

The Practice of Central Banking (summary)

This text is based on parts of the [online freely accessible book](#) *Introduction to Central Banking* published in 2021 by Ulrich Bindseil (Director General – Market Infrastructure and Payments at the European Central Bank) & Alessio Folia (former student of Ulrich Bindseil at the Freie Universität Berlin). If students and/or teachers want to go more in depth into the practice of central banking, this is a great place to start.

1. Introduction

Central bank policies are often divided into three broad types: conventional and unconventional monetary policy and the function of lender of last resort.

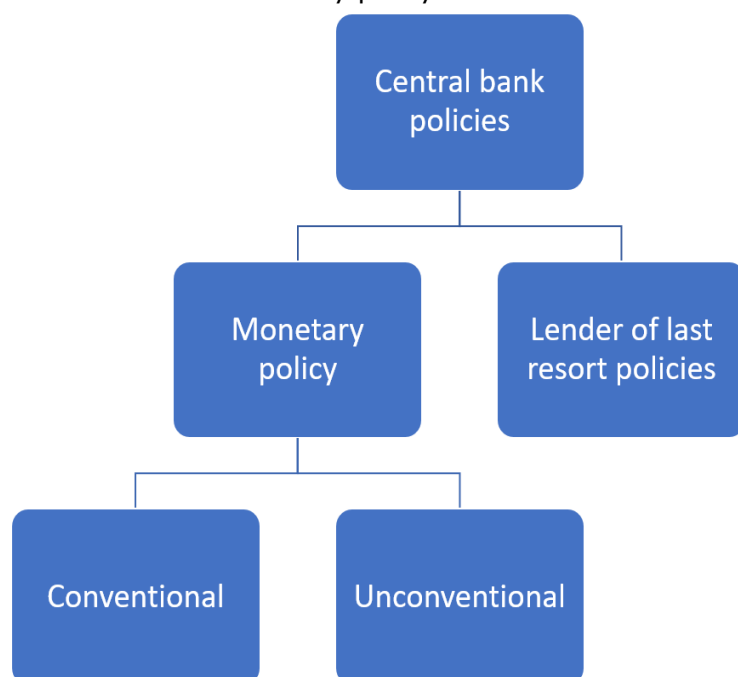


Figure 1: Types of central bank policies

The lender of last resort (LOLR) function is about providing liquidity to solvent financial institutions against good collateral when they otherwise are unable to meet their obligations and can cause financial instability. The lender of last resort function was central to the birth of central banking as initially larger commercial private banks tried to support smaller banks in need to prevent bank runs. Central banks emerged to effectively take on this role of lender of last resort and focused on maintaining and stabilizing the monetary and financial system.

While the goal of financial stability is central to the lender of last resort function, the goals of price stability and maximum GDP growth and employment are at the core of monetary policy. At the end of the 20th century it became normal to distinguish between conventional and unconventional monetary policy, although some argue the distinction is less useful since 2008 as both are continuously used. Conventional monetary policy refers to setting a target for the overnight interest rate to pursue price stability and maximum GDP growth and employment. Unconventional monetary policy comes in when conventional monetary policy is not sufficient due to the zero lower bound and is characterised by instruments such as quantitative easing asset purchase programmes.

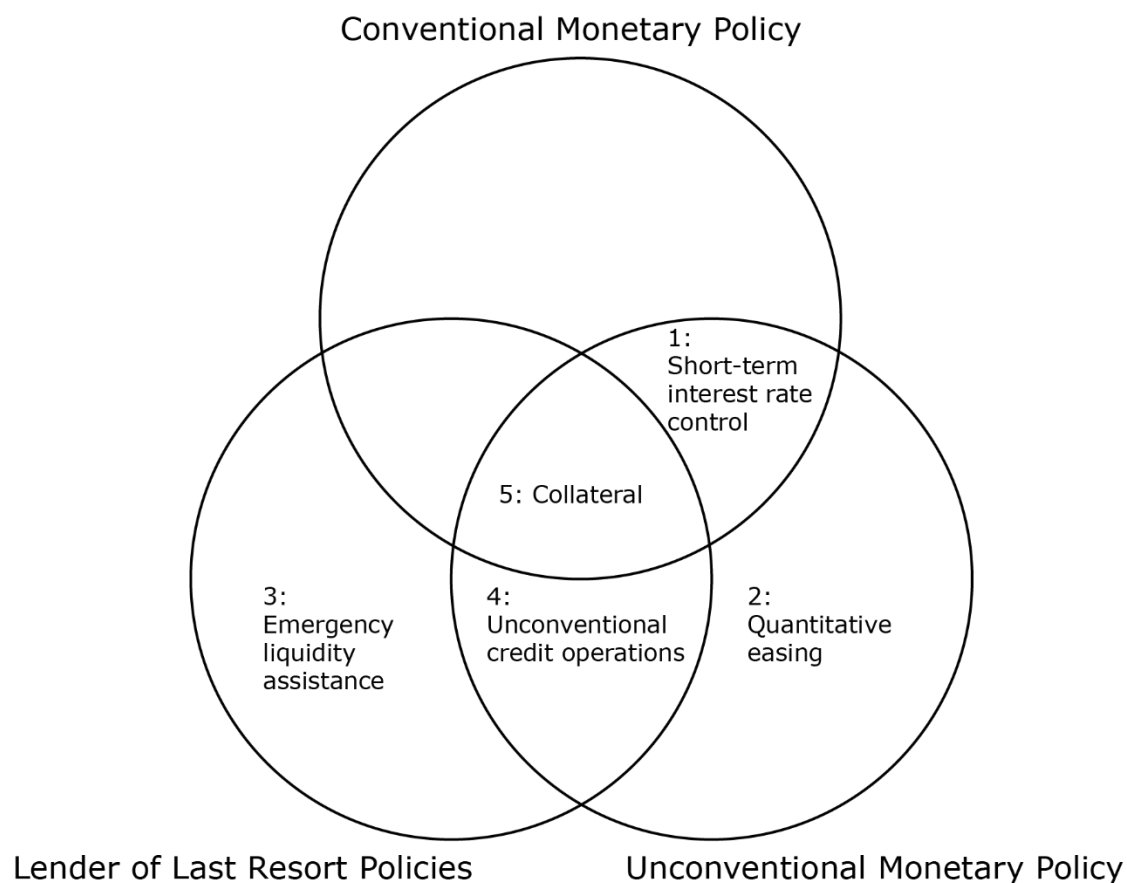


Figure 2: Instruments and types of central bank policies

A brief description of the various central bank policy instruments depicted in figure 2:¹

1. **Short-term interest rate control** is conventional monetary policy. Short-term interest rate increases are generally thought to lower growth, employment and inflation, while lower interest rates are associated with higher growth, employment and inflation. Negative interest rate policy (NIRP) can be classified as “conventional” monetary policy, as it is a continuation of central bank short-term interest rate policies. Still, it has something unconventional, as it had never been done before 2013. There is debate over whether nominal negative interest rates policies substantially below zero are possible and can be a desirable policy option in some cases.
2. **Quantitative easing** (QE) types of asset purchase programs are unconventional monetary policy operations. These outright purchases are transactions in which the central bank buys bonds from the private sector in secondary markets without any contractual obligations to resell them at a later date.
3. **Emergency liquidity assistance** (ELA) is about supporting banks by lending freely against good collateral to solvent institutions at a penalty rate to prevent financial instability. This is the lender-of-last-resort function and therefore outside monetary policy. At the same time, ELA may prevent contagion of a run on a bank

¹ Central banks also have other important policy instruments, such as micro- and macro-prudential regulation of private banks, banking for the government, monetary financing, and foreign exchange policies, but for brevity and focus they are left out here.

or financial market causing more runs. In this sense, ELA decisions may often be non-neutral for monetary policy.

4. **Unconventional credit operations** such as credit easing asset purchase programs are unconventional monetary policy measures but can also have lender-of-last-resort content, if the program aims (also) at improving the funding liquidity of the firms issuing the debt purchased. By strengthening the lender-of-last-resort the funding stress of commercial banks is reduced, which contributes to maintaining the readiness of banks to provide credit to the economy at a moderate mark up to short-term risk-free rates.
5. **Collateral** is the one and only element in the intersection of the three circles. It is necessary to conventional monetary policy credit operations, and when there are liquidity crises and/or the zero-lower bound problem, broadening the collateral set supports funding liquidity of banks, which attenuates the crisis and supports bank lending.

2. Conventional Monetary Policy

The Targets of Monetary Policy: What central banks try to achieve

Governments give central banks mandates to pursue. For most central banks their given objectives focusses on price stability (often meaning annual inflation of 2%), and in addition sometimes objectives as economic growth, maximum employment and financial stability are given. Recently, there is increasing debate over whether mandates do, or should be expanded to, also include ecological sustainability, social equity, and geopolitical interests.

The Idea of a Natural Rate of Interest and its Critiques: How to determine the desired level of the interest rate

The 'natural' rate of interest is sometimes called the neutral or non-accelerating rate of interest. Some economists believe that interest rates will tend towards an unobservable structurally-determined long-term 'natural' equilibrium at which real resources are neither under- nor over-employed and price inflation is thereby stable. Other economists, however, argue that fiscal and monetary policy can influence potential growth and the neutral rate of interest. Some economists therefore argue monetary policy should focus on supporting employment and not conform to the unobservable and influenceable variable.

The Monetary Transmission Mechanism: How the interest rate can influence growth, inflation and employment

Over the last decade, there has been considerable research and debate over how changes in interest rates by central banks can and do influence their objectives, growth, inflation and employment. The following four channels are often identified: fixed income rates, asset valuations, expectations, and exchange rates.

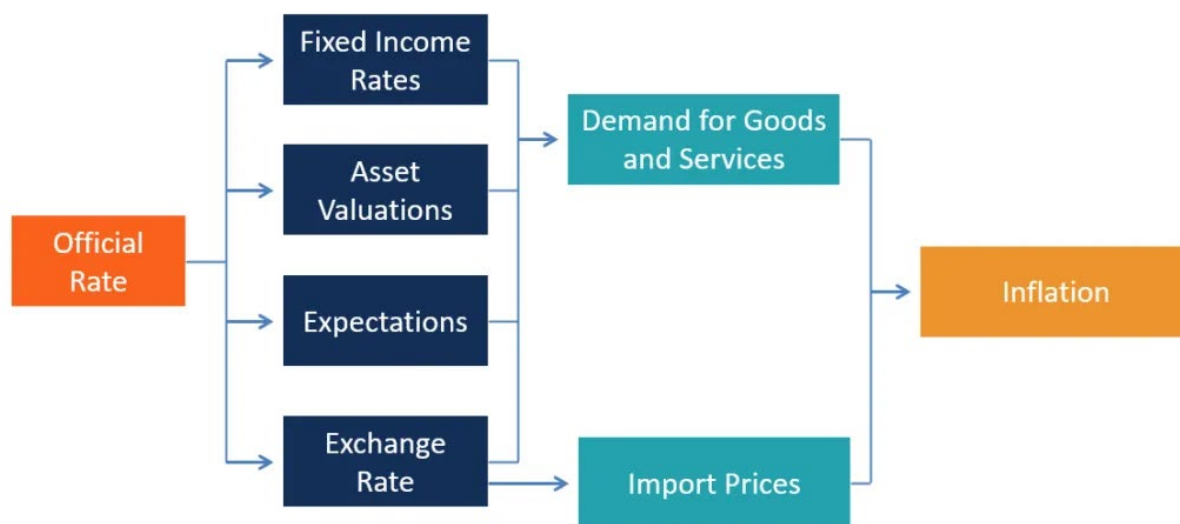


Figure 3: The Monetary Transmission Mechanism

Fixed income rates, or market rates, is often the most central channel in debates and people's thinking. By changing the official interest rate, central banks can influence bond yields and bank lending rates. For example, increasing the official interest rate can increase the cost of borrowing for businesses and consumers and thereby decrease their (effective) demand for goods and services.

Asset valuations, or asset prices, are affected by interest rate changes as they are generally thought of as the opportunity cost of capital. For example, when interest rates decrease, bonds, that pay out interest rates, become less attractive compared to stocks, buildings and other assets investors alternatively could buy. Lower interest rates are therefore sometimes associated with higher asset prices. Changes in asset prices can influence people's consumption through the wealth effect as people feel richer when their assets increase in value and might be more willing to consume.

Expectations are also thought to influence actual demand for goods and services, although its precise workings cognitively, psychologically, socially and institutionally are heavily debated. Actions by central banks to change, or not to, interest rates are often thought to signal to people what their future actions will be and how the economy will develop, thereby shaping their confidence and expectations of the future.

Finally, exchange rates can be influenced by interest rate changes as it can make the country more or less attractive to invest in for domestic and foreign investors. A higher interest rate can increase the level of investment in the country, thereby increasing the demand for its currency and its exchange rate. This in turn will make imported products less expensive (and exports more expensive for the rest of the world) and thus can help to bring down inflation.

The Floor Approach: How central banks set the interest rate

Central banks set the interest rate with the deposit facility, which is often used interchangeably with liquidity absorbing standing facility, the rate of remuneration of excess reserves and interest rate on excess reserves (IOER).

A deposit facility allows banks to deposit funds at any time with the central bank on a specific account where it gets remunerated at a specific rate. It sets the lower limit for the interbank rate, as no bank would lend at a lower rate than the one it can obtain by safely depositing its reserves at the central bank. Commercial banks thus lend to each other in the interbank market at (marginally) higher interest rates.

This way of setting the interest rate is called the floor approach as the central bank determines the lowest interest rate in the market (the floor) with its interest rate for the deposit facility.

This approach has been in place since 2009 because central banks following the global financial crisis made excess reserves abundant in the system.

The floor approach applies when:

Open market operations > Autonomous factors + Reserve requirements

In words: When the size of its outright portfolio OMO ("open market operations") of the central bank is bigger than autonomous factors (like banknotes) and reserve requirements. In these cases the central bank ensures with its open market operations that there are more reserves available for commercial banks than they need because of banknotes and reserve requirements.

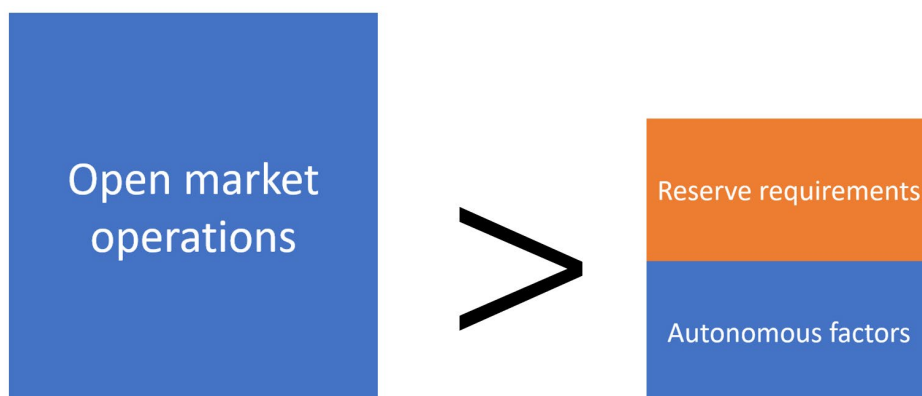


Figure 4: When the floor approach applies

Open market operations are financial transactions initiated by central banks with commercial banks. This can mean two things: (i) the central bank buys or sells financial assets (mainly tradable debt securities; or (ii) a credit operation where the central bank lends money to commercial banks. Whilst central banks do sometimes buy and sell financial assets outright, it is more common for them to conduct policy through repurchase agreements – often shortened to "repos". Rather than permanently transferring ownership they do so temporarily, with a contractual obligation to resell or repurchase that asset in the future.

Reserve requirements oblige banks to hold in a certain period (per day for example) a certain minimum level of sight deposits (which can be quickly withdrawn) on their account with the central bank. Fulfilment is measured only on the basis of end of day snapshots (i.e. intra-day levels of reserves are not relevant). The amount of required reserves of a commercial bank is determined by the amount of liabilities it has. In the case of the European Central Bank, the requirement for each bank amounts to 1% of its liabilities to non-banks with a maturity below two years. This means that for every 100 euros in a deposit account (such as savings and current accounts) the commercial bank needs to hold 1 euro in reserves.

Collateral: How to decide which assets can underwrite credit loans

For credit operations central banks require collateral, i.e. the pledging of certain eligible securities, called collateral, to protect its credit exposures to banks. The central bank will sell the collateral in the market if the borrowing bank does not repay the credit. When the bank, however, reimburses the credit from the central bank, the collateral is returned in its full value.

The value of collateral required by the central bank will exceed the credit provided by the central bank because central banks apply "haircuts". Haircuts are the difference between the market value of an asset and the value of the asset as collateral for a loan. Haircuts are larger when the underlying asset is riskier, depending on its price volatility, its liquidity, and possibly on its credit risk.

Central banks generally only offer collateralised credit because it allows them to safely interact in a uniform way with different commercial banks, thereby not needing to assess and differentiate between them.

Financial assets should fulfil certain qualities to be suitable as central bank collateral, in particular:

- Legal certainty of the validity of the pledge.
- Minimum liquidity to ensure the ability of the central bank to easily sell the collateral in case of counterparty default.
- Ease of pricing (through market prices or reliable theoretical prices).

Government bonds often serve as collateral in credit operations. So while your collateral, when you get a mortgage is your house, the typical collateral in financial markets and of a commercial bank when it lends from the central bank is government debt.

3. Unconventional Monetary Policy

There is considerable debate about the success, or failure, of the so-called 'unconventional' monetary policies and their impact on the real economy and inequality. In particular, there are arguments over how much of the monetary stimulus stayed within the financial sector, causing asset prices to rise while failing to increase real economic activities and employment. On the other hand, there are opposing views on whether the policies of the last 15 years have prevented higher unemployment and deeper recession by stopping broader financial collapse and thus should not be blamed for increased inequality and financialization.

Negative Interest Rate Policy (NIRP): Setting the interest rate below zero

Over the last years, various central banks, such as the Bank of Japan and the European Central Bank, have applied negative nominal interest rates. These policies were pursued following a combination of low growth, low inflation, and financial instability (more precisely high liquidity and credit risk spreads).

There is debate over whether nominal interest rates substantially below zero are possible and can be a desirable policy option in some cases. The existence of banknotes, which have zero remuneration as physical cash nominally retains the same value and thus could be said to have an interest rate of zero, is theorised to create a zero lower bound for interest rates. When commercial banks would charge nominal interest rates below zero, banknotes would become a more attractive alternative for its customers. If this causes commercial banks not to pass on the negative interest rates applied to them through their reserves, their profitability would decrease. The replacement of physical by digital (central bank) money can, however, potentially solve this problem.

Quantitative Easing Types of Asset Purchase Programmes: Buying bonds to influence interest rates and liquidity

Outright purchases are transactions in which the central bank buys bonds from private investors in secondary markets without any contractual obligations to resell them at a later date.

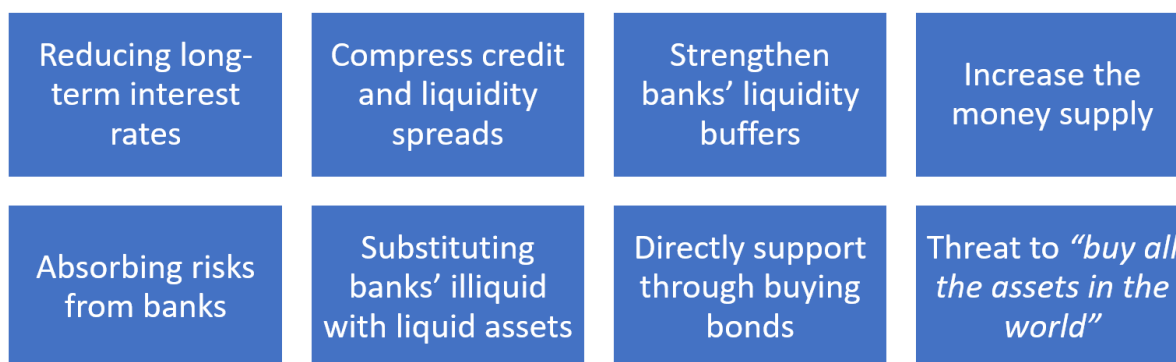


Figure 5: Objective of Asset Purchase Programmes

The following eight objectives are pursued with outright purchase programmes:

1. Reducing long-term risk-free interest rates through purchases of long-term bonds to influence longer term economic decisions (e.g. building a house or a new factory).

2. Compress credit and liquidity spreads through purchasing risky assets with (overly) depressed prices to counter fire sales and lack of arbitrage due to high bid-ask spreads, liquidity and capital constraints, systemic uncertainty, and self-fulfilling fears ("market maker of last resort").
3. Inject excess reserves to strengthen banks' liquidity buffers (thereby causing the floor approach to setting interest rates to apply).
4. Inject excess reserves to increase the money supply via the money multiplier (according to traditional monetarist theories).
5. Absorbing risks from banks' into the central bank balance sheet and easing capital constraints of banks by purchasing risky assets (thereby requiring the central bank to do credit risk management for these assets).
6. Substituting banks' illiquid with liquid assets to improve overall liquidity of banks by purchasing illiquid assets (that are often also not eligible as collateral, or only at a high haircut).
7. Directly supporting of banks and/or non-financial corporations with funding liquidity through primary market purchases of unsecured bank bonds, covered bank bonds, and corporate bonds.
8. Threat to "purchase all real assets in the world" to generate less willing to sell assets and thereby cause higher prices, which helps counter the perception of deflationary trap.

Unconventional Credit Operations: Providing more credit to banks to keep them stable and operating

Unconventional credit operations are pursued for financial stability and monetary stability (inflation, growth & employment) reasons. As such, the monetary policy and the lender-of-last-resort functions of the central bank overlap here. By strengthening the lender-of-last-resort the funding stress of commercial banks is reduced, which contributes to maintaining the readiness of banks to provide credit to the economy at a moderate mark up to short-term risk-free rates.

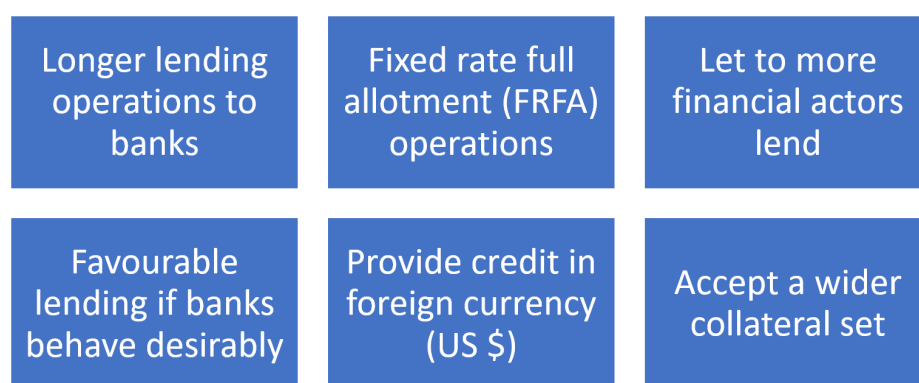


Figure 6: Types of unconventional credit operations

There are six types of unconventional credit operations:

1. Central banks have lengthened the duration of their lending operations to banks (so they not only offer short term lending, but also longer term, such as 4 years for example by ECB).
2. Central banks have replaced auction procedures to allocate central bank credit with 'fixed rate full allotment' (FRFA) operations, which is simpler, more certain, and less volatile.

3. Central banks have widened the access of counterparties to their credit operations: more financial actors get access to central bank credit.
4. Central banks have introduced “targeted” credit operations which make favourable lending terms (or access in general) conditional on some desirable behaviour of banks, such as providing more lending to the real economy.
5. Central banks have started to provide credit in foreign currency, notably in US dollars (based on swap lines through which central banks exchange their local currency on massive scale for US dollars with the US central bank, the Federal Reserve).
6. Central banks have widened the collateral set applicable to credit operations, meaning more assets can function as collateral in credit operations with the central bank.

4. The Central Bank as Lender of Last Resort

Today’s thinking on the lender-of-last-resort function is still strongly inspired by British nineteenth century experience and thinking, in particular Henry Thornton and Walter Bagehot’s dictum of immediate unlimited lending against good collateral to solvent institutions at a high interest rate.

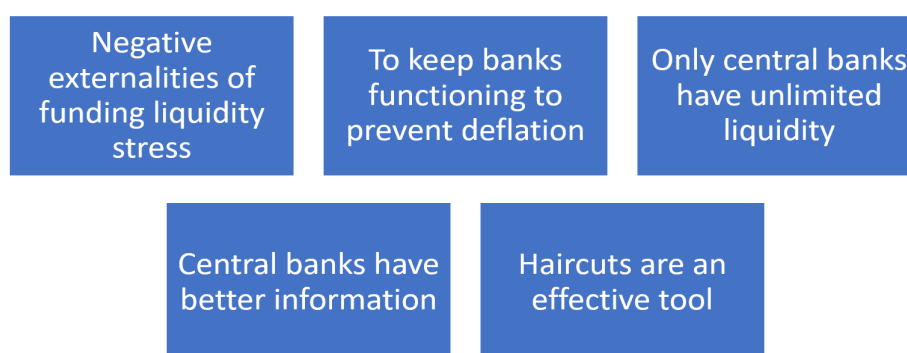


Figure 7: Reasons for central banks to act as lender of last resort

Central banks act as lender of last resort in financial crises for the following five reasons:

1. To tackle negative externalities of funding liquidity stress, such as in cases of asset fire sales and bank runs.
2. Only central banks have unlimited liquidity (in a paper standard): It is the only actor that can solve liquidity crises.
3. Haircuts are an effective risk mitigation tool for central banks if the collateral provider is more credit risky than the cash investor.
4. Central banks, as bank supervisors and non-competitors, may have better information on the creditworthiness of banks in need of liquidity, compared with other market participants.
5. Lender-of-last-resort measures can prevent bank intermediation spreads from increasing in a crisis situation, which may be essential from a monetary policy perspective if the central bank has exhausted conventional monetary policy because of the zero lower bound on interest rates.

The central bank lender-of-last-resort function takes three forms:

1. Lender-of-last-resort built into the regular operational framework of the central bank:
 - a. Collateral availability provides a first natural limit to central bank credit at the individual bank level. The volume of eligible collateral should also be viewed in relation to the liquidity deficit of the banking system to be covered by central bank credit operations.
 - b. The ease at which central bank credit can be accessed. In the open credit market, the so-called "fixed-rate full allotment" procedure ensures that banks always get what they bid for. In a competitive auction, banks run a risk to not receive credit if they underestimate the aggressiveness with which other auction participants are bidding.
 - c. Active stigmatisation or de-stigmatisation through central bank communication will impact on the propensity of banks to rely on the lender-of-last-resort.
 - d. It matters who is able to access central bank credit and benefit directly from the lender-of-last-resort. Normally, only commercial banks have access to central bank credit, i.e. neither non-bank financials, nor non-financial corporates have
2. Lender-of-last-resort added through changes of the framework and additional lender-of-last-resort operations for all banks in crisis times:
 - a. In a scenario of financial market stress commercial banks' liquidity is crucial. Anticipating this case also includes building expectations on the readiness of the central bank to adjust the above mentioned parameters that determine the lender-of-last-resort content of the operational framework. Expectations will be determined by historical experience and forward-looking central bank communication.
3. Emergency liquidity assistance to individual banks or, more rarely, even to non-banks:
 - a. Emergency liquidity assistance can be defined as a non-rule based lender-of-last-resort activity for the benefit of individual banks.