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What Do We Really Know about the Long-Term Evolution of Central Banking? Evidence from the Past, Insights for the Present

Stefano Ugolini[*]

Abstract: *The ongoing financial crisis is shaking central bankers' certainties about their mission, and a rethinking of such mission can greatly benefit from a non-finalistic reassessment of how central banking has evolved over the centuries. This paper does so by taking a functional, instead of an institutional approach. The survey covers the provision of both microeconomic (financial stability) and macroeconomic (monetary stability) central banking functions in the West since the Middle Ages. The existence of a number of important trends (some unidirectional, some cyclical) is underlined. The findings have implications for the current debate on the institutional design of central banking, both in the U.S. and in the eurozone. Historical evidence suggests that neither changes in the organizational model of central banks nor government deficit monetization should necessarily be seen as evil; what is crucial to the success of any solution, is that the institutional agreement backing the existence of money-issuing organizations must be credible. The appendix provides a case study on Norway.*

JEL: E42, E50, G21, N10, N20.

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Introduction

For nearly three decades to 2007, central banking around the world has experienced increasing convergence – both in the concept (Siklos 2002) and in the practice of it (Bindseil 2004). The series of financial shocks which has taken place since, however, has shaken central bankers' certainties about their own mission (see e.g. Davies and Green 2010). Any attempt at rethinking this mission would greatly benefit from a non-finalistic survey of the long-term evolution of central banking, showing how problems like the ones we are now facing have been dealt with in the past. Yet such a survey is still missing to date, as teleological accounts largely prevail in the literature.

This paper aims at filling this gap by adopting a functional (instead of an institutional) approach. This novel approach allows to shed new light on many aspects of the history of central banking, and in particular on the question of the institutional design of money-issuing organizations and their relationship with the political power. This is a particularly topical issue these days: at a time when the Federal Reserve and the European Central Bank face mounting criticism from political bodies concerning both their tasks and policies[1], history allows for looking at current problems from a different perspective – and hence, hopefully, for inspiring new solutions.

The remainder is organized as follows. Section 1 discusses methodological issues concerning the study of central banking in the long term. Sections 2 and 3 review the state of research concerning the provision of (respectively) financial and monetary stability in history. Section 4 concludes. The appendix shows the potentialities of the functional approach by looking at a particularly interesting case (i.e. the evolution of central banking in Norway).

[1] Similar criticism has been recently faced also by the Swiss National Bank.

Section 1: Methodological Issues

1.1: The Institutional Approach: What Is a Central Bank?

To date, basically all the available accounts of the long-term evolution of central banking adopt (more or less consciously) an institutional approach to the issue[2]. The institutional approach *takes money-issuing organizations as given* and looks at what they do over time. Therefore, the crucial question to which this approach is confronted is the definition of the subject of scientific investigation – viz., what a central bank actually is. As it happens, answering to this question is far more difficult than it might look at first glance. This is acknowledged by institutional historians themselves: as Capie et al. (1994, p. 5) put it, 'defining central banking is problematic. In one sense, we recognize it when we see it'. As sensible as this sorting criterion might sound, it can hardly play as guidance for a rigorous survey. Under this respect, linguistic evidence is of very little help too: when the term 'central bank' started to be used in the early 19th century, it was originally employed to designate the headquarters of a multi-branched bank (see e.g. Joplin 1837, pp. 22 and 38); only some decades later was it applied, by extension, to describe the position of the Bank of England (see e.g. Gilbart 1865, pp. 557-70)[3]. In the light of these difficulties, two views have tended to prevail among institutional accounts of the history of central banking – both of which, however, suffer from some kind of shortcoming.

A) On the one hand, it is often said among the general public that the world's first central bank would be Sweden's Riksbank (founded in 1668). Yet this is merely the oldest organization providing some central banking function *to have survived* without interruption

[2] A remarkable exception consists of those pages in Goodhart (1988, pp. 31-43) which deal with the emergence of central banking functions within free-banking systems – thus taking, *de facto*, a functional approach. Their main purpose, however, is to deny the case for free banking; organizational alternatives to the Bank of England model are merely considered as first steps of an evolutionary process towards modern central banking. Moreover, Goodhart is only concerned with the microeconomic functions of central banking; in this paper, by contrast, also its macroeconomic functions are taken into account (see section 1.3).

[3] It is interesting to note that even Bagehot makes use of the word 'central bank' only twice in *Lombard Street* – and in both cases, with reference to the headquarters of a multi-branch bank, not to a bank of issue (Bagehot 1873, pp. 57 and 88-89).

until the present. In reality, the Riksbank can hardly be defined either as the first organization to have provided such functions, or as a proper central bank since its creation.

B) On the other hand, the most popular view among economic historians holds that early public banks (such as the Riksbank) only evolved into central banks in the second half of the 19th century. This is encapsulated by Grossman's (2010a, pp. 42-4) claim that prior to that epoch central banks did not exist as 'there was no accepted concept of a central bank', and that only thanks to Bagehot (1873) 'the modern concept of central bank began to gain widespread acceptance'[4]. Such a view rests on two assumptions: first, that central banking did not exist before a theory of it had been designed and recognized as 'orthodox' (Fetter 1965); and second, that the characterizing feature of central banking is lending of last resort. Both assumptions, however, are questionable. First, historical research has shown that banks of issue had started to act in the way advocated by *Lombard Street* well before the book eventually sanctioned such policies (Bignon et al. 2011) – which means that 'modern central banking' would pre-exist its theoretical elaboration. Second, while 21st-century central bankers would certainly agree that lending of last resort is *one* of the tasks of 'modern central banking', they would probably hesitate to indicate it as *the* defining one. The questions of what central banks actually are and of when they would have allegedly become 'modern', therefore, still have to be answered satisfactorily by the literature.

1.2: The Institutional Approach: Mistaking Organizational for Functional Differences

A serious consequence of the institutional approach's unclear definition of central bank, is a pervasive confusion between organizational and functional differences in money-issuing organizations. Such a confusion has led historians to indulge massively in intriguing, albeit sterile, exercises – i.e., in passionate hunts for primacies.

a) On the one hand, as the United States' National Monetary Commission already lamented in 1912[5], most of the people who have been dealing with the evolution of central banking

[4] This idea is extensively enunciated by Capie (2002). Also see Siklos (2002, p. 10) and Davies and Green (2010, p. 11).

[5] 'It is a singular fact that most bankers, economists and legislators who had written upon banking had discussed banking questions in much the same language and from much the same point of view as English authorities [...]' (National Monetary Commission 1912, p. 5).

have bought the (fundamentally Darwinist) argument that the Bank of England, in its capacity as most successful early bank of issue, has naturally been *the* model from which everybody else in the world has constantly drawn inspiration[6]. Such an assumption, however, needs serious scrutiny. True, especially during the interwar period, English central banking has often been presented as 'best practice' – also thanks to the 'almost missionary fervour' displayed by British officials like Otto Niemeyer (Capie et al. 1994, p. 21), whose aim was to create the necessary international infrastructure for the working of a sterling-based gold-exchange standard. Nonetheless, in most cases national central banks have developed from local experience rather than from imported 'best practice', and have most often been designed to fit the specific structure of domestic financial systems: actually, the 'mechanics' of the Bank of England – i.e., the central bank of a leading international financial centre – might not have properly worked if transposed as such to different contexts[7].

b) On the other hand, a number of scholars have argued that the essence of modern central banking should be traced back not to the provision of liquidity (first performed, at least allegedly, by early banks of issue), but to the provision of a stable means of payment (first performed, at least allegedly, by giro banks). According to this view, the primacy of central banking should not be assigned to the Bank of England, but to Amsterdam's Wisselbank (see e.g. Kindleberger 1991; Schnabel and Shin 2006; Quinn and Roberds 2007).

The disagreement between the supporters of the British primacy and those of the Dutch one (i.e., of the 'monetary' or of the 'financial' hypothesis on the origins of central banking respectively) has its roots in the 18th-century dispute between proponents of banks of issue and proponents of giro banks (Gillard 2004); it even has a fallout at the etymological level[8].

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[6] See e.g. Goodhart (1988, p. 104), who argues that the solution to the problems endogenously arising within banking systems 'occurred naturally in England' with the evolution of the Bank of England into a modern central bank, and that 'this model was widely seen as so attractive that it was copied in virtually all other major countries'. Also see Capie et al. (1994) and Wood (2005).

[7] This is particularly evident in the field of monetary policy implementation: about the applicability of the British model to Continental central banks in the 19th century, see Ugolini (2011a). Also see the Appendix.

[8] This concerns the origin of the word 'bank' in English. According to the traditional interpretation, 'bank' would derive from the Italian equivalent for 'bench', meaning the counter over which medieval moneychangers used to deal their transactions: this would be consistent with a 'financial' motive for the birth of central banks, tied to the need of fixing problems with the payments system. This interpretation, however, is questioned by some, according to whom 'bank' would rather derive from the Germanic equivalent for 'cliff', meaning the amount (the joint stock) of public debt handled by the institution – which would correspond to the Italian word 'monte' rather than 'banco' (Conant 1909, pp. 8-9): this would be consistent with a 'monetary' motive for the birth of central banks, tied to the monetization of government deficits. Incidentally, the latter interpretation

Yet as fascinating as this debate may be, it nonetheless suffers from one major drawback: it fails to recognize that banks of issue and giro banks differed in the organizational model they embodied, but *not* in the functions they performed. As a matter of fact, both kinds of banks used to provide, at one time, both a stable means of payment and liquidity[9]. What really marked the difference between the two types of banks was the institutional arrangement that presided over their creation and perpetuation. Giro banks were founded *without any stock capital endowment*: their liabilities only consisted of deposits, and they could only purchase assets against reserves (i.e. by diminishing the coverage ratio)[10]. This explains why giro banks used to be state-controlled companies: in practice, the state kept for itself a given privilege (i.e. the monopoly of some kind of financial operations), and assumed full responsibility for it – both for its benefits (profits, and the possibility of monetizing deficits) and for its costs (eventual losses). On the contrary, banks of issue were founded *with a substantial capital endowment, originally destined to fund the sovereign debt*: their liabilities consisted of deposits and capital, and they could purchase assets against either reserves or capital. This explains why banks of issue used to be privately-owned companies: in practice, the state signed a derivative contract with a group of private stakeholders, according to which the benefits and costs of a given privilege were swapped against the funding of a certain amount of long-term sovereign debt[11].

Once acknowledged that the difference between giro banks and banks of issue is merely organizational (and not at all functional), it will be clear that there is no point in trying to establish primacies in central banking. a) On the one hand, it is inappropriate to take institutional discontinuities as a sorting criterion. In fact, a rigorous application of this criterion would imply the exclusion from central banking surveys not only of giro banks, but also of early banks of issue. Actually, the mid-20th-century wave of nationalization of money-issuing organizations should be taken as a major institutional break, because the basic political arrangement which had grounded the existence of banks of issue till then (i.e. the privilege-for-capital swap between governments and stakeholders) was patently discontinued

seems to be backed by the fact that, up to the late 19th century, private bankers used to be called 'merchants' in London, while the word 'bankers' only applied to the directors of joint-stock banks.

[9] See sections 2.1 and 3.1.

[10] In alternative, in case they had not paid dividends to the state over time, giro banks could purchase assets against retained earnings.

[11] Useful elements backing this argument can be found in Gillard (2004) for the case of giro banks, and in Broz and Grossman (2004) and Quinn (2008) for the case of banks of issue.

at that point. Nobody would agree, however, to take non-nationalized banks of issue out of a serious historical survey. b) On the other hand, it is also inappropriate to look for the 'true essence' of central banking, as this obfuscates the fact that its different manifestations are but the manifold facets of the same phenomenon. For instance, claiming that the provision of a stable means of payment is superior to the provision of liquidity (or vice-versa) is fruitless, as both were contemporaneously performed by structurally different organizations. All this suggests that a different strategy than an institutional approach is needed in order to really improve our understanding of the questions at issue.

1.3: The Functional Approach: What Are Central Banking Functions?

The strategy suggested here in order to cope with the above-mentioned problems consists of adopting a functional approach: this means *taking central banking functions as given* and looking at which organizational structures allow for their performance in any chronological setting (see Merton 1995 for a related discussion). The functional approach has two main advantages with respect to the institutional one. First, it is basically agnostic: none of the functions is seen as more (or less) important than the others, so that hunts for primacies are easily avoided. Second, the crucial question to which this approach is confronted is not the definition of central bank, but that of central banking functions: as it happens, the latter constitutes an easier task than the former.

Nowadays, central bankers agree in acknowledging that they are entrusted with two main (possibly conflicting) duties: providing both *financial stability* and *monetary stability* (see e.g. Issing 2003). This is a long-established conventional interpretation (see e.g. Aldrich 1910, pp. 17-21). The two tasks correspond to what are consensually called – respectively – the 'micro' and 'macro' functions of central banking: the former include the issue of money and the conduct of monetary policy, while the latter include the working of the payments system, lending of last resort, and banking supervision (see e.g. Goodhart 1988, pp. 5-7). As sections 2 and 3 will recall, the need for some kind of organization to play such functions has almost constantly been experienced in sufficiently advanced financial systems, and different solutions have been adopted across time and space with the aim of meeting this need.

1.4: The Functional Approach: Sampling

From what precedes, it will be evident that switching from an institutional to a functional perspective on central banking considerably broadens the scope of historical investigation. To date, general enquiries (e.g. Capie et al. 1994) have only covered banks of issue still existing today or their strictly immediate predecessors (e.g. the Preussische Bank and the Reichsbank as forerunners of the Bundesbank), while they have almost ignored other organizations that might have provided analogous functions in the past: this makes them suffer dramatically from the survivor bias. On the contrary, the functional approach is not subject to this sampling problem, as it allows for covering also those organizations which did (at some time) provide central banking functions, but did *not* evolve into modern central banks. These include: 1) banks that evolved into pure commercial banks (e.g. the Bank of Ireland, the National Bank of Greece, Belgium's Société Générale, Italy's Banco di Napoli and Banco di Sicilia, or Switzerland's cantonal banks); 2) banks that were liquidated, either because of the disappearance of the polities to which they were inextricably tied (e.g. Genoa's Banco di San Giorgio, Venice's Banco del Giro, Amsterdam's Wisselbank, or the Hamburger Bank), or because of some domestic political discontinuity (e.g. Austria's Wiener Stadtbank, Denmark's Kurantbanken, Spain's Banco de San Carlos, or the First and the Second Bank of the United States); 3) non-banks, and especially government departments (e.g. Venice's Grain Office, or the pre-Fed United States Treasury)[12].

All this makes the sampling of the organizations providing central banking functions a daunting task given the current state of the literature. In what follows, pieces of information collected from secondary sources are pasted together in order to sketch the bases of a general interpretative framework – without, of course, any ambition to completeness. The coverage is limited to the Western world from the Middle Ages to nowadays. This restriction is certainly not due to the fact that societies located in other times and spaces lacked outstanding examples of organizations providing central banking functions (the grand architecture of the Chinese payments system over the centuries being just one case in point); rather, it is due to the limits of the author's knowledge on the subject.

[12] On the central banking functions provided by the United States Treasury, see Taus (1943) and Timberlake (1993).

Section 2: Financial Stability in History

2.1: The Payments System

In any sufficiently advanced financial system, the need for the centralization of interbank transactions naturally arises. According to the classical proponents of free banking, this demand can be adequately met by the setting up of a clearinghouse: through a transparent clearing mechanism, commercial banks can monitor each other and thus prevent competitors from expanding too much their liabilities (Smith 1936). Opponents of free banking are sceptical about the resilience of such an arrangement: as a matter of fact, in a pure clearinghouse system the growth of banks' liabilities cannot be refrained from spiralling as long as all participants expand them together at a broadly similar rate. Moreover, scope economies often lead to a single bank dominating the clearing process – or differently said, the clearing process tends to be a natural monopoly. Conflicts of interest, however, will prevent a self-interested commercial bank from playing this role appropriately enough. All this makes the establishment of a non-profit-maximizing central bank preferable to a pure clearinghouse system in order to insure the stability of the payments system (Goodhart 1988).

This debate is a very old one, as it has been around since at least the 14th century. Contrary to what is generally believed, fractional reserve banking already used to be widespread in the Middle Ages (De Roover 1974); as a result, confidence crises periodically engendered runs *à la* Diamond and Dybvig (1983), which threatened the overall stability of the banking system. In 14th-century Venice, where a modern clearing system had long been in operation, the frequent occurrence of such episodes suggested to some that the clearinghouse system was not adequate enough to prevent excessive expansion of liabilities by private banks. In order to improve the resilience of the domestic payments system and to avoid the occurrence of further losses by depositors, two reform bills were presented to the Venetian Senate (in 1356 and 1374 respectively). Both proposals concerned the creation of a bank under the control of the Republic: backed by a one-hundred-percent reserve, deposits at the bank would be state-guaranteed and transferable to other accounts, but not interest-bearing. While the first project assumed deposit insurance to be a sufficient incentive for the public to take their deposits to

the bank, the second one was aware of the limits of this assumption: accordingly, it asked for the establishment of a monopoly of deposit banking (Mueller 1997). Such proposals were repeatedly rejected, on the grounds that the state should not have meddled with operations (viz. money management and trade) that did not fall beneath its competences (Tucci 1991) – once again, a very frequently recurring argument in monetary debates over the centuries. Yet the Venetian banking system continued to be prone to frequent crises; only as late as 1587, when the system came close to a general meltdown, did the Senate eventually adopt a plan for the creation of a state-backed giro bank, the Banco della Piazza di Rialto, which held the monopoly of the encashment of bills of exchange (Luzzatto 1934).

The Venetian debate nicely illustrates the problems inhering the working and resilience of a centralized payments systems. On the one hand, entrusting the management of the payments system to a non-profit-maximizing organization (i.e. an independent arbiter) may well be a remedy to the private clearinghouse's inability of checking the expansion of banks' liabilities (due to the fragility of cooperative equilibria between self-interested agents). On the other hand, though, the non-profit-maximizing organization can easily fail to play a role as centralized clearinghouse if the incentives structure is not adequately designed within the banking system: to put it differently, even if the clearing process tends to be a natural monopoly, it needs not necessarily be located where political authorities would like it to be. This risk has been frequently experienced by early banks. For instance, Barcelona's Taula de Camvis (established in 1401) had not been granted the domestic monopoly of deposit banking: as a result, the bank heavily suffered from the competition of private deposit collectors, which it tried to address by authorizing its customers to overdraft (an operation it was formally prevented from allowing: Usher 1943). The solutions adopted over time in order to fix this problem rest on the effects of i) legal restrictions, ii) scope economies, or iii) a blend of the two.

i) An outstanding example of solutions based on legal restrictions is provided by giro banks (Venice's Banco della Piazza di Rialto, Amsterdam's Wisselbank, or the Hamburger Bank), which were granted the monopoly of the encashment of bills of exchange above a given threshold sum. This arrangement had a twofold implication. Not only did this oblige big transactions to be cleared through the centralized system; what is more, it did act as a supervisory device bound to enhance the quality of the bill market – as bills accepted by the 'central' bank bore no credit risk (Gillard 2004). In the absence of such a device, this role

ended up being played by reputed private agents (De Roover 1974), who eventually evolved into specialized acceptance houses (Flandreau and Ugolini 2011).

ii) Solutions based on scope economies, instead, have built on the state's role as the biggest actor within the financial system in order to attract all transactions on the same platform – viz. the one on which the state itself was operating. As a matter of fact, the volume of the state's business may be so substantial that a unified Treasury cashier may become the centre of the domestic banking system[13]. This was the case, for instance, in 16th-century Tuscany, where the Grand Duke's choice of concentrating all his transactions at the Ricci bank transformed the latter into the leading actor of the Florentine money market (Cipolla 1987). Once more, the Venetian experience on the subject is very instructive. From 1619 to 1637, two public banks were operating in Venice: the Banco della Piazza di Rialto (meant to centralize the clearing of interbank transactions) and the Banco del Giro (meant to centralize the clearing of government transactions). In fact, scope economies quickly induced private banks to participate into one clearinghouse only, and the one in which the state was operating was preferred: as a result, the Banco della Piazza was soon outcompeted, and eventually liquidated (Luzzatto 1934).

iii) Finally, the centralization of interbank clearing to an agreed organization has also been sought through a combination of legal restrictions and scope economies. The English case is illustrative of this strategy. At the time of its foundation, the Bank of England was not granted the monopoly of the encashment of bills or deposit collection; yet, it did get the monopoly of both joint-stock banking and banknote issue in London (Clapham 1944). Together with its role as state cashier (Bagehot 1873), these privileges made the Bank the one large banking company operating in the capital city. But there is more: unlike any other European country, in the 18th century England required all her foreign transactions to be cleared in London (De Roover 1974; Flandreau et al. 2009). Being the only big bank in the Kingdom's only financial centre, the Bank of England easily emerged as the country's clearinghouse – which, as Thornton (1802) recognized, constituted the cornerstone of its power.

In the course of the 19th century, central banks tried to reinforce their position at the centre of national banking systems by expanding their operations into the provinces. The Bank of

[13] This argument is also found in chapter IV of *Lombard Street*, where the centralized structure of the British money market is explicitly connected to the government's choice of concentrating all its deposits with the Bank of England (Bagehot 1873). Also see Goodhart (1988, p. 35).

England's branching outside London, seen as a competitive threat by country bankers, came to a stalemate after the passing of Peel's Act in 1844 (Ziegler 1990). On the contrary, Continental central banks managed to establish dense branch networks throughout their respective countries, thus providing the infrastructure for the emergence of national monetary systems (Jobst 2010). These networks started to be demised in the 20th century, when they were made redundant by the merging process of nationwide-branched commercial banks.

2.2: Lending of Last Resort

Misunderstandings have been spread across the literature on central banking by the lack of a clear-cut definition of lending of last resort. As a matter of fact, many scholars have interpreted lending of last resort as a synonym to bailout: this is the case, for instance, with Buyst and Maes (2008), who argue that Banque Nationale de Belgique did not act as a lender of last resort in the 19th century because it did not participate into rescue operations of troubled banks. Yet lifeboat arrangements are a completely different thing than Bagehot-style lending of last resort[14]. Bailouts of insolvent but systemically important banks have long been organized by political authorities without any direct involvement of monetary authorities: they can be traced back to at least the 1490s, when the Venetian Senate proposed to levy an extraordinary tax in order to fund the bailout of the troubled clearing banks of Rialto (Tucci 1991). By contrast, Bagehot-style lending of last resort actually *is* a typical task for monetary authorities: its aim is not to eliminate bankruptcies of insolvent banks, but to avoid the drying-up of liquidity in the money market.

As financial crises have uninterruptedly occurred before *and* after the adoption of lending-of-last-resort policies, testing their implementation may not be straightforward. Someone has taken as a proxy the profits made from discount operations, to conclude that such policies already were a fact of life as early as in the 18th century (Lovell 1957). However, lending of last resort does not mean lending *more* (even if countercyclically): rather, it means lending *as much as the banking system demands on given eligible assets*. As a result, the proper measure of lending of last resort consists of the spread between the interbank interest rate and the

[14] Suffice it to quote Bagehot himself: 'The cardinal maxim is, that any aid to a present bad Bank is the surest mode of preventing the establishment of a future good Bank' (Bagehot 1873, p. 104).

discount rate of the central bank's standing facility – which provides a test of credit rationing. Performing this test leads to conclude that the defining moment for the appearance of lending of last resort (both in Britain and elsewhere) was the crisis of 1857 (Bignon et al. 2011). Two preconditions made lending of last resort a viable option. i) The first one was the establishment of the central bank at the core of the payments system, which entailed the possibility to meet a contraction of interbank credit with an expansion of central bank money. ii) The second one was the repeal of usury ceilings on interest rates, which entailed the possibility to increase the commercial banks' opportunity cost of hoarding cash – and hence, to set the right incentives for the whole money market. Once these two preconditions were met, central banks started to practise lending of last resort in an extensive way and thus eliminated the occurrence of credit rationing in their economies; in so doing, they also provided the basis for a wider internationalization of the currency they issued (Flandreau and Ugolini 2011).

2.3: Banking Supervision and Regulation

Banking supervision is a task that has not always been entrusted to central banks or their likes. In some contexts – e.g. in the United States, or in Scandinavia – supervision has most often been performed by political rather than monetary authorities; in others – e.g. in Italy, or in Spain – it has always remained one of the leading functions of the central bank (Grossman 2010b). In the latest decades, however, a number of countries in which supervision had traditionally been with the central bank – e.g. Britain, or Germany – handed it over to other agencies, in accordance with the so-called 'unified supervisor' model. The manifestly poor performance of unified supervisory agencies in the build-up to the recent crisis, however, has strengthened the idea that banking supervision is a built-in function of central banking (Goodhart 2009). There are at least two dimensions along which the latter idea finds validation in the past. First, as already pointed out, central banks' action in the clearing of interbank payments has allowed them to monitor the overall expansion of commercial banks' liabilities (Goodhart 1988). Second, central banks' *de facto* monopoly of crisis-time lending (and the credible threat of exclusion from it) has provided them with a powerful instrument for enforcing the adoption of banking practices deemed as desirable (Flandreau and Ugolini

2011). How much effective these informal types of supervision have actually proven over time, is still something to be assessed by historical research. Nevertheless, their existence confirms that banking supervision is inextricably connected with the other two microeconomic central banking functions, and that it can be performed *regardless* of the regulatory arrangements in force.

The latest decades have generally seen the detachment of central bankers not only from banking supervision, but also from banking regulation. This has been tied to the fact that in recent years, the debate on banking regulation has mostly focused on the question of capital requirements – as embodied by the Basel agreements. This is a considerable departure from the way banking regulation has been dealt with in the past: as a matter of fact, the strategy for reducing excessive risk-taking in the banking system has traditionally been identified not with the enforcement of *capital* requirements, but with the enforcement of *reserve* requirements. In a sense, private bankers' 'forced' deposits with giro banks (a necessary condition for having the faculty of drawing bills) may already be interpreted as an early form of reserve requirements (Gillard 2004). Throughout the 19th century, the optimal level of reserves of the banking system was the core issue of all English monetary debates (see e.g. Bagehot 1873), not to mention the rationale of the United States' National Banking System and early Federal Reserve System (Timberlake 1993). As a matter of fact, the likely first attempt by a central bank to influence banking regulation was the Bank of England's campaign for the introduction of reserve requirements in Britain in the 1890s (Sayers 1936; Goodhart 1972). A period of widespread popularity of reserve requirements begun in the 1930s, when they were gradually transformed into an instrument for the conduct of monetary policy. It was precisely on the ground of their ineffectiveness as a monetary instrument that they have been gradually demised in most Western countries since the 1980s (Bindseil 2004).

Section 3: Monetary Stability in History

3.1: Issuing Money

As argued in section 2.1, the centralization of interbank payments naturally occurs in any sufficiently developed banking system; as a result, because of their liquidity and safety, claims on the organization which finds itself at the centre of the domestic payments system naturally tend to acquire the status of money – even though they are *not* granted legal-tender status by the government. In what follows, the term 'central bank money' will be used to indicate claims on a 'central' organization (in the 19th-century sense of an organization which clears the transactions of 'peripheral' banks), which do play the role of domestic medium of exchange irrespective of the fact of being declared 'high-powered money' by political authorities.

In the light of this, it is convenient to conceive of the central bank's balance sheet as of a pure commercial bank's one. Under this respect, it is possible to say that central bank money is issued whenever the central organization starts to perform fractional reserve banking – i.e., to purchase assets against reserves. Differently said, issuing central bank money means bearing the power to create credit in favour of some borrowers. This is something which has been performed across the centuries by basically all central organizations, including the most conservative ones (as e.g. Amsterdam's Wisselbank: Gillard 2004).

According to the modern idea of central banking, those who borrow from the monetary authority are other banks – which, in turn, redistribute credit to the whole economy. In the past, however, such a situation has been the exception rather than the norm. Over the centuries, money-issuing organizations have chiefly supplied credit directly to the state; and even when loans to the banking system have become predominant, central banks have often accorded them *provided* that the banking system would, in turn, redirect at least part of them towards the government. This disguised obligation has generally taken the form of *eligibility criteria* for the procurement of credit: in practice, central banks would lend to customers mainly on the security of government bonds, Treasury bills, or the like. With respect to this, the history of the Bank of England is illustrative. During most of its first century of life, the

Bank almost exclusively performed direct lending to the government. Only since the 1760s did the sums lent to private customers start to become more substantial; yet, within its portfolio, commercial credit (trade bills) still remained a trifle with respect to government credit (inscribed debt and Exchequer bills: Clapham 1944). The presence of government loans and securities on the Bank's balance sheet continued to be overwhelming throughout the first half of the 19th century; it was only after the reform of 1844 that the Bank entered the commercial credit market more actively (Wood 1939). With the explosion of war finance in the 1910s and the decline of international trade in the 1930s, Treasury bills almost completely ousted trade bills from the discount market (Scammell 1968), thus making the Bank operate almost exclusively on Treasury securities (Bindseil 2004). Therefore, on the whole, the Bank of England never ceased to play the role of 'great engine of state', famously credited to it in 1776 by Adam Smith (1827, p. 131; also see Von Philippovic 1911). Another noteworthy example is provided by the Federal Reserve: because of an early rebuttal of the use of the discount window (enthusiastically acclaimed by monetarist economists: see e.g. Schwartz 1992), until the recent crisis the Fed basically restrained all its monetary operations to the Treasury bond market only (Bindseil 2004; Jobst 2009). All this suggests that throughout the history of central banking, the monetization of sovereign debt has long played a much more important role than it has generally been recognized – and, as such, it needs being looked at in depth.

In every historical and geographical setting, governments have always been exposed to the risk of facing sudden, unpredictable expenses – mostly related to war. Although markets for long-term government debt have been existing since at least the Middle Ages (Fratianni and Spinelli 2006), in times of emergency only two kinds of strategies have typically been available in order to finance deficits. The first one is monetary debasement – a policy which has widely been implemented in almost any setting, but which suffers from the drawback of systematically creating disarray within the payments system (Sargent and Velde 2002). A less costly, but equally efficient strategy consists of short-term credit creation through some kind of banking organization – a policy which, unlike debasements, does not necessarily disrupt the payments system if wisely implemented (Hicks 1969). Thus, securing the viability of deficit financing *without* debasements has early been felt as a necessity by governments – especially in those settings in which the negative externalities of debasing money were maximum, i.e. in international financial centres.

Because modern monetization of deficits is often conceived of as a mere 'reincarnation' of debasement practices, it is assumed to have appeared as soon as technological improvements allowed to farm seigniorage taxes on a paper instead of a metallic support – i.e. with the invention of banknotes (Selgin and White 1999; Redish 2000). This invention is commonly thought to have occurred in Sweden in the 1660s (Heckscher 1934), although similar instruments already circulated in Naples in the late 16th century (Van der Wee 1977). Deficit financing in the form of credit creation, however, is not a mere transformation of a mint into a printing press: its necessary precondition is the existence of a sufficiently sophisticated banking system[15], not of a technology minimizing the risk of counterfeiting. And indeed, modern monetization of deficits has started to be implemented much earlier than the 17th century – i.e., since at least the emergence of advanced banking practices during the Middle Ages.

What emerges from the historical literature, is that cyclical patterns exist in the way governments have resorted to credit creation for deficit financing over the centuries. Like 'Coaseian' firms (Coase 1937), political authorities have at times externalized, at times internalized credit creation – or differently said, they have moved back and forth between market-oriented and state-oriented solutions, according to their relative efficiency. The long experience of the Republic of Venice provides a nice illustration of these patterns. In the 13th and 14th centuries, the Venetian government used to raise short-term funding through one of its departments, the Grain Office. The Office worked as a quasi-bank: on its liabilities side, it took deposits from non-residents and opened drawing accounts to domestic commercial firms which were purveyors to the state; while on its assets side, it lent to other departments. In view of the rampant growth of the domestic banking system, however, this solution was discontinued in the 15th and 16th centuries, when credit creation was externalized to the private clearing banks of Rialto: the government borrowed short-term from banks, which in turn monetized the debt by collecting deposits exchangeable through the clearinghouse system (Mueller 1997). After the collapse of the Venetian banking system, though, in the 17th

[15] It is crucial to underline that this precondition was only seldom met in undermonetized economies, and solutions perfectly working in financial centres often turned out to be inapplicable to other contexts. For instance, in 1593 the municipality of Milan established a bank (Banco di Sant'Ambrogio) which perfectly mimicked the institutional design of Genoa's Banco di San Giorgio; yet the giro-bank activities of the institution never took off, as the turnover of the Milanese banking place (unlike the Genoese one) never attained the critical threshold necessary to make the institution work properly (Cova 1991).

and 18th centuries the Republic went back to earlier practices and established the Banco del Giro: a state-controlled bank, the Banco took deposits and cleared transactions on the one hand, while it lent to the government on the other (Luzzatto 1934).

These alternating trends – back and forth between internalization and externalization – are similarly well observable in more recent history. At the beginning of the 20th century, almost all banks of issue were privately-owned joint-stock companies, with no formal mandate to lend to governments. After the meltdown of international finance in the 1930s and 1940s, most of them were nationalized and thus reduced to the status of government departments: in this context, central banks were generally required to mechanically purchase government paper (Tamagna 1963). With the renewed financial expansion of the 1980s and 1990s, however, central banks have regained their independence: in this context, the automatic monetization of government deficits has ceased – which has been vividly described in Italy as the 'divorce' between the Bank and the Treasury (Epstein and Schor 1989). The recent period of dysfunctionality of financial markets, addressed by leading central banks with a wave of quantitative easing, allows to wonder if a new cyclical turn is on the way.

3.2.1: Monetary Policy

It is often believed that, up to interwar period, monetary policy was a sort of no-brainer: central bankers mechanically stuck to gold-standard rules, and implemented the defence of convertibility by applying a set of conventional instruments (Polanyi 1944; Eichengreen 1996). In reality, convertibility is only one of the policies money-issuing organizations have adopted over the centuries in order to pursue their main macroeconomic target: i.e., the defence of the long-term value of the money they issued[16]. In the implementation of such

[16] In Eichengreen's (1996) view, the difference between interwar central banking and its predecessors is not merely the importance accorded to fixed exchange rates, but also the incorporation into monetary policymaking of other macroeconomic concerns (in particular, the unemployment rate). However, the recent emphasis on price stability as the 'Holy Grail' of central banking (Siklos 2002) allows to wonder whether concern on other macroeconomic factors has been a somewhat transient phenomenon of monetary policymaking – tied to the temporary transformation of central banks into government agencies in the mid-20th century. For instance, the European Central Bank only has price stability as the macroeconomic target of its monetary policy; under this respect, the Federal Reserve's unemployment target might appear as a relic of the past.

policies, central bankers have displayed a much higher degree of flexibility than it is commonly thought.

For a long time, money issued by central organizations has *not* enjoyed the status of high-powered money. In most Western countries, central bank money has definitely become legal tender only in the second half of the 19th century (Capie et al. 1994). Prior to that, an *exchange rate* between central bank money and high-powered money (viz. bullion) did actually exist: this was a fixed one in case of (internal) convertibility, or a variable one in case of (internal) inconvertibility. The reason why governments have displayed considerable prudence before granting legal tender status to central bank money, is that the move had the potential to annihilate the comparative advantage of credit creation – which, as said, consisted of not creating disarray within the payments system. To put it differently, making banknote payments legally enforceable could easily turn to be perceived by the public as a full-scale debasement, because it granted too much discretionary power to the issuer in the absence of a sufficiently credible institutional backing for it. This has often been the case in the early-modern age. In France, legal tender was granted to the notes issued by John Law's companies under the Regency in the 1710s, and to the *assignats* issued by the instable Revolutionary government in the 1790s: in both episodes, the value of the instruments rapidly turned to nil. Hyperinflation was also experienced in Austria, Denmark, and Spain (all seriously weakened by military defeats) during the Napoleonic Wars: in all cases, the bank of issue had to be liquidated and replaced by a new organization after the end of the conflict (Capie et al. 1994). This explains why in Britain (an international financial centre), the government tried to resist providing the status of legal tender to Bank of England notes while dropping their convertibility in 1797: such a reluctance gave scope for the emergence of a premium on gold coins, in the face of which the step eventually had to be taken. The ensuing inflation was far from catastrophic thanks to the government's credible engagement to a rapid return to pre-war conditions (Fetter 1965).

In view of the public's general defiance towards fiat money, the policies put in place over time in order to defend the long-term value of central bank money have included i) internal inconvertibility, ii) external convertibility, and iii) inflation targeting.

i) During the early-modern era, central bank money often used *not* to be convertible into legal-tender money. This does not mean that inconvertible central bank money, whose value depended on discretionary action, was necessarily worse-quality than high-powered money:

on the contrary, inconvertibility was rather a strategy for sheltering the value of central bank money from the instability of metallic media of exchange (Luzzatto 1934). For instance, the money issued by Amsterdam's Wisselbank was inconvertible, but used to be traded at a premium, not at a discount, with respect to the legal tender unit (Van Dillen 1934)[17]. Sometimes, granting convertibility was a way for worsening rather than improving the value of central bank money: this was the case with Genoa's Banco di San Giorgio, which suffered considerable losses in the 15th century as long as it was required to convert its money into legal-tender one (Fratianni and Spinelli 2006). The general improvement in the state of metallic circulation that took place in the early 19th century (Redish 2000) removed the rationale for internal inconvertibility as a pro-stability monetary policy. As far as we know, the last central organization to issue internally inconvertible money was the Hamburger Bank, which eventually adopted convertibility in 1846 (Seyd 1868).

ii) Once central bank money was granted legal tender status, its exchange rate with *national* high-powered money ceased to exist; yet of course, its exchange rate with '*international* high-powered money' did not. 'International high-powered money' is, no doubt, a tricky concept; it is used here to indicate an universally accepted medium of exchange for the clearing of international transactions, which is unaffected by liquidity problems under any condition (see e.g. Kindleberger 1989). The exchange rate between 'central' bank money and 'international high-powered money' could be a fixed one in case of (external) convertibility, or a variable one in case of (external) inconvertibility. Since the early 19th century, external convertibility came to be seen as a convenient expedient to limit the issuer's discretionary power, which was thought to be the cause of inflation (Flandreau 2008). As long as both gold and silver played the role of 'international high-powered money', convertibility into the one or the other metal (or both) were seen as expedient monetary policies; yet, as soon as silver was suspected to be losing such status in the 1870s, a rush to gold convertibility alone did occur (Flandreau 2004). In the 20th century, two attempts at creating an international gold-exchange standard (the Genoa and Bretton Woods systems) tried to oust gold from this role, and to replace it with (respectively) sterling and the dollar: the first essay failed, while the second one basically succeeded.

[17] Gillard (2004) even sees this as a deliberate sterilization policy.

iii) Since the demise of the Bretton Woods system in 1973 and the making of the free float era, no medium of exchange can properly claim the status of 'international high-powered money'. Thereafter, external convertibility has been abandoned and gradually replaced by new strategies for limiting the discretionary power of central bankers – viz. inflation targeting, now made feasible by technological improvements (Flandreau 2008).

3.2.2: Monetary Policy Implementation

The previous section has argued that preserving the value of central bank money (through internal inconvertibility, external convertibility, or inflation targeting) has always been the monetary policy *par excellence* of issuing organizations. What about its implementation? Under this respect, quantity and price policies for regulating the value of money have been alternatively put in practice. In early times, quantity policies were the only available option for at least two reasons: first, except for some occasional authorisations to overdraft accorded to depositors (Usher 1943), early banks did not generally lend to private customers; and second, even in those cases in which they did lend to the banking system (as e.g. for the late-18th-century Bank of England), usury ceilings basically ruled out the feasibility of interest rate policy (Hawtrey 1932). As a result, early banks could only try to affect the value of the money they issued by modifying its quantity through open-market operations. Both Venice's Banco del Giro and Amsterdam's Wisselbank, for instance, happened to implement such operations in order to sustain the exchange rate between central bank money and legal-tender one (Luzzatto 1934; Gillard 2004). When in the early 19th century external convertibility came to be seen as the most desirable monetary policy, quantity concerns were translated into reserve requirements for the issuing bank. Sometimes, these were designed in a rather bizarre fashion: for instance, for nearly one century Peel's Act required the Bank of England's banknote issue to maintain a one-to-one ratio to gold reserves above a given threshold, but did not call for any bullion backing for demand deposits: the unforeseen outcome of this restriction was that the issue of central bank money came to be infinitely elastic during panics, when the safety of the Bank was sought by the whole banking system (Barrett Whale 1944). In most cases, however, a minimum fractional reserve was legally required to back the total amount of banknotes *and* deposits issued (Ugolini 2011a).

As in the course of the 19th century central banks' loans to private customers became more widespread and usury ceiling were generally repealed, scope was provided for the implementation of price policies. This first took place in Britain, where an 'orthodox' theory of bank rates gradually emerged: only concerned with the defence of external convertibility, the view held that the central bank should react to a depreciation of the exchange rate (deemed to be automatically followed by an outflow of bullion from its reserve) by increasing the interest rate of its standing facility (Hawtrey 1932). Although officially the doctrine remained worldwide popular until the 1930s, its actual workability had already become a matter of doubt before the end of the 19th century. On the one hand, the extreme interest rate volatility implied by it soon sparked discontent within the real economy, and the Bank of England was forced to invent a number of 'devices' in order to smooth its inconveniences (Sayers 1936). On the other hand, peripheral countries experienced difficulties in effectively facing exchange rate depreciation by raising rates, and accordingly their central banks started to rely on foreign exchange intervention rather than interest rate policy for the pursuance of monetary targets (Ugolini 2011a; 2011b).

The events of the 1920s and 1930s destroyed the prestige of the British monetary 'orthodoxy', and for many decades the concern of both Keynesian and monetarist economists was with the way of controlling the quantity of money through open-market operations. In turn, however, quantity policies performed very poorly in the 1970s and 1980s, prompting central bankers to come back to price policies (Bindseil 2004). Up to the recent crisis, a general consensus existed on the fact that price stability could best be achieved through the control of short-term interest rates; but, as it had been the case during the first age of price policies, only in core countries did central banks stick to interest rate steering, while in peripheral ones they once again resorted to foreign exchange intervention. The next years will show if the late-20th-century consensus over monetary policy implementation is consistent enough to last.

Section 4: Conclusions

4.1: Summary of Results

This paper has reviewed the current state of research about the evolution of central banking functions in the West since the Middle Ages. The results of this survey can be summarized as follows. Concerning microeconomic central banking functions, the literature outlines the existence of unidirectional tendencies towards *a)* the centralization of payments systems, *b)* the adoption of lending-of-last-resort policies, and *c)* the separation of supervisory and regulatory functions from monetary ones. Concerning macroeconomic central banking functions, on the contrary, it is found that a cyclical behaviour has characterized the setting of monetary policy over the centuries. As a matter of fact, historical evidence points to the existence of cyclical patterns in *A)* the monetization of government deficits (from internalization to externalization and back), *B1)* the discretionality of monetary action (from full discretionality to strict adherence to rules and back), and *B2)* the implementation of monetary policy (from quantity policies to price policies and back).

4.2: Implications

These findings bear relevance to the current debate on the institutional design of central banking, originating from the recent attacks on the legitimacy of the policies enacted by the Federal Reserve and the European Central Bank.

i) First, the results show that not only the targets and instruments of monetary policy, but also the organizational structures for the provision of central banking functions can vary over time in response to changes in the surrounding political and financial environment. The present form assumed by money-issuing organizations, besides being relatively recent (dating from the last three decades only), is certainly not the only viable institutional solution. As a matter of fact, a high degree of adaptation to the consequences of major political and economic shocks (such as e.g. the Napoleonic Wars, or the Great Depression) has

characterized the evolution of central banking over the centuries. Therefore, current organizational structures should not be seen as set in stone.

ii) The same is the case for the implementation of government deficit monetization. In the long history of sovereign borrowing, periods of predominantly direct recourse to financial markets have alternated with periods of debt monetization – the latter being the norm in times of market dysfunctionality. As a result, monetization should not necessarily be seen as evil, but rather as an option to be subjected to a benefit-cost assessment – in the light, of course, of the constraints imposed by the institutional arrangements in force.

iii) On the whole, historical evidence suggests that the efficiency of any solution (concerning both organizational forms and monetary policies) crucially depends on the sustainability of the institutional arrangement backing them. Money-issuing organizations are the outcome of collective bargaining, and the credibility of the former rests on that of the latter. Older forms of central banking organizations like giro banks disappeared not because of flawed organizational structure, but because of the dissolution of the political equilibria which had allowed for their existence. Similarly, banks of issue like the Bank of England and (say) Denmark's Kurantbanken had opposite fates not because of organizational dissimilarities, but because of the different degree of sustainability of their institutional backing.

All this leads to two final considerations. On the one hand, central banks should not merely defend the *status quo*: as one connoisseur pointed out during another period of great economic transformation, 'the cardinal virtue of the central banker is not conservatism in technique, but rather a disposition to discover novelties and to be versatile in technique' (Sayers 1949, p. 211). On the other hand, before indulging in destabilizing attacks, politicians should never forget how much the very functioning of states depends on central banks and their action within the banking system: as one major Venetian banker argued during the big financial crisis of 1498, '*quando i banchi no ha' fede, la Terra no ha credito* [when there is no trust in the banking system, there is no credit for the Country]' (Mueller 1997, p. 425).

Appendix: A Case Study on Norway

In what follows, one case study is performed through the lenses of the functional approach. The focus is on the history of central banking in Norway, with particular reference to the 19th century. This is a particularly interesting case. On the one hand, Norway enjoyed a remarkable quality of political institutions, and a high degree of penetration of banknotes in monetary circulation. On the other hand, however, the country's economic situation was quite the opposite than the one of core countries (especially Britain): it was a small open economy with a low degree of financialization. All this makes the Norwegian case an ideal one for looking at central banking history from a different perspective. Through a brief summary of the evidence provided by the existing literature concerning each central banking function, the exercise aims to outline the potentialities of this approach in raising both new interpretation of historical facts and new research questions.

A.1: The Payments System

Up to the mid-19th century, Norway's financial system apparently displayed a sort of dual structure. On the one hand, a handful of specialized, foreign-controlled private banks financed external trade (Hodne 1975); to all likelihood, their business was denominated in foreign currency and cleared abroad (in Hamburg: Ugolini 2011b). On the other hand, the domestic banking system still kept a localised scale, with scanty intraregional contacts (Egge 1983). As many other central banking organizations operating in illiquid monetary environments, Norges Bank (established in 1816) must have found it impossible to build on the role as central national clearinghouse in order to influence the Norwegian money market. Evidence of this comes from the level of bankers' deposits at the Bank, which were basically non-existent prior to the 1840s, and remained relatively low for the whole 19th century. The same is true for the Treasury's current account: despite being much more sizable than private ones, public deposits started to grow steadily only at eve of the First World War (Eitrheim et al. 2004). In the Norwegian case, therefore, the volume of government transactions long

remained insufficient for fostering the centralization of the national payments system at the Bank: this was certainly tied to the light structure of the central government, whose revenues basically consisted of custom duties only (Hodne 1975) – and whose expenditures must have had little impact on the domestic economy. Even the early creation of a branching network did not contribute much to reinforcing the Bank's position at the centre of the payments system: due to geographical factors, local branches operated independently from one another, and money markets largely remained regionalised for the whole 19th century (with lack of national homogenisation of interest rates: Eitrheim et al. 2007). As a result, only at the beginning of the 20th century a truly national money market (with Norges Bank standing at its centre) seems to have been eventually put in place. Future research might want to investigate the evolution of the Norwegian payments system from Danish to Swedish rule and then to full independence, the impact of the long-lasting lack of centralization on Norges Bank's action, as well as the strategies specifically put in place in order to encourage the establishment of a national money market.

A.2: Lending of Last Resort

Section 2.2 argued that one of the preconditions for the central bank to be able to implement lending of last resort is its establishment at the centre of the payments system: when that is the case, a contraction of interbank lending typically translates into an expansion of central bank deposits – which allows central banks to lend more during crises. However, as section A.1 pointed out, this precondition does not seem to have been met in Norway during the whole 19th century. As a result, it does not come as a surprise that Norges Bank did not act as a lender of last resort at least until the crisis of 1899. Prior to that, it was the government to intervene in order to calm panics (Øksendal 2011a); on these occasions, the central bank probably rationed credit – although the lack of data concerning interbank interest rates does not allow to perform a test of rationing (Bignon et al. 2011). The crisis of 1899 marked Norges Bank's first undisputed engagement into Bagehot-style lending of last resort, but even on this occasion the role of the government was crucial: instead of intervening directly on the market, the Treasury seems to have deposited large sums at the Bank – thus providing it the means for expanding its lending (Eitrheim et al. 2004). An alternative explanation is that the

definitive adoption of lending of last resort practices may have been delayed until the First World War by competition with commercial banks (Egge 1983). Future research might want to investigate which explanation fits the historical evidence best, how much credit rationing did Norges Bank actually perform in the 19th century, and how the changing relationship between the Bank and the government shaped crisis intervention over time.

A.3: Banking Supervision and Regulation

Norway has always stuck to the 'Scandinavian' tradition of banking supervision, according to which supervision is entrusted to specialized civil servants (Grossman 2010b). This tradition probably has its roots in the particular structure of the Norwegian banking system, predominantly made of small, localised (and politicised) savings banks spread across a vast territory. Yet this does not necessarily mean that Norges Bank never played any supervisory role: as it was the case in other countries (Flandreau and Ugolini 2011), it is possible that the Bank managed to informally supervise commercial banks by checking the quality as borrowers once its market power as national lender of last resort was definitively established. Future research might want to investigate whether the latter were actually the case, and whether Norges Bank played an important role (if any) in shaping banking regulation over time.

A.4: Issuing Money

Norges Bank was not created in a vacuum: prior to 1816, Norway's monetary circulation had been dominated by the banknotes issued by Denmark's Kurantbanken. During the Napoleonic Wars, the bank of issue engaged heavily in sovereign debt monetization: as a result, both Denmark and Norway experienced hyperinflation. When Norges Bank was established, its new banknotes were made exchangeable with old Danish ones at a fixed price; they were also made convertible into silver, the par being progressively revalued by nearly 100% between 1822 and 1842 (Øksendal 2009a). This steady, albeit gradual, deflationary policy meant that the effects of Danish government deficit monetization took many decades to be reabsorbed. As a reaction to this, Norges Bank was carefully designed by the Parliament in

order to avoid the occurrence of future debt monetization. As a matter of fact, for the whole century to the First World War, the Bank seems to have been largely out of the domestic sovereign debt business, while the government found itself bound to borrow abroad (Eitrheim et al. 2004); this may have reflected the institutional equilibrium of power. As a result, Norges Bank notes were not mainly issued to purchase sovereign debt; for most of the 19th century, they were not mainly issued against commercial credit either. Actually, the bulk of Norges Bank's assets were made up of mortgage loans (Eitrheim et al. 2004). This might have reflected adherence to an alleged 'North European model of early central banking', focusing on the underlying solidity (instead of the liquidity) of the central bank's investment (Tarkka 2009); more probably, this might have reflected the Parliament's concern for meeting the effective credit demand of an economy which was reconverting towards agricultural production (Hodne 1975), and whose private mortgage loan market was probably far less developed than in Western Europe (Habakkuk 1994; Hoffman et al. 2000). Although Norges Bank's mortgage loans declined steadily during the century, they only became marginal at the eve of the First World War – when a new era began. Future research might want to investigate how the institutional agreement backing the establishment of Norges Bank changed over time, and how much it did influence the evolution of the Bank's action within the domestic economy.

A.5: Monetary Policy and Its Implementation

As section A.4 pointed out, one of Norges Bank's main concerns since its foundation was the maintenance of convertibility. It has already been underlined that, in the early 19th century, the Bank overwhelmingly lent on mortgage, and that the residual business in trade bills concerned assets which lacked international circulation (see section A.1): this means that neither of the instruments with which the Bank dealt was sufficiently sensitive to modifications in interest rate changes. As a result, for many decades quantity policies (expansion or reduction of loans) were probably the only strategy available to the Bank for modifying the supply of money; these might have entailed significant credit rationing in certain periods. Only in the second half of the 19th century did price policies (i.e. British 'orthodox' discount policy) started to become a viable option in Norway. Still, being the

central bank of a peripheral country with very limited influence on international prices, very early on Norges Bank started to rely heavily on foreign exchange policy in order to sterilize short-term capital movements (Øksendal 2009b; 2011b). Future research might want to investigate what drove the evolution of monetary policy targets over time, how monetary policy implementation was dictated by the structure of the domestic money market, and whether the adopted solutions were efficient.

A.6: Summary

This survey has highlighted that for the whole 19th century, it was impossible for Norway to import the alleged English 'best practice' in central banking. This seems to have depended neither on a lack of high-quality institutions, nor on a cultural bias (Tarkka 2009). Rather, two main factors seem to have played a crucial role in shaping Norwegian monetary action: 1) the internal structure and the external position of the domestic banking system, and 2) the political equilibria backing the existence of Norges Bank. This opens a fascinating field for future investigation, concerning both Norwegian history and (more generally) central banking in emerging countries.

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