

French liquidity constraint and the mutations of commercial money: The institutional articulation of monetary flows in the 19th century

With the support of the ANR – Codisyna project

First draft – not for quotation

Patrice Baubeau¹

A major constraint on commercial good flows is the availability, in time and quantity, of an adequate mean of settlement. Such is that constraint that over time, merchants designed their own monetary forms and rules, a set of institutions that culminated in the discountable bill of exchange era, which lasted in Western Europe from the sixteenth to the twentieth century. But that system had also drawbacks, impeding the flow of commerce, either in width, in regularity or in volume. Two of these drawbacks appeared of paramount importance after industrial revolution started to enlarge the production – and the consumption – scale, *i.e.* first the periodic credit crunches and second the coordination of two payment circuits – the commercial paper circuit and the tax and retail coin circuit.

The solution had then to be twofold. First, to give more “elasticity” to the adjustment of means of payment to economic activity, which occurred quite easily in case of growth with the extension of the amount of bills of exchange, but not in case of crises because of the brutal run toward metal. Second, to bridge the gap between the two monetary circuits. England, but also Netherlands or Sweden, proved to be the first European countries where such solutions were designed: a more or less “national” bank circulating banknotes against discounted bills.

Though this system was implemented and successfully put to test in France from 1776 to 1789 with the Caisse d'Escompte, it was not before the 1800 Banque de France's foundation that a durable, coherent and national system was established and coordinated from the Paris financial centre.

If the circulation gap was not completely bridged, nor the liquidity crisis risk fully avoided, from then on, the very structure of the French monetary circulation started to change. But most historical synthesis fail to address that structural change otherwise than in qualitative terms, most notably because they rely on statistical series that should be revised – a point already highlighted by Lévy-Leboyer and Bourguignon². This data revision, on the other hand, is not a pure question of quantity: understanding the functions of the different elements in French monetary circulation is key in assessing its transformation, and the degree of backwardness usually associated with French monetary and banking structures during the nineteenth century. This qualitative approach to French circulation questions the role of different transfer, payment and financial instruments, like bills of exchange, bills of lading, checks, stocks and bonds, and put forward the flows of money and capital irrigating the economy. The Banque de France (BDF) played a major role, under state and concurrence pressures, in the institutional shifts that affected the possibility to monetize these instruments

¹ Assistant Professor – University Paris 10 Nanterre (France) – IDHE.

² François Bourguignon et Maurice Lévy-Leboyer, *L'économie française au 19^e siècle. Analyse macro-économique*, Paris, 1985.

and in the subsequent flows of money from the Provinces to Paris and in the Paris financial centre.

The main objectives of this tentative paper is then to propose some new figures about French monetary circulation during the nineteenth century, and to ponder the role of the Banque de France in circulation mutations and monetary flows. We will first try to show how the newborn institution faced the two challenges of enlarging circulation with economic growth and giving elasticity to monetary circulation in times of crisis. Part two will propose a chronological sketch about the changing rules of monetization and their consequences on the structure of the monetary circulation, while proposing some corrections of nineteenth century French monetary circulation.

Part 1 – The Banque de France and monetary elasticity

A. The periodic credit crunches

As showed in Table 1, and as Clément Juglar³ early demonstrated, France experienced during the nineteenth century, after the fall of the Napoleonic empire, a 7 to 11 years business cycle, remarkably associated with a credit cycle.

Table 1 – French commercial crises, nineteenth century

Commercial crises according to Clément Juglar ⁴	Agricultural crises according to Ernest Labrousse ⁵	Industrial crises according to François Caron et Jean Bouvier ⁶
1804	1800-03	
1810		
1813	1810-13	
1818	1815-18	
1826		
1830	1828-32	
1836		
1839	1839-40	
1847	1846-47	
1857	1853-57	
	1861-62	
	1866-68	
		1882-84
		1890
		1899-1901
		1908-09

³ Clément Juglar, *Des crises commerciales et de leur retour périodique*, Paris, 1862.

⁴ Cl. Juglar, op. cit., p. 8.

⁵ Ernest Labrousse, “A livre ouvert sur les élans et les vicissitudes des croissances” in E. Labrousse et F. Braudel, *Histoire économique et sociale de la France, vol. 3, 1789- années 1880, L’avènement de l’ère industrielle*, Paris, 1993 [1st ed. 1976], p. 1004.

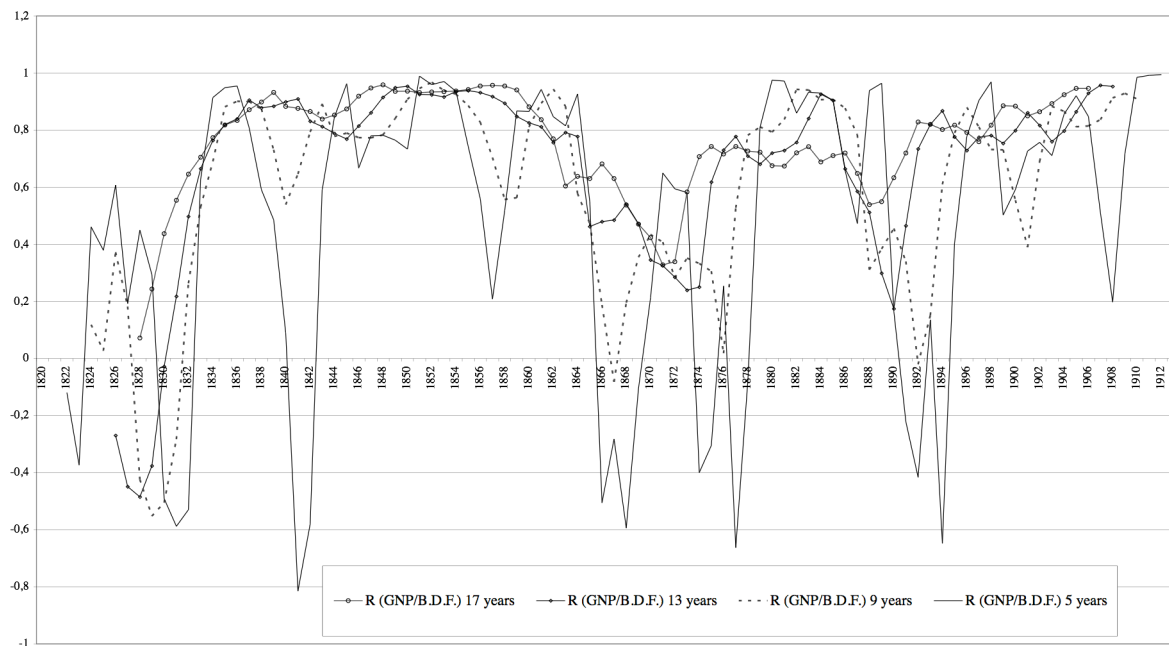
⁶ François Caron et Jean Bouvier, 1993, “Les indices majeurs” in E. Labrousse et F. Braudel, *Histoire économique et sociale de la France, vol. 4, années 1880-1950, La croissance industrielle, Le temps des Guerres mondiales et la Grande crise*, Paris, PUF, [1st ed. 1979], p. 129.

Juglar showed the very strong association between the ups and downs of the economy at large and the Banque de France's balance sheet notably its discount portfolio. He showed that before the crisis, the Banque de France's discounts grew on a regular basis while its discount rate remained stable. In doing so, the BDF enhanced, through its discount credit reflected mainly in banknotes circulation, the liquidity of the economy and most notably, of the productive economic circuit as opposed to the retail economic circuit. The next stage saw a growing outflow of silver and/or gold outside the country and the Banque de France's vaults, leading to measures implemented to discourage extra discount, which at some point ignited the crisis, that is a maximum was reached for the portfolio, the stock prices and so on. After a short fall, the crisis led to a new increase of Banque de France's discounts, as it substituted for usual discounters (private banks and bankers, discounters, joint-stock banks) scrambling for liquidity. The Banque adopted at this moment a restrictive policy, not based on prices (as in the case of a discount rate increase) but on "quality", selecting only the shortest maturity bills and the best signatures, which amounted to condemn the most fragile bills sellers – small banks and merchants. Then the crisis, extending to the commercial and industrial sectors, reduced the amount of bills to be discounted and the Banque de France's portfolio started to decline, ending the cycle⁷.

But this relationship between the periodical crises encountered by the French economy and the Banque de France's operation was not that simple. In fact, as shown in Graph 1, a simple windowed regression study shows that this relationship was not stable over time.

Graph. 1 - Windowed regressions between French GNP and Banque de France's discount operations

Sources : ABDF, AGBDF ; G. Roulleau ; Bourguignon & Lévy-Leboyer



These regressions are computed on nominal, not detrended, series, but this allow us to avoid any filtering effect: the goal is not to evaluate the actual level of the correlation, but its variations over time. With a long-term window of 17 years, the variations are not very spectacular, but still visible. And they perfectly fit with shorter-term windows of 5 to 13

⁷ Clément Juglar, 1862, *Des crises commerciales et de leur retour périodique*, Paris, Guillemin.

years. What we can see here, not forgetting that the accuracy of GNP figures gets more and more fragile as they represent more ancient years, can be summed up in four different periods.

1. From the 1820s to the beginning of the 1830s, the Banque established itself as a credit and cash reserve for the rest of the economy: still during the 1820s, the Banque's directors complained about the lack of "productive operations", i.e. discountable bills in sufficient quantity. But after the dire 1828-1831 crisis, these complaints more or less disappeared, except during brief periods of time (for example, the 1866-1868 period). In that respect, we can assume that the Banque succeeded, before the end of the first half of the nineteenth century, in providing monetary elasticity to a growing economy.

2. Indeed, from then on, started what Alain Plessis called the "*révolution de l'escompte*"⁸. The linkage between the Banque de France's discounts and the economy appears very strong, except during short periods of time which correspond to crises (1839-1841; 1846-1851; 1857-1858).

3. But this strong relationship appears to falter during the 1860s. Two main reasons can be drawn from the Banque de France's archives: the increase of the gold and silver reserves, which acted as a buffer against economic situation consequences on the Banque's rate and, as such, on its operations; the increased competition from the newly founded French joint stock banks, namely the Comptoir d'escompte (1848), the Crédit mobilier (1852), the Société Générale (1863) and the Crédit Lyonnais (1864), that reduced the Banque's share in bills discount.

4. Even if a higher correlation is retained after 1874-1875, the relationship appears much more volatile, reflecting both the competition on discount faced by the Banque and the "great depression" of the 1880s. It also marks the evolving role of the Banque de France which more and more acts as a central bank, the 1870-1871 Franco-Prussian war playing a key role in that transformation. Indeed, the war had two major consequences: first, the Banque de France's banknotes were made legal tender by law, even after convertibility was officially restored in 1878, and, second, the international move towards the gold standard offered some arbitrage opportunities to the Banque, while it could play the "limping bimetallism" game between 1873 and the end of the 1880s⁹.

This preliminary analysis shows that, to study the Banque de France's role, one cannot cut it out from its broader environment. This can also be highlighted by trying to explain why the Banque de France's discounts and the GNP were not well correlated during crises: after all, if a crisis occurs, one can imagine that both growth and discount operations will evolve in the same direction. But it is not exactly what happened, even if, as showed by Juglar, the Banque de France's operations and balance sheet experienced ups and downs.

Besides its qualitative selection policy during crises, which amounted to a pro-cyclical role, the Banque de France started to assume a growing contra-cyclical role in the economy after 1830, which took two different forms:

- "Extra-statutory" operations ("opérations extraordinaires") to allow more bills to be discounted at its offices, for example non-stamped bills (which was compulsory according to its statutes and, from 1842 on, to the law), or non-commercial bills, as longer-term financial bills or consolidated bills (bills guaranteed by real estate and consolidating on a longer term than the 90 days statutory limit non-cashable previously discounted commercial bills). These operations were encouraged by institutional innovations, as the creation of the short-lived "caisses d'escompte" in

⁸ Alain Plessis, "La révolution de l'escompte dans la France du XIXe siècle", *Revue d'histoire du XIXe siècle*, n° 23, 2001, pp. 143-163.

⁹ Rémy Contamin, "Interdépendances financiers et dilemmes de politique monétaire. La Banque de France entre 1880 et 1913", *Revue économique*, vol. 54, n° 1, janvier 2003, pp. 157-180.

1830 and 1848 (but the Paris' Caisse d'escompte appeared to survive this fate and became the long-lived Caisse d'escompte de Paris later Caisse nationale d'escompte) or by institutional arrangements, as the agreement between the *Compagnie des agents de change* (Paris stockbrokers chamber) and the Banque during the 1882 crisis¹⁰.

- Credit extensions to the state, which helped the state provide financial support to workers, firms and consumers, most notably in 1848 and 1870. This financial support took also the form of discounts (for example, taxes could be paid by a bill and then cashed at the Banque by fiscal authorities, or Treasury bills could be cashed at the discount window of the Banque, provided their maturity was 90 days or less).

Of course, this contra-cyclical role played against the correlation of GNP and Banque's discounts. Its effects can also be seen by comparing Paris and branches discounts, since most extra-statutory operations and credits to the state were made at the central office and not in the branches.

In short, the first half of the century, with its increasing correlation between Banque de France's operations and GNP, shows how the Banque's discounts and banknotes helped provide a growing elasticity to the mean of payments at disposal in times of plenty, allowing for a faster growth and reducing interest rates constraint. During the second half, starting 1848, the Banque had to face the negative aspect of its success, that is the pro-cyclical effect of its credit tightening on circulation during crises, which proved devastating in 1848. It is then no coincidence that this period started by the first peace-time convertibility suspension, March 15th 1848, because this pro-cyclical effects had been completely overlooked. This testified of the changes in the circulation structure and the money flows in French economy, but put forward the question of the monetary circulation policy.

B. The choice between quantity and velocity

Monetary policy addresses three main objectives:

- To provide for an adequate availability of means of payment, to avoid money "shortages".
- To guarantee the quality of these means of payments, to avoid or limit runs from second-grade to first-grade monetary tools. The main issues are 1) the relationship between low and high denomination means of payment, 2) the relationship between the different kinds of means of payment (cash, fiduciary coins, convertible banknotes, bills, scriptural money).
- To avoid or limit the pro-cyclical effects of monetary supply, leading to inflation in times of plenty and cumulative deflation in times of crisis¹¹.

These three objectives can be reached either by increasing the "quantity" of money, for example through a mercantilist external surplus, or its "velocity", that is the efficiency of the means of payment to settle transactions in a given period. Quantity and velocity effects combined give the elasticity of the monetary supply.

¹⁰ Pierre-Cyrille Hautcœur and Angelo Riva, "The Paris financial market in the 19th century: an efficient multi-polar organization?", Working Paper n° 2007-31, Paris School of Economics, p. 15.

¹¹ This does not mean we promote here a simple quantitative perspective on money. Our stress on elasticity proves the contrary. But, until the inter-war period, inflation was defined as an increase in banknotes circulation. Still during the "Cartel crisis of 1924-1926, banknotes circulation was equalled with inflation, making the weekly balance sheet published by the Banque de France a highly political and controversial material.

The first and simplest way to give elasticity to the monetary flow is to modify its circulation velocity by replacing the actual cash payment by a promise to pay. This simple way reduces even the supposed inelasticity of a metallic payment system, since it allows for the possibility to use the “same” coin – its accepted value into a given monetary system – to settle a various number of transactions.

Added elasticity also comes from the rules of the game of metallic standards. Such a standard supposes that any precious (i.e. monetary) metal has simultaneously two rates: a commercial one and a legal and monetary one. Usually, and taking into accounts the minting costs and related seignorage and taxes, the two rates are roughly equivalent, inside minting points. In case of a larger demand for coins, the monetary rate of specie increases relatively to commercial metal, leading to increased minting: thus, the two rates stay equivalent and an elasticity is build in the system. But such elasticity is actually very limited, because extra precious metals are not ready at hand in unlimited quantities, for example in the form of tableware people would be eager to mint into money: they have to be imported or mined. Also, minted coins of high intrinsic value cannot cope with a regular growth trend without an equivalent supply in specie or a strong decrease in prices. Moreover, in case of a brutal shift in output, there is very little chance that the usual velocity in specie circulation or an increase in minting can adapt to the economic gyrations.

Besides, there are costs to using specie (transport, insurance, verification and evaluation) and people having to transfer large sums of money on a regular basis will prefer other ways to settle their reciprocal obligations and balances. Such constraints led to the birth of specific commercial means of payments, designed both to reduce the issue of the quantity of metal at hand, to avoid the risks and costs associated with specie transfers and to reduce the costs of inland and abroad payments. These means of payments, which we will summarize here under the name of bills of exchange¹², developed progressively from the medieval times to reach their full payment capacity in the sixteenth century. Bills of exchange could, by then, be used to settle abroad or inland transactions in one or several currencies, they could circulate from one debtor to his creditor by the very simple operation of endorsement. Because of their high security and the interest they bore, they were used by individuals or institutions as a short-term investment or as a mean to transfer funds. This enhanced the bills of exchange liquidity to the point that they were used to determine the relative exchange rates among the European currencies and the interest rates associated to them¹³. In some respect, bills of exchange were a “private money”¹⁴, created by merchants to settle their operations, but used by other agents for their own purpose. These other uses of the bills of exchange support the notion they were a kind of money, and not only a mean of settlement: they circulated in a larger area than that of their creation.

C. Discount principles and the monetary quality of banknotes

This larger circulation opened the way for modern discount principles. Discounting was first an advantage to the bearer of the bill, who could benefit from the security offered by the bill of exchange to get an early cash or specie payment, before maturity, of the value of the bill,

¹² Including bills of lading, commercial promissory notes, warehouses warrants, acceptances, etc.

¹³ Marc Flandreau, Christophe Galimard, Clemens Jobst, & Pilar Nogues Marco, “The Bell Jar: Commercial Interest Rates between Two Revolutions, 1688-1789”, in Jeremy Attacks (ed.), *The Origins and Development of Financial Markets and Institutions*, Cambridge University Press, 2008 (forthcoming).

¹⁴ Marie-Thérèse Boyer-Xambeu, Ghislain Deleplace and Lucien Gillard, *Monnaie privée et pouvoir des princes. L'économie des relations monétaires à la Renaissance*, Paris, Editions du CNRS et Presses de la FNNSP, 1986, 423 p.

minus a small amount: the discount. But modern discount simply replaced the bill – the merchant’s bill of exchange – by another kind of bill: a banker’s bill of exchange or a banker’s note. The main difference between a bill and a note is that a bill is drawn by a creditor while a note is circulated by a debtor. But, thanks to the long common history of these documents, bills and notes bear essentially the same types of marks. Nevertheless, with banknotes came three central traits: they were – at least during most of the eighteenth and nineteenth centuries – interest-free; they had (most of them) no specified maturity; they shared the anonymous quality of cash payments as opposed to credit payments¹⁵.

In short, modern discount operated as a substitution between bills of exchange and banknotes. Merchants would gain a larger and cheaper access to discount, facilitating the cashing of their bills before maturity. Banks would find a lucrative investment in paying interest-bearing bills with paper banknotes of a negligible marginal cost. That could work only if those banknotes could be exchanged at will against the only “true” money: specie – or, at least, so went the theory.

But then two questions emerge. First: are banknotes money? If they are substitutes to bills of exchange, and that bills of exchange are not counted into the money supply, why should banknotes be included into the money supply? But then, if banknotes are included in the money supply, as is the case today, why should we not include also the bills of exchange? Second, if we include banknotes into the money supply, when should we start? Inconvertible paper money and unlimited payment capacity could be indicators when banknotes were used as money *per se*. But, contrary to most historical accounts, this would limit the assimilation between banknotes and money to short periods of the nineteenth century in countries like France or United Kingdom, and would not make much sense, since the banknotes issued during inconvertibility periods kept very often circulating once convertibility was restored.

This means it is very difficult to consider that a fixed definition of the money supply has a permanent meaning, from a historical or economical point of view, during a period of strong evolution of the monetary circulation, as in nineteenth century France. Banknotes, at the beginning of the nineteenth century, were not “money” to most merchants, bankers, government officials and high-ranking civil servants. Most of them even explicitly refused, since the crises of Law (1715-1720) and the *assignats* (1790-1797), to equal banknotes and money. This limited monetary character was exemplified in the assimilation between bills of exchange and banknotes, both considered part of a larger category, that of “*effets commérçables*” (tradable bills). On the contrary, at the end of the nineteenth century, the assimilation between banknotes and money was accepted by most people, even if the banknote value was still considered to reflect the guarantee of convertibility supported by the emission bank.

To measure the money supply of the French economy during the nineteenth century, we then have to take into effects both this substitution effect between bills and notes and the growing acceptance of notes as a kind of money. And this same debate applies to bank deposits... Any rigid answer to that question would either minimize the money supply at the beginning of the nineteenth century or exaggerate it in 1914.

One way to solve this puzzle is to go back to velocity. If the monetary velocity of a given payment instrument is almost perfectly stable, one can consider it is not money: a cheque is not money, because it almost never circulates, but is cashed at a bank after one or two payments. But bank deposits may be used more or less intensively by cheques, giros and

¹⁵ It is interesting to note that banknote payments were still not thought to be final payments in mid-19th century France by some jurists (though not a majority of them), who considered that only cash payments were fully “liberating” for the debtor. Of course, when banknotes were made legal tender (1848-1852 and 1870-1878 onwards), this debate ceased. André Mater, *Traité juridique de la monnaie et du change*, Paris, Dalloz, 1925, p. 97 sq.

drawings. Their rotation evolves along seasonal and annual patterns: they are money. It also authorizes us to discriminate between saving and banking accounts: because their rotation rate is very stable and affected mainly by a few seasonal peaks, first, and episodic runs, second, saving accounts are not money. The same goes for bills of exchange. As explained beforehand, bills used to circulate, through endorsement and discount, between eighteenth century merchants. This went on during the nineteenth century, but with a diminishing trend in the numbers of endorsements: during that period, in France as well as in United Kingdom, bills gradually lost their monetary quality. Banknotes played a key role in that respect, in proving to be better monetary substitutes, and their velocity greatly varied with time. Last, what about specie? Historical evidence, both qualitative and statistical, shows there was a trend of specie accumulation in France but also that, when given a more practical substitute – i.e. banknotes and bank accounts – economic agents would rather use these substitutes than specie, especially for large payments. The circulating pattern of gold specie appears, on the verge of the World War 1, to be very different from that of banknotes, slower, more seasonal, more linked to agriculture and more and more hoarded in fear of the looming war¹⁶. All this means that to evaluate the money supply during French nineteenth century, one has not only to build robust series of each monetary category, but also to assess substitution effects so as to take into account the evolving nature of money. We propose to start settling this puzzle by promoting a yearly series, without any substitution, as robust as possible for each monetary category, i.e. updating the previous work of Michelle Saint Marc, and then to propose some directions for the future building of monetary series including structural shifts.

¹⁶ Gaston Roulleau, *La circulation de la monnaie en France. Communication faite à la Société de Statistique de Paris dans sa séance du 22 avril 1914*, Nancy, Imprimerie Berger-Levrault, 1914. 20 p.

Part II. A tentative evaluation of the French money supply

Notice: this part is still under major revision – all necessary data has not been collected yet

A. Updating older yearly series

As a first step, it is necessary to recall that the effort in building statistically coherent and economically relevant monetary series started only during the Second World War. Some economists and statisticians had formerly developed monetary series, as Juglar, Courcelle-Seneuil, Roulleau, Foville and Denuc before WW1, or Sauvy, Lescure, Aftalion and Rist between the wars. But methodologies were not unified, and there was almost no attempt to build a comprehensive dataset both from a chronological and an economic point of view: the best series addressed only specific issues, as gold and silver circulation, banknotes issuance, bills of exchange drawing...

The push towards such comprehensive series came from two complementary directions. First, the “circuit policy” designed to reduce the inflationary pressure exerted by massive monetary emission led the Vichy state to look for more operational data. Second, following WW2, an international effort was launched to build national macroeconomic “real” series. A few years later, Kuznets coordinated an effort to start building retrospective macroeconomic series¹⁷. Money was not, by then, considered as a crucial macroeconomic variable, except in times of crisis. But Milton and Schwartz’s *Monetary history of the United States*¹⁸ proved how much valuable monetary history could be to economists and historians¹⁹.

These elements combined into Michelle Saint Marc’s *Histoire monétaire de la France, 1800-1980*, published in 1983²⁰, whose ambition was to duplicate Friedman and Schwartz’s opus into the French context. Michelle Saint Marc used all the series she could find into various publications, but did not build original series by herself – as she explains, she is an economist, not an historian. But this was already both an arduous and illuminating work since, as she writes, French monetary history before 1900 was still by then a “statistical desert”, which she cannot map with more frequent than yearly data²¹. The main reason for that, she explained, was the lacking of a deposit series in banks²².

Nevertheless, for the first time, a comprehensive, economically and statistically sound set of monetary series about 19th century French monetary history was easily available to researchers. This groundbreaking work was followed by others, notably Patat and Lutfalla’s

¹⁷ Jean-Charles Asselain, 2007, “Le projet français d’“histoire économique quantitative” : Ambitions et résultats”, *Economies et Sociétés Série “Histoire économique quantitative”*, *AF*, n°36, 4, p. 567-609..

¹⁸ Milton Friedman and Anna J. Schwartz, *A Monetary History of the United States, 1867-1960*, Princeton, Princeton University Press, 1963. XXIV-860 p.

¹⁹ See Hugh Rockoff, “Review of Milton Friedman and Anna Jacobson Schwartz, *A Monetary History of the United States, 1867-1960*.” EH.Net Economic History Services, Jan 1 2000. URL: <http://eh.net/bookreviews/library/rockoff>

²⁰ Michelle Saint Marc, *Histoire monétaire de la France, 1800-1980*, Paris, PUF, 1983, 441 p.

²¹ Original quotation: “Ce désert statistique français en matière monétaire antérieurement à 1900 montre qu’il est prématuré d’envisager l’usage de données trimestrielles analogues à celles dont ont disposé M. Friedman et A. Schwartz quand ils ont brossé l’histoire monétaire des Etats-Unis.”, M. Saint Marc, op. cit., p. 11.

²² Original quotation: “Ce désert statistique est dû à l’absence d’évaluation des dépôts à vue dans les banques.”, M. Saint Marc, op. cit., p. 14.

about the twentieth century²³ and detailed publications in academic reviews concerning prices²⁴, the impact of monetary factors, or specific monetary outcomes. Nevertheless, even if many critics were addressed to Saint Marc's work, no one tried to substitute or even to correct the whole set of her series concerning the nineteenth century.

A new approach appeared during the 1990s, with the effort to build directly from archival sources retrospective series whose quality would equal nowadays methodologies. The most prominent works in that direction were Marc Flandreau's nineteenth century French specie stock calculation²⁵, which replaced Denuc and Foville's series, Morrisson, Morrisson and Barrandon work on the eighteenth century²⁶, and Boyer-Xambeu, Deleplace and Gillard publications on bimetallism and currency rates²⁷. The Annhis project²⁸ led to more accurate high frequency data related to the Banque de France's operations, by combining into one dataset over 150 of mainly weekly balance sheets. This work completed specie series by new banknotes series, correcting previous underevaluations based on yearly end-of-quarter averages calculated by the Banque de France's services.

The main problems remaining concern, as Michelle Saint Marc had highlighted, bank deposits²⁹ and other forms of monetary instruments circulated by banks like banknotes (albeit banknote issuance was supposed to be authorized by the Government), cash receipts, transferable credit forms, etc. Nevertheless starting 1870, we have fairly good approximations of bank deposits growth trends – even if we lack a credible evaluation of bank deposits levels – and before that date, banking monetary instruments were of a very limited importance.

It is not the case, though, with bills of exchange and similar promissory notes. These papers widely circulated during the eighteenth and nineteenth century, and the question is whether they should be included into the money supply or not. Here, we will not address this issue, but just propose two versions of the series, one with and one without bills of exchange circulation. Part B will develop this point.

If we use the figures proposed by Michelle Saint Marc, we get these two graphs (breakout and percentage) of the French money supply during the nineteenth century:

²³ Jean-Pierre Patat and Michel Lutfalla, *Histoire monétaire de la France au XXe siècle*, Paris Economica, 1986, 292 p.

²⁴ Jean-Claude Toutain, “L'imbroglia des indices de prix français du XIXe siècle”, *Economies et Sociétés*, Histoire économique quantitative, série HEQ n° 1, n° 11/1997, pp. 137-187.

²⁵ Marc Flandreau, *L'or du monde. La France et la stabilité du système monétaire international, 1848-1873*, Paris, L'Harmattan, 1995 368 p.

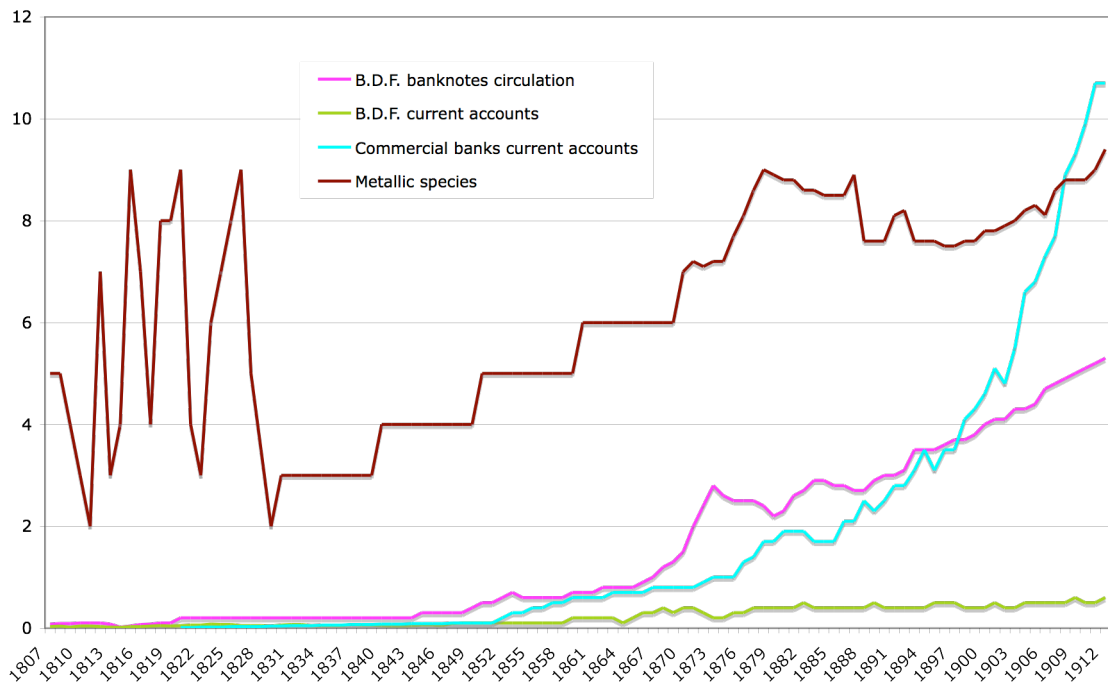
²⁶ Jean Noël Barrandon, Cécile Morrisson, Christian Morrisson, “Or du Brésil, monnaie et croissance en France au XVIIIe siècle”, *Cahiers Ernest Babelon*, n° 7, Paris, CNRS Editions, 1999. See also Michel Morineau, “Quodlibet: or brésilien, macroéconomie et croissance économique en France et en Angleterre au XVIIIe siècle”, *Revue d'Histoire Moderne et Contemporaine*, vol. 48, n° 2/3, avril-septembre 2001, pp. 245-306.

²⁷ Among other publications: Marie-Thérèse Boyer-Xambeu, Ghislain Deleplace and Lucien Gillard, “Bimétallisme, taux de change et prix de l'or et de l'argent (1717-1873)”, *Economies et Sociétés*, Série AF, n° special 19-20, juillet-août 1995, 377 p.

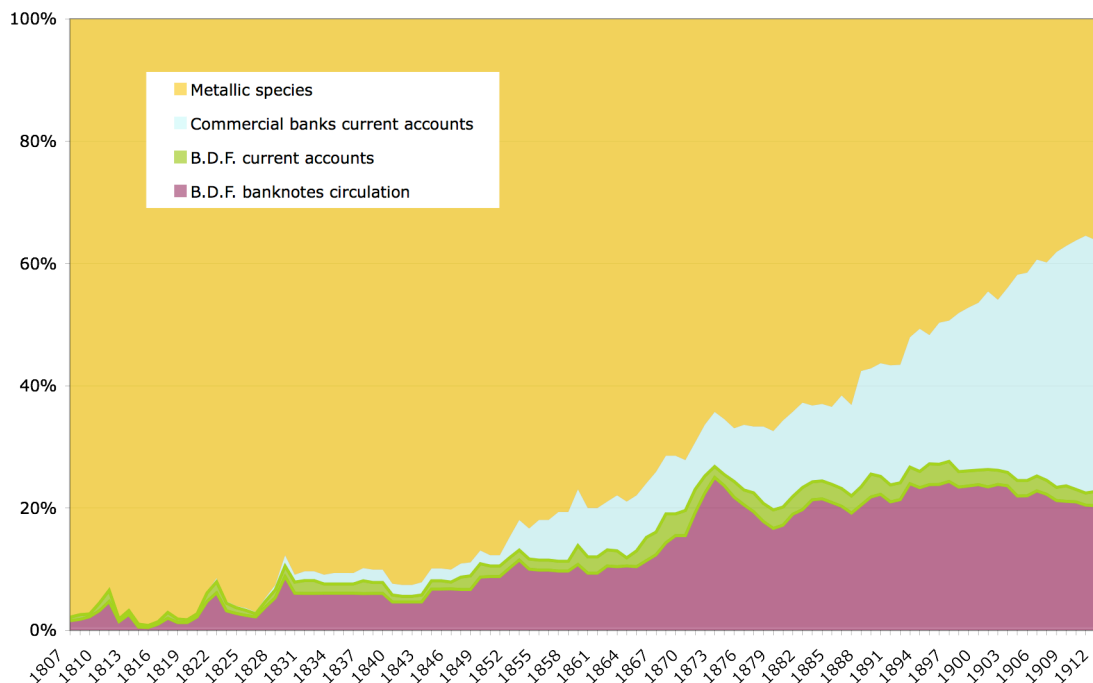
²⁸ Annhis is a scientific dataset program based upon the Banque de France's archival sources and launched by Profs. Olivier Feiertag and Michel Margairaz. I am particularly grateful to them for the opportunity they gave me to prepare the weekly balance sheet dataset, covering the 1840-1998 period. The 1898-1974 part of the dataset is already published on the Banque de France's website.

²⁹ Thanks to Michel Lescure, new figures of French bank deposits on the eve of WW1 are emerging. But the data gathering is not completed yet.

Graph 2: Michelle Saint Marc's French money supply breakout (in value)



Graph 3: Michelle Saint Marc's French money supply breakout (in %)



These figures support the traditional view of a backward French monetary and banking system, as demonstrated by the overwhelming role of specie in the money supply. Things start

to change only at the beginning of the 1850s, which is actually quite late according to international standards³⁰,

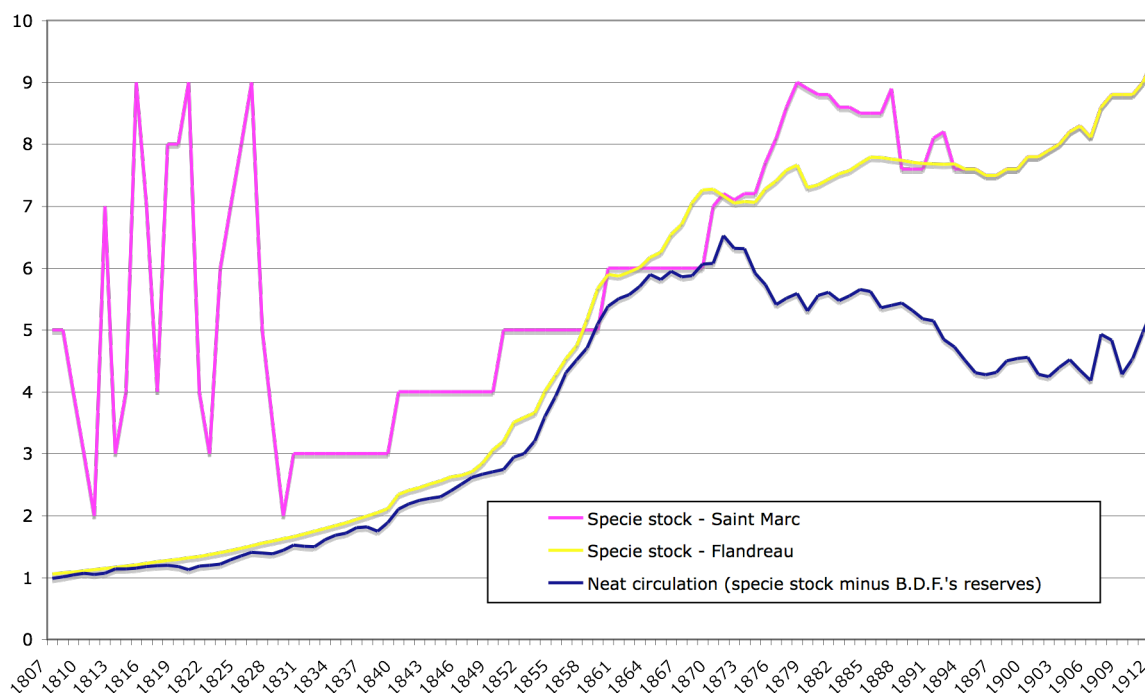
But as we can see in Graph 2, the accuracy of the specie circulation seems rather fuzzy until the 1870s. This means that, using later works, we can check whether this general image of a backward, specie obsessed, country stands.

To do so, we used Marc Flandreau's 1840-1878 series, which is the most accurate at hand, but exists only for these 39 years. After 1878, the differences between Flandreau and Saint Marc are not very important, and as a temporary solution, we averaged the difference between Saint Marc and Flandreau in 1878 to reduce it progressively (by 15th) until 1893, when figures start to be much more reliable. From 1807 to 1839, we used a gross method, by computing the exponential value of the trend of the 1840-1860 series (after 1860, France issues an enormous amount of gold coins, the famous "napoleons"). The main biases of this method are that it reduces the amount of specie available inside the French Empire during its last years of prosperity (1807-1810) and do not take into account the outflow of specie following the defeat and the war indemnity. But, after 1820, it gives a more coherent, though not exact, approximate value of the specie stock. Then, thanks to the new Annhis series, we reduced these figures by the amount of specie in the Banque de France's vaults, in order to get the neat value of specie in the money supply. Graph 4 shows the comparison between Saint Marc and the new series. The changes induced by the new data used, are quite important, as shown in Graph 4.

Our banknotes series (Graph 5) is very similar to that of Saint Marc, except during the 1818-1848 period, where she failed to take into account the "Banques départementales" (district banks) emission and used averages actually calculated on a quarterly base by the Banque de France itself. Alas, we have not yet good estimations of district banks's banknotes circulation before 1837. Moreover, some qualitative evidences prove there were other banknotes, unauthorized, circulating in provincial towns. But we may consider their overall impact was minimum, as was emergency issuing during the Franco-Prussian War (1870-1871).

³⁰ One should not only compare to United Kingdom, but also to industrialized countries like Belgium, or more peripheral countries, like United States and Sweden. On Sweden, see Anders Ögren's paper on this session: "Sweden's Monetary Internationalization under the Silver and Gold Standards, 1834-1913".

Graph 4: Comparison between Saint Marc's specie circulation and new figures, in billion FF



Last, we have to include bank deposits. As explained supra, we must not include saving accounts, as is still the case today, in the money supply (M1). But the main difficulty is the paucity of figures and the tendency of most authors to build global figures based upon rather vague assumptions, for example that the four biggest French banks deposits were roughly equivalent to half of the total banking accounts in the country³¹. One reason it is problematic is that local and provincial banks were thriving in nineteenth century France³², and that they encountered a steady decline with the growth of the largest joint stock banks, from the 1860s on³³. Since we have reliable figures for the bigger banks only since then, it is almost impossible to figure out on sound evidence what banking deposits represented before 1870. And afterwards, one still has to make assumptions on the share of the largest banks in the total banking deposits.

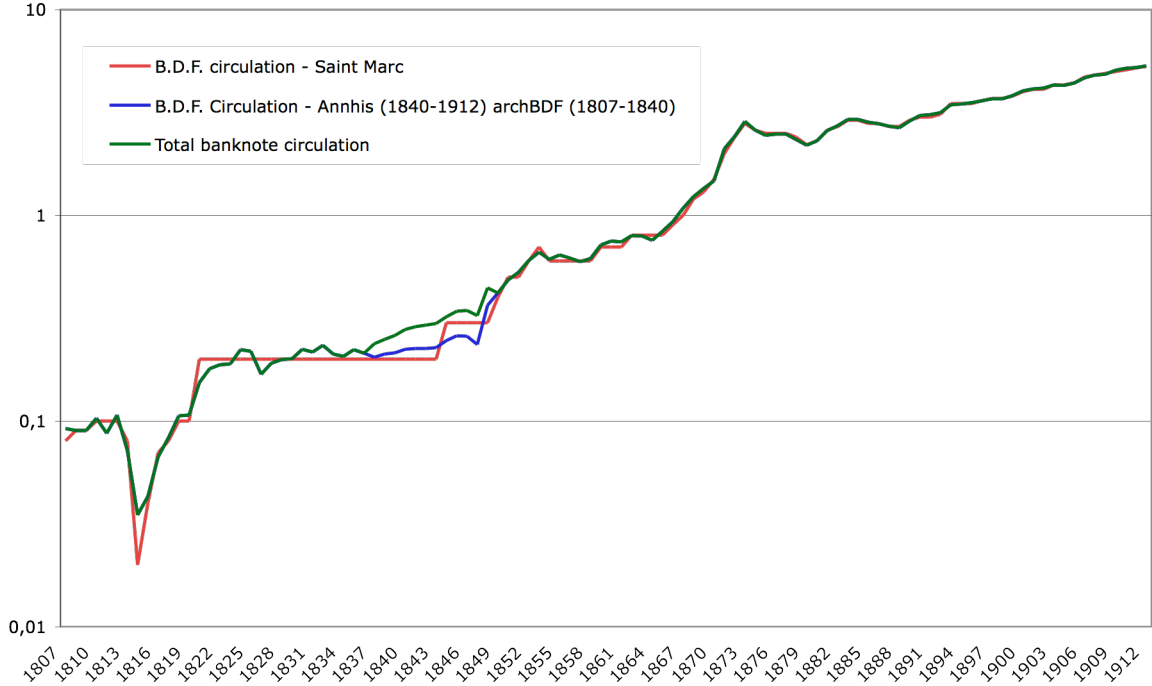
Another problem is that of the Banque de France. On the one hand, a large part of the Banque de France's deposits must have been other banks's current accounts: should these deposits be included in the money supply – which would mean double counting? On the other hand, it is almost impossible today to try to discriminate between banks' and other's deposits. Quite similarly, some banknotes were in the banks, and should not be counted as circulating, but we have no figures about that during the nineteenth century.

³¹ See for example Georges-François Teneul, *Le financement des entreprises en France depuis la fin du XIXe siècle à nos jours*, Paris, LGDJ, 1961, p. 20.

³² Alain Plessis, "Le 'retard français' : la faute à la banques ? Banques locales, succursales de la Banque de France et financement de l'économie sous le Second Empire", in Alain Plessis, *Histoires de la Banque de France*, Paris, Albin Michel, pp. 183 sq.

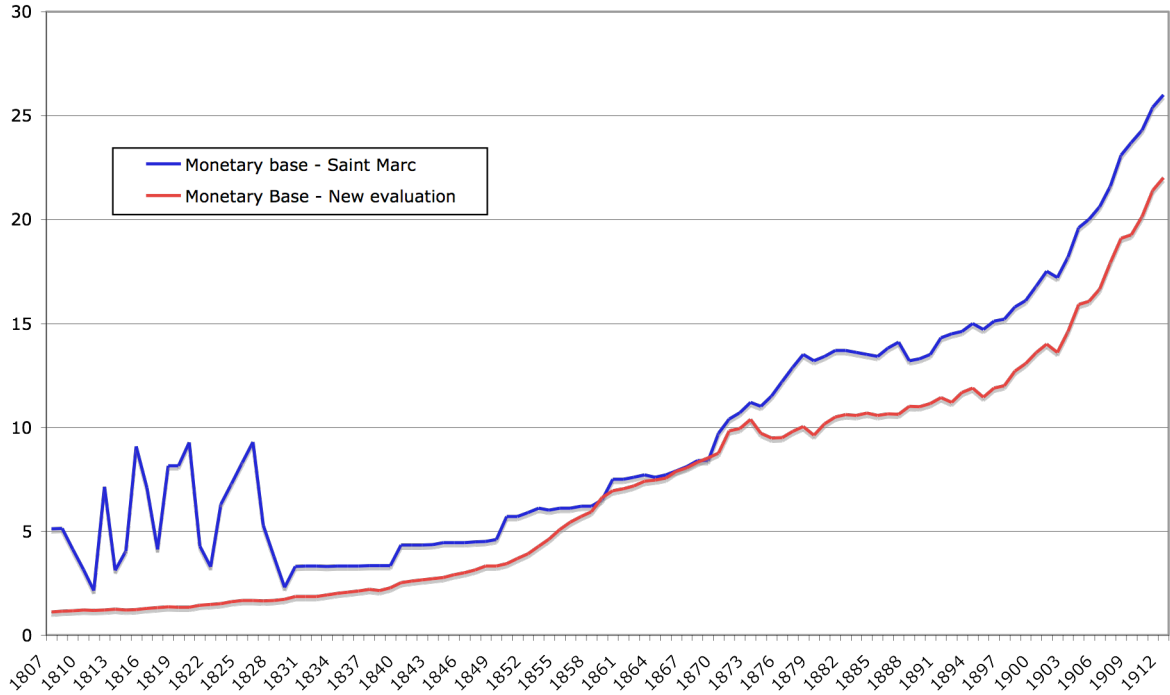
³³ Kaufman Eugen, *La Banque en France: considérée principalement au point de vue des trois grandes banques de dépôts*, Paris, Giard et Brière, 1914, p. 162.

Graph 5: Comparison between Saint Marc’s banknotes circulation and new figures, in billion FF



The simplest way is to use the very precise figures we have for the Banque de France’s banknotes and current accounts, and, for the time being, to keep Saint Marc’s banking deposits figures. The two evaluations of the money supply (M1) can be compared in Graph 6.

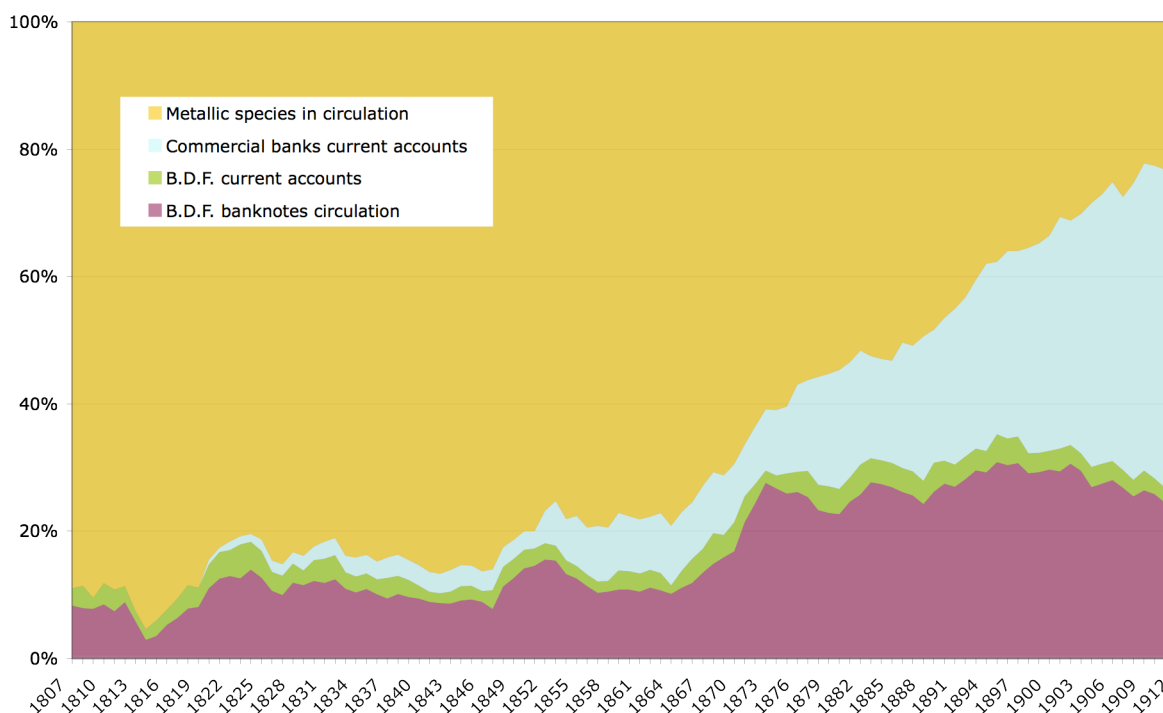
Graph 6 – Comparison between two evaluations of the money supply (M1), in billion FF



The trends are very similar, and, of course, Michelle Saint Marc did not draw strong conclusions from the very strong peaks linked to very differing specie evaluations at the

beginning of the nineteenth century. nevertheless, the differences are not negligible, but are better explained by the breakout of the new series as compared to the former one (Graph 3), as shown in Graph 7.

Graph 7: New money supply series breakout



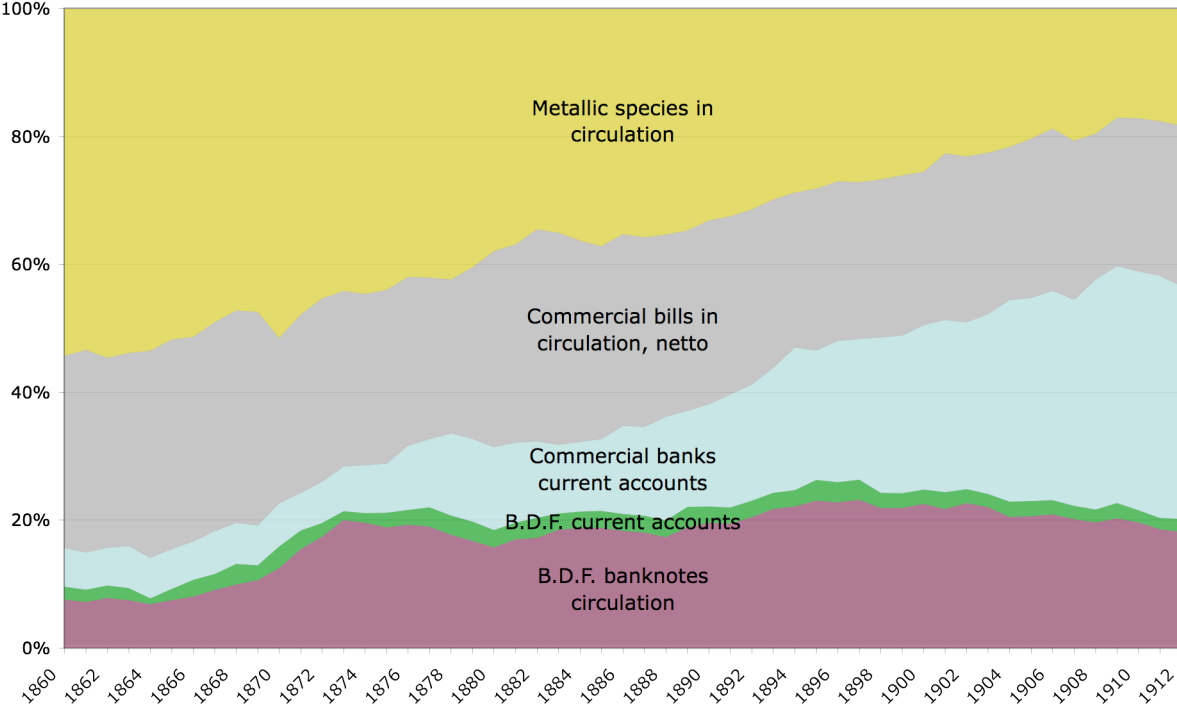
As is easy to see, the share of specie is very strongly reduced, and the move towards a modernization of the monetary structure is visibly starting as early as the late 1840s, in relation to the boost induced by the crisis in banknotes circulation. In Saint Marc's evaluation, specie still represented about 40% of the money supply on the eve of WW1. The new series reduce this proportion to barely more than 20%. The very image of a monetary backward country is shattered, and France comes back into the group of Western countries already exemplified by its output or financial development. Qualitative and quantitative evidence would even indicate that the move towards more "modern" means of payment was even stronger. Gaston Roulleau showed that, during the years preceding the war, French people hoarded specie, reducing its monetary role³⁴, while the Banque de France, as soon as the 1870s, had to cope with the preference of people for banknotes rather than large denomination coins³⁵.

³⁴ Gaston Roulleau, 1914, pp. cit.

³⁵ "M. le Gouverneur explique le maintien du chiffre élevé de la circulation fiduciaire par le goût que le public montre pour les billets qu'il préfère au numéraire et qui l'a porté à demander en plus grand nombre les coupures de 1000 francs et de 500 francs dont le chiffre s'est notablement accru.", Séance du 14 février 1878 du Conseil de régence de la Banque de France, Archives de la Banque de France.

These differences are even more dramatic if we include bills of exchange in the picture. As we explained before, bills circulated on a large scale at the beginning of the nineteenth century. They did not at the end of the century, but, by then, their average and minimum amounts had greatly decreased, making at least some of them substitutes to other means of payment, particularly suited for inter-regional payments. If we add these bills, only from 1860 on (to avoid double counting), we obtain Graph 8:

Graph 8: New monetary series breakout, including commercial bills, 1860-1912



Nonetheless do metallic specie is reduced to less than 20% of overall circulation in 1912, but its share is also greatly reduced as soon as 1860, to a large half of total circulation. If we just want to concentrate on the question of backwardness, this graph is relevant, since it proves the extensive use of rather complex means of payment, made possible only through the set of banking institutions that already operated smoothly as soon as the middle of century.

B. Coping with structural change and monetary substitution: a decennial series

The previous annual series, still incomplete and approximate, fail on two major points. First, they are based upon a money supply definition which is actually a twentieth century definition and that differs from what we can learn of payment practices by numerous qualitative sources. Second and consequently, they do not consider the substitution effects between the various monetary tools and means of payments linked to the transformation in monetary institutions and practices.

A very good example of that is the role of the bills of exchange. The alternative versions of the money supply – with or without bills of exchange – do not make much historical sense, in that either they give too much importance to bills in the latter periods, or too little in the beginnings of the nineteenth century (by the way, the graph started only in 1860).

But on the other hand, the scarcity of sources means it is very difficult to propose a yearly series. Anyway, that would not make so much sense, since the issue here is to evaluate structural transformations into the money supply, which will appear by comparing its breakout at different periods.

We propose here to discuss the possibility of building a money supply series including structural changes. This series will try to answer two main questions:

- the diminishing role of bills of exchange into the monetary base;
- the substitution effect between bills and banknotes.

A third issue would be to consider the respective velocity of the different categories, but that is still beyond our reach, even if some new data is emerging³⁶.

a. The diminishing role of bills of exchange

At the beginning of the nineteenth century, bills of exchange still circulated widely: they were not discounted by a bank and then kept in its portfolio until maturity. They were rather used by the creditor to settle other debts and, when coming into the hand of a banker, he would use it to balance payments from one financial centre on the other or to speculate on change (either within national borders³⁷ or outside national borders).

A qualitative evidence of this phenomenon can be found in the difficult times the Banque de France encountered in the 1820s, when it could not find enough bills to discount, either because bankers held the best ones and would not sell them to it, or because they circulated between merchants³⁸.

A quantitative evidence can be found in three complementary series:

- the average maturity of the Banque de France's portfolio³⁹;
- the average value of the bills discounted and/or drawn;
- the ratio between the bills discounted by the Banque de France and the bills cashed by the Banque de France.

Indeed, because the Banque, until 1879, cashed bills for free on account of their bearers, it received an important amount of bills less than three days before maturity, which the Banque de France's cashiers would present to the debtors. These "effets au comptant" (bills at view) then played an important part in the Banque de France' cashing activity. The impact of the Banque de France on bill drawing was enhanced by this free cashing service and, after 1836, by the rapid growth of its branches network that extended bill cashing to the provinces.

By combining Roulleau's series and archival sources we can build a complete yearly series of bills at view and almost complete series for the average values of bills. But we still have to build a series of the average maturity of the Banque de France's portfolio. Graph 8 shows,

³⁶ As I attempted to show in a work on progress about the monetary dimension of the great depression in France, following the Franco-Prussian 1870-1871 war. See P. Baubeau, "The Franco-Prussian War and the Monetary Triggering off the Great Depression in France, 1870-1879", Paper presented at the Nanterre June 19-20 2008 Conference on "War, Money and Finance", downloadable on <http://web.mac.com/patrice14/HistoireFinanciere/WMF-Papiers.html>

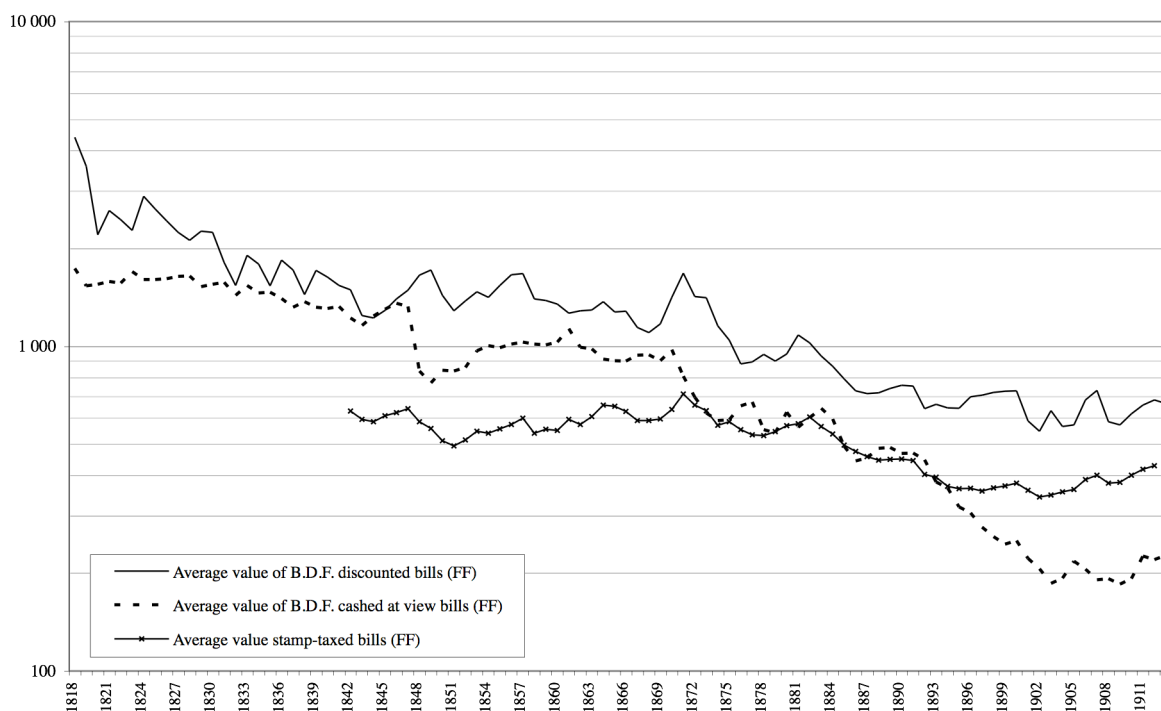
³⁷ An internal change, in the form of a difference with the par, existed within France until 1848. By then, the banknote unification under the Banque de France's monopoly led to its disappearance between major financial centres. A different version of it then emerged, in the form of local money at call interest rates, and of higher interest rates in secondary centres were the Banque de France had not opened a branch yet.

³⁸ Patrice Baubeau, *Les "cathédrales de papier" ou la foi dans le crédit. Naissance et subversion du système de l'escompte en France, fin XVIIIe – Premier XXe siècle*. Thèse pour le doctorat d'histoire sous la direction de Michel Lescure, Université Paris X Nanterre, 2004, pp. 211 sq.

³⁹ This series has not been collected and computed yet.

mainly from Roulleau's series, the average value of discounted and cashed at view bills by the Banque de France and Roulleau's own calculation of the average value of circulating bills.

Graph 8: Average value of different bills of exchange sub-categories (source: Roulleau)



The general trend is very clear: the average value of bills kept decreasing during the whole century. This trend could be linked with the parallel reduction in the average value of banknotes, but this general link appears rather weak. What we want to underline here, are two phenomenon:

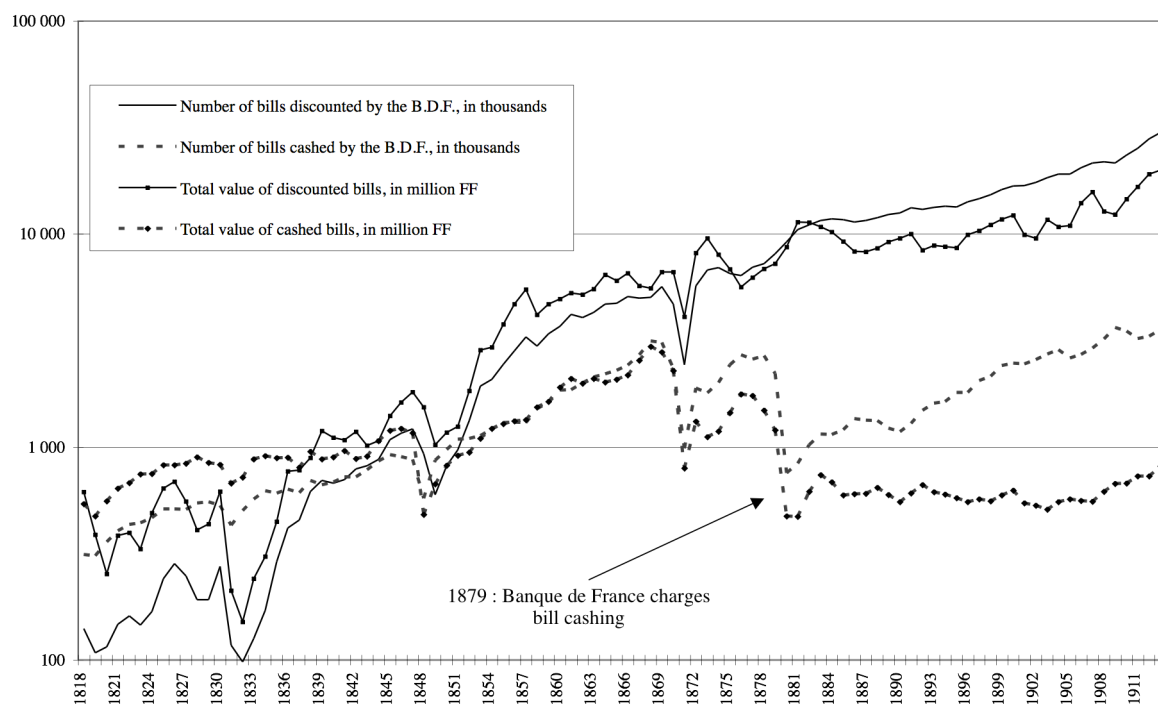
1. The decline in the average value of BDF's discounted bills is faster than that of stamp-taxed bills.
2. The decline in the value of cashed at view bills is even steeper, especially after 1891.

Before the Franco-Prussian war (1870-1871), bills cashed by the Banque de France were on average of a higher value than stamp-taxed bills, but of a lower denomination than bills discounted by the Banque. This phenomenon is linked to several factors: starting 1871, a higher stamp-tax was levied on bills of exchange (and other financial and monetary issuances, including banknotes). As is visible here, this did not affect immediately the average value of bills. But, at the same time, the Banque de France faced higher charges, and fought to reduce all the extra costs possible. One of these extra charges was the free cashing of bills, which grew by then at a very rapid pace. Starting 1879, the Banque de France's board levied a charge on cashed bills.

Both measures had a paradoxical impact, as can be seen on Graph 9. Until the war, cashed and discounted bills had had an approximately parallel evolution (Graphs 8 and 9). But from then on, there was a growing divergence: after the post-war crisis, discounts, fuelled by extended branching, kept growing. On the contrary, cashed bills level hardly recovered in 1878 the pre-war level and then, following the 1879 decision to charge cashing, fell to a very low level. This fall cannot be attributed only to the number of bills cashed (Graph 9), but mainly to the average value of those bills (Graph 8). In fact, the new charge was levied mainly on those who could not use another mean of payment (like cheques, which were legalized, roughly speaking, in 1865).

My conclusion is that this event helps us to discriminate, among bills, between the ones used as credit and transfer instruments and the others used mainly as cash substitutes during the 1870s and 1880s.

Graph 9: Total value and numbers of bills cashed or discounted by the Banque de France



As a first approximation, we can use the Banque de France cashed bills as a proxy for “money supply bills” after 1871. The remaining question is: what about bills before 1871?

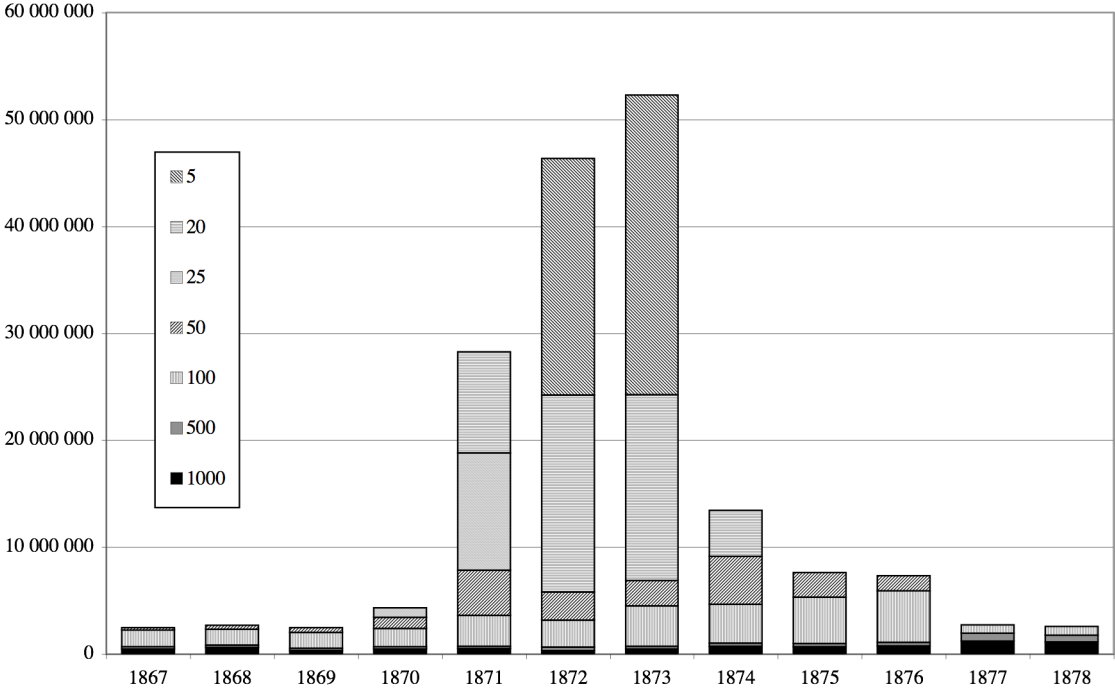
b. The substitution effect between bills and banknotes

It is before 1871 that the substitution effect between bills and banknotes is crucial. Indeed, starting 1870, banknotes circulation quickly increased and, more important, its structure was dramatically changed by the masse issue of smaller denomination banknotes (Graph 10). Beforehand, the main denominations were 1 000, 500 and 200 francs, very large denominations indeed, 1 000 francs being over the annual province worker’s wage⁴⁰. Among the banknotes issued by the Banque de France, we know some were not circulating, most notably old “Banques départementales” (districts banks) banknotes issued before 1852 and the seven 5 000 banknotes; but even combined, these banknotes represent a very small amount. All the other banknotes must be considered as circulating, at least between 1848 and 1870, as is shown by the banknotes movements in the Banque de France’s annual reports. The correction in circulation between 1848 and 1870 are therefore very limited.

⁴⁰ In the absence of a recent wage history in France, examples can be drawn from Alain Dewerpe, *Le monde du travail en France, 1800-1950*, Paris, Armand Colin, 2^e édition, 1998. A weaver in Mamers earned 543 FF a year in 1850 and a mule-jenny worker in Mulhouse, during the 1850s made about 840 FF a year, but much lower examples can be found, p. 54. In 1906, the average Paris worker family budget is estimated at 2 353 FF (p. 145) for four persons, but an apparel sweatshop female worker in Paris made only 600 FF a year in 1913 (p. 111).

It is not the case before 1848, for two main reasons. First, from 1820 to 1847, the Banque de France’s discount rate remained completely stable at 4%, while the inter-bank rate was moving and, most of the time, under the Banque’s for first-grade bills. Second, as a joint-stock company, the Banque tried to maximise its profits, and to do so relied on quantitative restriction of its discount activity, a policy based upon its banknotes emission monopoly in the Seine district⁴¹, by far the richest in France: the average circulation remained remarkably stable, until 1847, at around 200 million French francs. If the Banque had tried to promote its banknotes, its emission policy would have been on a trend of catching up with bill circulation.

Graph 10: Number of banknotes issued, by denomination, and war



But, as shown in Graph 11, it was far from being the case.

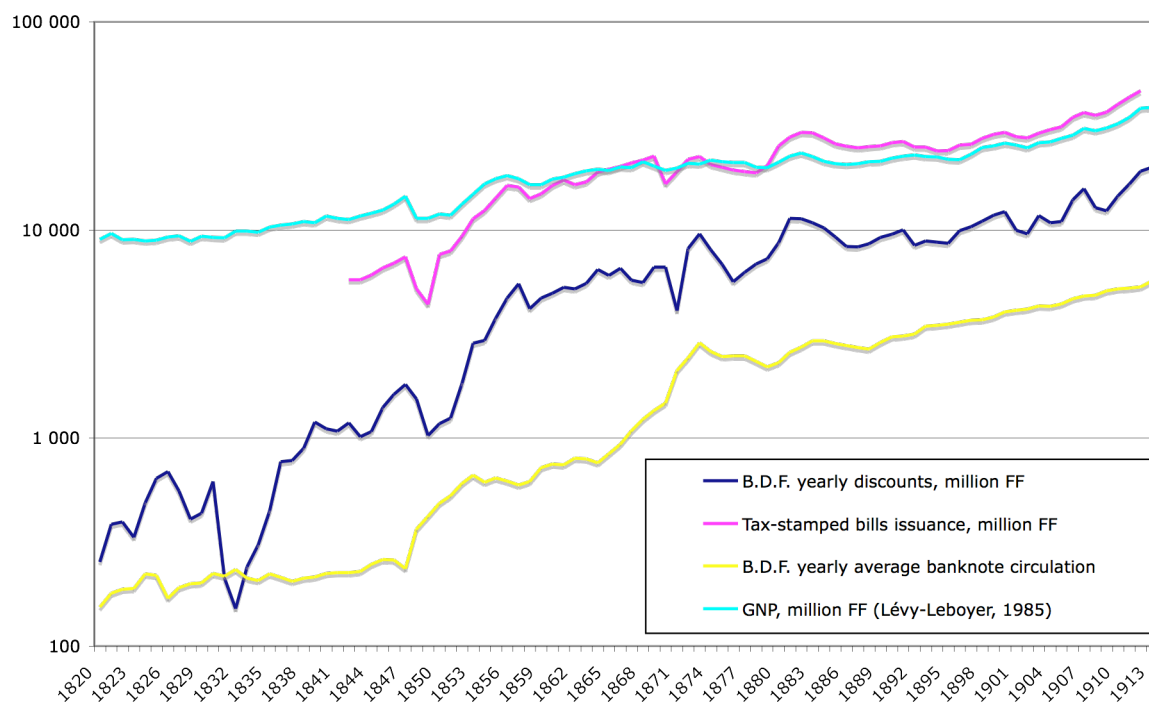
⁴¹ Antoine Gentier, “Les origines monétaires de la crise de 1848: une analyse microéconomique du comportement de la Banque de France entre 1842-1849”, mimeo, 2004, 21 p.

Graph 11: B.D.F.’s “restriction” policy towards banknotes circulation



On the contrary, from 1848 onward, the average banknote circulation grew at a comparable pace with discount and bill circulation at large (Graph 12) and much faster than GNP⁴².

Graph 12: Bill monetization during the nineteenth century



⁴² The series used here is Maurice Lévy-Leboyer’s. Jean-Claude Toutain’s would be as suitable.

If we also remember that until 1847 the smallest banknote denomination was 200 francs, this could mean that the banknote was more or less a substitute to bills. This perspective is confirmed by three facts. First, the banknotes were still counted, at the time, among “effets commercçables” (tradable bills), i.e. financial or monetary papers that could be bought and sold among merchants. Second, the Banque de France opposed, long after 1848, the use of banknotes in everyday consumer life: in its opinion, and along Smith’s theory⁴³, banknotes were not suitable as a substitute for money, and especially for small change. They were to be used predominantly between merchants and for commercial purposes⁴⁴. They simply represented a much more convenient way to settle transactions, and allowed trade extension beyond closed networks of confidence. Third, until 1848, bills were quite frequently endorsed by more than two persons, which testify they circulated. But on this last point we lack any quantitative evidence.

But a problem arises here: we do not have any estimation of bill issuance and circulation before 1842, the year the stamp tax was put to effect. The only way to overcome this limitation is to use the yearly BDF’s discount as a proxy. As we can see in Graph 12, the correlation between the two series is very good: the computed correlation of the two series is 0,98, which means their trends are very much the same. Because what interests us here is the trend, we could use this approximation. As Graph 13 shows, BDF’s discounts tended before 1848 to evolve faster than bills drawing, in growth or in decline, with a six month to one year lag effect: it is an example of the pro-cyclical impact of the Banque de France’s policy. If we take into account the high correlation of the two series, on the one hand, and this accelerating effect on the other, we should be able to propose an approximated value of bills circulation from 1820 to 1839, even if this sounds a bit fragile.

Conclusions

This papers tried to show, first, that a major factor of the French nineteenth century monetary history had been the impact of the Banque de France’s policy, which itself reacted to various environmental pressures, like crises, wars, growing concurrence and fiscal or other governmental policy. One consequence of this is the need to propose new evaluations of the French monetay supply, twenty-five years after the groundbreaking work of Michelle Saint Marc. But in doing so, we were confronted with the structural change of that money supply. Actually, the general definition used by Michelle Saint Marc suits perfectly our project: “Money is a liquid mean of payment, directly transferable and of foreseeable value”⁴⁵. Nevertheless, she did not include bills in her monetary base evaluation, a shortfall already highlighted by Maurice Lévy-Leboyer⁴⁶.

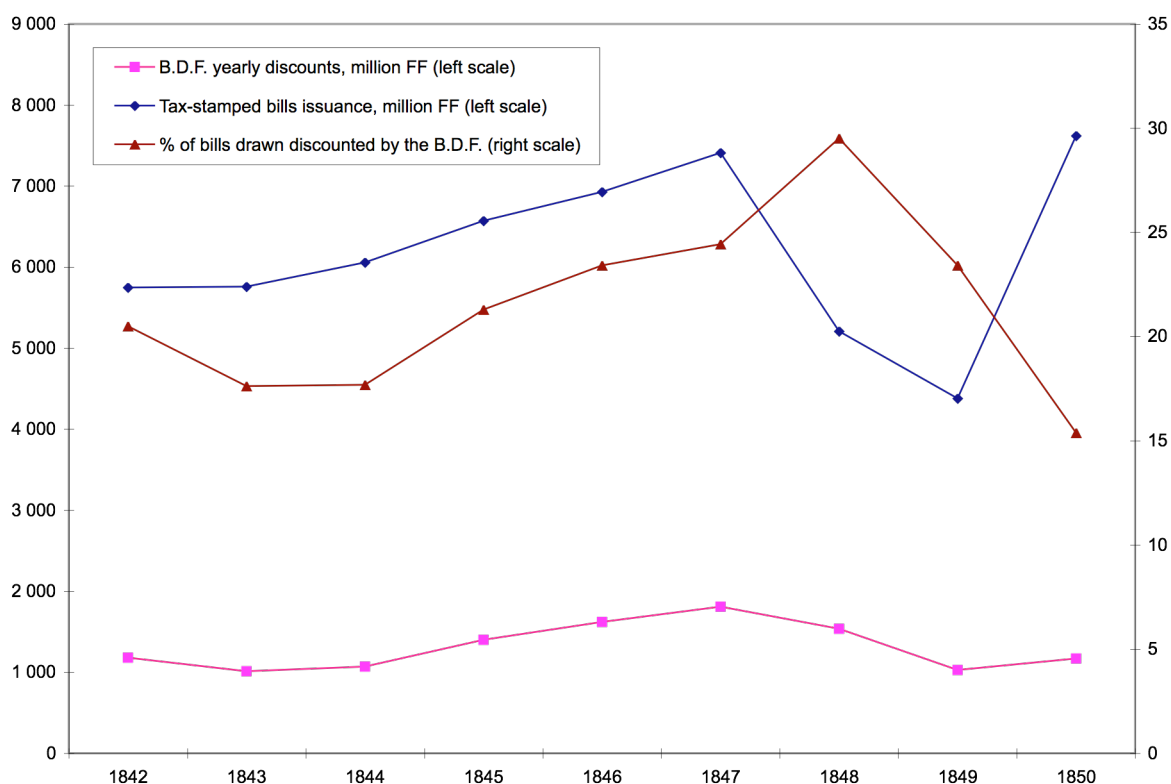
⁴³ Gilles Jacoud, “L’influence de l’analyse de la monnaie de papier par Adam Smith sur la théorie et les pratiques monétaires françaises”, *Economies et Sociétés, Série Histoire quantitative de l’économie française, A.F.*, n° 18, 3/1994.

⁴⁴ P. Baubeau, “A reluctant sympathy to markets: the birth of the “discount system” in France, 18th-19th Centuries”, working paper presented at the Historicizing Capitalism Workshop, Paris Session, October 13th-14th, 2007. I am deeply grateful to Patrick Verley for its in-depth reading and its comments on this WP.

⁴⁵ Michelle Saint Marc, op. cit.

⁴⁶ François Bourguignon and Maurice Lévy-Leboyer, op. cit.

Graph 13: The correlation between bills issuance and BDF's discounts, 1840-1848



One good reason Michelle Saint Marc had not do so is the evolving role of bills of exchange from a monetary point of view. Monetary substitutes at a time when specie transfers were costly – so much so that a bill of exchange was often more valuable for transfer purpose than specie – that is until 1848, when a comprehensive branching bank system was established, bills lost this role afterwards, but progressively. We propose a three-periods transition:

1. From 1800 to 1848, the money supply should include all circulating bills, minus monetized bills, that is bills discounted by the Banque de France.
2. From 1848 to 1879, the money supply should include only cashed at view bills and the bills drawn minus those discounted by the all the banks, commercial or central.
3. After 1879, only cashed at view bills should remain. A sensible correction to that would be to limit the cashed at view bills taken into account to those whose value is under the banknotes denomination average, which would progressively eliminate bills from the money supply, in parallel with the progress of banking and modern forms of money.

Some smoothing could be done to soften transitions. But, most of all, such an evaluation remains to be done. But what we intended here was to propose some rationale about alternative evaluations of the monetary base in times of structural change. In doing so, we also corrected the classical monetary series, drawing a picture of French nineteenth century monetary history that let it looks far less backward than its is often assumed. This “modernization” of the French monetary base helps explain its financial development, and especially the global emergence of Paris as the second financial centre in Europe⁴⁷. Monetary flows organized through institutional arrangements, and especially through the Banque de France’s channel, did play a role in this financial position. But contrary to London, the

⁴⁷ Youssef Cassis, *Les capitales du capital. Histoire des places financières internationales, 1780-2005*, Paris, Champion, 2008, 453 p.

Banque de France’s development led – and this is also opposed to most accounts concerning France – to a high degree of monetary decentralization, even if monetary power concentrated more and more in Paris. The under-evaluated role of bills of exchange and Graph 14 help explain this paradox:

Graph 14: BDF’s discounts breakout between Paris and Provinces

