

THE LONG WAY TO A NATIONAL CREDIT MARKET. BANKS AND COMMERCIAL BILLS IN FRANCE, 1851-1936

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Abstract: We examine the evolution of local and national credit relationships using detailed data on discounted bills in each branch of the French central bank from 1851 to 1936. This was a unique observatory of the domestic circulation of commercial bills. The ratio of "national" to "local" bills remained stable until 1913. It then experienced a sharp increase in the 1920s, coinciding with the fastest expansion of commercial bank branches in history. Econometrics with city-level data confirm that the two phenomena were linked. The aftermath of WWI considerably reshaped the scale and geography of the national market for commercial bills.

Introduction

Financial history has long been interested in how and when credit markets became national, i.e. the historical process by which it became customary to borrow from people or institutions outside the same locality but in the same country. It is important to understand whether a shift away from local credit markets was a necessary condition for economic growth and political integration. It also raises the question how the development of commercial banking correlates with the expansion of financial

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relationships across the national territory – a higher network of banks may ease the ability to borrow and pay in other places.

The question of whether the chronology of the expansion of international finance was similar to that of the development of domestic credit also remains open. Some long-distance relationships between bankers and merchants existed in Europe since at least the Middle-Ages and Renaissance (De Roover 1953, Kindelberger 1984), and international bond markets were already very integrated in the nineteenth century (e.g. Ferguson 2006). Yet, as a recent scholarship has also emphasized, a significant part of credit transactions remained local, even during the second industrial revolution, although commercial banks and stock markets were expanding together with transport and communication infrastructures (Hoffman, Postel-Vinay and Rosenthal 2000, 2019; Guinnane 2001, Lindgren 2002, Cull et al. 2006, Wang 2008, Gelderblom et al. 2023, de Vicq and van Bochove 2023). These studies focus on local credit cooperatives, notaries or other forms of peer-to-peer lending, but do not deal with the discount of bills of exchange or promissory notes which were the main financial instruments to support commercial transactions (e.g. Kindelberger 1984, Gorton 2023). Because they were used for trade finance, including across countries, bills of exchange and other commercial bills are often viewed as typical instruments supporting long-distance financial relationships between different cities or countries (Flandreau et al. 2009, Santarosa 2015, Chilosì et al. 2018). Yet, we have only scarce evidence on the share of commercial bills that were used for local, national or foreign credit in the nineteenth and twentieth centuries. The recent study by Gorton (2023) on a sample of 482 inland bills of exchange in England (1762-1850) shows that some bills were endorsed several times and were used as a liquid medium of exchange, but we do not know how far they circulated within the country.

How many commercial bills circulated – and were discounted – locally or nationally in France is impossible to know. Their tracks have been lost. To cope with this data limitation, we study bills discounted by the French central bank, the *Banque de France* (BdF), from 1851 and 1936. Due to its singular branch network and wide-range activity of discounting and rediscounting bills of exchange, the BdF is a unique observatory of the French discount market during this period. It was central to both the

payment and the credit systems. A large part of commercial bills that circulated in France in a given year – about 40 percent, according to the estimates of Roulleau (1914) – were at some point discounted by the BdF and thus appeared in its portfolio. Thanks to newly collected data from the BdF archives, we can distinguish between, on one hand, the bills that were discounted in the same area they were payable and, on the other hand, those that were discounted in a different place. For example, a commercial bill discounted by the central bank in Angers could have been issued – and/or be payable – by a merchant in Angers (“local”) or, on the contrary, in another French city (“national”). For each branch of the central bank, we know the share of discounted bills that were payable in the same area where the branch operated (*effet sur place*), in the area of another BdF branch (*effets sur province* or *effets sur succursales*) or in Paris (*effets sur Paris*).³ The first ones are “local” bills while the others are “national”.

We first construct an annual series of the ratio of national to local bills (including or excluding bills payable in Paris from the sample) for each year from 1851 to 1936. This series includes the sum of all bills discounted by the central bank, without distinguishing at the branch level. In a second step, since the annual aggregate data show very few short-term fluctuations, we focus on a sample of 12 years to study more closely the cross-section of these discounted bills as well as their evolution over time. Thus we collect data on bill discounting in each branch of the central bank. This second set of data is more fine-grained and can be merged with additional city-level data on population and commercial bank branches collected by other researchers for these years (also with irregular frequency, mostly depending on census years).

Our analysis yields two main findings. First, among the bills discounted by the central bank, the share of “national bills” increased sharply during the 1920s after a long quasi-stagnation throughout the nineteenth century until the First World War. This was true both in the oldest and the more recent branches opened by the BdF. This sudden rise cannot be explained by a sudden change in the discount

³ We also know if the bills were payable abroad (*effets sur l'étranger*). This was a negligible amount of the BdF portfolio and not the focus of this paper.

policy or in the branch network of the BdF. The banking crises of the Great Depression stopped the rise but did not trigger a return to pre-war level.

Second, the increase of “national bills” in the 1920s is associated with the largest increase in commercial bank branches in French history. Econometric investigations at the city level confirm that there was a positive correlation between the two phenomena (even when controlling for a common time-component of the two series and city-fixed effects). Although it is impossible to identify the direction of causality, this statistical evidence shows that the sharp increase in bank branches after WWI indeed was associated with a transformation of the local credit markets and the national discount system. These results are consistent with theoretical and empirical studies that have highlighted that a higher density of bank branches deepens the relationship between local credit markets, either by strengthening competition for lending and collection of information on borrowers, or by easing the settlements of claims across regions (Petersen and Rajan 2002; Mitchener and Ohnuki 2009, Gilje, Loutskina, and Straha 2016).

Our approach follows an already large body of historical investigations that has used the discount portfolio of the central bank as an observation lens to study the evolution of the French economy since the nineteenth century. This is due to the key position of the BdF in the discount market. Starting in 1836, the BdF set up a large network of branches to discount commercial papers presented by banks and individuals (Plessis 2001, Lescure 2003, Gonjo 2003, Baubeau 2004, Bazot 2014, Oliveira 2018). Roulleau (1914) argued that bills discounted by the BdF were quite representative of the total. Plessis (1998), and more recently de Oliveira (2018), have hypothesized that the “national bills” discounted by the various branches of the BdF reflected well how the French credit market was becoming increasingly national. These authors nevertheless did not undertake quantitative investigations of these different bills and their evolution. Following the early work of Roulleau (1914), Baubeau and Cazelles (2009) used the total BdF discount portfolio as a proxy for the French business cycle from 1820 to 1913 but did not look at the distinction between local and national bills either.

Of course, the set of commercial bills discounted by the BdF is not a random sample. After presenting in detail the specificity of BdF statistics, we also devote a full section to discussing the ways that the BdF statistical conventions, the BdF activity (expansion of the network of branches, discount operations) and the competition between the BdF and other banks may or may not influence the evolution of the ratio of national to local bills. Information on other banks reveal that the portfolio of large French commercial banks included a lot of foreign bills – contrary to the BdF – but this does not imply that the ratio of national to local bills was very different from the BdF’s. The internationalization of the bill of exchange did not contradict the persistence of its widespread use at the local level. Despite some limitations, the BdF discount portfolio is a good observatory to study the evolution of the share of local vs. national bills over time, as long as there is evidence – as we show – that the increase in national bills in the BdF portfolio during the 1920s was not driven by a change in BdF policy. Importantly, our arguments focus on the evolution of the ratio of national to local bills, not on its level.

In addition, we provide econometric estimations that show that the ratio of national to local bills in the BdF portfolio was not lower in cities with a greater number of national commercial banks. It rules out the hypothesis according to which the BdF would have systematically specialized in local bills in cities where the large national commercial banks were more settled.

Our study deals with bills of exchange and is therefore silent on other segments of the financial market, such as the long-term mortgage market studied by Hoffman et al. (2000, 2019). However, bills of exchange were essential to the banking system. As in other continental European countries, bill discounting was the dominant form of commercial bank lending before - at least - World War II. In the French case, comprehensive data on commercial bank assets (from Baubeau et al. 2021 and Bonhoure et al. 2023) are only available from 1901 onwards. They show that the share of bills of exchange in bank assets did not decrease over time, remaining between 45 and 50% from 1901 to 1936.

Although centered on bills of exchange, our approach is similar in spirit to other historical studies that have looked at detailed loan contracts or balance sheets to stress the importance of local credit market (Hoffman et al. 2000, 2019; Guinnane 2001, Lindgren 2002, Potter and Rosenthal 2002,

Cull et al. 2006, Wang 2008, Gelderblom et al. 2023, de Vicq and van Bochove 2023). Similar to this approach, and especially Hoffman et al. (2019), we do not start from an *ad hoc* geographical definition of a “local credit market” but we follow the distinction between local and national that was used by economic actors (and reflected in contemporary statistics).⁴

Looking at credit contracts and the volume of financial instruments differs from another strand of literature that studies financial integration by looking at the convergence or comovement of interest rates or exchange rates (e.g. Lance 1965, Good 1977, Bodenhorn 1992, Mitchener and Ohnuki 2009, Chilosi and Volckart 2011, Nogues-Marco, Herranz-Loncán, and Aslanidis 2019, Zhao and Palma 2021). Contrary to this literature, our approach does not take stance on the efficiency of credit markets.⁵

In fact, our results show that the industrial revolution in the nineteenth century took place while a sizeable share of the circulation of commercial bills still occurred at the local level. The increase in national bills also happened decades after the administrative integration of France, a typical centralized country (although local administrative practices could differ; see Barreyre and Lemerrier 2021 for a review on the French state and administration in the 19th century). It also happened after the lending rate have been unified throughout the country in the mid-nineteenth century thanks to the activity of the BdF (Pruniaux 2016). Lending rates of private banks remained stable and below the discount rate of the BdF (Mugnier 1883; Aldrich 1910: 215; Roulleau 1914). As in the case of notaries (Hoffman et al. 2000, 2019), a common national interest rate was not contradictory with credit markets being mostly local.

Our argument is that the French credit market suddenly become very different after WWI from what it had been before. And we show that it was related to the exceptional expansion of bank branches. As already underlined by Bonhoure et al. (2023), this expansion did not lead to a rise in total bank assets

⁴ Santarosa (2015) studied the individual records of bills of exchange discounted by the Maison Roux, a large French merchant house specialized in long-distance trade finance, from 1780 to 1790. To our knowledge, no study has examined the evolution of a large sample of bills of exchange over the long term and their local use. Nishimura (1971) gathered statistics on the total of bills of exchange that circulated in England from 1855 to 1913 – as Roulleau (1914) did for France – but has no information on where these bills were traded.

⁵ Flandreau et al. (2009) examined the integration of several French and European cities in the mid-18th century using data on local foreign exchange markets. Studies on French market integration in the nineteenth century focus on the wheat market only, due to price data limitation (Roehener 1994, Chevet and Saint Amour 1992, Ejrnaes and Persson 2000).

to GDP however. Among other things, this implies that the chronology of the development of a national credit market was different from the chronology of international financial integration (the end of the first globalization being often dated to the break of WWI; see Obstfeld and Taylor 2004) or from aggregate measures of financial development such as bank assets or stock market capitalization to GDP (see Rajan and Zingales (1998), Schularick and Taylor (2021) for international comparisons, and Bonhoure et al. (2023) about the French case). Although our data do not allow us to assess in a comprehensive way whether the decline in international finance was linked to the expansion of the national circulation of domestic bills of exchange, there is some suggestive evidence that the discount of foreign bills by French banks substantially decreased after the war. Our findings may encourage further research into this possible substitution. The rapidly declining role of notarial credit in postwar France (Hoffman et al. 2019) may also have contributed to the development of commercial bank branches and the changing geography of the bill market in the 1920s by reallocating savings from peer-to-peer lending to financial intermediaries.

The decade that stands between the end of war and the Great Depression experienced one of the most radical and rapid shifts in financial history. More research is still needed, but there is evidence that the rapid development of bank branches in the 1910s or 1920s seems to have been a widespread phenomenon in Europe (Molteni 2023, de Vicq and Peeters 2022). On a different matter, Wolf (2009) had also shown, using bilateral trade data between regions, that the German market became fully national during the interwar only.

Commercial Paper and the Regional Network of the Central Bank

Commercial bills circulated since at least the middle age in Europe to finance trade. Not everybody had access to them however, because the ability to settle payments outside of main cities was limited. In France, the use of commercial bills (*effets de commerce*) increased rapidly during the first decade of the Second Empire (i.e. the 1850s). The historians Plessis (1998) and Leclerc (2015) attribute this sharp increase to the active role of the BdF in developing the settlement of payments throughout the country,

first through a network of correspondents and then through a network of branches after the BdF was granted a monopoly on note issue in 1848. Plessis (1998) speaks of a “revolution” of the discount market in the mid-19th century (see also Baubeau et Cazelles 2009).⁶

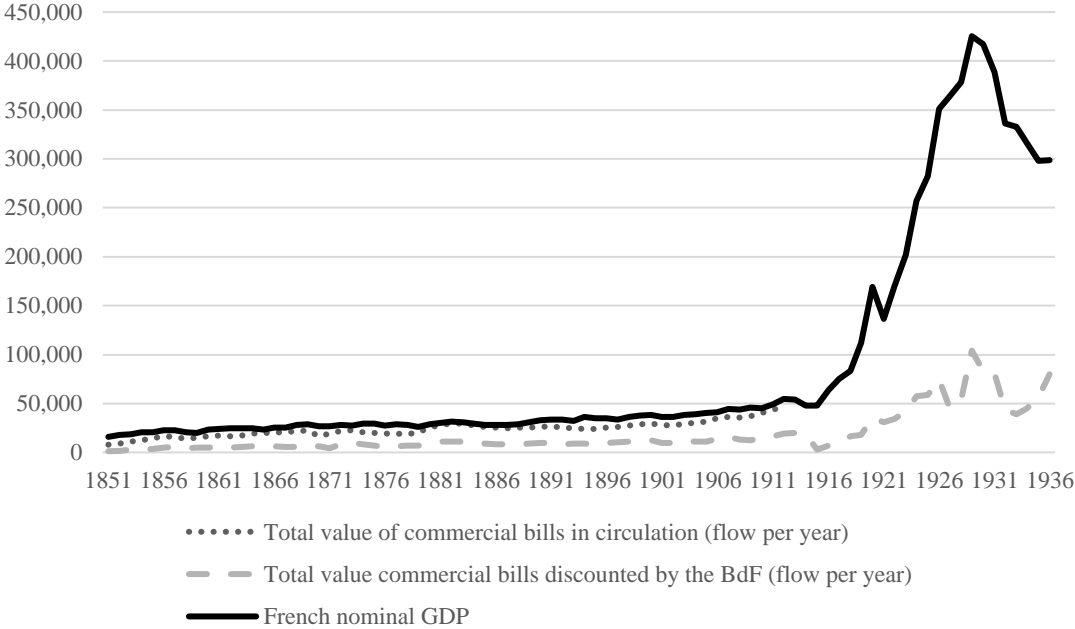
National vs. Local Bills

Using the data estimated by Roulleau (1914) – based on stamp duty on commercial bills (*effets de commerce*) and a sample of bills discounted at the BdF - we show that the value of bills in circulation increased from around 50 percent of GDP in 1850 to around 70 percent in 1860 (see Figure 1). After two decades of stability, it increased again to around 95 percent of GDP in the 1880s.

The increase in the circulation of commercial paper was remarkable in size but we do not know if it was associated with an increase in the geographical scope of financial transactions. Historians have emphasized that commercial bills became a credit instrument - not only a payment instrument – as they could be endorsed and discounted. But little is known about whether credit was local or national. Were these bills used for financial transactions between different cities and areas, or was it a form of local credit within a city or nearby? The statistics provided by Roulleau (1914) do not allow to answer this question. Plessis (2001) and Baubeau (2004) have hypothesized that the “revolution of discounting” was associated with more national transactions, but we have no quantitative evidence supporting such hypothesis.

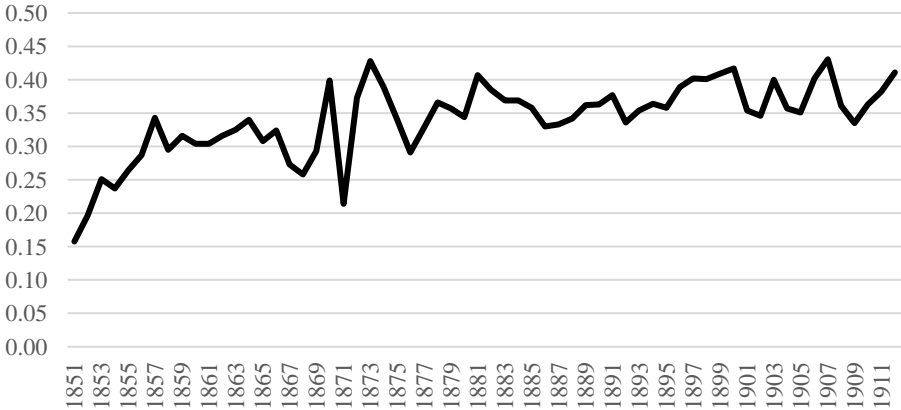
⁶ Several studies have confirmed that the growing role of the BdF from 1848 onwards was key for the development of banking at the local level. See Thuillier (1955), Pouchain (1986), Lastecouères (2001), de Oliveira (2016, 2018).

Figure 1: Evolution of the Total Value of Commercial Bills in Circulation, Total Value of Bills Discounted by the BdF and French nominal GDP (Millions of Francs), 1851-1936



Sources: the total value of commercial bills (*effets de commerce*) in circulation is from Roulleau (1914) - data are not available after 1912 -; the total discount of BdF is from Roulleau (1914) for the years 1851-1912 and from Annual Reports of the BdF for the years 1913-1936; the French nominal GDP is from Villa (1994) based on Toutain (1987). Note: Data for the BdF include data for branches and the central bank’s headquarter (the *Siège*).

Figure 2: Ratio of bills discounted by the BdF to the ratio of total bills in circulation, 1851-1912



Sources: Roulleau (1914)

Without investigating this issue quantitatively, Plessis (1998) suggested that the expansion of the discount portfolio of the central bank (BdF) reflected a shift toward a national credit market. He writes:

The 25 billion francs of commercial bills [discounted by the BdF] therefore include a significant proportion of “displaced bills” [*effets déplacés*, i.e. “national” bills⁷], which unfortunately are impossible to measure. The Banque de France calls them "bills drawn on Paris" [*effets sur Paris*] (such as those that enable wine merchants in Paris to buy wine in Bordeaux), or "bills drawn on other branches" [*effets sur succursales* or *sur province*], such as the drafts drawn by wool merchants in Mazamet on industrialists in Roubaix, to whom they sell the wool. It is these “displaced” – or “national” – bills that give fluidity to the national credit market and enable it to really take shape. On the contrary, there are the “local bills”, for an amount that cannot currently be accurately assessed, reflecting transactions between people living in the same town, and which therefore come under the activity of local markets.

Our approach follows the intuition and argument of Plessis. We rely on previously unused quantitative sources that allow us to measure what he deemed impossible to measure. In fact, the publications and archives of the BdF report the distinction between the local and national bills in the discount portfolio of the institution. Before presenting our new data, it is first necessary to understand the network of branches of the BdF. After presenting this network, we will discuss in more detail the legal form of the French commercial bills and the discount operations of the BdF.

The Regional Network of the BdF and the Definition of “local” bills

To discount bills, the BdF relied on a complex decentralized institutional structure that reflected its “regionalist” approach to credit markets (Gonjo 2003:149). The BdF branch network was composed of

⁷ The term «papier déplacé» was idiomatic of nineteenth century finance and denoted a bill that had to be paid in a different city from the one it was discounted. See for example Mugnier (1883: 34). When used by the BdF, the term could sometimes have a more restrictive meaning and denote bills of exchange drawn in a city where the BdF did not have a branch. Plessis uses the term in its general meaning here.

head offices (*succursales*), auxiliary offices (*bureaux auxiliaires*), attached cities (*villes rattachées*), and connected cities (*places réunies*).

There was a clear hierarchy between the four different types of branches. It means that auxiliary offices, attached cities and connected cities were all dependent on a head office. For our purpose, it is important to understand (as we will explain in more detail in the Appendix) that a commercial bill was considered as “local” if it was payable in any city where there was a BdF branch (auxiliary, connected or attached cities) that depended on the local office, and if the bill was discounted in the same branch. For a given head office, the perimeter of the “local” thus expanded as the number of auxiliary offices, attached cities, and connected cities grew. However, this does not mean that the share of local bills in the BdF's discount portfolio would automatically increase, as we discuss below. Furthermore, this expansion of the perimeter only applies to existing branches and we can check that our results are similar when we distinguish old and new branches.

The Expansion of the BdF Network

In its early life, the Banque de France did little business outside Paris; it had no branches but a network of correspondents in other regions (they were 123 in 1801; Répertoire Générale: 497; see also Prunaux 2016). In 1808 the first discount offices of the BdF were established in Rouen and Lyon, then in Lille in 1813. However, they were not very successful and closed within a couple of years. The establishment of a network of branches restarted in 1836, in 1848 – when the BdF absorbed the existing department banks and obtained the money-issuing monopoly – , and then in 1857 when the State obliged the BdF to establish an office in all departments (law 9 June 1857, quoted in Gonjo 2003:149-150). This objective was not achieved until 1879. Few years after, the BdF itself started a program of branch expansion whose purpose was to expand its influence and to allow cities without an office to have access to its discount window. It established other layers of the branch network of the BdF, i.e. auxiliary offices, attached cities, and connected cities (Gonjo 2003; Bazot 2014; de Oliveira 2018). The BdF decided to install the first auxiliary offices in 1882. Simultaneously, it created attached cities (*villes rattachées*) to offices or auxiliary offices and connected cities (*places réunies*).

The enlargement of the BdF network in the 1880s was essentially an attempt to survive the changes of the second industrial revolution and expand its business in reaction to the competition of new commercial banks. Due to the construction of the railway lines (reinforced by the government push of the Plan Freycinet in 1879), commercial transactions reached new cities. Large commercial banks followed suit and increased their branches and discounting operations. The portfolio of the five main credit institutions increased fivefold between 1880 and 1900, while that of the BdF stagnated at less than one billion francs (Lescure 2002:136).

The BdF was a bank like no other, so that even where it competed with commercial banks for discounting bills of exchange of merchants and industrialists, it also helped other banks to develop by giving them access to more liquidity (Plessis 2004; Gonjo 2003:154; de Oliveira 2018). Relying on econometric estimations, Bazot (2014) found that the second effect dominated the former and that an exogenous opening of a new branch was associated with an overall increase in the circulation of bills of exchange at the local level (see also Jobst 2010). Summarizing this literature, Ugolini (2017:69) writes that “nationwide-branching deposit banks emerged during the Second Empire as a complement (rather than as a substitute) for the public bank’s infrastructure”.

French Commercial Bills and the Central Bank

The lending operations in the branches of the BdF were the same as those as in the headquarter and consisted of discounting and rediscounting commercial bills and providing advances on securities. The latter was a collateralized loan while the former was a purchase of a commercial bill at a discount. Commercial bills could take various forms. In France, the 1807 *Code du commerce* established precisely the legal framework of the two main forms of commercial bills (*effets de commerce*): the bills of exchange (*lettre de change*) and the promisory note (*billet à ordre*)⁸. Both were negotiable instruments, that is they were transferable and could be endorsed and discounted by other parties. A bill of exchange involves three parties, including a third party that is not involved in its creation but to which the bill

⁸ *Code du Commerce (1807). TITRE VIII. De la Lettre de change, du Billet à ordre et de la Prescription.* The *warrant* was a special case of promisory note where the commercial good served as a collateral for the loan. It was given legal status in 1858 but remained little used in France (see Baubeau 2004 257-265.)

shall be paid. The bill is issued by the *drawer* (for example the seller of a commercial good) who gives the payment order. The *drawee* is the person who buys the commercial good and agrees to pay the bill of exchange. The beneficiary, or *payee* (also the bearer of the bill who can discount it before maturity) is the person who receives the money and has been designated by the drawer. If a bill was discounted several times, each endorser became jointly liable together with the other endorsers of the end-payment of the bill (Santarosa, 2015).

The primary goal of the bill of exchange is to rely on the “beneficiary” to make payment between two different places and thus avoid that the drawee ships metallic coins to the drawer. Yet, it was also used as a credit instrument that could circulate widely. The promissory note, on the other hand, is issued by the debtor and is a promise to pay the creditor in a given period. Although the promissory note could appear more flexible, the bill of exchange was well-designed for cases where the payment had to be made in another place from where it was issued (*distancia loci*). The promissory could be endorsed and thus involved a third party, making it close to a bill of exchange in practice (Marqfoy 1862: 68-67, Baubeau 2004: 93). As recognized by contemporaries (e.g. Story 1860, Tuzaud 1882, Kuhn 1926), the French legal framework of commercial bills was more rigid than in other countries. Both bills of exchange and promissory notes were required to originate only to finance a commercial transaction. As a consequence, the bill must include not only the names of the parties and the maturity of payment but also the amount of the original commercial transactions⁹. For this reason, they differed markedly from the inland bills that circulated in England during the same period, and which did not include information on the goods purchased and could be entirely disconnected from commercial transactions (Gorton 2023).

The names of all persons involved always appear on the bill. At the end of the chain, the central bank could discount (or rediscount) the bills brought to its discount window by merchants or bankers. In France as in other European countries at that time, access to the discount window of the central bank was thus an essential guarantee of the liquidity of the bills of exchange (Goodhart 1988, Nishimura 1995, Ugolini 2017).

⁹ *Code du Commerce (1807). TITRE VIII.*

The BdF could discount bills of exchange and promisory notes presented by merchants and persons known to be solvent (Répertoire général 1891: 487; Loubet 1900: 26). The discount of bills of exchange was allowed not only to banks and private bankers, but also to other customers such as traders, industrialists and farmers. Some guarantees were required. Bills presented at the discount window had not to be more than 90 days overdue and had to bear three signatures. A collateral of either BdF shares or securities on which the BdF made advances could replace the third signature (Lyon-Caen 1887:501).

The BdF only discounted bills drawn in Paris, in cities where it had offices or auxiliary offices, in attached cities, or in connected cities (Répertoire général 1891: 487). When the BdF opened a branch in a city, it became “bankable” (*bancable*). There were no legal provision preventing the BdF from discounting bills issued in other localities or abroad but, for long, it refused to do it due to the difficulties in obtaining information on the drawee. The BdF followed some risk management considerations when discounting commercial bills in various branches. Discounting commercial bills in the same place was less expensive and considered less risky by the BdF. Consequently, bills discounted in the same city (local bills) had generally a slightly lower average value than bills discounted in other French cities (national bills). The maturity was shorter for bills drawn in Paris and other French cities than for local bills (Larousse 1870:869). The discount of foreign commercial paper started in 1906 (see Bazot et al. 2016, Baubeau 2018).

Direct Discount

The BdF was both acting as a normal bank to finance local merchants and as a central bank (i.e. refinancing the bills presented by other banks). The first type of operations was called direct discount (*escompte direct*) and the second one rediscount (*réescompte*). What was the share of each of these activities? Unfortunately, the archives of the BdF did not keep aggregate statistics that distinguished between these two types of operations (which were done at the same condition and under similar rules).¹⁰

¹⁰ The share of bills discounted in the branches of the BdF increased over time (relative to bills discounted at the headquarters) as the BdF expanded its network. From around 50 percent in the 1850s to 70 percent in 1910, it later reverted to 50 percent after the First World War (computation based on the BdF balance sheet available in Baubeau 2018).

To estimate the share of direct discount in a given year, we can only rely on infrequent estimates discussed at meetings of the BdF board of governors. In 1909, Georges Robineau, head of the discount department, estimated that 30 percent of the discount portfolio consisted of direct discount (quoted in Plessis 1998: 149; see also the interview of G. Pallain cited in Aldrich 1910:197). According to Pallain, governor of the BdF, this amount had been increasing over time, so we can infer that it was lower in the nineteenth century. Based on a – possibly unrepresentative – sample of bills from several BdF branches (using the yearly reports of internal auditors), Nishimura estimated that the share of direct discount varied between 15 percent and 42 percent during the years 1890-1913 and confirmed that there was an upward trend, from 20,3 percent in 1890 to 31,6 percent in 1913 (Nishimura 1995). For 1898, Avaro and Bignon (2019) find that non-banks agents represented only 15 percent of the volume of BdF discount.

There is also evidence that the share of direct discount in the BdF operations continued to increase after WWI. Gonjo (1996) shows an upward trend in direct discount between 1924 and 1933, but he has very limited data based on reports of few branches. Comprehensive data start in 1933. The direct discount was quite high in 1933 and 1934 (respectively 49,3 and 43,7 per cent of total portfolio), we then observe a sharp decrease until 1936 (14 percent).

We will come back to the discussion of direct discount when interpreting the ratio of national to local bills presented in the next section. For the moment, it is sufficient to keep in mind that there was not a fall in the share of direct discount over time, at least before the mid-1930s. If one thinks that direct discount by the BdF was more likely to be local, we should observe an increase in the share of local bills in the BdF portfolio until the early 1930s.

Data on Local and National Bills

In order to study whether – and when – the French discount market became more “national”, we investigate the discount portfolio of the BdF. Although not published in the weekly or annual official balance sheets of the BdF, aggregate statistics on the distinction between “local” and “national” bills –

at the BdF branch level – were published in various documents (the source varies over time; see below). Despite all our efforts, we have not found similar sources in the archives of French commercial banks.

The Structure of the Sources

For each city with a BdF office or auxiliary office, our sources allow us to distinguish the total annual flow of discounted commercial bills drawn or payable: in the same city; in other French cities (Paris excluded); in Paris; in foreign countries. For each city, the volume of bills in French francs is available since 1851, while the number of bills is available since 1901. These data do not contain bilateral information between each city of the BdF network. We just know if the bill was drawn – or payable - in the same city as it was discounted or elsewhere. As explained previously, a bill of exchange – contrary to a promisory note – was usually payable in another city from which it was drawn (if the *distancia loci* rule applied). It was payable in the city where the bearer was based. The distinction between the places where it was originally drawn and payable (because of the commercial transaction) is not the matter of our study. A “local bill” in our dataset captures a credit relationship that is local even if the initial commercial relationship was not necessarily local.

Bills drawn in foreign countries are available in the source from 1911 but were negligible in the BdF portfolio, usually below 1 percent of the total.¹¹ Our dataset thus includes information on the value of bills discounted by the BdF in about 250 cities from 1851 to 1936.¹²

What Is Really “Local”

The sources allow us to clearly distinguish the four main categories presented above, and for each office. Data are available for all branches, including the headquarter (the *Siège*, in Paris). Our main analysis below will exclude Paris because it is possible that *effets sur place* (local bills) discounted in Paris include some Treasury bills and we want to be sure that our analysis deals with bills of exchange only.

¹¹ In 1911 the volume of bills drawn/payable abroad was the 0,7 percent of the total volume of the bills discounted by the BdF; the percentage exceed 1 percent in 1913 and 1928 (with a peak of 1,7 percent) while for the other years of our sample remains lower than 1percent (1921, 1932, and 1936).

¹² We start in 1851, when a sufficient number of branches were set up and are presented in the source. This is also a relevant basis for comparison, a year before the start of the IInd Empire. We stop in 1936 because the reporting of information and the discount policy of the BdF substantially changed afterwards.

Robustness checks (see in particular Figure 4) will nevertheless show that conclusions remain the same if we include bills payable in Paris. The presentation of auxiliary offices and connected cities varies over time. For all years, bills discounted in these cities are included in our source. So, we do not miss them and always cover the whole activity of the BdF outside Paris. More details concerning data of auxiliary offices and connected cities are in the Appendix.

Finally, the years 1928, 1933, 1936 also displayed separate data on *effets écartés*. These bills were drawn in a city where the BdF had no permanent or temporary staff (it was neither an auxiliary office, nor a connected or attached city). In these cities (that were literally “outside” – *à l'écart* – the BdF network), the BdF cashed the bills through small regional or local banks (correspondents). Since intermediation outside its network increased the risk for the BdF, the cashing of *effets écartés* required a fee. The *effets écartés* were thus, without a doubt, national bills. They existed before 1928 (appearing in the category *effets sur places non rattachées*) but only appeared in our sample in a separate category in this year. Given the large network of the BdF, they were a small part of the total (between the 4 and 12 percent of total branch discount).

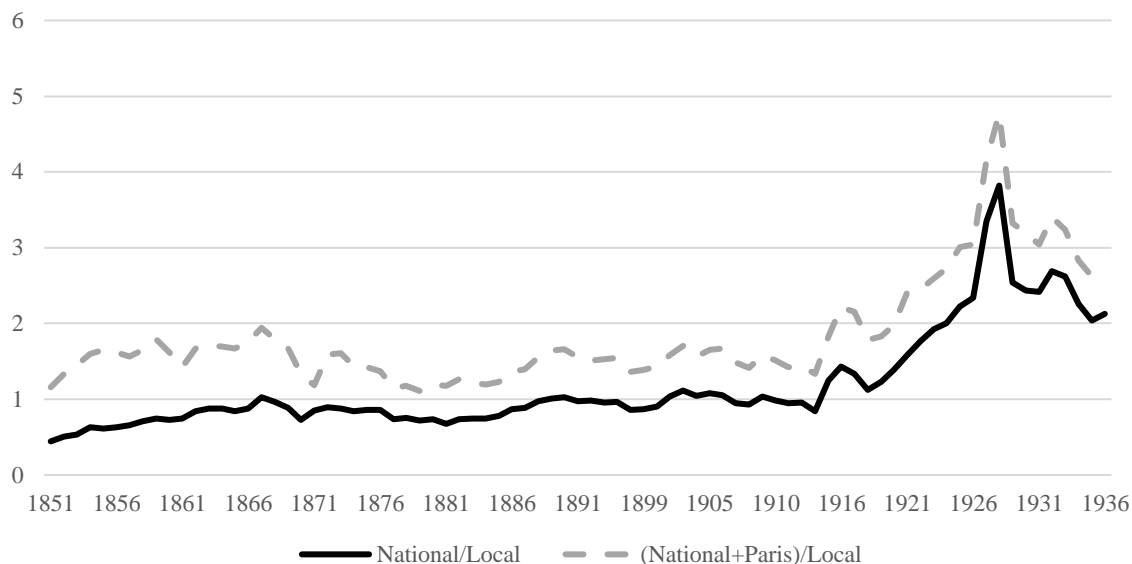
The Evolution of National and Local Bills

We first look at the aggregate value of bills (drawn locally, in other branches, in Paris and abroad) for each year, that is the sum of data from all branches (see Figure 4). In a second step, we exploit data at the branch level to assess if the main pattern was general or driven by few branches.

Aggregate Annual Data on the Value of National and Local Bills

On Figure 4 we plot the annual ratio of the total value of national bills (*effets sur succursales*) to local bills (*effets sur place*) from 1851 to 1936. This is the sum of the value of all bills discounted by the BdF branches during a year. For comparison, we add a second line to the graph where we consider bills drawn in Paris as national bills as well. As explained earlier, we consider the first measure as more reliable for our study because bills drawn in Paris could have included some Treasury bills. The statistical analysis in the next section will exclude bills drawn and discounted in Paris to be sure that we consider only commercial bills.

Figure 4: Ratio of Total Value of National Bills to Local Bills



Source: authors 'elaboration from BdF annual reports, 1851-1936.

Note: Data do not include the headquarter of the central bank (*Le Siège*)

A clear pattern emerges. The share of national bills in the total of bills discounted by the BdF is quasi-stable before the First World War. This is all the more striking that the branch network of the central bank expanded during this period, together with transport and communication infrastructures. Nor the ratio is correlated with the French business cycles and the large fluctuations of the total of bills discounted by the BdF (see Baubeau and Cazelles (2009) for a detailed statistical study of these two series). For example, neither the French – and international - recession of the late 1870s, nor the return of economic growth in the early years of the 20th century leave a mark on the series displayed on Figure 4. After a small bump in the first years of WWI (which is difficult to interpret, being short-lived and occurring during very special events), the ratio suddenly experienced a sharp rise (from about 1 to 4) during the 1920s. The frenzy of the Roaring Twenties was stopped by the banking crises of 1930-1931 (see Baubeau et al. 2021 for a description of these crises), but the ratio stabilized at a level twice as high as its pre-war value. Including the bills payable in Paris unsurprisingly increases the ratio, but it does not change the pattern of the series.

The stability of the national/local ratio before 1914, despite the progressive waves of expansion of the head offices and then auxiliary offices, shows that – as we hypothesized – the ratio is mainly determined by the characteristics of the bills presented to the BdF discount, rather than by the structure of the BdF network. The Figure 4 is suggestive but this indicator suffers from three limitations. First, it says nothing about the distribution across branches. The increase might be driven by a limited number of branches only, rather than reflecting a national phenomenon. Second, it does not allow to distinguish between old branches – settled in the nineteenth century – and the new branches (especially auxiliary offices) that were created later. Third, these data will not allow us a comparison with other city characteristics. The next section presents new data to address these limitations.

Data on the Average Value of National and Local Bills

In a second step, we collected city-level data. To make data collection more manageable, and given that the series evolves slowly (as seen on Figure 4), we decided to focus on a limited number of years. We collect data for twelve years: 1851; 1866; 1872; 1883; 1891; 1901; 1911; 1913; 1921; 1928; 1932; 1936. These years were chosen according to two criteria: consistency with other city-level data (population census and bank branches) and main economic or political events (1851 and 1872 are before and after the second Empire, 1913 and 1921 around the war, 1928 and 1932 before and after the banking crises of the Great Depression).¹³ 1921 is also the year when robust growth of the share of national bills started, according to Figure 4.

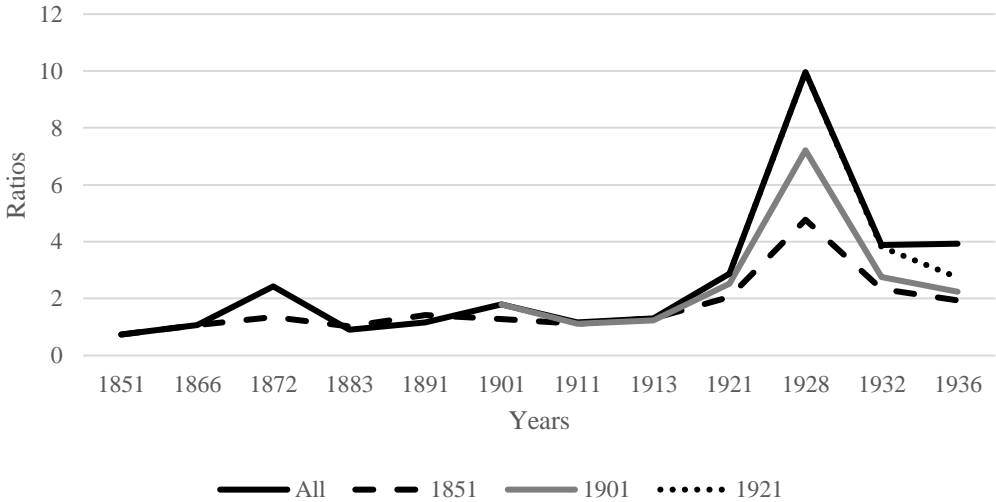
We now look at the evolution of the average of the ratio of national to local bills (Figure 5).¹⁴ We exclude bills drawn and discounted in Paris from the data and draw several lines to account for the age of BdF branches: the line “1851” is the average value for all branches that already existed in 1851.

¹³ For the period 1851-1913 data on discounted bills were available in the annual reports of the BdF while data for later years were not. For 1921 data were found in the register *Situation annuelle des effets escomptés dans les succursales (1919-1922)* [archival reference: 0013201401-147]. For the years 1928, 1932, and 1936 we found internal registers of the Bank so-called Livres bleus (from the name of the cover), that collect the operations of the offices and suboffices (archival reference: 1233199001 AR 68).

¹⁴ We do not calculate ratios using the number of bills. Data indeed start much later and, furthermore, the size of commercial bills (hence the number) might reflect some peculiar evolution of the BdF policy or of the discount market that are unrelated to the relative evolution of national and local bills (Baubeau 2004).

The global picture is consistent with the previous conclusion. The average ratio increased sizably in the 1850s, after the BdF started to actively harmonize the French credit market and then show a sharp increase after WWI. The average ratio before 1913 is 1.33 while it reached 4.77 in the 1920s for the branches that were already existing in 1851. It is striking to see that all branches experience a rise in national bills in the 1920s but this increase is much stronger for the most recent ones (the value of the ratio reaches 10 for branches created after 1921). The banking crises of the Great Depression (which occurred in 1930 and 1931; see Baubeau et al. 2021) clearly stopped the frenzy of national credit. The ratio fell but stabilized at a higher value than before WWI. The discount market was still much more national than in the nineteenth century.

Figure 5: Average Ratio National-to-Local Bills (Value)



Source: authors ‘elaboration from BdF annual reports, 1851-1936.
 Note: the figure plots the average ratio of national bills to local bills for all branches available in the source (All) as well as for the subsamples of branches opened in 1851, 1901, and 1921. We exclude bills drawn and discounted in Paris from the data in order to consider commercial bills only.

Numbers of BdF Branches Discounting more National than Local Bills

The evolution of the mean on the previous figure could be driven by a handful of branches, rather than a general phenomenon. Among the various ways to assess this issue and look at the dispersion of the

ratio across branches, we choose one very intuitive metric: the share of branches that discount a larger value of national bills than local bills.

More formally, we compute the following ratio for each city i in the dataset:

a_i = value of bills drawn in the same city (local bills)

b_i = value of bills drawn in another city (national bills)

n_b = number of cities for which $\frac{b_i}{a_i} > 1$

N = number of BdF total branches in the year considered

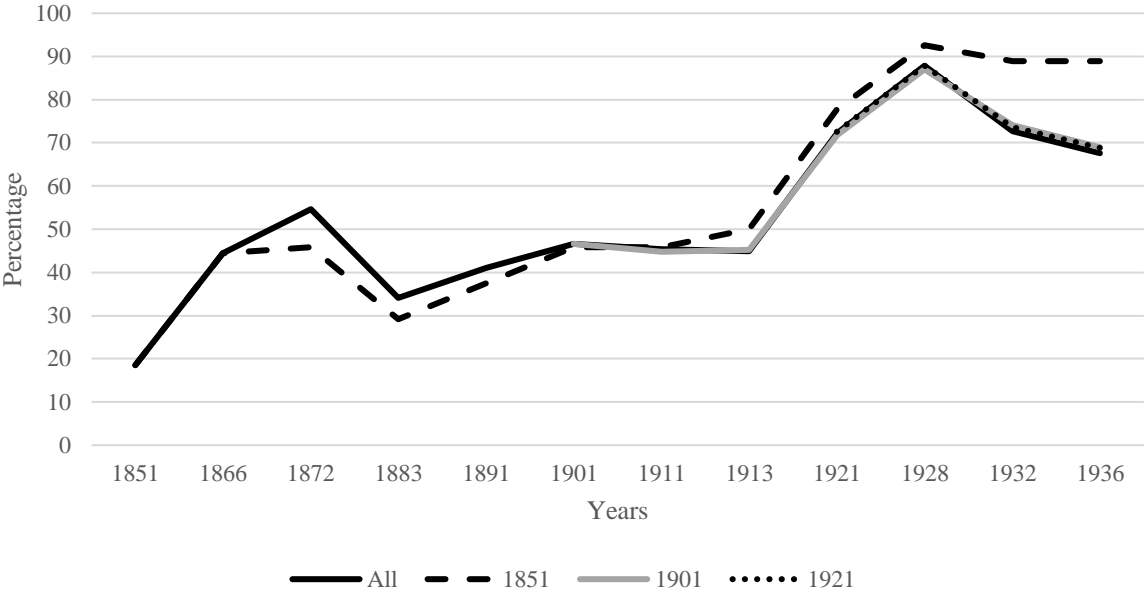
We calculate the following ratio:

$$R = \left(\frac{n_b}{N} \right) * 100$$

The ratio displayed on Figure 6 shows that the share of branches that discounted more national than local bills was almost twice as high after the war than before (from 45 to almost 70 percent). The increase in national bills was thus not concentrated in a limited number of branches. The peak was reached in 1928, when 87 percent of the branches already opened in 1851 were discounting more national than local bills (in value).

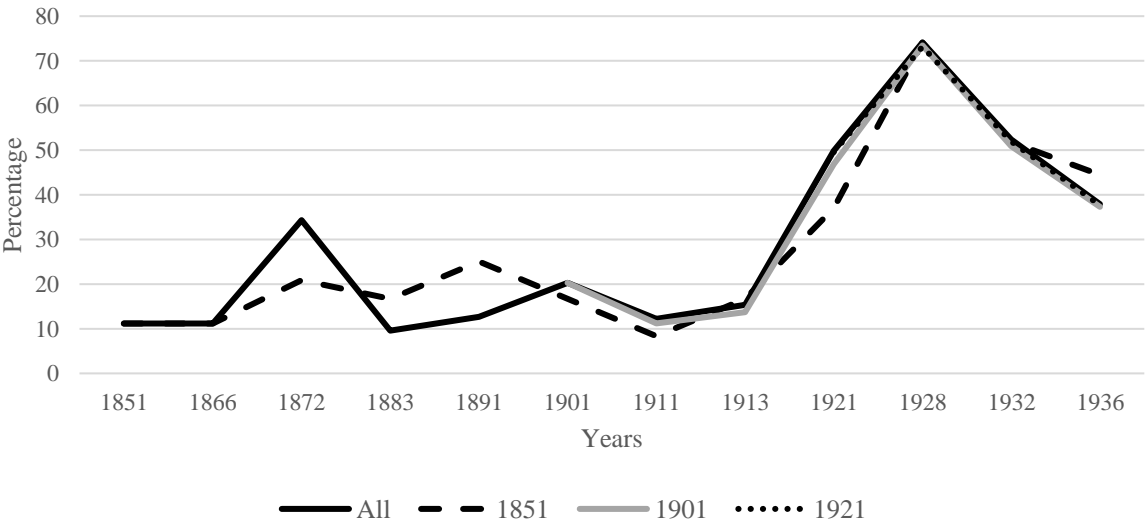
In order to show that the general pattern is not driven by an arbitrary threshold, we show the same measure as before but with $\frac{b_i}{a_i} > 2$. We thus measure the percentage of cities where the value of national bills is twice as large as the value of local bills. As Figure 7 shows, the ratios follow the same pattern as in Figure 6. The number of branches where the value of discounted national bills was twice as high as the one of local bills was in the 10-20 percent range before the war. It rapidly increased to 75 percent in the 1920s before reverting to around 40 percent in the 1930s.

Figure 6: Percentage of Branches where the Value of National Bills Exceeds the Value of Local Bills



Source: authors ‘elaboration from BdF annual reports, 1851-1936.
 Note: the figure plots the percentage of branches where the value of national bills exceeds the value of local bills, for all branches available in the source (All) as well as for the subsamples of branches opened in 1851, 1901, and 1921. We exclude bills drawn and discounted in Paris from the data.

Figure 7: Percentage of Branches where the Value of National Bills is Twice as Large as the Value of Local Bills



Source: authors ‘elaboration from BdF annual reports, 1851-1936.

Note: the figure plots the percentage of branches where the value of national bills is twice as large as the value of local bills, for all branches available in the source (All) as well as for the subsamples of branches opened in 1851, 1901, and 1921. We exclude bills drawn and discounted in Paris from the data

Discussion of Potential Biases

Our study is based on the hypothesis that bills discounted by the BdF are quite representative of the evolution of the national discount market – although not fully representative of the universe of commercial bills in a given year. One may nevertheless wonder if our conclusion could be driven by some peculiar characteristics of the central bank activity and discount portfolio. We discuss below why the specificities of BdF policy are unlikely to drive the main pattern that we observe in the data.

Expansion of the BdF network

The increase in the number of BdF branches could have had an ambiguous effect on our ratio. The creation of an auxiliary branch meant that the head office was able to discount more local bills (see our discussion above), since the bills payable or drawn in the area of the auxiliary branch were considered local by the head office. But the expansion of the network also increased the BdF's capacity to discount national bills by making it easier to pay bills in other places. Our contention is that the ratio in a BdF branch in a given year reflects the state of the local bill market rather than being influenced by the number of BdF branches. Two empirical facts lead us to believe that this was the case. First, we see no correlation between the ratio of national/local bills (Figures 5 to 7) and the number of BdF branches shown in Figure 3. Neither during the rapid expansion of BdF branches from 1897 to 1911, nor when the number of BdF branches was stable (from the mid-1880s to 1897) did the ratio move in a clear direction. Secondly, our main conclusions are similar whether we look at the old BdF branches or the new ones. There is no evidence that the opening of auxiliary offices increased the share of local bills at head offices, or that newly opened branches immediately discounted more local or national bills.

Do we Underestimate National Bills?

The BdF had a larger discount portfolio than any French commercial bank (see Appendix), but it was not the only bank discounting or rediscounting bills. The majority of bills discounted by the BdF had first been discounted by another bank, so that we know for sure that our sample reflects the

discounting practices of other banks, including the largest ones that also borrowed frequently at the BdF discount window. Yet, the bills brought at the BdF discount window may not have been representative of those discounted by all French banks. Since we have no systematic information on the respective share of national and local bills in the discount portfolio of other banks (see Appendix for a deeper discussion of this issue), we can only discuss the potential biases and assess whether they would affect the ratios displayed in Figures 5 to 7.¹⁵ Large commercial banks with a national network of branches may have discounted more national bills than the BdF, especially if they were specialized in the financing of long-distance trade and since they were not forced by law to open branches in less financially developed areas. In fact, we know that foreign bills represented a significant share of the portfolio of the few largest commercial banks (between 20 and 30%; see Appendix) while foreign bills were negligible in the BdF portfolio. If true, local bills were overrepresented in the portfolio of the BdF and the expansion of large commercial banks may push downward the evolution of the ratio of national to local bills. This potential bias concerning the evolution of national bills is however inconsistent with the evolution of the ratios we presented in Figures 4 to 7. First, the overall evolution points to an increase in national bills, rather than a decrease. Second, the ratio is quasi stable from the 1880s to 1913 when a handful of large national banks – especially the Société Générale and Crédit Lyonnais, followed by the Comptoir d’escompte – built their network of branches, reached foreign markets and triggered competition with the BdF (Kaufmann 1914, Plessis 2001). Third, the fact that the ratio increased as well as in cities where a BdF branch was opened earlier (which were also the more economically and financially developed cities) meant that it is unlikely that the BdF refrained from discounting national bills where other large banks were active.

Last but not least, we will show in the last section - based on panel data estimations - the absence of a negative correlation between the growth of the ratio of national to local bills at the city level and

¹⁵ We visited the archives of all main French commercial banks but did not find records similar to the ones available for the BdF discount portfolio.

the growth of the few large commercial banks with a nationwide network of branches (the “national banks”).

Direct Discount

Another potential bias of the central bank portfolio could be due to the direct discount (*escompte direct*) of the BdF, i.e. the discount of bills brought by individuals and non-financial companies rather than by banks. Although we do not have evidence on whether direct discount by the BdF concerned bills that were more local, it is possible that it did. If direct discount was very high in the nineteenth century but decreased in the 1920s, it may explain why the ratio of national to local bills increased over time. However, as we already discussed in the previous section, this was not the case. On the contrary, there is evidence that the share of direct discount in the BdF operations was higher in 1908 than in the late 19th century, and it continued to increase after the WWI until 1934 (see above and Gonjo 1996).

The Growth of Commercial Bank Branches and the National Expansion of the Discount Market

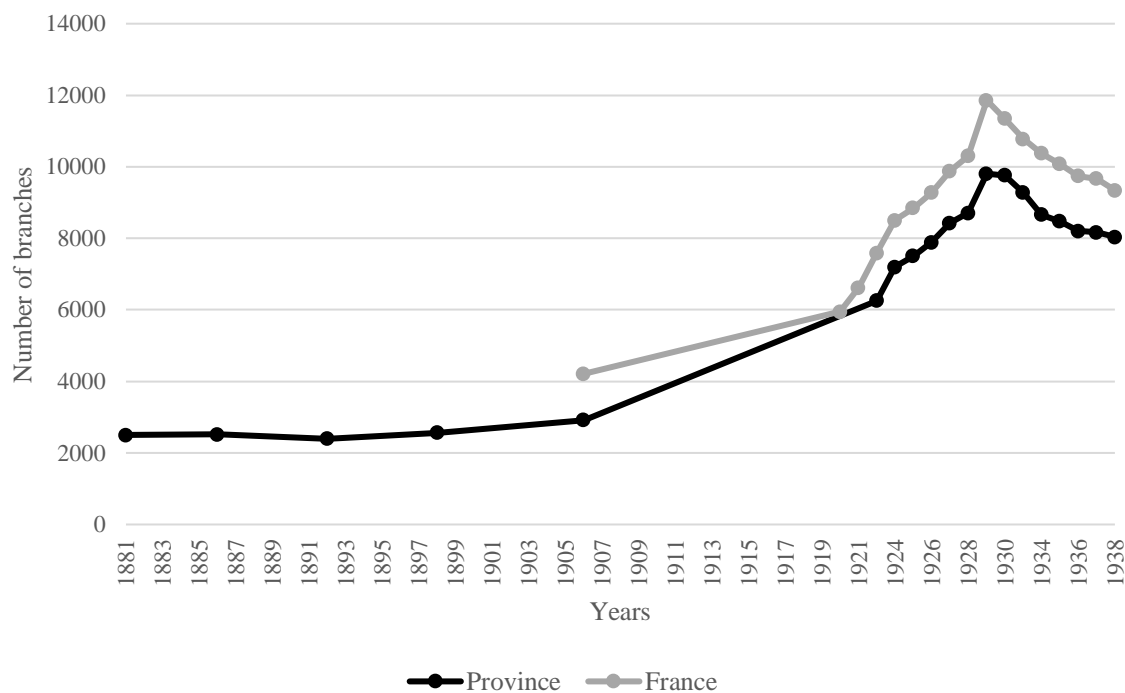
The increase in the ratios displayed on Figures 4 to 7 – with a quasi-stagnation before 1914, a sharp rise in the early 1920s, and a fall during the Great Depression – does not match the evolution of French real GDP, population, transports, or usual measures of financial development during this period. The expansion of the railway network accelerated sharply with the Freycinet plan in 1879 and was completed before the war (Lenoir 2020). The ratio of money to GDP increased from about 45 percent to 60 percent from the mid-nineteenth century to the WWI and did not reach higher values thereafter. The bank assets to GDP followed a similar pattern. The most reliable comprehensive series starts in 1901 and shows a sharp rise before the war, from 15 to 30 percent of GDP, and a quasi-stagnation around 25 percent in the interwar period (Bonhoure et al. 2023). Stock market capitalization experienced a phenomenal increase from 10 to 60 percent of GDP from 1850 to 1913 whereas – with the exception of the two booming years of 1928-1929 – it remained in a 20-30 percent range in the interwar (Bozio 2002). Although we do not have a precise estimate of foreign assets to GDP over a long-period, the historical

literature has presented many evidence of higher openness during the “First era of globalization” circa 1880-1913 (e.g. Edlinger et al. 2013). The study of notarial credit by Hoffman et al. (2019) points out to an increase of credit throughout the nineteenth century and a sharp decrease after WWI. Last, the share of BdF discount loans to GDP decreased after the war (as shown on Figure 1). Thus, the discrepancy between standard measures of financial development and our ratio of national to local bills would suggest that the deepening of a national discounting market was a process on its own.

One financial series evolved in a very similar way however: the number of bank branches. As recently shown by Bonhoure et al. (2023), the total number of bank branches increased little during the decades before the WWI (as a share of population or of GDP, it even decreased) whereas it experienced a rapid expansion in the 1920s (see Figure 8). The race to open new branches was partly due to the economic impact of WWI. After the war, new public and government-supported financial institutions entered the financial system (Crédit National, Crédit Agricole and Banques Populaires) and this competition pushed commercial banks to expand their network and reach new customers. Monetary conditions also changed dramatically, with the interbank market deeply affected by the war (Espic 2023). All this resulted in an intensified competition between national banks, and between national banks and the BdF (Baubeau 2016).

The expansion of branches was stopped by the banking crises of the Great Depression – and it reverted partly – but the total number of bank branches remained three times higher than before the war (while the French population was similar in 1910 and 1930).

Figure 8: Total Number of Commercial Bank Branches between 1881 and 1938 in France



Source: Bonhoure et al. 2023

There are many reasons to think that the increase in bank branches was related to the rise in national credit transactions, and maybe contributed to it. Firstly, as Bonhoure et al. (2023) show, most of the increase in the number of bank branches was the result of existing banks expanding their branch network (including temporary branches) rather than the creation of single-branch banks. Banks that opened new branches often began to expand their business outside the city and department in which they originally operated (banks whose business spanned several departments began to be called "regional banks"). In doing so, they made it easier to borrow or pay outside the locality. These banks opened branches in towns where there had previously been no bank. The number of towns with a bank doubled during the 1920s, and this increase was concentrated in small towns. Overall, 64 percent of new branches opened between 1920 and 1929 were in towns with fewer than 2,000 inhabitants, and 95 percent in towns with fewer than 10,000 inhabitants (Bonhoure et al. 2023).

Second, there are other reasons, already emphasized in the literature, why the expansion of bank branch network may increase financial integration. A higher density of bank branches strengthens competition for lending and thus pushes banks to reach new customers (Petersen & Rajan 2002; Gilje, Loutskina, and Straha 2016). A larger branch network also makes it easier for banks to collect information on borrowers across space (Mitchener & Ohnuki 2009).

In the reminder of this section, we merge our database of city-level bills discounted by the BdF with data on bank branches in the same city. The geographical data on bank branches comes from Hoffman et al. (2019) before WWI and Bonhoure et al. (2023) in the interwar period. In the first step, we check that the association between the increase in bank branches and the increase in national bills is validated at the city level, taking into account the common time trend, city-fixed effects and local population variation. Second, we use this city-level dataset to support one of our earlier hypotheses, namely that the BdF did not discount fewer national bills in areas where the large commercial banks (the few 'national banks' that already had a national branch network before the war) increased their activity. In addition to the common pattern between the two series, these econometric results support the argument that higher discounting of national bills relative to local bills by the BdF was not a substitute for the absence of national banks.

Econometric estimations: Commercial Bank Branches and the Share of National Bills

We estimate the correlation between the ratio of national to local bills and the number of bank branches at the city level. The only other time-varying variable available at the city level that we can use as a control is the population (available from censuses¹⁶). In a panel setting with city-fixed effects, the equation to be estimated in the following:

$$R_{it} = c + b_i + P_{it} + B_{it} + e_{it} \quad (1)$$

¹⁶ Sources: for 1851, 1866 and 1872, Institut national de la statistique et des études économiques (Insee), census of 1851 (chief towns and cities), censuses of 1866 and 1872 (chief towns and cities). URL : <https://www.insee.fr/fr/statistiques/2653233?sommaire=2591397>. For 1883, 1891, 1901, 1911, 1913, 1921, 1928, 1932, 1936: Insee, Historical population figures since 1876. URL: <https://www.insee.fr/fr/information/2414405>. We use population data of 1881 for 1883; 1911 for 1913; 1926 for 1928; and 1931 for 1932.

where i denotes the city, t denotes the years included in our sample (1851; 1866; 1872; 1883; 1891; 1901; 1911; 1913; 1921; 1928; 1932; 1936). R_{it} is the log of the ratio of national to local bills discounted by the BdF. P_{it} is the log of the population of the city. B_{it} is the log of the number of bank branches and b_i is a city-fixed effect that captures unobserved time-invariant characteristics of the local discount market. The panel is unbalanced – especially when estimated over the pre-war period – due to the expansion of BdF branches over time.

Given the high serial correlation in e_{it} due to the common trend in R and B ¹⁷, we estimate the equation with the first-difference estimator, that is we estimate:

$$\Delta R_{it} = \Delta P_{it} + \Delta B_{it} + \eta_{it} \quad (2)$$

where Δ denotes the first-difference of logarithms, which approximates the growth rate of the variables.

Alternatively, we can further control for the common time component of the two series by adding a time-fixed effect for the growth rate, b_t :

$$\Delta R_{it} = b_t + \Delta P_{it} + \Delta B_{it} + \eta_{it} \quad (3)$$

Adding b_t is somewhat disappointing as we would like to explain this common component which affects our variables of interest, but it is a necessary procedure to avoid our estimate being biased by unobservable components. Standard errors are clustered at the city level. Because our time periods (between two sets of observations) do not have the same length, we calculate the average annual growth rates rather than growth rates between two dates.

Table 2 show the results. The coefficients are much smaller and less significant when we add time-fixed effects that capture the common pattern between our main variables of interest. When looking at the full sample, the correlation with the growth rate of bank branches is not significant (column 2). We then split the sample between two periods: before and after the war. In columns 3 and 4, we do not find any significant correlation between the growth of bank branches and the ratio of national to local

¹⁷ We tested for auto-correlation of residuals using the Inoue and Solon (2006) portmanteau test for serially correlated errors in fixed-effect panel estimations (command *xtstest* in Stata developed by Wursten (2018)). Whether we use the variables in level or in log-level, the values of the test systematically reject the null hypothesis of “no auto-correlation of any order”.

bills before WWI. The coefficients are very small and negative, close to -0.02. The interwar period shows a different picture. Our coefficient of interest is high and significant in both cases, although it is clearly lower when we add time-fixed effects in column 6. Controlling for the time component that is common to all cities, we still find that a 1% change in bank branches is associated with a change in the ratio of 0.35%. These are large effects given that the annual growth rate of bank branches was 5% between 1921 and 1936 (the standard deviation of the growth rate is 8%).

Table 1: Correlation Between the Ratio of National to local Bills and Commercial Bank Branches (Panel Data Estimations)

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Full sample	Full sample	Pre-war	Pre-war	Post-war	Post-war
Population	-0.0171 (0.0772)	0.0459 (0.0600)	0.0871*** (0.0308)	0.0205 (0.0304)	-0.0752 (0.0924)	0.0415 (0.0804)
Bank branches	0.266*** (0.0742)	0.0470 (0.0454)	-0.0155 (0.0407)	-0.0191 (0.0410)	0.839*** (0.132)	0.355*** (0.117)
Observations	1,480	1,480	549	549	931	931
R-squared	0.019	0.248	0.001	0.136	0.074	0.244
City FE	YES	YES	YES	YES	YES	YES
Year FE	NO	YES	NO	YES	NO	YES

Note: Standard errors are clustered at the city level and appear in parenthesis. *** p<0.01, ** p<0.05, * p<0.1. The model is estimated with the first-difference estimator. The variables were expressed in logarithm before being first-differenced. Time-fixed effects are included in columns 2, 4 and 6.

The absence of a significant relationship between bank branches and the ratio of national to local bills before the war is consistent with the fact that these two variables changed little over this period. However, it may seem surprising that the development of the national network of the few large commercial banks in the nineteenth century was not correlated with an increase in the national bills discounted by the central bank. It suggests a non-linear relationship between commercial bank branches and the circulation of “national bills”. It is only when the former started to experience a strong positive

annual growth that it became correlated with the latter. This could be due to the fact that the network and activities of these banks remained centered on the major cities (including outside France), but it could also reflect a possible limitation of our methodology. The BdF may have discounted fewer national bills in cities where national banks could take over this activity. As discussed earlier, we view this bias as unlikely, all the more because the interwar period in itself proves that the increase in national bills is linked with the expansion of bank branches. It is however worth checking whether national banks made a difference and to this we now turn our attention.

National Banks and the BdF Discount Policy

We isolate the branches of the four large national commercial banks: Société Générale, Crédit Lyonnais, Comptoir National d'Escompte and Banque Nationale du Crédit. In addition, and for the interwar period only, we can also isolate the "regional banks", i.e. banks whose branch network extends over several departments (Bonhoure et al. 2023). As Bonhoure et al. (2023) explain, there was still a significant difference in scale between national banks and regional banks, despite the expansion of the latter in the 1920s. Only the national banks had branches in at least half of France's departments (France had a total of 90 departments).

We follow the same estimation strategy as previously. Table 3 displays the results when we isolate the national banks (and the regional banks during the interwar period). Before the war, the coefficient on national banks is positive (contrary to other banks), although not significant when we control for time-fixed effects. It is still not significant at conventional levels (although close) after the war, but it increases sizably from 0.018 (column 2) to 0.07 (column 4). The coefficient for regional banks is positive and significant and about the same size (0.061) when we control for time-fixed effects.

These results allow us to conclude that there is no evidence that the BdF discounted less national bills where national banks grew faster. This confirms the reliability of our measure of national versus local bills based on the BdF discount portfolio. And it is consistent with the fact that national bills increased more where there were more commercial banks that were not local but had branches in other cities. Both data on bank branches and on bills of exchange discounted by the BdF point out to an

important and rapid change in the scale and geography of banking activity and the credit market during the decade that followed the First World War.

Table 2: Different Types of Commercial Banks (Panel Data Estimations)

	(1)	(2)	(3)	(4)
VARIABLES	Pre-war	Pre-war	Post-war	Post-war
Population	0.0269 (0.0362)	-0.0338 (0.0522)	-0.0826 (0.104)	0.0419 (0.0904)
National banks	-0.00316 (0.0308)	0.0182 (0.0339)	0.0250 (0.104)	0.0700 (0.0967)
Regional banks			0.106*** (0.0384)	0.0614* (0.0358)
All banks	-0.0765 (0.0801)	-0.0598 (0.0812)	0.704*** (0.156)	0.0590 (0.143)
Observations	459	459	667	667
R-squared	0.001	0.132	0.089	0.317
City FE	YES	YES	YES	YES
Year FE	NO	YES	NO	YES

Note: Standard errors are clustered at the city level and appear in parenthesis. *** p<0.01, ** p<0.05, * p<0.1. The model is estimated with the first-difference estimator. The variables were expressed in logarithm before being first-differenced. Time-fixed effects are included in columns 2 and 4.

Conclusion

Standard measures of national financial development – such as bank deposits, money, credit or stock market capitalization relative to GDP – do not take into account the social and institutional characteristics of the credit market, nor their scope and scale, i.e. whether credit transactions were mainly local or national. Based on the study of France between the mid-nineteenth century and the 1930s, this article has shown that aggregate financial development and the evolution towards a national credit market can follow very different chronologies and have different sources.

After justifying that it is a reliable observatory of the overall circulation of bills of exchange in France during this period, we analyze the sample of bills of exchange discounted by the central bank. This is a rich source for historians as it gives information on the geographical origin of bills that were discounted in each local branch of the central bank. Our results, supported by various estimates based on panel data, show that the ratio of national bills to local bills rose sharply during the 1920s and was closely associated with the rapid expansion of bank branches during this decade. Although large commercial banks were heavily involved in discounting foreign bills and the bond market was globalized, commercial bills remained an important and widespread form of local credit in the nineteenth century, as our source shows. It was only after the First World War that the relative importance of the local use of commercial bills in France declined significantly, although it did not disappear.

Another explanation for the positive correlation between commercial bank branches and the expansion of "national bills" in the interwar period could be due to the post-war withdrawal of French banks from international financial markets. It is tempting to put forward this argument, and to hypothesize that the decline in financial globalization could have been a driving force behind the deepening of the national commercial paper market. We have succeeded in obtaining data on the evolution of the share of foreign bills in the total discount portfolio for just two banks (see Appendix for sources): *Crédit Lyonnais* (the largest commercial bank, with a national network of branches) and *Paribas* (a large investment bank with no branches outside Paris). Indeed, they reveal a sharp decline in the share of foreign bills in the French discounting activities of these two banks after the war, from 22% (*Crédit Lyonnais*) and 28% (*Paribas*) in 1911 to 7% and 12% respectively in 1921, with no catch-up thereafter. Given the lack of representativeness of these data and their limitations, we can only speculate and leave this question to further enquiry.¹⁸ However, the dichotomy between the fortunes of

¹⁸ It should also be borne in mind that the share of French Treasury bills in banks' discounting portfolios increased enormously after the war (Espic 2023). To avoid this biasing our results, we have excluded bills payable in Paris from our main estimates. The fact that banks held more Treasury bills does not contradict the fact that they wanted to develop their national activity and open more branches since selling or buying public debt was also a way to attract new local customers after the war (Bonin 2000).

international finance and the changing scope of the domestic commercial paper market remains one of the most striking findings of this study.

The scale and geography of credit in the interwar period thus became radically different from that of the long nineteenth century. Although most financial institutions and the legal framework that organized bank credit and bills of exchange were established earlier, the 1920s were unique in the way they reshaped the distance of credit relationships and the deepening of banking activity in France. Not only do these results challenge conventional wisdom about the chronology of financial development, they also suggest that the First World War was a turning point for the French banking and credit market. The reasons for these rapid changes, as well as European comparisons, pave the way for promising future research.

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APPENDIX

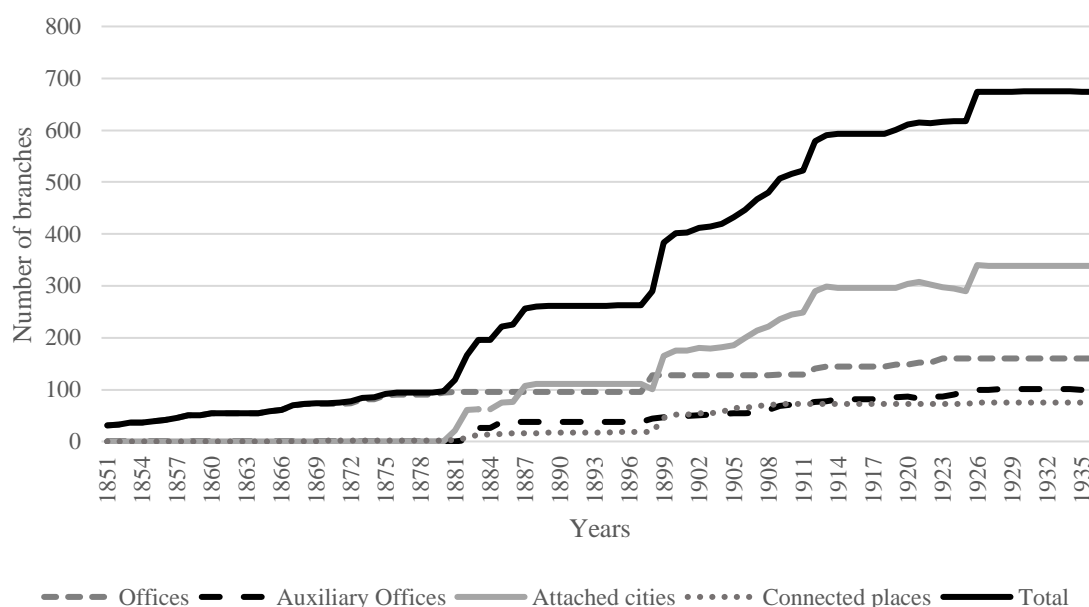
Supplementary details and data on the regional network of the Banque de France (BdF)

An auxiliary office (*bureau auxiliaire*) depended on one head office. The auxiliary offices conducted the same kind of operations as the head offices, but the staff and the premises differed. The BdF kept a hierarchical structure where the head office was responsible for the operations conducted in the auxiliary offices. The audit of discount operations was thus done at the office level only. The manager of an auxiliary office acted as a delegate for the head office and transmitted the bills of exchange presented for discounting to the office on which it depended. In the attached cities (*villes rattachées*), the head office sent secondary staff six times per month to cash bills of exchange (Rozenraad 1884:15). Finally, in connected cities (*places réunies*), the BdF had no staff, but it considered that they belong to the geographical area of an office. The BdF discounted bills in these places under the same conditions of the office/auxiliary office which they were connected.

Figure 1 shows the increase in the number of the BdF layers of branches (head offices, auxiliary offices, attached cities, and connected places). From 4 offices in 1836, the BdF network was composed of more than 260 branches (offices and auxiliary offices) by 1928, covering the whole France.¹⁹

¹⁹ The law of the 17 November 1897 concerning the extension of the BdF's money-issuing privilege forced a strong increase both in the number of the *offices* and *auxiliary offices*, and the transformation in offices of some of existing *auxiliary offices* (see Bazot 2014:48).

Figure 1: The BdF Branch Network



Source: authors ‘elaborations from BdF’s Archive

Data of auxiliary offices or connected cities are not always distinguished from the bills discounted in the head office on which they depended. From 1913 onwards, we have all the separate information on auxiliary offices, connected and attached cities.²⁰ They appear separately in the source (on a separate table²¹) as a singular city and, for each of them, we know if the discounted bills were drawn locally, in Paris or elsewhere. Yet, in the same source, the bills for each head office also include the bills discounted in the auxiliary offices, connected and attached cities that depended on the head office. So, in order to keep all the information at the city-level, we isolated the bills discounted in a head office that did not come from auxiliary offices or connected cities. Otherwise, we could have counted these bills twice.

²⁰ In 1883 only, we have data on “bills drawn in auxiliary offices (*bureaux auxiliaires*) and connected cities (*villes rattacheés*) to the office” and “bills drawn in auxiliary offices (*bureaux auxiliaires*) and connected cities (*villes rattacheés*) to other offices”. This difference is due to the fact that, as discussed in the previous session, in the 1880s the system of auxiliary office and attached cities was established. We consider the former as local bills and the later as national.

²¹ Banque de France 1914: 46-47.

This implied obtaining information on the overall hierarchy of BdF branches to know exactly on which head office the others depended.²² For example, Carpentras was an auxiliary office of Avignon. Data on the branch of Avignon include data on Carpentras but without mentioning which share of the bills were discounted in Carpentras. We thus collect the discount data on Carpentras (and other auxiliary offices that depended on Avignon) to isolate the volume of discounted bills in Avignon.

That the BdF aggregated statistics at the head office level is revealing of the fact that a bill drawn in the area of an auxiliary office was characterized as local to the head office on which the auxiliary office depended. Following the example above, it means that a bill payable in Carpentras and discounted in Avignon is “local”. This information will be important to take into account when interpreting the series presented below. Indeed, this accounting procedure of the BdF avoids that the share of national bills mechanically increases with the number of auxiliary offices or connected cities. It avoids that a bill payable in Avignon and discounted in Carpentras becomes a “national” bill once the Carpentras auxiliary office is opened.²³

Additional Comparisons between the BdF and Large Commercial Banks. The Importance of Foreign Bills

Additional comparisons between the BdF and the largest French commercial banks remind us that the size of the BdF discount portfolio was not rivaled by any other bank, especially if we account for the fact that a sizable share of the activity of other banks dealt with international bills of exchange. We focus on the pre-war period, when our ratio of national to local bills stagnated and is thus more likely to be biased by our underrepresentation of national bills. The Société Générale (SG) was founded in 1864 and

²² We thank Fabrice Reuzé for sharing a document containing this information. Connection between branches and auxiliary offices are also sometimes available in the official annual reports of the BdF.

²³ This important accounting procedure can be tracked to the article 1341 of the General Regulation of the Banque de France which, among other things, sets out the general accounting rules for BdF branches. This regulation requires offices to register bills on a different colored sheet depending on where it was drawn. Local bills (registered on a white sheet) were defined as bills drawn in the same city as the office or in a city that was connected to this office. The document is dated 1902 but we can reasonably assume that the Bank of France was following the same accounting rules in 1891. Banque de France Archives, Règlement général des succursales (RGS), 1060201204 AR 13, 14 and 15.

conceived by its founders as a large-scale deposit bank. Branches were set up from the outset. In 1866 there were already 29 branches, including 9 offices in Paris (Kauffman 1914: 224). In 1914 SG was present in 135 of the 142 cities where a BdF branch was set up, with an overlap ratio of 95% (de Oliveira 2018: 355). Despite this, SG had a small portfolio compared to the BdF. In 1900, the average discount portfolio of the BdF was 863,68 million (Baubeau 2018), while the average discount portfolio of the SG was 276,4 million (Roulleau 1914, 47).

Although it had less branches, the *Crédit Lyonnais* (CL) was larger than the SG. Founded in 1863 by commercial and financial élites of Lyon and Genève, CL was originally conceived as a local bank and a fund manager. The first branches were established in Paris and Marseille. During its first two decades, the CL - as well of SG - did not affect the activity of the BdF (Bouvier 1961, Desjardins et al. 2003; Bonin 2006). The expansion started from the 1880s and new branches were opened in France and abroad from 23 in 1880 to 92 in 1893 and 200 in 1909 (Kaufmann 1914:230 & 483). The discount portfolio of the CL remained much below the BdF's until the early 1890s and was then of a similar size until the war. It even exceeded the one of the central bank in few years during the first decade of the twentieth century. In 1913, it had reached 1456 million FF while the BdF's was 1633 million FF.

The CL did not reach deep however in the French provinces. Most of its discounting activity was performed in Paris and Lyon and it included an important share of foreign bills of exchange. In the Archives of the CL, we found the total of discounting bills by city (i.e. bank branch) at the end of each year. Interestingly, these data do not report the distinction between local and national bills, but between foreign bills and those issued in France. These data show that the CL was a very international bank involved in global financial integration, while its French activity remained centered in Paris and Lyon. In 1911, more than a fifth of *Crédit Lyonnais'* discount portfolio consisted of bills drawn outside France. In the same year, the bills discounted in Paris and Lyon accounted for, respectively, almost 60 percent

and 10 percent of the total bills discounted by the Crédit Lyonnais.²⁴ 81 percent of foreign bills were discounted in Paris and 9 percent in Lyon. These comparisons suggest that the discount portfolio of the CL was likely to include fewer local bills than the BdF's, given the scope of its activity. The portfolio of the BdF was probably more representative of the total of bills circulating in France.

Although we did not find systematic comparable data for other banks, there is scattered evidence that the CL was not the only large bank whose a large share of the discount portfolio was invested in foreign bills. According to figures available in 1892, the Comptoir National d'Escompte – the third largest French bank – had 28 percent of its commercial portfolio invested in foreign paper.²⁵ For the Banque de Paris et des Pays-Bas, one of the main investment banks, the share of foreign commercial paper was 47 percent in 1893 and 28 percent in 1910.²⁶ These figures show that the persistence of a large share of local bills in France – as evidenced by the BdF portfolio – was not contradictory with the international circulation of bills of exchange, fostered by few large and already global banks.

²⁴ Our elaboration from Crédit Lyonnais archives; source: Livre d'Inventaire Général, actif 1, 1911; Archival reference: 31 AH 209. CL branches abroad are excluded from the calculation.

²⁵ Rapport annuel du Comptoir National d'Escompte de Paris, exercice 1892. URL : https://asset.mediahub.bnpparibas/is/content/bnpparibas/FRAHBNPP_101AH052

²⁶ Rapport annuel de la Banque de Paris et des Pays-Bas (Paribas), exercice 1910. URL : <https://histoire.bnpparibas/rapports-annuels/rapport-annuel-de-la-banque-de-paris-et-des-pays-bas-paribas-exercice-1910/>