securities in a crisis

Fortunately, the Federal Reserve Act (1913) allows the Federal Reserve to lend, in a crisis, to just about any institution, organisation or individual, and against any collateral the Fed deems fit. Specifically, if the Board of Governors of the Federal Reserve System determines that there are “unusual and exigent circumstances” and at least five (out of seven) governors vote to authorise lending under Section 13(3) of the Federal Reserve Act, the Federal Reserve can discount for individuals, partnerships and corporations (IPCs) “notes, drafts and bills of exchange indorsed or otherwise secured to the satisfaction of the Federal Reserve bank ...”. The combination of the restriction of “unusual and exigent circumstances” and the further restriction that the Federal Reserve can discount only to IPCs “unable to secure adequate credit accommodations from other banking institutions”, fits the description of a credit crunch/liquidity crisis like a glove.

It is, of course, key that such (re)discounting be at a penalty rate and against collateral deemed adequate by the central bank. The Fed's discount window has three different facilities and associated rates; the benchmark primary credit rate currently stands at 6.25%, 1.00% above the Federal Funds target rate; the secondary and seasonal credit rates exceed the primary rate. The ECB's Marginal Lending Facility currently charges a 5.00% rate, also 1.00% above the ECB policy rate, the Main Refinancing Operations Minimum Bid Rate, which stands at 4.00%. Financial instruments eligible for collateral in discount operations (or repos) are valued at their market prices and a 'haircut' is applied to them.

The combination of the 100bps extra cost of the discount window over the policy rate and the haircut would be a sufficient incentive not to abuse the discount window if there were a meaningful market price at which the securities offered as collateral could be valued. Of course, in a crisis, such market prices cannot be found. This is where the job of the central bank becomes difficult, politically contentious and of vital importance. In its discount window operations during crisis times, that is, when acting as lender of last resort to some institution or IPC, the central bank will also often have to act as market maker of last resort because it will have to value financial instruments for which no meaningful market price is available.

How have central banks managed liquidity crises and credit crunches?

When acting as market maker of last resort, as when acting as lender of last resort, the central bank inevitably plays a central role in assessing and pricing credit risk; through this, the central bank will have a profound influence on the allocation of credit in the economy (see Small and Clouse (2004)). While the central bank should not be in this business during ordinary times, when markets are orderly and price formation and price discovery proceeds without the direct intervention of the central bank, it cannot avoid being in this business when markets are disorderly and fail to match buyers and sellers of securities.

Central banks have not been doing the job of market maker of last resort effectively, indeed they have barely been doing it at all. Following the stock market collapse of 1987, the Russian default of 1998 and the tech bubble crash of 2001, all that the key monetary authorities have done is (1) lower the short risk-free interest rate and (2) provide vast amounts of liquidity *against high-grade collateral only, and nothing against illiquid collateral*. The result has been that the ‘resolution’ of each of these financial crises created massive amounts of high-grade excess liquidity that was not withdrawn when market order was restored and provided the fuel that would produce the next credit boom and bust. By focusing instead on illiquid collateral, it should have been possible to achieve the same with a much smaller injection of liquidity.

The incipient financial crunch of mid-2007 has not, thus far, been met with interest rate cuts by any of the key central banks – the Fed, the ECB, the Bank of Japan and the Bank of England. That is just as well, because there is, as yet, nothing excessive about the level of the (default-) risk-free short nominal interest rate levels in the US, the Eurozone, Japan or the UK. A credit crunch is the time for central banks to start worrying about the next credit boom. Lowering the risk-free rate is not the solution to any credit crunch/liquidity crisis problem. It only encourages further borrowing and leverage by those already excessively prone to such acts.

The problems we are seeing today are the result of four to five years of (1) excessively low risk-free interest rates at all maturities in the US, Euroland and Japan, and (2) ludicrously low credit risk spreads across the board (not just in the subprime mortgage markets).

These two asset market anomalies resulted in many highly leveraged open positions that were predicated on the persistence of low risk-free rates and low spreads. Regulatory and supervisory failures compounded the magnitude of the debt and credit risk bubble that had been created. The supervisory and regulatory failures in the US mortgage markets (and not just at the subprime end of the spectrum) are so manifest that those on whose watch they occurred ought to be called to account.

When the great normalisation finally came (starting with rising risk-free real and nominal long-term rates and rising risk-free nominal short-term rates, and picking up steam with the normalisation of credit risk spreads, starting from the US subprime residential mortgage markets and derivatives based on them), a growing number of these highly leveraged open positions went belly-up. At the junk end of the market, realised default rates began to be recorded that exceeded those that had been priced into the primary and derivative securities issued in past years in these markets.

Some funds heavily invested in these mis-priced subprime mortgage-based securities went bankrupt. That is as it should be. Others, as in the case of three BNP Paribas funds exposed to the US subprime mortgage market, suspended the ability of investors to withdraw their investments from the funds, because the funds' managers and their BNP Paribas owners argued they had no way to value the funds' assets, which had become illiquid in the turbulent asset market conditions of the past week.

It is possible, indeed quite likely, that more funds that made highly leveraged bets whose success depended on the continuation of low risk-free rates and low credit spreads, will go bankrupt – and not only funds exposed to the US subprime mortgage market; the problem of financial hubris was much more widespread than that. Financial institutions heavily exposed to such funds and insufficiently diversified in other ways, may also go bankrupt. Among the ranks of the potential victims could be investment banks and deposit taking institutions. That again is as it should be, and does not call for intervention. It certainly does not call for lower central bank policy rates. Darwin must have his pound of flesh also in the financial markets, lest the central banks create a credit risk put that would put Greenspan's equity puts in the shade.

What is not as-it-should-be is that fear and panic causes financial markets to dry up, making it impossible for firms that need to raise cash to do so either by selling assets that would have realisable value in orderly markets, or by borrowing using these assets as collateral. Even if the assets are impaired, there should still be a market to sell them at a discount appropriate to the central bank's assessment of its risk of default and the central bank's assessment of the orderly market price of risk. Collateralised borrowing against such impaired assets should likewise be possible at the same default-risk-appropriate discount (as assessed by the central bank). If the markets for selling impaired assets or for borrowing using impaired assets as collateral seize up and cease to function, the central bank must step in to perform its market maker of last resort function.

During the past week, the ECB, the Fed and the Bank of Japan have injected well over \$200 billion worth of liquidity into the markets to stop the relevant private benchmarks from rising above their policy rate targets (in the US, the Federal Funds rate was threatening to rise sharply above 5.25%; in Euroland, the overnight interbank rate was threatening to rise above 4.00% and in Japan the overnight rate likewise was threatening (somewhat less convincingly) to rise above 0.50%). We consider this action not to have been particularly helpful: even where the open market purchases collateralised against mortgage bonds, the central banks chose high-grade mortgage bonds where there still was a private market and price rather than illiquid mortgage bonds for which the market had stalled and no market price was available. This was a classic example of central banks

trying to manage a credit crisis or liquidity squeeze using the same tools and routines they use to make monetary policy in orderly markets.

A credit crunch and liquidity squeeze is instead the time for central banks to get their hands dirty and take socially necessary risks which are not part and parcel of the art of central banking during normal times when markets are orderly. Making monetary policy under conditions of orderly markets is really not that hard. Any group of people with IQs in three digits (individually) and familiar with (almost) any intermediate macroeconomics textbook could do the job. Dealing with a liquidity crisis and credit crunch is hard. Inevitably, it exposes the central bank to significant financial and reputational risk. The central banks will be asked to take credit risk (of unknown) magnitude onto their balance sheets and they will have to make explicit judgments about the creditworthiness of various counterparties. But without taking these risks the central banks will be financially and reputationally safe, but poor servants of the public interest.

So: monetary policy is easy; preventing or overcoming a financial crisis is hard; managing the exit from a credit squeeze without laying firm foundations for the next credit and liquidity explosion is harder still. Our central bankers should earn their keep by acting as market makers of last resort. Covering the central bank's posterior is less important than preventing avoidable financial instability.

Editor's note: this column greatly exceeds the normal length limit due to the complexity and rapidly evolving nature of the problem.

Topics: [Financial markets](#)

Tags: [Credit crunch](#), [Central Banks](#), [subprime crisis](#)

[Printer-friendly version](#)