History of central banks

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Summary

The historical evolution of the role of central banks has been shaped by two major characteristics of these institutions: they are banks and they are linked—in various legal, administrative, and political ways—to the state. The history of central banking is thus an analysis of how central banks have ensured or failed to ensure the stability of the value of money and the credit system while maintaining supportive or conflicting relationships with governments and private banks. Opening the black box of central banks is necessary to understanding the political economy issues that emerge from the implementation of monetary and credit policy and why, in addition to macroeconomic effects, these policies have major consequences on the structure of financial systems and the financing of public debt. It is also important to read the history of the evolution of central banks since the end of the 19th century as a game of countries wanting to adopt a dominant institutional model. Each historical period was characterized by a dominant model that other countries imitated - or pretended to imitate while retaining substantial national characteristics - with a view to greater international political and financial integration. Recent academic research has explored several issues that underline the importance of central banks to the development of the state, the financial system and on macroeconomic fluctuations: (a) the origin of central banks; (b) their role as a lender of last resort and banking supervisor; (c) the justifications and consequences of the domestic macroeconomic policy objectives - inflation, output, etc. -of central banks (monetary policy); (d) the special loans of central banks and their role in the allocation of credit (credit policy); (e) the legal and political links between the central bank and the government (independence); and (f) the role of central banks concerning exchange rates and in the international monetary system; (g) production of economic research and statistics.
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Central banks have become essential parts of modern states. Their monetary policy announcements are seen as major elements of macroeconomic policy and have tangible effects. However, their role is not limited to changing the cost of credit in order to influence consumer prices and economic activity. They play a major role in organising and regulating the payment system, to ensure that means of payment, whether paper or electronic, can be used throughout a country in a secure manner. They are also concerned with financial stability. Their role in financial stability concerns banking supervision, for which many central banks are responsible. But it is also about acting as a lender of last resort during banking crises to prevent crises from spreading and the financial system from collapsing. Finally, they are also vigilant to ensure that their monetary policy decisions do not encourage speculative bubbles or, on the contrary, create liquidity crises in the financial markets. This can be done in consultation with other institutions in charge of financial regulation or policy, and thus articulated in the form of what is called – since the 2010s – macroprudential policy. Another raison d'être of central banks in many countries is the commitment to maintain a fixed exchange rate, i.e. the guarantee that domestic currency can be exchanged into foreign currency at a constant value. Historically, the exchange rate was usually fixed against a metal (gold or silver), and this has gradually evolved into a parity against dominant international currencies such as the dollar or the euro. Governments decide on the official value of the exchange rate (or its degree of flexibility) and central banks are then responsible for selling or buying foreign currencies to limit fluctuations in the value of the currency as much as possible.

If these main functions (monetary policy, financial stability, payments system stability, exchange rate management) are well known and present in all economics textbooks, central banks have played other roles historically, which are often underestimated: public debt management, management of the Treasury account or accounts of other major financial institutions, production of statistics, research and financial information, sectoral credit policy aimed at favouring certain sectors or companies, direct loans to non-financial companies in normal times or in times of crisis, etc. In many countries (especially those called “advanced economies”), these other functions have been reduced over time - especially since the 1990s - except for central bank economic research, which has increased. This was accompanied, in these same countries, by a reduction in the role of central banks in managing the exchange rate (due to the choice of floating exchange rates) and in dealing with financial stability issues (including banking supervision). However, this development only concerned a small number of countries in the world and, moreover, the financial crisis of 2008-2009 brought about a

reversal in these same countries, particularly on the issues of financial stability, public debt financing (in Europe, Japan or North America) and, in some cases, foreign exchange reserves (Switzerland and Scandinavian countries). These central banks bought massive amounts of government debt to fight economic deflation and support government spending - and again during the covid pandemic - while becoming responsible for banking supervision and getting involved in macroprudential policy (Siklos 2017, Monnet 2023).

The roles of central banks have often tended to expand historically because of their two major characteristics: they are banks and they are linked - in various legal and administrative ways - to the state. The name of a central bank has a literal meaning. It is a "bank": its main activity is therefore to lend. It is "central" in the sense that it is through it that other banks can interact, both in normal times and in times of crisis. The fact that the central bank is the bank of the banks tends to increase its activity if banking stability or development are seen as important policy objectives. It also necessarily creates moral hazard, implied by central bank support to the banking sector. But the fact that it is a bank also means that it can substitute for the banking sector in some cases (and not just provide liquidity to banks) to lend to companies or the state. In many countries the central bank was initially the main bank of the country and thus assumed a lending role, similar to that of a private bank or a public investment bank. The fact that the central bank is also linked to the state also implies that the latter may tend to entrust it with more and more tasks, including public service tasks that have nothing to do with financing or monetary policy, such as the production of statistics or financial information. There may also be a strong temptation for the State to use the central bank not only for the management of the Treasury account but also for the direct or indirect financing of the public debt.

The history of central banks can therefore be read through the prism of the very special position that these institutions have between the banking system and the state. They exist only in relation to them but also emancipate themselves from them. There is therefore constant tension to prevent central banks from being too subservient to the banking system and the state, or, on the contrary, from becoming too powerful vis-à-vis one or the other. There is always the possibility that some of the functions of a central bank could be taken over by private banks or by the Treasury. History reminds us that this has been the case and that there is nothing obvious in the fact that central banks have become, over time, the pivot of the state and the financial system.

This particular position raises tensions because, ultimately, the central bank is seen by both sides as the guarantor of the stability of money. Private banks and states, as well as individuals,

have an interest in this. But many would like to benefit in the short term from the unlimited power of money creation. The monetary system is indeed a public good. This means that everyone benefits from it without individual use compromising the uses of others. Society as a whole will suffer if money is worthless, if it is no longer accepted as a means of payment, if it is impossible to borrow temporarily to solve cash flow problems. The role of a central bank is ultimately to guarantee the stability of this monetary system against the two main risks it can generate: high inflation and financial crisis. Inflation reflects the loss of confidence in money as a medium of exchange and a store of value (at the international level, this means the loss of value vis-à-vis a foreign currency). Anticipating that money will soon be worthless, everyone tries to get rid of it as soon as possible. The value of money thus collapses. Unlike inflation, the financial crisis is the loss of confidence in credit, which is normally only the counterpart of money. A crisis occurs when banks or other borrowers (companies, households, governments) are expected to default and are refused credit. It is possible that a financial crisis will also lead to a loss of confidence in money and thus to hyperinflation. But the opposite is actually more common: during a banking or financial crisis, savings accumulate in the only form that will be deemed sufficiently safe (paper or metallic money, public debt, foreign currency, as the case may be) and the system freezes, leading to a fall in credit creation and deflation. Deflation characterises a situation where economic activity - and therefore prices - fall and unemployment rises.

The history of central banking is thus an analysis of how central banks have ensured or failed to ensure the stability of the value of money and the credit system - which has practical consequences for all - while maintaining supportive or conflicting relationships with governments and private banks. It is impossible to present the full history of central banking around the world over several centuries. I thus will limit itself to highlighting new research in this area, written in the last decade. After a short reminder of the institutional evolution of central banks over time, the article will proceed in a thematic way, insisting on points that still raise questions in academic research. Thus, it will address the issues of 1) the origin of central banks; 2) their role as lender of last resort and banking supervisor; 3) the justifications and consequences of the macroeconomic policy objectives of central banks (monetary policy); 4) the special loans of central banks and their role in the allocation of credit (credit policy); 5) the legal and political links between the central bank and the government (independence); and 6) the role of central banks in the international monetary system.

The global development of central banking

The history of central banks follows that of the evolution of capitalism, the banking system and the development of bureaucratic rationality of modern states. Since the beginning of the modern era, it has been linked to the history of money, but is nevertheless a distinct development. Until the beginning of the 20th century, central banking was mainly an almost uniquely European phenomenon, while, in contrast, money had been used throughout the world since antiquity. The Bank of Japan was founded in 1882 on the model of European central banks. The same is true for the US Federal Reserve in 1913, which was created after an in-depth study (*National Monetary Commission*) of European central banks and the banking systems of those countries. During the 1920s and 1930s, most Latin American and Commonwealth countries also created a central bank, again modelled on those of the main European countries and the United States and advised by economists from these countries, the *money doctors (*Flores Zendejas 2021). The number of central banks thus doubled between the end of the 19th century and the end of the 1930s, from about twenty to forty (Marcussen 2005). The trend continued after the Second World War, driven by two new factors (Singleton 2010): the increase in the number of sovereign countries following the end of the colonial period, and the financial multilateralism created at Bretton Woods. Having a central bank is a guarantee of participation in the international financial system and thus a mark of both political sovereignty and international integration. The European central banks continued to represent a model, but the central banks of the 1950s and 1960s were also created in the spirit of the *developmental state*, where the state plays an important role in developing industry and the banking system (Epstein 2006). The central bank was therefore particularly integrated into the state apparatus. The number of central banks increased continuously from 1945 to the 1990s. There were about 100 central banks in the 1970s and about 180 since the 1990s, i.e. almost all the countries in the world.

Over time, two main institutional changes have affected central banks. The first is the shift from private ownership to integration within state administration. Even though most central banks were created at the instigation of the state and were entrusted with "public service" missions in exchange for the privilege of issuing money, they had private shareholders, and therefore had to pay dividends to them (Capie et al. 1994). This situation lasted until the 1930s-1940s, when most European central banks were nationalised and integrated into the government. A few central banks retained private shareholders, but these no longer had any power (Bartels et al.

2017). The end of private shareholding was often seen as a break with the vested interests of bankers and central bank shareholders (Mitchener & Monnet 2023).

The second major institutional metamorphosis concerns the legal independence of central banks from governments, which developed from the 1980s onwards and became more pronounced in the 1990s (Siklos 2002, Garriga 2016). The reality of this independence in practice must be qualified (see section "Central bank independence"), but it is undeniable that most central banks made a shift in the 1990s towards a legal regime where direct lending by the central bank to the Treasury is generally banned and the central bank management cannot be instructed by the government or removed from office before the end of the term. This move towards independence was a reaction to the very strong integration between the state and the central bank that had developed after the Second World War. It was justified by economic research stressing the need for central bankers to be independent of government and committed to a long-term target to keep inflation low (e.g. Barro & Gordon 1983). The move towards legal independence of central banks has been mainly a way for countries to show their international integration and compliance with the rules of the gamepromoted by international financial and political institutions (Polillo & Guillén 2005). Yet, forms of central bank independence - and the debate around this issue - had existed since the 17th century (Capie et al. 1994, Blancheton 2016, Bindseil 2019, Mee 2019, Murphy 2019, Martín-Aceña et al. 2020). Although the definition of legal independence that emerged in the late twentieth century is specific, the issue of the balance of power between central banks and government is as old as central banking itself.

It is therefore important to read the history of the evolution of central banks since the end of the 19th century as a game of countries wanting to adopt a dominant institutional model. Each historical period was characterized by a dominant model that other countries imitated in order to send a signal about their good monetary and financial management, with a view to greater international political and financial integration (Bordo & Siklos 2017). At the end of the 19th century, having a central bank and adopting the gold standard regime was a way of showing membership in the international financial world (Bazot et al. 2022). Having a public, state-owned central bank was a sign of sovereignty and integration in the mid-20th century, further reinforced by the multilateralism of Bretton Woods (Singleton 2010, Flores 2021). From the 1990s onwards, the legal independence of the central bank played this role and became a guarantee of membership in the international financial community. Thus, there is strong imitation between the practices and institutional models of central banks, a deep professional

integration of central bankers at the international level, but also significant differences between the rule (which aims to show a good international image) and the practices, which often continue to depend on national political and financial specificities.

What is the origin of central banks?

The question of the origin of central banks has recently given rise to renewed debate among economic historians. For a long time, the prevailing thesis was that the birth of modern central banks could be dated to the end of the 19th century, at a time when the banks of issue, that is the private banks that had the privilege of issuing banknotes (and had private shareholders) became aware of their role in financial stability (lender of last resort) and in the management of the exchange rate within the framework of the gold standard. In other words, according to this view, it was only in the 19th century that banks that printed banknotes on behalf of the state became true central banks (Goodhart 1988, Bordo 1990, Capie et al. 1994, Grossmann 2010). This perspective, however, recognises a gradual evolution that began with the establishment of the Bank of England and the Royal Bank of Sweden (Riksbank) in the 17th century, which were the first banks to issue banknotes on a large scale in Europe. It also emphasizes – based on the Bank of England model – that central banks were created with a clear objective of supporting the financing of public debt, either by lending directly to the sovereign or by making public debt markets liquid (Desan 2015, Murphy 2019).

A body of work has recently criticised this perspective. Although the existence of other large public banks in Europe since the 16th century, other than in England and Sweden, had been known for a long time, new research has shown that several of these banks performed a central banking function before the 19th century (Roberds & Velde 2014; Ugolini 2017, Bindseil 2019). Bindseil (2019) has taken this revisionist view the furthest. He attacks the idea that a central bank can be defined by a monopoly of issuing coins and banknotes, or as the main lender to the government. Instead, he defines a central bank as an institution that issues "financial money of ultimate quality ". The central bank's "centrality" in the financial system requires it to produce the safest (highest quality) asset that is used by other institutions. It primarily takes the form of deposits of other banks at the central bank. There is no central bank without a credit system. Credit relationships create debts, i.e. promises to pay (IOUs or "I owe you"). As long as these debts circulate in the form of financial assets, their settlement becomes more complicated and riskier. The central bank creates a form of financial debt (its liabilities), i.e. financial money, which is different from material money (notes and coins). This financial money allows private

credit relationships to be settled, overcoming the disadvantages of cash and fiat money and the risk associated with the credit system.

According to Bindseil's definition, all banks that centralised other banks' deposits (what Roberds and Velde call 'ledger public banks') thus played a role similar to modern central banks, not least because this allowed them to act as lenders of last resort, well before the 19th century. Roberds and Velde (2014) were the first to comprehensively examine the financial activities of these banks in Europe and, like Bindseil, they highlighted their role in producing a safe and liquid asset that could be accepted by other financial agents. However, they were still reluctant to call them central banks (they preferred "early public banks") because these banks did not have a monopoly on the control of a nation's monetary base. Indeed, it was only in the 19th century - especially after the Napoleonic wars - that central banks were established throughout the territory of countries in order to unify the monetary system, notably by facilitating payments from one city to another, anywhere within a country. Their role in inter-bank transfers was thus linked to the construction of a national credit market (Bazot 2014, Ugolini 2017, Klovland & Øksendal 2017).

These debates show that there is more continuity in the history of central banks than has long been assumed in the literature, particularly with regard to their ability to provide a safe asset to all other banks. Much remains to be written about how central banks shaped credit systems in the 19th century and how their role was not limited to providing banknotes to citizens, lending to governments or intervening in banking crises. Bazot (2014) has thus shown in the French case how the development of central bank branches in the late 19th century had favoured the development of bank credit at the local level. Likewise, Sissoko (2022b) argues that the Bank of England's new discount policy, as early as the late 18th century, transformed a select category of commercial bills into 'safe

assets which facilitated the development of local lenders.

These controversies about the origin of central banks are far from being unique to Europe. It also shows how there can be a difference between the political birth of a central bank, as presented as a political symbol by the government, and the birth of central banking functions. In the case of Latin America, several contributions have shown some important continuities between the large national banks (i.e. the main banks of the country, with the privilege to print banknotes) created in the 19th century and the actual central banks created by governments in the 1920s and 1930s (Tedde de Lorca & Marichal 1994). The former may have had a link with

the state (collecting taxes and financing public debt) but were often created by private investors, including foreign ones. Thus, it is more accurate to speak of a "transition from the first to the second generation of Latin American central banks (those established in the 1930s)" (Flores 2021) rather than to date the creation of central banks in Latin America to the interwar period.

There have been similar debates about whether clearing houses played a role similar to that of a central bank, notably in the US before the creation of the Fed in 1913. While there is no doubt that clearing houses provided liquidity to banks, including in times of crisis, it is clear that they did not have sufficient credit capacity to smooth out all the shocks faced by the banking system (Moen & Tallman 2013, Hanes & Rhode 2013, Bindseil 2019, Bazot et al. 2022). Yet, it is unlikely that the US financial system could have functioned without clearing houses in the 19th century.

Lender of last resort and banking supervision

The question of the role of central banks as lender of last resort continues to give rise to a very large historical and theoretical literature. It is known that central banks played this role very early, at least as early as the 18th century in England, Amsterdam or Hamburg (Quinn & Roberds 2015, Bindseil 2019, Kosmetatos 2019). But it is also clear that this was not the case during all crises. For example, the Bank of England - which had previously rescued banks and become aware of its role in the money market (Kosmetatos 2019, Sissoko 2022a) - rationed credit in the 1847 crisis (Rieder et al. 2022). More importantly, it is also known that central banks did not play the role of lender of last resort during the crises of the 1930s, even when they had lent to banks in crisis in the past, including in the US (Carlson et al. 2011). Thus, there was probably no linear pattern of learning the lender-of-last-resort function, but reactions depending on the type of crises and the type of financial institutions requesting liquidity in a crisis.

Understanding the different reactions of central banks to crises over time therefore remains an active field of research, with many case studies conducted on different countries. Thanks to the digitisation of archives, many of these studies can exploit very detailed data on central bank lending to banks. Rieder et al. (2022) focus on the Bank of England in 1847, highlighting the constraint of convertibility of the currency into gold that weighed on the central bank. Jorge-Sotelo (2019) comes to a similar conclusion about the inability of the Spanish central bank to rescue banks in 1931. On the Fed's reaction in 1930, Richardson & Troost (2009) insist instead

on the liquidationist ideology of central bankers, according to which bank failures were necessary for the proper functioning of the economy. In the case of France in 1930-1931, Mitchener and Monnet (2023) show that the central bank preferred to lend to the banks that were its shareholders rather than play the role of a genuine lender of last resort. Connected lending especially emerged during the crisis, together with the rise of uncertainty.

The ways in which central banks intervene in a crisis have also received a lot of attention. The studies cited above all make a link to economic theory, in particular to understand how central banks could limit moral hazard (see Ugolini 2021, Schneider 2022, Sissoko 2022a, Rieder and Jobst 2022 for a summary of 19th century debates and practices, as well as Nishimura 1995 and Okazaki 2007 for earlier contributions). They highlight that as early as the 19th century central banks introduced a system of risk management to avoid incurring losses and lending to banks that were structurally insolvent. Recent research has focused on the details of these techniques and the operations of central banks. However, while this literature often tends to show the ingenuity of central banks and the richness of their control procedures, it only provides evidence of the absence of financial loss by central banks. It is much more difficult to conclude that there was no moral hazard. The mere fact that crises recurred until the 1930s may suggest that moral hazard had not completely disappeared and lender of last resort was not yet a fully established doctrine in a systemic banking crisis. (Bordo 2014, Mitchener and Monnet 2023).

Some studies have shown other ways in which central banks could limit moral hazard. Rather than lending to all banks indiscriminately with good risk management, they organised a coalition of private banks (syndicate) to lend to a failing institution, and possibly manage its liquidation. This system worked relatively well in France in 1889 and in England the following year during the Baring crisis (Hautcoeur et al. 2014), but was insufficient to stop the French banking panic of 1930 when it was used again (Mitchener and Monnet 2023). These systems are similar to the resolution mechanisms set up by states and central banks after the 2008 financial crisis to involve private creditors in the liquidation of banking institutions.

Banking regulation has been used both to prevent crises - and thus as a substitute for the lender of last resort - and as a way to limit moral hazard by serving as a threat to financial institutions tempted to take too much risk. The period when banking regulation was most restrictive, from the 1930s to the 1970s, is known as the period when banking crises were almost non-existent (Bordo & Meissner 2016). Before the 1930s, there was no banking regulation (except in the US) and thus there was some substitution between the role of central banks and regulation. Central banks therefore exercised informal banking supervision, checking the quality of banks

that borrowed money from them, but without formal regulation (Nishimura 1995, Grossman 2010; Jobst & Rieder 2022). This system did not survive the devastating banking crises of the Great Depression. The following years were thus marked by the emergence of banking regulation at the international level. This had major consequences for central banks, both because they used banking regulation instruments as a monetary policy tool (in particular reserve requirements) but also because most of them became in charge of banking supervision (Goodhart & Schoenmaker 1996). Banking supervision – as distinct from banking regulation - by central banks has been little studied and new works have only recently shed light on this still relatively unknown function (Drach 2020; Hotori et al. 2022, Molteni, & Pellegrino 2022)

Monetary policy

It was not until the second half of the 20th century that central banks played a full macroeconomic role with the intention of influencing business cycles. Before that, their objectives were mainly financial stability or maintaining the parity between the value of money and the value of a metal. This does not mean, however, that central bank interest rate changes or lending did not have a macroeconomic effect. Lennard (2018) shows that changes in the Bank of England's discount rate at the end of the 19th century had a strong impact on prices and employment. Jorda et al. (2020) also show that exogenous shocks to central bank interest rates since the end of the 19th century have had a strong impact on the business cycle.

Many studies have attempted to measure the impact of monetary policy over time. This often requires a "narrative" approach, i.e. using the archives to identify the intention of central bankers and the information available to them. The narrative approach allows both the identification of causal changes in policy (Cloyne et al. 2022). It is also very useful for historical analysis that seek to to take into account the variety of instruments used by central banks, and in particular the techniques of direct credit control (Monnet 2014, Aikman et al. 2016, Döme et al. 2016, Galati et al. 2021), which were notably predominant from the 1930s to the 1970s, or special asset purchases (Jaremski & Mathy 2018). The historical analysis of monetary policy has therefore long been accustomed to dealing with cases of that were called "unconventional" monetary policy after 2008, as well as studying the interactions between banking regulations and monetary policy (Monnet & Vari 2022). However, much remains to be written on the history of the set of banking regulation instruments that were used by central banks for

monetary policy or macroprudential policy purposes. The assumption that the interest rate reflected the monetary policy stance is questionable for many historical periods and central banks.

The study of monetary policy has not been limited to its effects but also to understanding the objectives of central bankers. The many central bank monographs (which are too numerous to cannot be cited here) often devote whole pages to explaining why central bankers have decided to restrict credit by raising interest rates or, on the contrary, to have a more expansionary policy. Many papers have pursued a statistical approach by estimating monetary policy reaction functions, i.e. an econometric equation that explains the change in interest rates by macroeconomic variables. During the gold standard, interest rates are thus mainly changed by central banks in response to changes in the exchange rate and gold reserves (Morys 2013, Lennard 2018), and this in a non-linear way (Bazot et al. 2016).

Similar methods have been used to determine whether a central bank was giving priority to inflation or other macroeconomic variables, especially after the Second World War, when central banks started to change their interest rates in line with macroeconomic objectives. Based on estimates of reaction functions - and often more narrative approaches - there has been much debate about whether over-expansionary monetary policy may have been one of the causes of the 1970s high inflation in the US (Bordo & Orphanides 2013). The results of these estimates depend to a large extent on how the central bank's objectives are measured and with what data. According to Orphanides (2002), the 1970s Fed is found to be no less responsive to inflation than to output if contemporary data are used. Romer and Romer (2002) find that the central bank paid less attention to inflation in the 1970s, but explain that this was due to the poor estimation of the output gap.

Credit policy and government financing

Economists generally distinguish between monetary policy, which is supposed to affect only the business cycle, and credit policy, which has more distributive effects across economic sectors or groups of individuals (Goodfriend 2014, Monnet 2018). Historically, many central banks have claimed to use credit policy to favour certain activities deemed to be priorities (and insufficiently financed by the market). What has been called macroprudential policy since 2010 does the same in the name of financial stability (by assuming to restrict some types of credit to avoid too much leverage). In an ideal world, central banks can decouple monetary policy from credit policy, but in reality, even measures aimed at influencing the business cycle can have

different effects on different sectors and individuals. I focus on cases where credit policy was voluntary and asserted by the central bank, rather than on the unassumed distributive effects of monetary policy (which is still little known in historical perspective).

The credit policy of central banks and its effects on the economy remains an understudied issue. There are many studies on the lender of last resort in the 19th century which analyse in detail central bank lending to banks during crises, but very little is known about central bank lending to non-financial companies during this period, even though this was often a very important part of central bank lending. Milton Friedman (1969) argued that discounting commercial bills – the main operation of central banks in the 19th century - was indeed a credit policy because it amounted to choosing activities considered safe or useful, in the same way as a commercial bank does. It is also known that many central banks during this period, especially in Scandinavia, were engaged in long-term mortgage lending (Klovland and Øksendal 2017, Bazot et al. 2022). Given the state of the research, it is still difficult to say whether 19th century central banks were making economic choices when they lent, favouring certain activities deemed particularly important, or whether they followed a purely financial approach based on the quality of the borrowers. Sissoko & Ishizu (2021) reveal the importance of the Bank of England in financing the colonial trade, with loans of last resort for slave-trading enterprises. It is known that, as Nishimura (1995) shows in the French case, many non-financial companies renewed loans to the central bank to finance long-term projects. It is also known that most central banks at the time were not very supportive of discounting agricultural loans, which was sometimes seen as unfounded discrimination.

However, it seems that it is only during the inter-war period that a truly proactive credit policy of central banks to favour certain sectors or companies appears. Several studies have shown how the Bank of England began in the 1920s to buy shares in industrial companies, not only to save them from bankruptcy but also to restructure them and organise mergers (Bowden & Collins 1992). In Italy, the central bank's credit policy was important in magnitude but mainly limited to providing financial support to funds created by the Italian state to support industry (Cerretano 2013). In Germany, the Reichsbank also began in 1932 to accept securities of a company specially created by the government to boost industrial employment and lending to municipalities (öffa bills) before similar techniques were used to finance the government directly in a disguised way from 1934 (mefo bills). In the rest of Europe, as well as in other continents, this type of policy developed mainly after 1945 and was based on direct loans to certain large financial and non-financial firms or, above all, on exemptions from quantitative

credit controls for certain loans or sectors (Monnet 2018). In the US, the Fed was given the legislative capacity to make direct loans to firms during the New Deal (in addition to those of the Reconstruction Finance Corporation) and this function remained in place until 1958 (Sablik 2013).

Little is known about the extent of such central bank policies in comparative perspective and their persistence over time, especially in many emerging countries. Much also remains to be written about their economic (sectoral) effects as well as the political economy of such loans. How are the companies and sectors favoured by the central bank chosen? In some cases, research has shown that these choices were made in line with the government's industrial policy and had a positive impact on economic development (Cerretano 2013, Monnet 2018) but this does not mean that they were not influenced by private interests either. On the contrary, the central bank's involvement in industrial policy could be a way to avoid nationalization of large companies by the government (Bowden & Collins 1992). In another context, as Jorge Sotelo (2022) shows in Spain before the proclamation of the Second Republic in 1931, it is clear that the central bank's credit policy was essentially used to favour political connections, without an industrial focus.

Direct lending by the central bank to the government can also be seen as a form of credit policy. While today the majority of central bank financing of public debt is done through the purchase of securities on the secondary market, the dominant form of financing in the past was direct loans from the bank to the government, subject to parliamentary approval (Monnet 2018, Allen 2019, Bateman 2021, Garbarde 2021). The literature on the history of central banking has mainly studied this issue through the lens of fiscal dominance and its effect on inflation (see Ferguson et al. 2015 and Bordo & Levy 2021 for recent summaries of the comparative historical literature on the link between government debt, central banking and inflation). A more limited number of studies have attempted to understand how this mode of financing was able to persist in several countries without being inflationary for decades, in part because of strict parliamentary control that significantly limited the government's ability to borrow from the central bank in peacetime (Ryan Collins 2017, Monnet 2018).

Central bank independence

The issue of public debt financing is partly related to, but not limited to, the issue of central bank political and legal independence. The empirical and theoretical literature on central bank independence in economics and other social sciences is immense (see Fernández-Albertos 2015

and Garriga 2016 for recent summaries) and has of course influenced economic history (Bordo & Siklos 2015, 2017, Bindseil 2019). However, despite its abundance, this literature has difficulty in formulating clear conclusions. This is due to three problems. First, the definition of independence changes dramatically over time, depending on the institutional context of central banks. Thus, on the model of the Bank of England created in the 17th century, and until the middle of the 20th century, private shareholding largely guaranteed independence in the eyes of contemporaries, unless the State granted itself all the powers of appointment of the central bank's directors. But this was not seen as contradictory to direct government financing by the central bank. Today, this second criterion is, on the contrary, seen as a complete break with independence even though central banks are owned by the state..

Second, it is very difficult to distinguish between correlation and causation between the legal independence of a central bank and macroeconomic variables. This is partly due to the fact that legal independence only imperfectly reflects the power relations between a central bank and a government. Independence is therefore often a reform that comes after a stabilisation allowed by a government that considers monetary stability to be an overriding objective and central bank independence an institutional reform necessary to guarantee this stability, or an important signal sent to the international community or to the population.

Third, history shows that the difference between rule and practice is often very large. Laws differ between countries, but practices differ even more, as laws governing central bank actions are subject to different interpretations. They reveal national traditions, but they are also highly sensitive to personalities. The case of the United States in the 1970s is often taken as an example in this respect (Weise 2012). Richard Nixon appointed Arthur Burns, who had previously been his economic adviser, as head of the central bank in 1970. Burns was both a renowned academic economist and author of influential work on business cycles, and had been involved with the Republican Party since the 1950s. Burns' personal and ideological closeness to Nixon, however, led to a total submission of the former to the latter's orders, with explicit pressure that was unopposed. From a strictly legal point of view, however, the Fed was no less independent than it is in the 21st century. At the same time, Nixon had passed a law, the Credit Control Act of 1969, which allowed the President of the United States to use banking regulation to limit credit (especially consumer credit) in order to fight inflation. It thus copied (albeit to a lesser extent) measures that were being applied in other countries at the same time but were elsewhere decided and implemented by the central bank, or by agreement with the central bank and the government (Monnet 2018, chp.7). This example illustrates how the political relationship of the central bank

to the government can change profoundly without any change in legal texts but only because of personalities, political convergences between governments and central bankers, or because of the possibility offered by the government to use other legislative tools to regain control over the macroeconomic policy controlling credit and inflation.

Open conflicts between governments and central banks are rare. In Germany, the central bank was formally independent during the hyperinflation of 1922-1923, and again during the massive financing of the public debt from 1933 onwards (by means of MEFO bonds, Metallurgische Forschungsgesellschaft). It was not until 1939 that the members of its board resigned in protest against Hitler's inflationary policy (Mee 2019). Disinflation policies in the US and then in other countries in the early 1980s were done with government support, not in opposition.

There are, however, a few examples of central banks showing their frontal opposition to a government policy, to the point of delegitimising the government. In France in 1952 - at a time that many people often wrongly associate with the absence of central bank independence - the governor of the Banque de France made a harsh indictment of the government's inflationary policies and announced his refusal to lend to the central bank under these conditions (Monnet 2018). The central banker obviously had no direct power over the government and his indictment was limited to inflation. But it had enough resonance with the parliamentarians that they demanded and obtained a change of government.

The practice of independence is thus contextual and depends mainly on the strength or weakness of the governments in place. Paradoxically, it may even be thought that de jure independence has led governments to appoint central bankers with views closer to their own. This is shown by the recent work of Adolph (2013) and Ioannidou et al (2022). The latter, in a comparative approach on a panel of countries since the 1980s, observe that the appointments of central bank governors have become more politically motivated, in particular after important legislative reforms on central bank independence. Because of this, they find that there is no link between de jure central bank independence and actual independence of the central bank from the government. Their study is based on biographical information, reading the press and interviews with economists.

This type of approach suggests a return to qualitative historical analyses to identify real power relations rather than relying on quantitative comparisons based on legal documents. They encourage opening the black box of central bank decision-making and taking into account how central banks are influenced by the political context, but also by different economic doctrines

and even the personal experience or ideology of central bankers. The analysis of the backgrounds of US central bankers since 1945 by Adolph (2013) and Bordo and Istrefi (2018) shows the extent to which their previous professional trajectories influence the positions taken. Similar conclusions have been drawn by recent economic studies that highlight the influence of the corporate culture of central banks and the singular trajectories of their leaders. In the 1950s-1960s, central bank governors who had had longer professional experience of the gold standard before World War II were less likely to abandon the reference to gold (as a guarantor of the value of money). In practice, the continued to back the money base with gold reserves until 1971. The institutional and personal history of the gold standard weighed on the shoulders of central bankers even though the post-war Bretton Woods system had normally broken the links between gold and monetary policy, and strengthened the political links between governments and central banks (Monnet and Puy 2020).

These findings will come as no surprise to central bank historians who have long shown how the corporate and ideological culture of institutions matters and survives institutional change, while evolving over time (see for example James 2018 and Mee 2019 on the transition from the Reichsbank to the Bundesbank in Germany, or Capie 2010 and James 2020 on the Bank of England). The research continues along these lines and focuses on trying to measure the economic effects of these cultural and organisational factors, which cannot be reduced to the legal framework.

International Monetary System

To what extent does the international monetary system constrain the actions of central banks? This question continues to be the subject of a large number of historical studies. The theoretical framework usually used to answer it is the "impossible trinity" of international finance, or *trilemma* (Obstfeld & Taylor 2004). In this perspective - with very old theoretical foundations - a central bank has no monetary autonomy if it operates under a fixed exchange rate regime with free movement of capital. If it decides to lower its interest rate below the rate prevailing on the international markets, this will provoke a capital flight and thus a depreciation of the exchange rate, incompatible with the official parity. Economists and historians have always recognised that central banks actually have more room for manoeuvre than theory predicts. Extreme cases are rare. Recent research has clarified the extent and functioning of this room for manoeuvre.

During the 1990s, historical economists made extensive use of the "target zone" theory to explain how central bank rates could differ, even in regimes with fixed exchange rates and financial openness such as the gold standard (Eichengreen & Flandreau 1996; Bordo and MacDonald 2005). According to this theory, the expectations of financial agents allow for temporary rate differentials if the fixed exchange rate target is credible (via uncovered interest rate parity). New work has supplemented this approach by showing that these adjustments are not based solely on the free play of the market but on central bank interventions. In practical terms, this implies a focus of analysis on central bank operations rather than simply interest rates and exchange rates. In their study of the gold standard and central bank balance sheets before 1914, Bazot et al (2022) show that central banks were able to absorb international interest rate shocks (and thus prevent them from spilling over into the domestic market) by a combination of foreign exchange intervention, restrictions on the convertibility of banknotes into gold and countercyclical lending to domestic banks. All these techniques – whose extent differed from country to country - made it possible to maintain relatively stable interest rates at the national level without conflicting with financial openness and the gold standard. In contrast, US interest rates and asset prices were much more sensitive to exogenous changes in the international interest rate since the US did not yet have a central bank. The response of the money market rate in New York to an increase in the Bank of England's interest rate was about three times greater than that observed in European countries that had a central bank. This finding shows that the US Treasury and the New York clearing houses could not play a role similar to that of a central bank. It is consistent with studies that concluded that the creation of the Fed reduced the seasonality of US interest rates and that the prior absence of a central bank in the US had a negative impact on the volatility of agricultural markets and increased the likelihood of financial crises (Hanes & Rhode 2013). With regard to the 1930s, Bordo, Choudhri & Schwartz (2002) and Hsieh and Romer (2006) had shown that the Fed had the ability to intervene in the markets in 1932 without creating an exchange rate depreciation that threatened the country's adherence to the gold standard.

Several recent country case studies confirm these conclusions for the classical gold standard and the interwar period (e.g. Ögren & Øksendal 2011). They also show that autonomy was far from complete as central banks' ability to intervene depended on otherwise binding monetary and fiscal constraints. Bazot et al (2016) and Fliers & Colvin (2022) show that - for France before 1914 and the Netherlands between the wars - autonomy depended on large gold reserves that exceeded the requirements of the gold standard. Fliers and Colvin (2022) also conclude

that the departure from the gold standard was eventually beneficial for the Dutch economy. The Spanish case studied by Jorge Sotelo (2019) shows how it was impossible to maintain an autonomous monetary policy when a country suffered from abrupt capital flight. Concerning Italy before 1914, Di Martino (2022) confirms the importance of foreign exchange interventions but also how they were dependent on the credibility of the Italian public debt, which ensured the stability of the money market. Studying how foreign exchange intervention and cooperation between central banks succeeded for several years in maintaining the gold parity of the pound sterling and the dollar during the 1960s – the pillars of the international monetary system - , Bordo et al. (2019) also show that these measures were ultimately insufficient because financial markets did not believe in the ability of governments to balance their budgets. Central bank cooperation through credit lines or reserve pooling can reinforce the ability of monetary authorities to react against adverse international financial shocks (Bordo & Schenk 2016, McCauley & Schenk 2020). It is nevertheless difficult to tell if the value of cooperation should be assessed in light of actual economic effectiveness or because of their deeper geopolitical role.

Central banks do have the capacity to intervene, which allows them to be relatively autonomous and to limit the impact of international shocks on the domestic economy. But it should not be concluded that financial globalisation and fixed exchange rate regimes are without constraint for countries. The constraint is, however, general and relates in particular to fiscal policy and public debt, when the latter is financed by international markets. Eichengreen's (1992) famous conclusion about the gold standard constraint thus remains valid, but it involves more complex policy mechanisms than suggested by the theoretical framework of the trilemma (which Eichengreen already recognised). This still opens the way for future research to fully understand the interactions between public debt, fiscal policy and central bank policy, and how they constrain each other.

Conclusion

This article has proposed a selective and subjective review of the literature on the history of central banks and monetary policy, with an emphasis on references to recent works written within the last decade. Only a small part of it is cited here; in particular, I have not been able to do justice to all the monographs that have dealt with the history of a central bank. The abundance of recent references shows that central banking history is an active field of research, bringing together economists, historians and other social scientists, and from which useful

insights are often drawn for discussing current policy issues. It is also clear that much remains to be written. In particular, recent work has challenged certainties about theoretical frameworks that were taken for granted and thus opens up new avenues for research. It is no longer possible to write the history of central banks on the assumption that the policy of these institutions has been restricted to the manipulation of interest rates and the monetary base, or that their evolution has been a linear progression towards independence from the government and learning to be a lender of last resort. In particular, a broader view of central banking activities is needed to understand the entire policy of these institutions around the world since the mid-20th century. The history of central banking is still too often written from a European and American perspective.

Many of the works cited here have gone down to the micro level to understand the details of the financial operations of monetary policy or the lender of last resort. In this respect, there has been a revolution in the quantitative history of central banking, linked to the ease of digitising data and a rapprochement of financial and macroeconomic theories. Economic historians have opened the black box of central banks and found that understanding implementation is as important as understanding objectives in discussing the macroeconomic and financial impact of central bank policies. It is also at this level of detail that political economy issues emerge and reveal that the choices made by central banks have major consequences on the structure of financial systems and the financing of public debt.

Further reading:

Bindseil, U. (2019). *Central banking before 1800: a rehabilitation*. Oxford University Press, USA.

Desan, C. (2014). *Making money: coin, currency, and the coming of capitalism*. Oxford University Press, USA.

Friedman, M., & Schwartz, A. J. (1963). *A monetary history of the United States, 1867-1960*, Princeton University Press.

Goodhart, C. (1988). *The evolution of central banks*. MIT *Press*

James, H. (2012). *Making the European monetary union*. Harvard University Press.

Johnson, J. (2016). *Priests of Prosperity: How Central Bankers Transformed the Postcommunist World*. Cornell University Press.

Mehrling, P. (2010). *The New Lombard Street: How the Fed Became the Dealer of Last Resort*. Princeton University Press.

Monnet, E. (2018). *Controlling Credit: Central Banking and the Planned Economy in Postwar France, 1948 1973*. Cambridge University Press.

Siklos, P. L. (2002). *The changing face of central banking: Evolutionary trends since World War II*. Cambridge University Press.

Singleton, J. (2010). *Central banking in the twentieth century*. Cambridge University Press.

Schenk, C. R. (2010). *The decline of sterling: managing the retreat of an international currency, 1945–1992*. Cambridge University Press.

Murphy, A. (2023). *Virtuous Bankers: A Day in the Life of the Eighteenth-Century Bank of England*. Princeton University Press.

Smith V. C. (1936). *The Rationale of Central Banking and the Free Banking Alternative*, Liberty Fund.

Straumann, T. (2010). *Fixed ideas of money: Small states and exchange rate regimes in twentieth-century Europe*. Cambridge University Press.

Tedde de Lorca, P., & Marichal, C. (1994). *La Formación de los Bancos Centrales en España y América Latina: Siglos XIX y XX*. Banco de España. Servicio de Estudios.

Toniolo, G., & Clement, P. (2005). *Central bank cooperation at the Bank for International Settlements, 1930-1973*. Cambridge University Press.

Ugolini, S. (2017). *The evolution of central banking: theory and history*. London: Palgrave Macmillan.

References

Adolph, C. (2013). *Bankers, bureaucrats, and central bank politics: The myth of neutrality*. Cambridge University Press.

Aikman, D., Bush, O., & Taylor, A. M. (2016). Monetary versus macroprudential policies: causal impacts of interest rates and credit controls in the era of the UK Radcliffe Report, NBER working paper n°22380.

Allen, W. A. (2019). *The Bank of England and the government debt: operations in the gilt-edged market, 1928-1972*. Cambridge University Press.

Barro, R. J., & Gordon, D. B. (1983). Rules, discretion and reputation in a model of monetary policy. *Journal of monetary economics*, *12*(1), 101-121.

Bartels, B., Weder di Mauro, B., & Eichengreen, B. (2017). No Smoking Gun: Private Shareholders, Governance Rules and Central Bank Financial Behavior. In *VfS Annual Conference 2017 (Vienna): Alternative Structures for Money and Banking* (No. 168251). Verein für Socialpolitik/German Economic Association.

Bateman, W. (2021). The Law of Monetary Finance under Unconventional Monetary Policy. *Oxford Journal of Legal Studies*, *41*(4), 929-964.

Bazot, G. (2014). Local liquidity constraints: What place for central bank regional policy? the french experience during the belle epoque (1880–1913). *Explorations in Economic History*, 52, 44-62.

Bazot, G., Bordo, M. D., & Monnet, E. (2016). International shocks and the balance sheet of the Bank of France under the classical gold standard. *Explorations in Economic History*, *62*, 87-107.

Bazot, G., Monnet, E., & Morys, M. (2022). Taming the global financial cycle: central banks as shock absorbers in the first era of globalization. *The Journal of Economic History*, *82*(3), 801-839.

Blancheton, B. (2016). Central bank independence in a historical perspective. Myth, lessons and a new model. *Economic Modelling*, 52, 101-107.Bignon, V., Flandreau, M., & Ugolini, S. (2012). Bagehot for beginners: the making of lender-of-last-resort operations in the mid-nineteenth century 1. *The Economic History Review*, *65*(2), 580-608.

Bordo, M. D. (1990). The lender of last resort: alternative views and historical experience. *FRB Richmond Economic Review*, 76(1), 18-29.

Bordo, M. D. (2014). Rules for a lender of last resort: An historical perspective. *Journal of Economic Dynamics and Control*, 49, 126-134.

Bordo, M. D., Choudhri, E. U., & Schwartz, A. J. (2002). Was expansionary monetary policy feasible during the Great Contraction? An examination of the gold standard constraint. *Explorations in Economic history*, 39(1), 1-28.

Bordo, M. D., & Istrefi, K. (2018). *Perceived FOMC: The making of hawks, doves and swingers* (No. w24650). National Bureau of Economic Research.

Bordo, M. D., & MacDonald, R. (2005). Interest rate interactions in the classical gold standard, 1880–1914: was there any monetary independence?. *Journal of Monetary Economics*, 52(2), 307-327.

Bordo, M. D., & Siklos, P. L. (2015). *Central Bank Credibility: An Historical and Quantitative Exploration* (No. 20824). National Bureau of Economic Research, Inc.

Bordo, M. D., & Siklos, P. L. (2017). *Central banks: evolution and innovation in historical perspective* (No. w23847). National Bureau of Economic Research.

Bordo, M. D., & Meissner, C. M. (2016). Fiscal and financial crises. In *Handbook of macroeconomics* (Vol. 2, pp. 355-412). Elsevier.

Bordo, M. D., & Orphanides, A. (Eds.). (2013). *The great inflation: The rebirth of modern central banking*. University of Chicago Press.

Bordo, M. D., & Levy, M. D. (2021). Do enlarged fiscal deficits cause inflation? The historical record. *Economic Affairs*, *41*(1), 59-83.

Bordo, M., Monnet, E., & Naef, A. (2019). The Gold Pool (1961-1968) and the fall of the Bretton Woods system: Lessons for central bank cooperation. *The Journal of Economic History*, *79*(4), 1027-1059.

Bordo, M. D., & Schenk, C. (2016). Monetary policy cooperation and coordination: an historical perspective on the importance of rules. In Bordo, M. & Taylor, J, *Rules for international monetary stability: Past, present and future,* Hoover Institution, p. 205-261.

Bowden, S., & Collins, M. (1992). The Bank of England, industrial regeneration, and hire purchase between the wars. *Economic History Review*, 120-136.

Capie, F., Fischer, S., Goodhart, C., & Schnadt, N. (1994). *The future of central banking: the tercentenary symposium of the Bank of England*. Cambridge University Press.

Capie, F. (2010). *The Bank of England: 1950s to 1979*. Cambridge University Press.

Carlson, M., Mitchener, K. J., & Richardson, G. (2011). Arresting banking panics: Federal Reserve liquidity provision and the forgotten panic of 1929. *Journal of Political Economy*, *119*(5), 889-924.

Cerretano, V. (2013). Economic crises and the development of the industrial state: the industrial intervention of the Bank of Italy and the Bank of England, 1918-1939. *Review of Keynesian Economics*, *1*(3), 314-321.

Cloyne, J., Hürtgen, P., & Taylor, A. M. (2022). *Global monetary and financial spillovers: Evidence from a new measure of Bundesbank policy shocks* (No. w30485). National Bureau of Economic Research.

Di Martino, P. (2022). Central banks' interventions in exchange rate markets during the international gold standard: Italy 1880-1913. *Financial History Review*, 1-23.

Döme, S., Schmitz, S. W., Steiner, K., & Ubl, E. (2016). The changing role of macroprudential policy in Austria after World War II. In *Two Hundred Years of Central Banking in Austria: selected topics*. Monetary Policy and the Economy Q3-4/16, 163-189.

Drach, A. (2020). Supervisors against regulation? The Basel Committee and country risk before the International Debt Crisis (1976-1982). *Financial History Review*, *27*(2), 210-233.

Eichengreen, B., & Flandreau, M. (1996). Blocs, zones and bands: international monetary history in light of recent theoretical developments. *Scottish Journal of Political Economy*, *43*(4), 398-418.

Eichengreen, B. J. (1992). *Golden fetters: the gold standard and the Great Depression, 1919-1939*. Oxford University Press.

Epstein, G. (2006). Central banks as agents of economic development (No. 2006/54). WIDER Research Paper.

Fernández-Albertos, J. (2015). The politics of central bank independence. *Annual Review of Political Science*, *18*, 217-237.

Ferguson, N., Schaab, A., & Schularick, M. (2015). *Central Bank Balance Sheets: Expansion and Reduction since 1900* (No. 10635). CEPR Discussion Papers.

Fliers, P. T., & Colvin, C. L. (2022). Going Dutch: monetary policy in the Netherlands during the interwar gold standard, 1925-1936. *Financial History Review*, 1-31.

Flores Zendejas, J. (2021). Money Doctors and Latin American Central Banks at the Onset of the Great Depression. *Journal of Latin American Studies*, *53*(3), 429-463.Friedman, M., (1969). *The Optimum Quantity of Money*. Aldine.

Knodell, J. E. (2016). *The Second Bank of the United States:"Central" banker in an era of nation-building, 1816–1836*. Taylor & Francis.

Kosmetatos, P. (2019). Last resort lending before Henry Thornton? The Bank of England's role in containing the 1763 and 1772-1773 British credit crises. *European Review of Economic History*, *23*(3), 299-328.

Galati, G., Kakes, J., & Moessner, R. (2021). Effects of credit restrictions in the Netherlands on credit growth and inflation. *Financial History Review*, *28*(2), 237-258.

Garbade, K. D. (2021). *After the accord: a history of federal reserve open market operations, the US government securities market, and treasury debt management from 1951 to 1979*. Cambridge University Press.

Garriga, A. C. (2016). Central bank independence in the world: A new data set. *International Interactions*, *42*(5), 849-868.

Goodfriend, M. (2014). Lessons from a century of FED policy: Why monetary and credit policies need rules and boundaries. *Journal of Economic Dynamics and Control*, 49, 112-120.

Goodhart, C., & Schoenmaker, D. (1995). Should the Functions of Monetary Policy and Banking Supervision be Separated? *Oxford Economic Papers*, *47*(4), 539-560.

Grossman, R. S. (2010). *Unsettled Account*. Princeton University Press.

Hautcoeur, P. C., Riva, A., & White, E. N. (2014). Floating a "lifeboat": The Banque de France and the crisis of 1889. *Journal of Monetary Economics*, *65*, 104-119.

Hanes, C., & Rhode, P. W. (2013). Harvests and financial crises in gold standard America. *The Journal of Economic History*, *73*(1), 201-246.

Hotori, E., Wendschlag, M., & Giddey, T. (2022). *Formalization of Banking Supervision: 19th-20th Centurie.* Springer Nature.

Hsieh, C. T., & Romer, C. D. (2006). Was the Federal Reserve constrained by the gold standard during the Great Depression? Evidence from the 1932 open market purchase program. *The Journal of Economic History*, *66*(1), 140-176.

Imai, M., Okazaki, T., & Sawada, M. (2022). The effects of lender of last resort on financial intermediation during the great depression in Japan. *European Review of Economic History*, 26(3), 448-478.

Ioannidou, V., Kokas, S., Lambert, T., & Michaelides, A. (2022). (In) Dependent Central Banks. Available at SSRN 4262695.

James, H. (2018). The Reichsbank and the Bundesbank: the legacy of the German tradition of central banking. In *Research Handbook on Central Banking*. Edward Elgar Publishing.

James, H. (2020). *Making a modern central bank: The Bank of England 1979–2003*. Cambridge University Press.

Jaremski, M., & Mathy, G. (2018). How was the quantitative easing program of the 1930s Unwound? *Explorations in Economic History*, *69*, 27-49.

Jobst, C. & Rieder, K., (2022). Supervision without Regulation: Discount Limits at the Austro-Hungarian Bank, 1909-1913. *Economic History Review* (forthcoming)

Jordà, Ò., Schularick, M., & Taylor, A. M. (2020). The effects of quasi-random monetary experiments. *Journal of Monetary Economics*, *112*, 22-40.

Jorge-Sotelo, E. (2020). The limits to lender of last resort interventions in emerging economies: evidence from the Gold Standard and the Great Depression in Spain. *European Review of Economic History*, *24*(1), 98-133.

Jorge-Sotelo, E. (2022). *Politicians, bankers and the Great Depression: The Spanish banking crisis of 1931* (No. 22-01). eabh Papers.

Klovland, J. T., & Øksendal, L. F. (2017). The decentralized central bank: bank rate autonomy and capital market integration in Norway, 1850–1892. *European Review of Economic History*, 21(3), 259-279.

Lennard, J. (2018). Did monetary policy matter? Narrative evidence from the classical gold standard. *Explorations in Economic History*, *68*, 16-36.

Marcussen, M. (2005). Central banks on the move. *Journal of European Public Policy*, *12*(5), 903-923.

Martín-Aceña, P., Martínez-Ruiz, E., & Nogues-Marco, P. (2020). Maximizing profits or pursuing the public good?: the Bank of Spain as a central bank. *Journal of European economic history*, 49(1), 111-140.

McCauley, R. N., & Schenk, C. R. (2020). Central bank swaps then and now: swaps and dollar liquidity in the 1960s. Bank for International Settlements working paper n°851.

Mee, S. (2019). *Central Bank independence and the legacy of the German past*. Cambridge University Press.

Mitchener, K.J. & Monnet, E. (2023), Connected Lending of Last Resort, *National Bureau of Economic Research*, working paper n° 30869.

Moen, J. R., & Tallman, E. W. (2013). *Close but not a central bank: The New York Clearing House and issues of clearing house loan certificates* (No. 1308). Federal Reserve Bank of Cleveland.

Molteni, M., & Pellegrino, D. (2022). The establishment of banking supervision in Italy: an assessment (1926-1936). *Business History*, 1-29.

Monnet, E., & Puy, D. (2020). Do old habits die hard? Central banks and the Bretton Woods gold puzzle. *Journal of International Economics*, *127*, 103394.

Monnet, E., & Vari, M. (2022). A dilemma between liquidity regulation and monetary policy: some history and theory. *Journal of Money, Credit and Banking*.

Monnet, E. (2014). Monetary policy without interest rates: Evidence from France's Golden Age (1948 to 1973) using a narrative approach. *American Economic Journal: Macroeconomics*, *6*(4), 137-69.

Monnet, E. (2018). *Controlling Credit: Central Banking and the Planned Economy in Postwar France, 1948 1973*. Cambridge University Press.

Monnet, E. (2023). *Banks of Providence. Central Banks and the Fate of Democracies*. University of Chicago Press, forthcoming.

Morys, M. (2013). Discount rate policy under the Classical Gold Standard: Core versus periphery (1870s-1914). *Explorations in Economic History*, *50*(2), 205-226.

Murphy, A. L. (2019). Performing public credit at the eighteenth-century Bank of England. *Journal of British Studies*, 58(1), 58-78.

Nishimura, S. (1995). The French provincial banks, the Banque de France, and bill finance, 1890-1913. *Economic History Review*, 536-554.

Obstfeld, M., & Taylor, A. M. (2004). *Global capital markets: integration, crisis, and growth*. Cambridge university press.

Ögren, A., & Øksendal, L. F. (2011). *The gold standard peripheries: monetary policy, adjustment and flexibility in a global setting*. Springer.

Okazaki, T. (2007). Micro-aspects of monetary policy: Lender of Last Resort and selection of banks in pre-war Japan. *Explorations in Economic History*, 44(4), 657-679.

Orphanides, A. (2002). Monetary-policy rules and the great inflation. *American economic review*, *92*(2), 115-120.

Polillo, S., & Guillén, M. F. (2005). Globalization pressures and the state: The worldwide spread of central bank independence. *American journal of sociology*, *110*(6), 1764-1802.

Quinn, S., & Roberds, W. (2015). Responding to a shadow banking crisis: the lessons of 1763. *Journal of Money, Credit and Banking*, *47*(6), 1149-1176.

Richardson, G., & Troost, W. (2009). Monetary intervention mitigated banking panics during the great depression: quasi-experimental evidence from a federal reserve district border, 1929-1933. *Journal of Political Economy*, *117*(6), 1031-1073.

Rieder, K., Anson, M., Bholat, D., & Thomas, R. (2022). What You Owe or Who You Know? *Economic Journal* (forthcoming)

Roberds, W., & Velde, F. (2014). *Early Public Banks* (No. 2014-9). Federal Reserve Bank of Atlanta. Romer, C., & Romer, D. (2002). *The Evolution of Economic Understanding and Postwar Stabilization Policy* (No. 9274). National Bureau of Economic Research, Inc.

Schneider, S. (2022). The politics of last resort lending and the Overend & Gurney crisis of 1866. *The Economic History Review*, *75*(2), 579-600.

Siklos, P. L. (2002). *The changing face of central banking: Evolutionary trends since World War II*. Cambridge University Press.

Siklos, P. L. (2017). *Central banks into the breach: from triumph to crisis and the road ahead*. Oxford University Press.

Singleton, J. (2010). *Central banking in the twentieth century*. Cambridge University Press.

Sissoko, C. (2022). Becoming a central bank: The development of the Bank of England's private sector lending policies during the Restriction. *The Economic History Review*, 75(2), 601-632.

Sissoko, C. (2022). Why Lancashire? Banking As the Spark That Set Off Industrialization. Available at SSRN: https://ssrn.com/abstract=4292148 or http://dx.doi.org/10.2139/ssrn.4292148

Sissoko, C., & Ishizu, M. (2021). How the West India trade fostered last resort lending by the Bank of England. *London School of Economics and Political Science, Department of Economic History*, working paper n°108565.

Ryan-Collins, J. (2017). Breaking the taboo: a history of monetary financing in Canada, 1930-1975. *The British Journal of Sociology*, *68*(4), 643-669.

Sablik, T. (2013). Fed Credit Policy during the Great Depression. *Richmond Fed Economic Brief*, (Mar).

Tedde de Lorca, P., & Marichal, C. (1994). *La Formación de los Bancos Centrales en España y América Latina: Siglos XIX y XX*. Banco de España. Servicio de Estudios.

Ugolini, S. (2017). *The evolution of central banking: theory and history*. London: Palgrave Macmillan.

Ugolini, S. (2021). "Moral Hazard and Lending of Last Resort". In Juan Flores Zendejas, Norbert Gaillard, Rick Michalek. Moral Hazard: A Financial, Legal, and Economic Perspective, Routledge, pp.37-53,

Weise, C. L. (2012). Political pressures on monetary policy during the US Great Inflation. *American Economic Journal: Macroeconomics*, *4*(2), 33-64.