

Flight-to-safety and the credit crunch: a new history of the banking crises in France during the Great Depression[†]

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Despite France's importance in the interwar world economy, the scale of the French banking crises of 1930–1 and their consequences have never been fully assessed quantitatively. The lack of banking regulation severely limited the availability of balance sheet data. Using a new dataset of individual balance sheets from more than 300 banks, this article shows that the crises were much more severe than previously thought, although they did not affect the main commercial banks. By reconstructing financial flows, this study shows that the fall in bank credit was mostly driven by a flight-to-safety by deposits, from banks to savings institutions and the central bank. The decrease in bank deposits due to bank runs was offset by an increase in deposits with savings institutions, with the central bank, and in cash hoarding, whereas the decrease in bank credit was not offset by an increase in loans from non-bank financial institutions. In line with the gold standard mentality, cash deposited with savings institutions and the central bank was used to decrease marketable public debt and increase gold reserves, rather than pursuing countercyclical policies. Despite massive capital inflows and rising aggregate money supply, France suffered from a severe, persistent credit crunch.

Despite the importance of the French economy and the international role played by its central bank during the interwar period,¹ a comprehensive picture of the French banking crises during the Great Depression is lacking due to the absence of data. French banks were unregulated until 1941: there was no legal definition of banks, nor was there a supervising authority that collected bank statistics. There is no quantitative historical research on the French banking system before

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¹ Kindleberger, *World*; Mouré, *Managing*; Eichengreen, *Golden fetters*; Johnson, *Gold*; Irwin, 'France'.

1945 equivalent to that of Hoffman et al. on notarial credit during the nineteenth century.²

Bouvier's work in the 1980s showed that some French banks failed in 1930–1.³ More recently, other French historians showed that bank panics occurred, but they only partially disputed Bouvier's conclusion that the French banking system remained in good shape.⁴ Failing banks are thought to have been very few in number, while the only major one in distress (the Banque Nationale du Crédit) was bailed out by the government and then continued its business.⁵ Surviving banks may have quickly replaced the activity of failing ones. As stated by Lacoue-Labarthe in the most recent literature review on the matter: 'Economists and historians acknowledge several episodes of local banks runs in France during the early 1930s. They consider generally that the consequences of this phenomenon were not as important as in other countries, and that bank closures rather improved safety and soundness in the banking industry'.⁶

The same ambiguity exists in international literature on the Great Depression. Although international datasets on dates of banking crises suggest that a banking panic occurred in France around 1930,⁷ the prevalent narratives state that the crises were in fact minor and the French banking system was resilient.⁸ This strong conclusion is supported by the available monetary statistics. The deposits of four to six main French banks—the only ones used in previous scholarly investigations—were stable between 1929 and 1932. Quantitative studies using an aggregate of French deposits or credit over the period are based on this limited set of banks, and it is assumed that they always represented half of the total banking system from 1900 to 1945.⁹ The discrepancy between information on bank failures, on the one hand, and the stability of aggregate data on bank activity in 1930 and 1931, on the other hand, supports the narrative of a resilient banking system. In this vein, the difficulties of French banks are sometimes assumed to have occurred later than in

² Hoffman, Postel-Vinay, and Rosenthal, *Priceless markets*; eisdem, *Dark matter*.

³ Bouvier, 'French banks'.

⁴ Bonin, *Les banques françaises*; Lescure, 'La crise bancaire'; Straus, 'La politique'.

⁵ The BNC experienced a bank run in Sept. 1931 and was bailed out by the government in Oct. Consequently, the 1932 liquidation and reorganization of the BNC into a new bank—Banque nationale pour le commerce et l'industrie (BNCI)—did not incur significant losses for depositors (Bonin, *La Banque Nationale de Crédit*) and had no direct consequences for money and credit.

⁶ Lacoue-Labarthe, 'La France', p. 633. From his critical review, Lacoue-Labarthe inferred that bank failures could have damaged the banking system. Although he was unable to prove his arguments quantitatively, he suggested that the number of bank failures should prompt historians to re-examine the common vision of the Great French Depression.

⁷ Bernanke and James, 'Gold standard'; Grossman, 'Shoe'; Schularick and Taylor, 'Credit booms'. In their widely used recent datasets of historical banking crises, Reinhart and Rogoff, in *This time is different*, code a banking crisis dummy 1 for 1930, 1931, and 1932, and Schularick and Taylor, in 'Credit booms', code a dummy 1 for 1930 only. These disagreements are evidence of a lack of consensus on the French banking crises in the literature. Since these datasets use monetary statistics from Saint Marc, *Histoire monétaire*, their crisis dummy variables are not associated with a decline in the activity of the banking sector between 1929 and 1932.

⁸ For example, Kindleberger acknowledges that some French banks failed and others were bailed out but, following Bouvier, he eventually states that 'French banks escaped the difficulties of the rest of the continent'; Kindleberger, *World*, p. 134. For similar statements, see Feinstein, Temin, and Toniolo, 'International economic organization', p. 40; Wolf, 'Scylla'; James, *Creation*, p. 40.

⁹ Mignet, 'Etude statistique'; Bouvier, 'French banks'; Saint Marc, *Histoire monétaire*; Patat and Lutfalla, *Histoire monétaire*; Bernanke and James, 'Gold standard'; Jonker and van Zanden, 'Method'; Mitchell, ed., *International historical statistics*; Schularick and Taylor, 'Credit booms'; Bridji, 'French Great Depression'; Fratianni and Giri, 'Tale'; Wolf, 'Scylla'.

other countries and are attributed to France's obstinate and deflationary adherence to the gold standard until 1936, rather than banking distress in 1930–1.¹⁰

In this article, we provide a different narrative of the French 1930–1 banking crises, based on a new, comprehensive dataset of individual annual balance sheets from over 300 banks during the interwar period (355 banks appear in our dataset between 1920 and 1938, with a maximum of 271 in 1928). These new statistics show that the impact of bank distress on total banking deposits and credit was much more severe than previously thought. Between the end of 1929 and the end of 1931, both the total amount of deposits and the number of banks in the dataset declined by 20 per cent. However, the crises were asymmetrical: the four large commercial banks (on which previous statistical studies were based) did not suffer from the crises, but the remainder of the banking system lost 40 per cent of deposits. Based on this picture, the French banking crises no longer appear to be of minor importance compared to that of other countries. While previous statistics showed that French bank deposits were stable in 1930–1 (as in the UK), our new series shows that they declined (as in the US). For comparison, researchers of the Great Depression in the US would not have assessed the influence of banking panics if their research had been based on statistics from major New York banks that experienced little distress during the nationwide banking panics of 1930–1.¹¹

The second contribution of the article is to provide detailed analyses of the transmission mechanisms of the crises, which have broader implications for international literature on the Great Depression and banking panics in history. The objective is to assess whether banking distress led to a major credit crunch—and if so, why. The drop in credit and deposits could be primarily driven by declining economic activity, rather than by bank runs. In this case, deposits decrease mechanically because loans are not renewed. We address this issue by examining what happened to bank deposits. Through a detailed reconstruction of frozen deposits, banknote circulation, and total French financial flows (including inflows of international capital), we are able to provide quantitative estimates showing that the drop in credit in 1930–1 was due to a drop in deposits, itself mostly caused by a withdrawal of funds, from banks to non-banks (savings institutions). In the absence of any banking regulation or deposit insurance, depositors transferred their funds from the banking system to state-guaranteed savings institutions, the *caisses d'épargne*—which in turn financed the Treasury—as well as to the central bank.¹² Thus, the primary channel that led from bank distress to a credit crunch was a flight-to-safety. A credit crunch occurred because the institutions that eventually received funds (that is, *caisses d'épargne* and the central bank) did not lend those funds to businesses. The French Treasury used cash deposited in the *caisses d'épargne* to reduce marketable government debt. The Banque de France devoted the bulk of its excess money to the accumulation of gold reserves.¹³ In

¹⁰ Grossman, 'Shoe'; Eichengreen, 'Understanding'; James, *Creation*.

¹¹ Friedman and Schwartz, *Monetary history*; Mitchener and Richardson, 'Network contagion'.

¹² Either directly by purchasing government securities or indirectly by depositing cash at the Caisse des dépôts et consignations (CDC), which operated as a debtor current account in favour of the Treasury.

¹³ Mouré, *Managing*; Johnson, *Gold*. This practice is reminiscent of the famous thesis of Friedman and Schwartz, *Monetary history*, about the absence of reaction to banking panics by the US Federal Reserve. Jorge-Sotelo, 'Limits', also documents that in the 1930s, the Banco de España followed a pattern of moderate lending, explained by its adherence to a gold standard *mentalité* due to international constraints.

other words, the decrease in bank deposits was offset by an increase in deposits with savings institutions and the central bank, and in cash hoarding, whereas the decrease in bank credit was not offset by an increase in loans from non-bank financial institutions. As a consequence, the ratio of total loans to non-financial corporations on total deposits (that is, with both banks and non-banks) decreased from 40 per cent to 20 per cent between 1929 and 1931, and only began to recover in 1936. Therefore, beyond the revision of French banking statistics and history, the general message of this article is that the mechanisms of a banking crisis, as well as its effect on domestic financial intermediation, cannot be assessed without data on non-bank deposits and credit.

By emphasizing the key role of non-bank financial institutions, the flight-to-safety channel that we identify is different from the monetarist interpretation of the Great Depression by Friedman and Schwartz (although we also document a drop in the money multiplier).¹⁴ It is also different from Bernanke's non-monetary interpretation of the US Great Depression that documents an amplification mechanism by which bank failures led to non-monetary effects because the cost of intermediation increased.¹⁵ We use our new financial series (for banks and non-banks) to show that if a non-monetary effect *à la* Bernanke was at work, it only explains a very small part of the decline in bank credit in 1930–1. Our argument is closer to Mitchener and Richardson's and that of Gorton and colleagues, who highlight the role of a flight-to-safety in interbank deposits during US banking panics.¹⁶ Yet, in contrast to the US, most flights-to-safety came from depositors during the French Great Depression. In a European perspective, the case of France during the 1930s is particularly striking because the credit crunch occurred during a time of foreign capital inflows, caused by Poincaré's monetary stabilization, then by the banking crises in eastern Europe, and finally by the devaluation of sterling during 1931.¹⁷ Our account of the crises explains how France could be a safe haven for international capital, while at the same time experiencing domestic bank runs.

I

France experienced two series of banking failures. One started in October 1930 and continued at least until February 1931. The second began during the summer of 1931 and lasted until early 1932, until completion of the bailout of the Banque Nationale de Crédit, one of the country's main deposit banks. The first wave of failures was caused by bank runs, triggered by the scandal of the Banque Oustric bankruptcy in October 1930. This was an investment bank that had recently taken over Banque Adam, a major regional bank mainly based in the north of France. The causes of the Oustric's bankruptcy are not yet fully understood, although

¹⁴ Friedman and Schwartz, *Monetary history*.

¹⁵ Bernanke, 'Nonmonetary effects'. Bridji, 'French Great Depression', simulates a general equilibrium model of the French Great Depression and identifies a role for financial frictions, like that in Bernanke's work. However, his simulations are based on the flawed monetary statistics described above. From a different perspective, Lescure, '1914–1918', argues that information asymmetries were essential to the French crises, caused by the tradition of discounting short-term paper, which prevented banks from establishing long-term relationships with customers.

¹⁶ Mitchener and Richardson, 'Network contagion'; Gorton, Laarits, and Muir, '1930: first modern crisis'.

¹⁷ Eichengreen, *Golden fetters*; Sicsic, 'Inflow'; Johnson, *Gold*; James, *Creation*; Accominotti, 'Sterling trap'; Irwin, 'France'.

corruption and short-selling on the stock market were certainly among them.¹⁸ The fall of Banque Adam—an institution that enjoyed a good reputation—arguably led to a contagion of fear among French depositors, in the context of an absence of banking regulation and no deposit guarantee.¹⁹

The crises were not unnoticed by contemporaries. For example, Lorient, an economist, wrote in 1931 that ‘an extremely intense crisis of mistrust’ had erupted in November 1930 and continued until spring 1931.²⁰ He also emphasized that the largest commercial banks had resisted the waves of withdrawals and even reinforced activities. The first series of failures was also apparent in the discussions of the board of the central bank. It led to a sharp surge in unpaid bills in the Banque de France daily balance sheet as early as October 1930, since the banks could not repay the bills they had discounted at the central bank.²¹

Despite evidence on failures and bank runs, previous studies have claimed that the French credit system did not suffer, because good banks could quickly replace the activity of failing ones.²² Following Bouvier, other French historians—Bonin, Lescure, and Straus—have shown that failures occurred among French banks.²³ Nevertheless, they do not resolve the ambiguity regarding the overall importance of the French banking crises during the Great Depression and their consequences.²⁴ The macroeconomic and financial picture of the crises remained highly imprecise, and the quantitative evidence to support the claim about the resilience of the French banking system is based on a very limited and biased set of data. Due to the absence of comprehensive data on bank balance sheets, all series of deposits have been reconstructed retrospectively on the basis of statistics from only a few large banks. Saint Marc and Mitchell use Mignet’s retrospective series published by the French National Institute of Statistics (INSEE) in 1952, which multiplies by two the amount of deposits held by four of the major commercial banks (that is, the Crédit Lyonnais, the Société Générale, the Comptoir d’Escompte, and the Crédit Industriel et Commercial) to approximate total deposits.²⁵ Researchers have commonly used these series of deposits and money supply ever since. Alternatively,

¹⁸ Bonin, ‘Oustric’; Lacoue-Labarthe, ‘La France’.

¹⁹ This contagion of fear throughout the country was observed by officials of the central bank: ‘the failure of Banque Adam had repercussions, not only in the north, but throughout France, on the public mind, and especially on small depositors’; Banque de France Archives, Paris (hereafter BFA), PVCG, 27 Nov. 1930; see also CLP, 4 Dec. 1930.

²⁰ Lorient, ‘Les banques’, p. 584.

²¹ Baubeau, Monnet, Riva, and Ungaro, ‘Flight-to-safety’.

²² See Lacoue-Labarthe, ‘La France’, for a critical review. The two standard books on the policy of the French central bank during the Great Depression (Mouré, *Managing*; Johnson, *Gold*) do not even mention a banking crisis. They focus mostly on the accumulation of gold by the central bank. As for historians of economic policy, Jackson writes that French banks were ‘faced with a minor banking crisis’ (Jackson, *Politics*, p. 26) and concludes by discussing ‘the stability of the French banking system’ (ibid., p. 43). Margairaz, *L’état*, whose study starts in 1932, does not speak about the consequences of a banking crisis for credit.

²³ Bouvier, ‘French banks’; Bonin, *Les banques françaises*; idem, *La Banque Nationale de Crédit*; Lescure, ‘La crise bancaire’; Straus, ‘La politique’.

²⁴ Lacoue-Labarthe, ‘La France’, surveys this literature. Like Lévy-Leboyer, ‘Préface’, and Plessis, ‘Les banques françaises’, he suggests that the number of bank failures should encourage historians to reopen the archives and reinvestigate the common view of the French Great Depression. The present article follows this suggestion.

²⁵ Mignet, ‘Etude statistique’; Saint Marc, *Histoire monétaire*; Mitchell, ed., *International historical statistics*. Mignet, whose series is reproduced in Saint Marc’s book, added ‘sundry accounts’ to its definition of deposits. We argue against this choice because such accounts usually included guarantees, which today would be accounted as off-balance sheet items. It explains why Saint Marc’s series of deposits in fig. 5 is slightly different from the double of our series of deposits in the four main deposit banks.

some use statistics from the *Statistical Yearbooks* of the League of Nations, which published data for six banks: the same four commercial banks listed above, plus two merchant banks (namely the *Crédit Commercial de France* and the *Banque de Paris et des Pays Bas*).²⁶ These series suggest that large banks did not experience a crisis, but they do not address the remainder of the banking system.

In addition to a lack of official statistics, a fundamental reason rooted in political economy explains the lack of knowledge of the 1930–1 French banking crises. Surviving, oligopolistic, large banks constructed and publicized a powerful narrative, according to which the French banking troubles of the early 1930s had not been detrimental to the French economy and had only affected black sheep, immoral, and unsound bankers. This narrative was especially influential during parliamentary debates in 1936 regarding the possibility of implementing banking regulations.²⁷

II

This article is based on the discovery of a new source for studying the balance sheets of a significant number of banks from 1901 to 1938, thus exceeding the limits of the studies described above. This source—called the *Album*—was found in the archives of the *Crédit Lyonnais*, the largest French bank in the interwar period.

Since the beginning of the twentieth century, the *Crédit Lyonnais* had been collecting and standardizing annual bank balance sheets following a homogeneous definition. It defines banks as public limited companies that received deposits and discounted commercial papers.²⁸ It excludes brokers, individual financiers, real estate and insurance companies, public credit institutions (for example, *Crédit National* and *Caisse des Dépôts et Consignations*), and state-regulated savings institutions (for example, *caisses d'épargne*), but includes most investment banks and the largest cooperative banks (for example, *banques populaires* and *caisses de crédit agricole*).²⁹ It collected this information from 1901 to 1939, based on the

²⁶ Jonker and van Zanden, 'Method'; Wolf, 'Scylla'. Only Patat and Lutfalla, *Histoire monétaire*, attempt more complex estimation, but they use only a few data points, without quoting sources. The series from Patat and Lutfalla begins in 1919 and thus is used much less often in the literature than the series from Saint Marc, which spans over two centuries. We argue that Patat and Lutfalla used data from Laufenburger, *Les banques françaises*, which they do not cite. The latter were based on aggregate statistics from the *Crédit Lyonnais* that we describe below, since Laufenburger's book was partly prepared by economists from the *Crédit Lyonnais*. Laufenburger published data for 1921, 1926, 1929, 1931, and 1933. Patat and Lutfalla derive figures for missing years using statistics from the four large banks. Aggregate series of deposits in the banking system published by Laufenburger, and originally created by the *Crédit Lyonnais*, summed total deposits of the *Album* without considering bankrupted banks whose assets were thus frozen (see section IV).

²⁷ Andrieu, *La banque*; Mouré, *Managing*, pp. 36–8.

²⁸ The 1867 law liberalized the creation of public limited companies in France (referred to as '*sociétés anonymes*'). Governmental authorization was no longer needed. In 1863, a law had already liberalized the creation of public limited companies with less than 20 million francs in capital. Public limited companies were obliged to present financial statements within an annual report to shareholders. Several auditors, appointed by the general meeting of shareholders, were responsible for examining the company's accounts and writing a report for shareholders; see Praquin, 'Commercial legislation', for an overview from the beginning of the nineteenth century. The *Crédit Lyonnais* used the annual reports to collect bank balance sheets. For a synthesis of French limited liability regimes, see Lefebvre-Teillard, 'La société anonyme'; for a comparative approach, see Guinnane, Harris, Lamoreaux, and Rosenthal, 'Putting'.

²⁹ Until 1926, it also included banks of issues (that is, the *Banque de France* and colonial central banks) and the *Crédit Foncier*. They were excluded from present analyses.

Table 1. *Simplified balance sheet of the banking system derived from the Album*

<i>Assets</i>	<i>Liabilities</i>
Cash	Paid-in capital
Commercial portfolio (discounts)	Retained earnings
Advances on securities, repos, and current accounts (overdraft credit)	Net profit
Securities and investments in companies	Deposits, current accounts, and correspondents
Property, plant, and equipment	Acceptances
Sundry accounts	Sundry accounts
Authorized capital not paid	

Source: *Album* (CASA, CLA).

annual reports that public limited companies were required to send to shareholders. The balance sheets were then standardized and recorded in a massive ledger: the *Album*.³⁰ The Crédit Lyonnais also collected information on bankruptcies. The *Album* was lost in the archives for more than half a century. When the Second World War began, information about 1939 remained incomplete, so the *Album* stops in 1938. Since the law of 1941 organized state supervision of banks, data collection never resumed and was forgotten.³¹

A full description of the source and the motivations of the Crédit Lyonnais is presented by Baubeau et al.³² We have evidence that the *Album* provides a comprehensive picture of the French banking system during the period, because the 1941 laws led the banking supervisor to gather bank deposits from 1938 onwards. Comparing these figures to those of the *Album* in 1938, we find that the *Album* features 98 per cent of total deposits.³³ The share of the four main commercial banks in the *Album* in 1938 is 50 per cent, which is equal to the share listed in official statistics in the same year, used in INSEE's seminal monetary study.³⁴ The statistics in the *Album*, together with new detailed information on bank failures—which will be described later—offer a new picture of the interwar French banking crises.

We compute an aggregate series of deposits and credit based on data in the *Album* and the simplified balance sheet of table 1.³⁵ The vast majority of bank deposits could be withdrawn on demand, which is typical of an unregulated banking system.³⁶ We define categories more broadly than the original ones in

³⁰ Available in the Crédit Agricole SA Archives, Paris (hereafter CASA), which contains the Crédit Lyonnais Archives (hereafter CLA).

³¹ The only reference to this source is Laufenburger, *Les banques françaises*, who had access to the Crédit Lyonnais statistics, although he did not explain precisely the origin and nature of the aggregated statistics he published. Lescure, 'La crise bancaire', also reproduced some aggregate figures found in the Crédit Lyonnais Archives (for deposits in 1929, 1931, and 1936).

³² Baubeau et al., 'Flight-to-safety'.

³³ The definition of deposits may have varied slightly between the two sources.

³⁴ Mignet, 'Etude statistique'.

³⁵ Since some banks were still in the *Album* during liquidation, and had suspended payments, we exclude these frozen deposits from total deposits (see section IV for a detailed analysis of frozen deposits).

³⁶ We can distinguish between time and demand deposits for 95% of deposits in our database. Among the deposits on which we have information, 90% were demand deposits. The decline in deposits took place with respect to

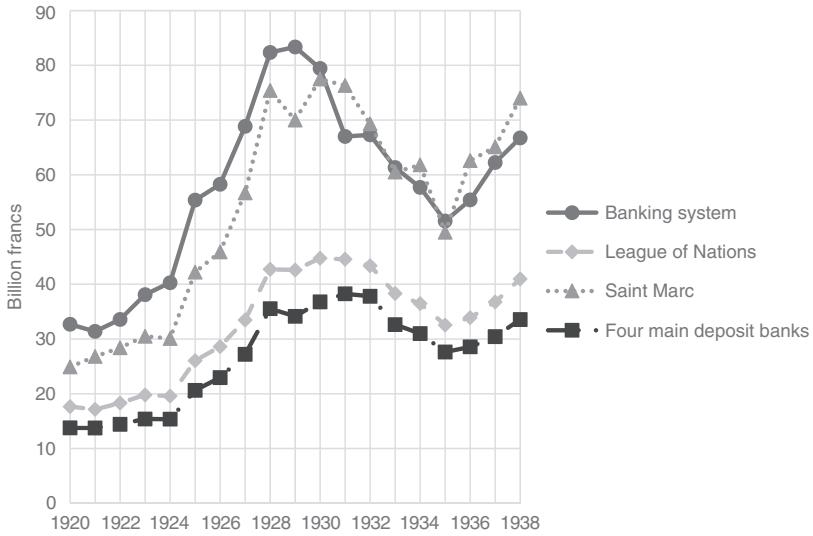


Figure 1. *Series of deposits, 1920–38 (nominal values, billion francs)*

Sources: ‘Saint Marc’: Saint Marc, *Histoire monétaire*, based on Mignet, ‘Etude statistique’. ‘League of Nations’: League of Nations, *Statistical Yearbooks*. ‘Four main deposit banks’ and ‘Banking system’: authors’ calculation from *Album* data (CASA, CLA).

the *Album* so that we have a complete and homogeneous balance sheet for all banks.³⁷ Figure 1 shows the sum of total deposits and current accounts from the *Album*, in comparison with the series of banking deposits used in previous research, discussed earlier.

All previous series used in the literature show stability, and even an increase, in deposits between 1929 and 1931, after the brief drop from 1928 to 1929. In these series, the fall in nominal deposits starts after 1931 (at the same time as strong deflation); it is not associated with the 1930–1 waves of bank distress. Our series (‘Banking system’) contrarily shows a peak in 1929, followed by a 4.6 per cent decrease in 1930 and a further 16.6 per cent decrease from 1930 to 1931. On the basis of 1938 statistics, Mignet (whose series was reproduced in Saint Marc’s book) was correct to assume that the four largest commercial banks collected about half of the deposits, but our series shows that this is a false assumption about the period before the crises.³⁸

According to this picture, the French banking crises no longer appear to be of minor importance compared to those in other countries. Figure 2 shows demand and time deposits aggregated for all commercial banks in France, Germany, Italy,

both time and demand deposits, but time deposits responded with a one-year lag (that is, they remained stable in 1930).

³⁷ The construction of broader categories involves, on the liability side, merging short-term deposits, long-term deposits, and current accounts, and, on the asset side, merging repos, advances, and overdrafts. When the distinction was made, current accounts on the liability side were short-term deposits of companies, while the term ‘deposits’ applied to deposits of households only.

³⁸ Mignet, ‘Etude statistique’, added sundry accounts payable to his definition of deposits. We argue against this choice because such accounts usually include guarantees (contingent liabilities), which today would be accounted as off-balance sheet items, and did not correspond to deposits held by households and firms. This assumption led to a distortion of the 1931–2 numbers in particular (which is apparent when the INSEE/Saint Marc series is compared with the total deposits of the four large banks).

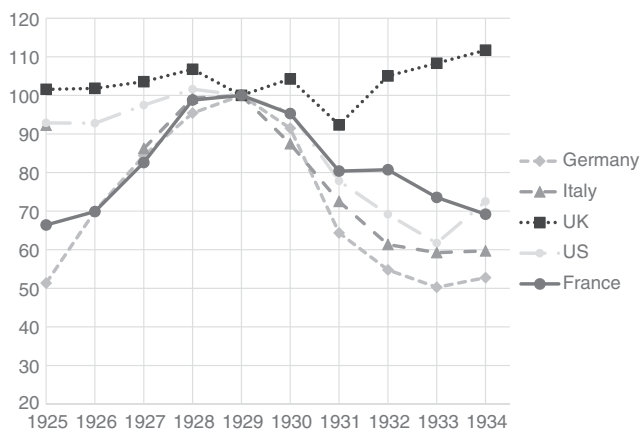


Figure 2. *Nominal deposits in commercial banks, 1925–34 (1929 = 100)*

Sources: UK and Germany: Mitchell, ed., *International historical statistics*. US: Friedman and Schwartz, *Monetary statistics*. France: authors' calculations. Italy: authors' calculation based on Natoli, Piselli, Triglia, and Vercelli, 'Historical archive'.

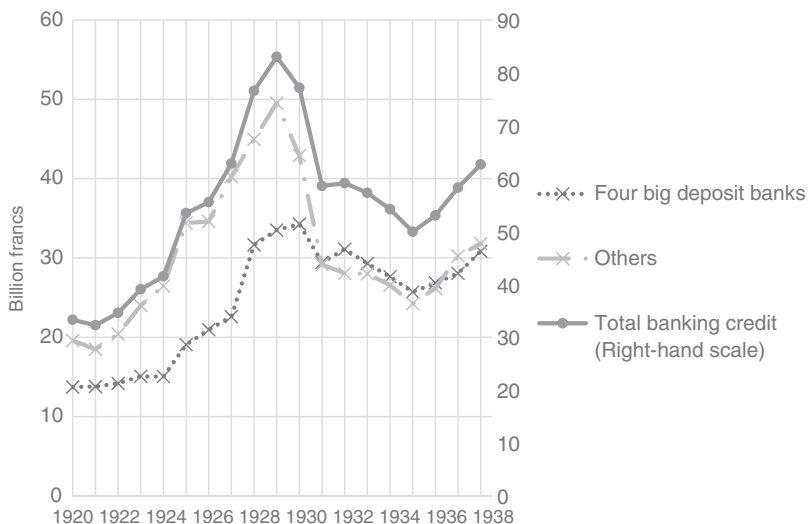


Figure 3. *Total credit (four large deposit banks, the rest of the banking system, and aggregate), 1920–38 (billion francs)*

Sources: Authors' calculation from *Album* data (CASA, CLA).

the UK, and the US. France is no longer part of the group of countries whose banks escaped the 1930–1 crises. Instead, it followed a very similar path to the US and Italy during the period 1929–31.

We also compute an aggregate series of banking credit, shown in figure 3. The series of total credit is the sum of discounts (commercial paper), advances against several types of collateral (including repurchase agreements), and overdrafts (that is, current accounts). The peak in 1929 was followed by a 7 per cent contraction of credit in 1930 and a further 24 per cent decrease from 1930 to 1931. In the

Table 2. *Evolution of the number of banks and the composition of their assets*

Year	1920	1928	1936
No. of banks in the <i>Album</i>	143	271	156
Commercial paper portfolio (% of total assets)	45.91	45.64	47.10
Securities portfolio (% of total assets)	3.51	3.21	3.90
Overdrafts and advances (% of total assets)	29.37	29.09	27.26

Notes: The first row presents the no. of banks in the *Album*, over the three years 1920, 1928, and 1936. The other rows present, for each of the main asset-side balance sheet items of *Album* banks, their total share as a % of total assets.

Source: Authors' elaboration on *Album* data (CASA, CLA).

credit statistics, we do not include the securities (that is, shares and bonds) that banks held directly, which represent a very small share of bank assets at that time (table 2).

The interbank money market was small in France during the interwar period.³⁹ We cannot consider interbank credit exhaustively from data in the *Album* (see table 1): we have information on correspondent accounts on the liability side for only a few banks (which account for 15 per cent of total deposits in the sample). In these banks, correspondents' deposits decreased slightly more than other deposits in 1930–1, but they were a small part of the total (7 per cent of deposits on average) and thus contributed little to the overall decrease. We have acceptances on the liability side (85 to 90 per cent of banks), which are not included in the series of deposits. Some of these bills were used for interbank financing, although we do not know how many. Acceptances decreased sharply during the crises, but were very small in comparison to deposits (4 per cent of total deposits on average). These numbers show that—contrary to what has been shown in the US⁴⁰—the drop in interbank credit was negligible during the 1930–1 French crises. Unlike that of the US, the French interbank market was poorly developed: all banks had access to the central bank, and there was no banking regulation encouraging small banks to keep reserves in large banks.

Figures 2 and 3 report statistics nominally, a choice justified by the imprecision of price statistics during this period, and the fact that our purpose is to compare disparate components of the banking system to assess where and when banking troubles occurred. Consideration of the deflated series—calculated using a consumer price index from *Annuaire statistique de la France*—does not change the conclusion about the 1930–1 crises.⁴¹ Consumer price inflation was high in 1929 (6 per cent) and moderate in 1930 (1 per cent), and deflation started in 1931 (–4 per cent), worsening until 1936, when France left the gold standard (–6 per cent, on average). The decrease in bank deposits between 1929 and 1931 was 21 per cent nominally and 18 per cent in real terms. Understandably, real figures are different from nominal figures during the following years of strong deflation (1932–5). In real terms, deposits and credit in the banking system in 1936 were equal to their 1931 level. The decrease in banking activity was thus concentrated in the 1930–1 period.

³⁹ Baubeau, 'Les cathédrales'; Roulleau, *Les règlements*; Ungaro, 'Central clearing parties'.

⁴⁰ Richardson, 'Check', Mitchener and Richardson, 'Network contagion'.

⁴¹ Baubeau et al., 'Flight-to-safety', p. 55.

Figure 3 also shows a large run-up of credit in France in the 1920s. A detailed understanding of this increase is left to further research, but the following characteristics should be noted here. French banks were mostly involved in discounting commercial paper. Mortgage loans and agricultural credit were not typical of the banking business.⁴² The increase in credit in the 1920s was mostly driven by an increase in the commercial portfolio, itself driven by a massive new entry of banks, as shown in table 2. Other categories of assets (including riskier ones such as overdrafts) increased at the same pace as the commercial portfolio. As Jonker and van Zanden have argued, the inflation of the early 1920s probably contributed to the increase in bank activity.⁴³ To cope with the pressures of inflation on the value of real assets, banks could either convert nominal assets into real ones (that is, convert loans into shares) or expand lending, much more rapidly than the inflation rate. French banks adopted mostly the latter strategy, although some chose a mixture of the two. It is telling, for example, that the growth rates of assets were the same for the four large commercial banks (unaffected by the 1930–1 crises) compared to the rest of the banking system. The monetary reform of 1928 ended inflation and restored the gold standard, but it did not stop the increase in credit. This is partly because the stabilization fuelled confidence and booming activity, and partly because the repayment of war bonds by the state increased liquidity in the market.

Figure 1 suggests that the depth, or even the existence, of banking troubles, has been overlooked in previous macro-studies, because quantitative sources have been limited to a few large banks. Figures 3 and 4 make this argument more obvious by showing the evolution of total deposits and total credit, comparing the four large deposit banks to the remainder of the banking system. The rest of the banking system experienced the same growth as the large banks until 1929 (deposits multiplied by 2.5 from 1920 to 1929), but unlike the four large banks, it experienced a sharp decrease in both deposits and credit during the period 1930–1. By 1931, deposits and credit in the remainder of the banking system had decreased by 40 per cent compared to their 1929 levels (figures 3 and 4). Far from being constant, the share of the four large commercial banks in total deposits increased sharply during these two years, from 40 per cent in 1929 to 56 per cent in 1931.

Banks that lost deposits during the 1930–1 waves of withdrawals were not just those that went bankrupt. Between 1929 and 1931, 22 billion francs left the banking system. They were equally split between banks that eventually failed and institutions that were in distress but managed to continue their activities. After the crises, banks that had been in distress (that is, experienced a decrease in their deposits) did not underperform compared to those whose deposits had increased or remained stable from 1929 to 1931. Banks that either failed or were in distress accounted for 52 per cent of deposits in 1929 (37 per cent for distressed banks, 15 per cent for failures). We now turn our attention to the series of bankruptcies that occurred during the 1930–1 crises.

As emphasized by Bouvier, Bonin, Lescure, and Lacoue-Labarthe, the first series of banking failures started in autumn 1930 and continued until spring 1931.⁴⁴ This

⁴² See Bonin, *Les banques françaises*, and Hoffman et al., *Dark matter*, for reviews.

⁴³ Jonker and van Zanden, 'Method'.

⁴⁴ Bouvier, 'French banks'; Bonin, *Les banques françaises*; Lescure, 'La crise bancaire'; Lacoue-Labarthe, 'La France'.

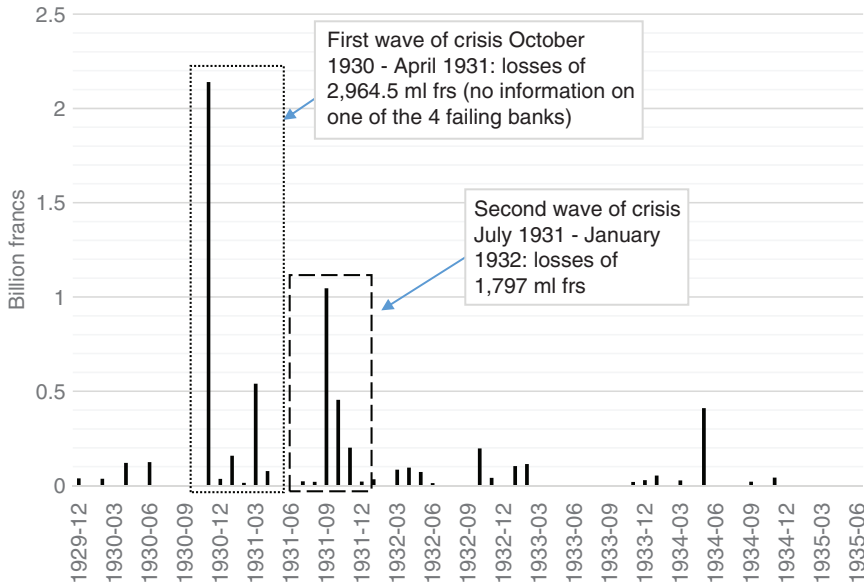


Figure 4. *Two waves of bankruptcies (bankruptcies or judicial liquidations by month, scaled by asset size of bank)*

[Colour figure can be viewed at wileyonlinelibrary.com]

Sources: Authors' calculation from *Album* data (CASA, CLA) and CASA, 129AH110, 'Tableau de bord des causes des banques en difficulté'.

chronology is confirmed by a new series of bankruptcies that we have built, working from another document in the archives of the *Crédit Lyonnais*.⁴⁵ This document provides a detailed account of the bankruptcy and liquidation procedures of banks (including the dates of the procedure, the amount repaid to creditors, and so on). It was produced for internal use in 1935 and contains the start date of the bankruptcy procedure for each bankrupt bank. This document is exhaustive, and it allows us to link the bank balance sheet data to the bankruptcies for the first time (figure 4). This picture reveals that, as for the decline of bank deposits, the first French banking crisis starting in November 1930 was indeed more severe than the one in late 1931 that followed the crisis in eastern Europe.

III

Did the flight-to-safety hit all banks in the same way (with the exception of the big four)? Were riskier banks more likely to experience distress in 1930 and 1931? We exploit the cross-section of banks to address these questions. Our interest lies in banking distress and is not restricted to bankruptcies. Hence, our main variable of interest is the evolution of the deposits of each bank from 1929 to 1931. In a context where most of the decline in bank activity was caused by withdrawals of

⁴⁵ CASA, 129AH110, 'Tableau de bord des causes des banques en difficulté'.

deposits (see the following sections for evidence), the evolution of these deposits is a good indicator of potential distress.⁴⁶

We estimate the following equation:

$$\Delta deposits_i = c + \beta Risk_i + \eta Region_i + \gamma X_i + \varepsilon_i$$

where $\Delta deposits_i$ is the change in the bank i 's deposits between 1929 and 1931. X_i is a set of standard control variables that might affect the health of the bank: balance sheet size (in natural logarithm); the age of the bank (in natural logarithm) as well as a capital ratio; and a ratio measuring the share of the securities portfolio in total assets.⁴⁷ All balance sheet ratios and controls on the right-hand side enter the equation at their 1929 (pre-crisis) value.

We focus on the following two main explanatory variables. $Risk_i$ is intended to capture the riskiness of the activities of the bank as perceived by depositors. In the context of the French interwar banking system, we know that the less risky assets (besides cash) were discounts of commercial paper.⁴⁸ These assets were also the most liquid. The notions of risk and liquidity were thus very much confounded: a bank with a higher share of assets invested in discounts was more likely to be able to reimburse depositors in difficult times.⁴⁹ Hence, our measure of risk perceived by depositors is simply a liquidity ratio: (cash + commercial portfolio) divided by total assets.⁵⁰

The second main explanatory variable ($Region_i$) is intended to capture the geographical scope of a bank's activity. We know that banks' business models differed according to the expansion of their activity across the country.⁵¹ Such a distinction was also made by contemporaries, such that the *Crédit Lyonnais* itself constructed such categories. We use the classification provided by the *Album*, which divides banks into four groups: local, regional, Parisian, and national. The first two categories include all banks that had their headquarters and main activity outside Paris. Local banks did not branch outside their original district (*département*) and were often unit banks. Regional banks, on the other hand, were present in more than one *département*. Regional banks were the most involved in financing industry.⁵² Finally, banks located in Paris are divided into 'Parisian' and 'national': the difference between the two is based on their balance sheet size and their expansion outside Paris. Typically, investment banks were Parisian only, while

⁴⁶ Nevertheless, the following results are confirmed when we assess the impact of the same variables on the probability of a bank's failure.

⁴⁷ In other specifications, not shown in tab. 3, we control for other balance sheet ratios such as a deposits ratio, a 'sundry assets' ratio, and an interbank exposure ratio. All of these coefficients are small in size and not statistically significant. We decided not to include them in the final specification because their simultaneous introduction would result in collinearity.

⁴⁸ Roulleau, *Les règlements*; Baubeau, 'Les cathédrales'.

⁴⁹ See Diamond and Rajan, 'Liquidity risk', for a theory whereby the choice of depositors to withdraw funds depends on the liquidity of a bank's assets.

⁵⁰ Hekimian, 'French banking sector', provides evidence that large deposit and commercial banks, whose business model was based on discounting commercial paper, were perceived by stock market investors as less risky than the overall market. On the other hand, banks involved in riskier activities were characterized by higher volatility on the stock exchange. It must be noted that banks listed on the stock exchange represent only a small subsample of the *Album* banks.

⁵¹ Lauffenburger, *Les banques françaises*; Bonin, *Les banques françaises*.

⁵² Lauffenburger, *Les banques françaises*; Bonin, *Les banques françaises*.

Table 3. *Econometric results: the sources of bank distress*

<i>Independent variable</i>	(1)	(2)	(3)	(4)	(5)	(6)
Liquidity ratio	0.763*** (0.17)	0.839*** (0.20)	0.809*** (0.19)	0.824*** (0.20)	0.743*** (0.19)	0.754*** (0.20)
Balance sheet size		-6.363 (4.36)		-6.909 (3.96)	-5.609 (5.87)	-4.898 (5.16)
Age			-10.098 (9.02)			-5.268 (8.07)
Security ratio				-0.055 (0.56)	-0.080 (0.60)	-0.092 (0.61)
Capital ratio				-0.159 (0.47)	-0.113 (0.43)	-0.116 (0.43)
Regional					-75.189** (24.71)	-75.482** (25.13)
Local					-42.772 (37.24)	-45.081 (39.56)
Parisian					-52.651* (26.40)	-54.717 (28.47)
Constant	-59.693*** (7.30)	-36.035 (18.81)	-38.535 (20.80)	-28.148 (16.61)	20.688 (51.14)	31.371 (62.12)
R ²	0.042	0.060	0.051	0.065	0.087	0.089
No. of banks	252	252	252	250	250	250

Notes: This table reports the results of ordinary least squares estimations where the dependent variable is the % change in deposits between 1929 and 1932. In col. 1 the only independent variable is the liquidity ratio, constructed for each bank by dividing liquid assets by total assets. Cols. 2 and 3 control for the balance sheet size (natural logarithm of total assets) and the age of the bank (in natural logarithm), respectively. Cols. 4 and 5 additionally control for a security ratio (amount of securities held in portfolio over total assets) and a capital ratio (total equity over total assets). Col. 6 adds the age of the bank as an additional control. Standard errors are robust to heteroscedasticity in residual distribution.

Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10% levels, respectively.

large commercial banks (such as the *Crédit Lyonnais*, *Société Générale*, *Banque Nationale de Crédit (BNC)*, and so on) were national.

Table 3 shows the results of the regressions with different sets of control variables. The dependent variable is always the percentage change in deposits between 1929 and 1931. The liquidity ratio is highly statistically significant in all specifications. The coefficient of 0.754 in column 6 can be interpreted as follows: *ceteris paribus*, a 1 per cent less liquid asset-side of the balance sheet makes deposits decrease by 0.75 percentage points over the following three years. This is evidence that deposits were withdrawn primarily in banks where the illiquidity risk was higher for depositors.⁵³

The other variable that is always statistically significant is the regional dummy. Compared to being a national bank (the baseline), being a regional bank makes deposits fall by 75 per cent over three years. This result is consistent with narrative analyses which highlighted the troubles of major regional banks (*Banque Adam*, *Crédit du Nord*, *Comptoir d'Escompte de Mulhouse*, and so on) that were involved directly in the financing of industries at the local level.⁵⁴ By contrast, only a limited number of Parisian banks were affected by the crises.⁵⁵ Not all regions experienced the same level of distress. Of the 25 non-Parisian *Album* banks that

⁵³ As in the model of Diamond and Rajan, 'Liquidity risk'.

⁵⁴ Bonin, *Les banques françaises*; Lacoue-Labarthe, 'La France'.

⁵⁵ As suggested earlier by Lescure, 'Banking in France'.

went bankrupt between 1930 and 1934, 17 had their headquarters in the north-east of the country (where the French textile industry, metallurgy, and coal mining were concentrated). Eleven of them were regional rather than merely local. These econometric results are informative about some key characteristics of the crises, but should not be interpreted as a statement on causality or as an attempt to identify the causes of banking panics. In particular, we cannot say whether regional banks were more likely to be hit because of a contagion of fear following the fall of Banque Adam or because they were more likely to experience solvency issues (since they were more involved in the financing of industry). Narrative evidence based on the accounts of contemporaries suggests that both factors were at play (see section I).

IV

How did the decrease in deposits lead to a credit crunch? Traditional responses highlight non-monetary (*à la* Bernanke) and monetary factors (*à la* Friedman and Schwartz). In the first case, bank failures led to non-monetary effects because the cost of intermediation increased, and some borrowers experienced costs that were too high.⁵⁶ In the second, deposits were either frozen due to bankrupt banks or hoarded as cash by individuals.⁵⁷

In addition to these two potential factors, it is important to consider the opposite case, where the decrease in deposits would be the consequence of a decrease in credit, itself a consequence of a decrease in economic activity. In this case, the decline in credit is endogenous to the demand of borrowers (loans are not renewed at maturity, so that the volume of deposits mechanically decreases), rather than a credit crunch caused by runs on bank liabilities.

In this section, we explore these various potential channels. First, we calculate the drop in the money multiplier to account for the part of the decrease in credit due to monetary factors from bank failures. Second, we explain what happened to deposits withdrawn by households and firms. We estimate the total amount of frozen deposits and hoarded cash, and demonstrate that the majority of deposits were neither frozen nor hoarded as cash, but were moved to safe deposit institutions (*caisses d'épargne*) and the central bank. Although we are well aware that a decrease in bank deposits can merely be the counterpart of a decrease in bank credit (that is, the endogeneity of the money supply), we observe that the decrease in French bank deposits (1930–1) is in fact explained by a transfer of cash from the banking system to institutions that did not create credit. The inflow of foreign capital is not sufficient to explain the increase in deposits with the central bank and *caisses d'épargne*.

We estimate the drop in the money multiplier, following the methodology of Friedman and Schwartz.⁵⁸ This calculation allows us to distinguish between the part of the decrease in the multiplier that is due to the change in the demand for money by the public and the part due to the behaviour of banks.

⁵⁶ Bernanke, 'Nonmonetary effects'.

⁵⁷ Friedman and Schwartz, *Monetary history*.

⁵⁸ *Ibid.*, pp. 332–3.

The multiplier can be expressed as follows:⁵⁹

$$M = H * \frac{\frac{D}{R} (1 + \frac{D}{C})}{\frac{D}{R} + \frac{D}{C}}$$

The money supply is a function of high-powered money H , a deposit-to-reserves (D/R) ratio representing the activities of the banking system, and a deposit-to-cash ratio (D/C) reflecting changes in the public's demand for cash. Friedman and Schwartz define D as total deposits in commercial banks, R as vault cash plus banks' deposits at the central bank, and C as currency held by the public. H is equal to C plus all deposits at the central bank (made by both banks and the public). Between 31 December 1929 and 31 December 1931, we find that the money multiplier declined by 24.86 per cent, an estimate which is close to that of Friedman and Schwartz for the US.⁶⁰ We then compute the respective contributions of the drop in the ratios D/R and D/C to the total decrease in the money multiplier.⁶¹ A 16.18-percentage-point decline—which is the majority—is due to D/C , representing the change in the demand for money by the public. A decline of 12.37 percentage points is due to D/R . Note that—contrary to the French case— R is stable in the work of Friedman and Schwartz.⁶² In France in 1930–1, about two-thirds of the decline in D/R (7.68 percentage points) is due to the increase in the deposits of banks with the central bank.

The monetarist approach of Friedman and Schwartz assumes that the decrease in D is exogenous to credit and economic activity. We do not follow *a priori* such a strong assumption. Instead, we now track deposits to assess whether they were withdrawn, independent of credit creation, or whether the decrease in deposits was simply the consequence of a decrease in loans.

What happened to deposits when a bank went bankrupt? Since banking was not subject to specific regulations, banks and bankers were subject to the same rules and jurisprudence as industrial and commercial companies.⁶³ Secured creditors were reimbursed through their guarantees,⁶⁴ and the trustee recovered the company's credits and liquidated the remaining assets. Revenues were distributed to unsecured creditors in proportion to the amount of their credit. If revenues from liquidation covered reimbursement to unsecured creditors, the remainder was distributed among shareholders. Otherwise, creditors suffered losses. Bank clients with a deposit account, on-demand or fixed-term, were deemed unsecured creditors by default, and they were not entitled to individual actions regarding reimbursements for their losses. The opening of bankruptcy proceedings resulted in the closing of deposits and fixed-term accounts immediately and made the funds instantly

⁵⁹ *Ibid.*, p. 791.

⁶⁰ The analogous estimate for the US by Friedman and Schwartz, *Monetary history*, pp. 332–3, is 47% between Aug. 1929 and March 1933 (therefore over a timespan of almost four years).

⁶¹ Friedman and Schwartz's methodology does not account for 100% of the variation in the money supply. Therefore they add a residual term called the interaction term, accounting for the combined effects of the two ratios; *ibid.*, p. 795. We estimate the interaction term at 3.7% (with a positive sign).

⁶² *Ibid.*, p. 347.

⁶³ The only rules specific to the banking sector concerned the exclusion from banking activities of persons convicted of an offence (passed in June 1930); Prévost and Pissavy, *Traité pratique*; Ripert, *Traité élémentaire*.

⁶⁴ This was typically the position of the Banque de France, which explains why it suffered only minimal losses during the crises.

available to the trustees. Bank clients with a current account and a positive balance were encompassed in the same category, and the accounts were closed by default at the beginning of the procedure.⁶⁵ Even under bankruptcy, commercial judges could authorize temporary continuation of a company's activity if it might offer additional revenues to creditors.⁶⁶ However, during this phase, deposits could not be withdrawn on demand, and payments to depositors and other creditors, if any, were made only according to the proportional rule and the timetable of the procedure.

Several banks that had started bankruptcy proceedings remained in the *Album* for a number of years to reimburse creditors, including depositors, because liquidation was a lengthy and time-consuming process. We correct the series of deposits from the *Album* to account for this issue. To do so, we use the aforementioned Crédit Lyonnais document on bankruptcies.⁶⁷ For each bankrupt bank, the document provides information on the exact start date of the bankruptcy proceedings, and on the total amount of deposits that were frozen during those proceedings. All deposits remained frozen at least until 1934 unless otherwise indicated. For each year, we can consequently sum up all bank deposits that were frozen because banks started bankruptcy proceedings during that year. This information allows us to construct a yearly aggregate series of frozen deposits in the banking system from 1929 to 1934. We estimate that the total end of the year stock of frozen deposits reached 1.58 billion francs in 1930, 2.18 billion in 1931, 2.51 billion in 1932, 2.67 billion in 1933, and 3.07 billion in 1934. Although not negligible, this amount does not account for the bulk of the decline in bank deposits, which decreased by 26 billion francs from 1929 to 1934.

Changes in the circulation of large-denomination banknotes provide a way of estimating currency hoarding.⁶⁸ The Banque de France used these notes as a proxy for hoarded cash, a phenomenon it identified as soon as December 1930: 'It appears that the newly issued notes [which were of the larger denominations] are largely hoarded'.⁶⁹ Figure 5 shows the amount of fiduciary circulation in France from 1920 to 1938 by banknote denomination, aggregated into small and large categories. Between 1929 and 1932, the circulation of small banknotes was stable. All increases can therefore be attributed to large denominations. The increase in large-denomination banknotes was steeper from the end of 1929 to the end of 1931, during the peak of the banking crises. According to the Banque de France's annual report for 1930, cash hoarding was especially prevalent during spring 1930, before the crises, because of large capital inflows.⁷⁰

Caisses d'épargne were French savings institutions and were not included in the *Album*. Calling them banks would be misleading, since they did not lend, but only managed a portfolio of long-term French Treasury bonds. They were created

⁶⁵ As a consequence, the interest on the positive balances of deposits and current accounts from the start of the procedure was not taken into account in the credits of the failing bank's clients. This interest could only be paid with the potential residual after the payments of all creditors and before the distribution to shareholders; Clerc, 'La revendication'.

⁶⁶ Percerou, *Des faillites*; Ripert, *Traité élémentaire*.

⁶⁷ CASA, 129AH110, 'Tableau de bord des causes des banques en difficulté'.

⁶⁸ Monetary circulation of gold was discontinued permanently in France after 1914, and that of silver remained marginal, so we have no indication of foreign currency hoarding apart from gold coins.

⁶⁹ BFA, minutes of the Conseil Général (hereafter CGM), board of directors, 4 Dec. 1930, p. 419.

⁷⁰ *Assemblée générale des actionnaires de la Banque de France*.

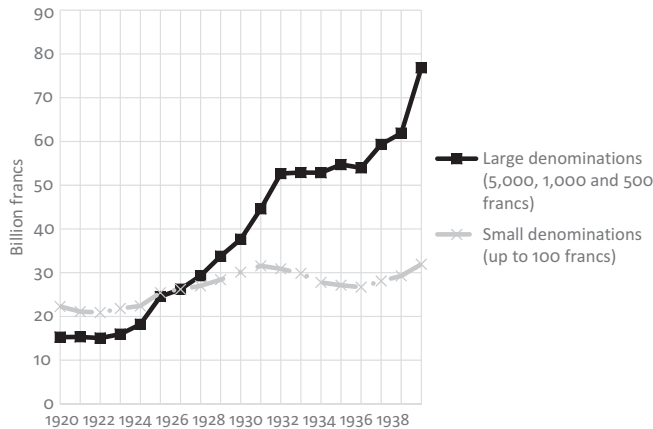


Figure 5. *Fiduciary circulation in France, by banknote denomination (billion francs)*

Source: *Assemblée générale des actionnaires de la Banque de France*.

and extended in two forms, both under state regulation, unlike banks. Starting in 1818, independent savings banks were created at the city level, sometimes branching into nearby towns.⁷¹ In 1882, a new state service was created, the Caisse Nationale d'Épargne (National Savings Bank), which expanded across France by being incorporated in the Post Office network. From then on, two types of saving banks (*caisses d'épargne*) co-existed—the *caisses ordinaires* (private) and the Caisse Nationale (state-owned)—both dedicated to safe collection of petty savings in exchange for low interest rates. Neither type of *caisse* invested deposits in terms of lending to corporations, but instead they invested in Treasury bonds and perpetual annuities (*rente*). Starting in 1895, the funds of the *caisses d'épargne* were, by law, centralized and managed by the Caisse des Dépôts et Consignations (CDC), a state-led financial institution created in 1816. Due to their status, management, and investment constraints, *caisses* were considered safe institutions in which to deposit money. There was no formal deposit insurance, but funds were de facto guaranteed by the French state, since assets of the *caisses d'épargne*, managed by the CDC, were invested in government securities. These deposits were very liquid. By law, deposits could be withdrawn on demand within eight days, but in practice, payment was almost always immediate.⁷² Interest rates on deposits were regulated by the government.⁷³ The Parliament also fixed the maximum amount that individuals and firms could deposit in their savings institution accounts.

Figure 6 shows that deposits in both the Caisse Nationale d'Épargne and *caisses ordinaires d'épargne* more than doubled between 1929 and 1931. A sharp increase had started in 1926, due to the stabilization of the franc, a rise of capital inflows, and a reform that increased the maximum amount depositors could keep in their savings account. Nonetheless, from 1926 to 1929, bank deposits were also still increasing at a fast pace (together with inflation). It was not until 1930 that

⁷¹ Christen-Lécuyer, *Histoire sociale*.

⁷² Coupry, 'Contribution'.

⁷³ See Levy-Garboua and Monnet, 'Les taux d'intérêts', for a series of these rates.

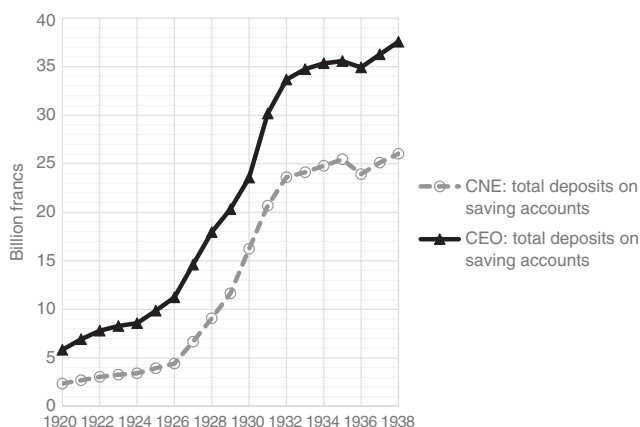


Figure 6. *Caisse Nationale d'Épargne (CNE) and caisses ordinaires d'épargne (CEO), outstanding amounts on savings and deposits accounts, end of year*

Source: France, Ministère des finances, *Bulletin de statistique*.

depositors started withdrawing from their commercial banks to shift their funds into savings institutions. Consequently, the ratio of *caisses d'épargne* deposits to bank deposits increased from 0.38 in 1929 to 0.85 in 1932 (the average 1920–8 value was 0.30).⁷⁴

Two other non-bank institutions accepted deposits from individuals: the CDC itself and postal savings (*comptes postaux*). These deposits were negligible compared to those of the *caisses d'épargne* (see figure 8), and—most importantly—they did not increase during the crises, because they did not pay interest.

Another institution that attracted deposits in times of trouble was the central bank. Current accounts of individuals (*comptes courants des particuliers*) experienced a strong increase during 1930 and 1931. However, these current accounts also included the banks' current accounts. We therefore subtract the amounts deposited at the Banque de France by the four main banks from these current accounts. This estimation is imprecise, but we assume it is likely that only banks unaffected by the crises (that is, the four large commercial banks) were in a position to deposit (large) reserves at the central bank (see figure 8).⁷⁵

Figure 7 reconstructs the flow of funds in France in 1930 and 1931. In the upper parts of the bars (above zero), we show positive cash flows in institutions that attracted deposits and hoarded cash during this period. In the lower parts (below zero), we estimate where these positive cash flows originated: deposits leaking out of the banking system and capital inflows from abroad.⁷⁶ This reconstruction of the French flow of funds assesses the consistency of our interpretation of the crises, considering that France was a net receiver of foreign capital at the same time. We begin with equality:

⁷⁴ Bonin, 'Les caisses d'épargne', noted a tremendous increase in these deposits during the period and attributed it largely to international capital inflows.

⁷⁵ BFA, 1069201116/48-71. Cash and deposits with the central bank are from Baubeau, 'Bank'.

⁷⁶ Data on net private capital flows are from Sicsic, 'Inflow'. This series was also used in Feinstein and Watson, 'Private international capital flows'.

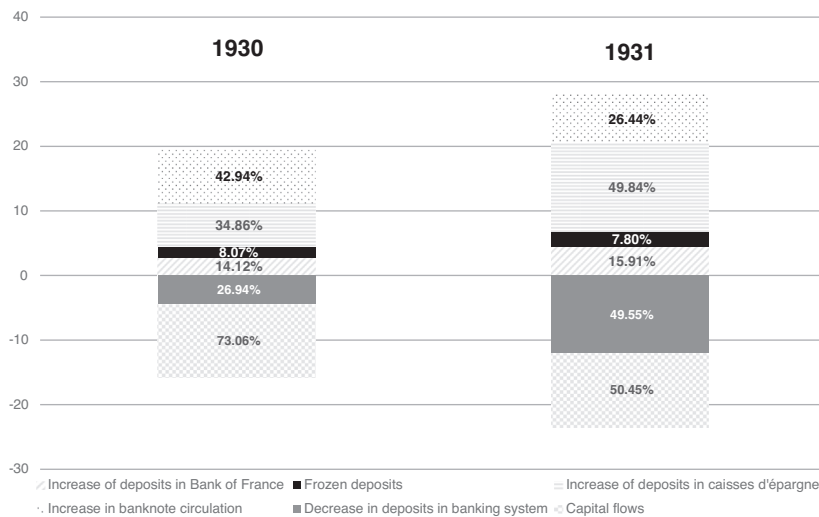


Figure 7. *Flows of funds, 1930 and 1931*

Note: Flows in postal accounts and individuals' CDC accounts are not included in the figure because they were both negligible in 1930 and 1931.

Sources: Decrease in deposits in banking system: authors' calculation from *Album* data (CASA, CLA). Increase of deposits in *caisses d'épargne*: *Annuaire statistique de la France*. Increase in deposits with the Banque de France: authors' calculation from the weekly balance sheet of the Banque de France (Baubeau, 'Bank') and the monthly balance sheets of the main banking institutions (BFA, 1069201116/48-71). International capital inflows: Sicsic, 'Inflow'. Increase in banknotes circulation: authors' calculation based on *Assemblée générale des actionnaires de la Banque de France*. Frozen deposits: authors' calculation from *Album* data (CASA, CLA) and CASA, 129AH110, 'Tableau de bord des causes des banques en difficulté'.

Inflows of foreign capital + Total decrease of deposits in the banking system = Hoarded cash (that is, increase in banknote circulation) + New deposits in *caisses d'épargne* + New deposits at the Banque de France (excluding banks' reserves) + Frozen deposits

Estimations of the categories above are imprecise and incomplete, and we might miss other uses of capital inflows. The measurement of foreign capital flows is especially subject to caveats.⁷⁷ However, figure 7 shows that our computations of positive and negative flows nearly match, although the flow of resources (that is, decreasing bank deposits and increasing capital flows) is slightly smaller than the flow of uses (that is, increases in deposits in *caisses d'épargne*, and so on). Frozen deposits never exceeded 10 per cent of flows and were much lower than flows of deposits to safe institutions (that is, the Banque de France and nearly all *caisses d'épargne*) and hoarded currency. In both 1930 and 1931, the increase in deposits in *caisses d'épargne* exceeded the decrease in deposits in the banking system. Inflows of foreign capital also contributed to an increase in deposits in *caisses d'épargne* during the crises.

From figure 7, we can also compute the decrease in bank credit that can be explained by pure monetary factors *à la* Friedman and Schwartz (that is, frozen deposits caused by bank failures, equal to 3.76 billion) and by transfers of funds from banks to safe institutions (that is, flight-to-safety, equal to 12.23 billion) or conversion into cash (4.12 billion). The remainder of the decrease in bank credit

⁷⁷ Sicsic, 'Inflow'.

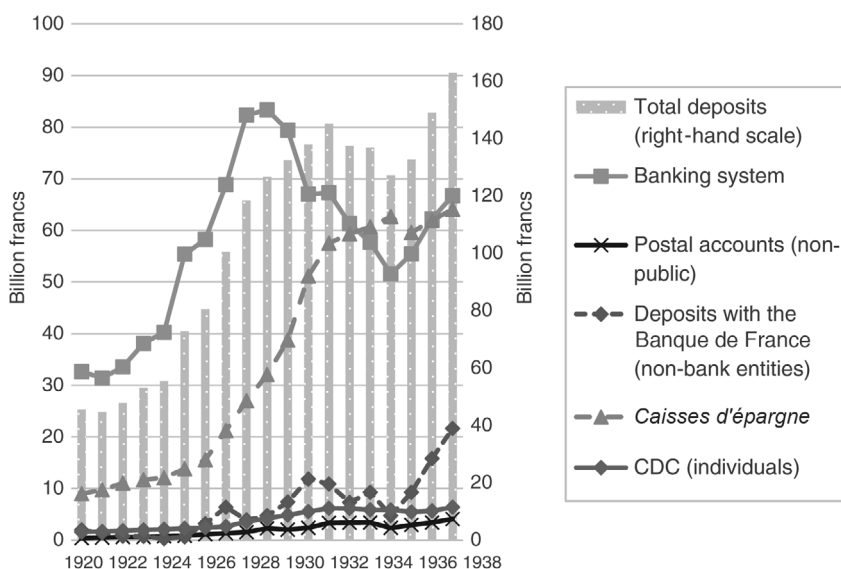


Figure 8. *Total deposits in France, 1920–38 (banks and savings institutions)*

Sources: Authors' calculation from *Album* data (CASA, CLA) for the banking system. Deposits of individuals at the CDC from CASA, CLA, 129AH137, 'Dépôts et comptes courants des banques et de divers organismes recevant des dépôts'. *Caisses d'épargne* and postal accounts: authors' calculation from *Annuaire statistique de la France*. Deposits at the Banque de France: authors' calculation from the weekly balance sheet of the Banque de France; Baubeau, 'Bank'.

can then be explained by a Bernanke effect (that is, a rise in the cost of financial intermediation) or by a decrease in the demand for credit, which, in turn, depresses the volume of deposits. For 1930–1, we found that these two remaining factors played an extremely small role: 0.53 billion, of a total of 20.64 billion. It follows that for these two years (when massive bank deposit withdrawals took place), the decrease in bank credit can be explained almost fully by a drop in the supply of bank credit caused by the freezing or withdrawal of bank deposits.

V

Previous sections have demonstrated that the French banking crises were characterized by the flight-to-safety of deposits from unregulated banks to safe, regulated institutions (that is, the Banque de France and *caisses d'épargne*), in a context of large foreign capital inflows. As a result, and as shown in figure 8, total deposits (including those of *caisses d'épargne* and our estimation of non-bank deposits in central banks) increased during the crises.⁷⁸ In the absence of a drop in the total French money supply, the questions then are whether safe institutions did replace the banking system as financial intermediaries, and why a credit crunch eventually took place. This section explores these two issues.

At the Banque de France, the only items on the asset side of its balance sheet that experienced massive growth were gold reserves, with figures that were underestimated because the Banque hid some of its gold in miscellaneous

⁷⁸ Mignet, 'Etude statistique', and Saint Marc, *Histoire monétaire*, do not include deposits in savings institutions.

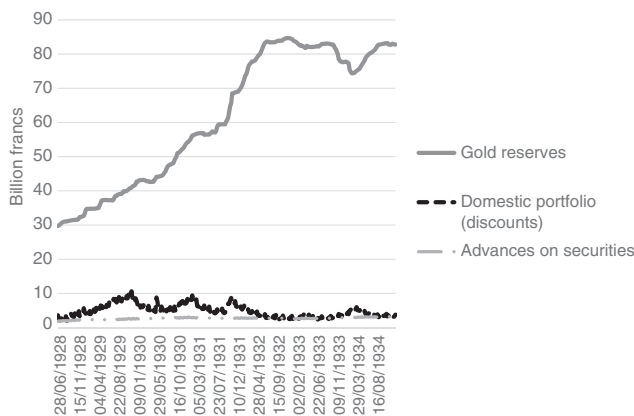


Figure 9. *Gold reserves vs. domestic portfolio of the Banque de France, 1928–34*

Source: Baubeau, 'Bank'.

accounts.⁷⁹ It increased its credit to the economy slightly in late 1930 and early 1931, but only in a very modest proportion to the increase in gold reserves (figure 9). The Banque was occasionally accused by contemporaries of replacing the activity of private banks during the crises and increasing direct lending to private, non-financial companies.⁸⁰ These amounts were, however, negligible in relation to the decline in bank credit to the economy. Estimates of the Banque's lending to non-bank institutions (taking the form of advances on securities rather than discounts of commercial paper) are available only after 1933 and point to 40 per cent of the total domestic portfolio.⁸¹ In the next section, we will show that figures for total credit barely change if an estimate of Banque de France loans to the economy is included (figure 11).

A related question is whether large commercial banks that did not experience a crisis (Crédit Lyonnais, in fact, even experienced a rise in deposits) increased lending to businesses to replace the role of failing banks. Large-deposit banks reacted to the crises (and to the surge in foreign capital inflows) by increasing cash and deposits strongly at the central bank. Figure 10 shows the evolution of the balance sheet item 'Cash and account at Bank of France' of the four main deposit banks from 1920 to 1938. The figure shows a strong decline from 1927 to 1928 and a sharp increase from 1930 to 1931.

Information from the annual reports of *caisses d'épargne* shows that during 1930–1, the only growing balance sheet item on the asset side was 'current account at the *Caisse des Dépôts*' (CDC). This item increased from 32 per cent of their balance sheet in 1929 to 51 per cent in 1932. *Caisses d'épargne* did not use the new inflow of deposits to buy government securities, as they would normally have done. The cash deposited with the CDC funded the Treasury directly and was used to

⁷⁹ BFA, CGM, board of directors, 8 Feb. 1934. The governor explained to the board that the (hidden) special gold reserve was being used to average gold movements in published weekly balance sheets. Its amount at the time was 1.74 billion francs, a huge sum.

⁸⁰ Hautcoeur, 'La Banque de France'; Gonjo, 'La modernisation'.

⁸¹ Gonjo, 'La modernisation'.

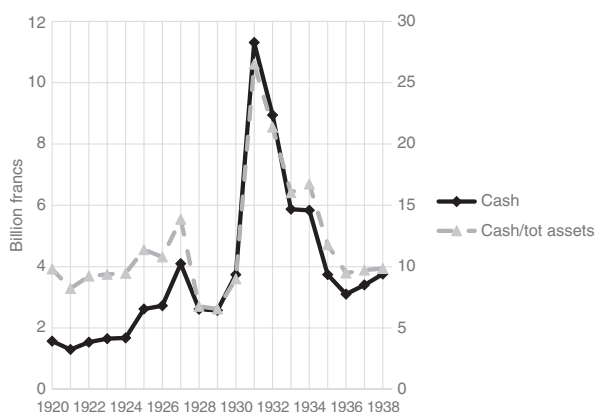


Figure 10. *Cash held at Bank of France by the four main commercial banks, 1920–38, total in billions of francs (left-hand scale) and as a percentage of their assets (right-hand scale)*

Sources: Authors' calculations from *Album* data (CASA, CLA) and BFA, 1069201116/48-71.

reduce the nominal amount of public debt issued on the market, in the context of the post-1928 stabilization policy.⁸² Official French public debt in nominal terms (outstanding stock of issued bonds) decreased from 224 billion francs in 1929 to 207 in 1931 and reached a low point in 1933, at 181 billion.⁸³ Repayment of public debt amounts to a cash transfer to bondholders, including large banks, that hoarded it or deposited it in safe institutions, as we have seen. At the end of the chain, the exorbitant increase in gold reserves of the Banque de France (40 billion francs in two years) seems to have absorbed all funds at the expense of loans to the economy.

The large increase in the deposits with the *caisses d'épargne* became an issue in the public debate, but attempts to direct those funds to business loans failed. During March 1931, and due to inflows of deposits, the legal maximum amount for an account in the *caisses d'épargne* was increased by Parliament from 12,000 to 20,000 francs for individuals and 50,000 to 100,000 for corporations. As the French economy was in crisis, several representatives asked for a law allowing the *caisses d'épargne* to buy nongovernment securities and lend to businesses, but this proposal came to nothing.⁸⁴

Figure 11 shows the evolution of the ratio of total loans granted to non-financial corporations over total deposits in banking and non-banking financial institutions. To compute total deposits, we added up the deposits in *Album* banks (that is, the banking industry) and deposits in the *caisses d'épargne*, *comptes postaux*, and individuals' deposits at the CDC and the Banque de France.

We compute three series of credit.⁸⁵ The first two, the upper and lower curves in figure 11, contain only loans granted by the banking system (that is, overdrafts

⁸² Mouré, *Managing*.

⁸³ *Annuaire statistique de la France*.

⁸⁴ Coupry, 'Contribution'.

⁸⁵ Credit intermediated through notaries is missing from this estimation. Although its role declined sharply after the First World War, and it then financed primarily housing and construction (Hoffman et al., *Dark matter*), it

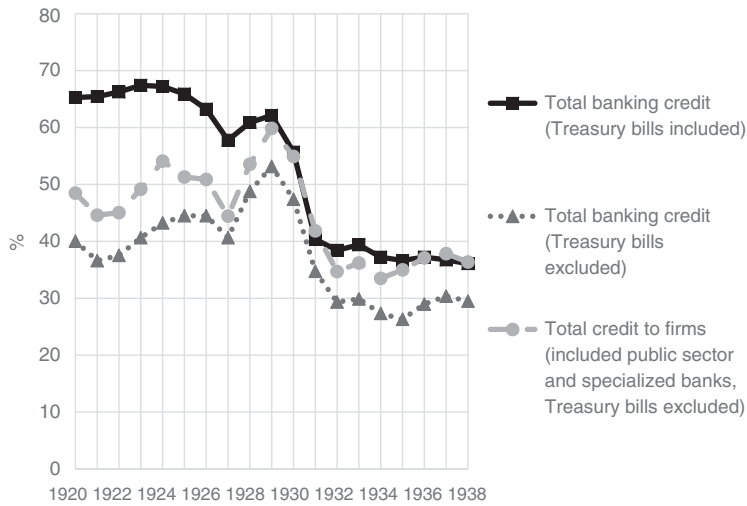


Figure 11. *Ratio of credit to deposits, aggregate French financial system*

Sources: Bank credit: authors' calculations from *Album* data (CASA, CLA). Bank lending to the Treasury: authors' calculations from *Album* (CASA, CLA) and Teneul, *Le financement*. Credit from *Crédit National*, *Crédit Agricole*, *UCINA*, *CALIF*, and other medium- and long-term credit institutions: Teneul, *Le financement*. For the calculation of total deposits, see sources for fig. 8.

and loans backed by commercial paper and securities). The difference between the two is the exclusion, in the lower curve, of the holding of Treasury bills. Banks did not commonly distinguish commercial bills and Treasury bills in their commercial portfolios. Purchase of Treasury bills (that is, *Bons de la Défense Nationale*, and later *Bons du Trésor*) by banks was a large-scale practice during the interwar period, especially in the early 1920s.⁸⁶ To construct a series that excludes lending to the Treasury, we follow Teneul, who estimates the proportion of private versus public bills in the commercial portfolio of banks for each year.⁸⁷ This information is unavailable in the *Album* and on the original balance sheets published by banks. The main sources used by Teneul are the annual reports to stockholders of 10 major banks (that is, six deposit banks and four investment banks) that sometimes presented an estimate of the breakdown between the two types of bills.⁸⁸

Our third credit series adds loans granted by non-bank institutions. We include advances granted by the Banque de France against securities, a facility used primarily by firms rather than banks, and loans granted by the *Crédit National*,

cannot be completely ruled out that some of the liquidity may have been withdrawn from banks and reinvested in business lending through notaries. Rough estimations based on Michel, 'Fortune privée', deal only with flows. They point out that nearly 1.5 billion francs were lent through notaries each year between 1928 and 1935 (excluding mortgage bonds issued on the market). The purpose of such loans is unknown, so we do not include them in our estimations. This amount was stable during the crises (meanwhile, the issuance of mortgage bonds started to increase in 1929, compared to previous years). If we follow Michel, 'Fortune privée', and assume five-year maturity on average, the total outstanding value of such loans remains small in comparison to the 80 billion francs of banking loans.

⁸⁶ Teneul, *Le financement*.

⁸⁷ *Ibid.*, pp. 26–8.

⁸⁸ Teneul added statistics published in the annual chronicles of the *Revue d'Economie Politique* by authors 'who had narrow relationships with the banking environment' (*ibid.*, p. 20; our translation), and Banque de France statistics from 1938.

a state-led credit institution created to finance reconstruction after the war, and private institutions specializing in medium- to long-term financing of some types of businesses, particularly UCINA (Union pour le crédit à l'industrie nationale) and CALIF (Crédit à l'industrie française).⁸⁹

The dashed line in figure 11 shows that before the crises, approximately 53 per cent of total deposits in banking and non-banking financial institutions were transferred to businesses. After the crises, this amounted to 26 per cent. When summing credit from non-bank institutions, the pattern does not change. These institutions did not compensate for the reduction of credit granted by the banking system, and the ratio of loans to non-financial corporations divided by total deposits decreased from 60 per cent in 1929 to 33 per cent in 1935. The credit crunch was severe. A similar amount of deposits was financing half the amount of credit it used to create. No financial institution replaced the banking system as a lender to the economy. The stock and bond markets did not play this role either, and issues and capitalization decreased sharply after 1929.⁹⁰

Although we have very limited information on lending rates during this period, some evidence suggests that the credit crunch was indeed accompanied by a rise in the real cost of credit. Lending rates experienced a sharp rise between 1929 and 1932, both in real terms and with respect to the risk-free rate. Considering the lending rate of the Banque de Paris et Pays-Bas on commercial paper, we find that the real rate increased by 15 percentage points between 1929 and 1932 (this change is driven by deflation, while the nominal rate remained constant), and the spread between lending and risk-free rates increased by 2.5 percentage points.⁹¹

VI. Conclusion

Based on extensive use of newly discovered statistics, this study provides a revisionist account of the French banking system during the Great Depression. We have provided a more precise chronology of the crises, and—more significantly—we have quantified their impact on aggregate deposits and credit. The article has also analysed the transmission mechanisms of these crises in a novel way. The question we addressed is how a series of bank runs can lead to a credit crunch. A straightforward mechanism is one in which deposits are frozen by the failures of banks, and consequently credits cannot be renewed or extended. As we have shown, however, frozen deposits represented a small portion of the decrease in total deposits. Therefore, where did deposits go, and why were they unable to finance new loans? The answer is that depositors hoarded cash and moved deposits to safe institutions (*caisses d'épargne* and the Banque de France) which did not invest the cash in the economy via loans. This flight-to-safety led to a credit crunch. Because

⁸⁹ Those statistics are from Teneul, *Le financement*, except for the Banque de France series, which is from Baubeau, 'Bank'. We also add credit from *caisses du crédit agricole* (cooperative agricultural banks), which do not appear in our bank credit series from the *Album*. The *Album* contains the largest *caisses du crédit agricole* only.

⁹⁰ Le Bris and Hautcoeur, 'Challenge'; Baubeau et al., 'Flight-to-safety'.

⁹¹ The Paribas rate is reproduced in Bouvier, 'French banks'. As a risk-free rate, we follow contemporaries by using the '*taux hors Banque*', that is, the interbank rate for short-term loans collateralized by Treasury bills. This interbank market was a prime market restricted to the largest banks with the highest reputation. Data are provided on a monthly basis. We compute the average over the year (source: BFA, Office of Economic Studies, *Cours des Changes et Taux Monétaires*, 1377200101).

of the flight-to-safety (reinforced by foreign capital inflows, as France was also seen internationally as a safe haven), the aggregate amount of deposits and currency in circulation increased in the midst of the worst banking crises in French history (1930–1). The overall money supply did not fall, but the credit supply did. This article aimed to present and explain this paradox.

Our approach reveals that it is necessary to investigate the entire financial sector and flows of funds, including non-bank institutions, to understand the channels through which banking distress leads to a decrease in credit to firms. Since savings institutions were common in most countries, this article offers a model for the study of other countries during the Great Depression.

Our interpretation of the banking crises is consistent with what is known about the evolution of the French real economy during the Great Depression. In comparison to other countries, France experienced a slightly delayed but more prolonged and deeper real crisis.⁹² The previous narrative gave almost no role to finance and domestic banking problems during this process. Contrarily, we show that the banking crises and a sharp drop in credit occurred at the same time as the real economy entered a recession. The transmission mechanism we identify accords with the absence of recovery during the 1930s. The 1930–1 crises caused persistent damage to financial intermediation.

The literature discusses the gold standard *mentalité*, or ‘gold illusion’, of the Banque de France, as well as its consequences for the world economy,⁹³ but previous authors overlooked the domestic side of this story. No financial institution replaced the banking system as a lender to the economy—neither the Treasury nor the Banque de France, despite these being the most important beneficiaries (indirectly or directly) of the flight-to-safety. In fact, although the Treasury bailed out two banks, neither a formal lender-of-last-resort policy nor any measure to channel savings towards investment was put in place. The only asset of a public institution that experienced growth was the gold reserves of the central bank.

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Footnote references

- Accominotti, O., ‘The sterling trap: foreign reserves management at the Bank of France, 1928–1936’, *European Review of Economic History*, 13 (2009), pp. 349–76.
- Andrieu, C., *La banque sous l’occupation: paradoxes de l’histoire d’une profession* (Paris, 1991).
- Baubeau, P., ‘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’ (unpub. Ph.D. thesis, Univ. of Paris 10, 2004).
- Baubeau, P., ‘The Bank of France’s balance sheets database, 1840–1998: an introduction to 158 years of central banking’, *Financial History Review*, 25 (2018), pp. 203–30.
- Baubeau, P., Monnet, E., Riva, A., and Ungaro, S., ‘Flight-to-safety and the credit crunch: a new history of the banking crisis in France during the Great Depression’, Banque de France working paper 698 (2018).
- Bernanke, B. S., ‘Nonmonetary effects of the financial crisis in the propagation of the Great Depression’, *American Economic Review*, 73, 3 (1983), pp. 257–76.
- Bernanke, B. S. and James, H., ‘The gold standard, deflation, and financial crisis in the Great Depression: an international comparison’, in R. G. Hubbard, ed., *Financial markets and financial crises* (Chicago, Ill., 1991), pp. 33–68.

⁹² The industrial production index began to fall in autumn 1930, rather than in 1929, but it did not recover its pre-1929 level before the outbreak of the Second World War; Sauvy, *Histoire économique*; Eichengreen, *Golden fetters*; Romer, ‘Nation’. Based on another set of indicators, Marseille, ‘Les origines’, argued contrary to the common view that the crisis started earlier.

⁹³ Mouré, *Managing*; Eichengreen, *Golden fetters*; Johnson, *Gold*; Eichengreen and Temin, ‘Gold standard’.

- Bonin, H., 'Oustric, un financier prédateur? (1914–1930)', *Revue historique*, 295 (1996), pp. 429–48.
- Bonin, H., 'Les caisses d'épargne françaises (1914–1945)', in Caisse d'Épargne d'Alsace and Université des Sciences Humaines de Strasbourg, ed., *L'histoire des caisses d'épargne européennes*, vol. IV (Paris, 1999), pp. 105–75.
- Bonin, H., *Les banques françaises de l'entre-deux-guerres (1919–1935)* (Paris, 2000).
- Bonin, H., *La Banque Nationale de Crédit. Histoire de la quatrième banque de dépôts française en 1913–1932* (Paris, 2002).
- Bouvier, J., 'The French banks, inflation and the economic crisis, 1919–1939', *Journal of European Economic History*, 13 (1984), pp. 29–80.
- Bridji, S., 'The French Great Depression: a business cycle accounting analysis', *Explorations in Economic History*, 50 (2013), pp. 427–45.
- Christen-Lécuyer, C., *Histoire sociale et culturelle des caisses d'épargne en France: 1818–1881* (Paris, 2004).
- Clerc, P., 'La revendication dans la faillite des banques' (unpub. Ph.D. thesis, Rennes, Faculté de droit, 1935).
- Coupry, H., 'Contribution à l'histoire des caisses d'épargne ouvrières en France' (unpub. Ph.D. thesis, Bordeaux, Faculté de Droit, 1935).
- Diamond, D. W. and Rajan, R.G. 'Liquidity risk, liquidity creation, and financial fragility: a theory of banking', *Journal of Political Economy*, 109 (2001), pp. 287–327.
- Eichengreen, B., *Golden fetters: the gold standard and the Great Depression, 1919–1939* (Oxford, 1992).
- Eichengreen B., 'Understanding the Great Depression', *Canadian Journal of Economics*, 37 (2004), pp. 1–27.
- Eichengreen, B. and Temin, P., 'The gold standard and the Great Depression', *Contemporary European History*, 9 (2000), pp. 183–207.
- Feinstein, C. H., Temin, P., and Toniolo, G., 'International economic organization: banking, finance, and trade in Europe between the wars', in C. H. Feinstein, ed., *Banking, currency, and finance in Europe between the wars* (Oxford, 1995), pp. 9–76.
- Feinstein, C. H. and Watson, K., 'Private international capital flows in Europe in the inter-war period', in C. H. Feinstein, ed., *Banking, currency and finance in Europe between the wars* (Oxford, 1995), pp. 94–130.
- Friedman, M. and Schwartz, A. J., *A monetary history of the United States, 1867–1960* (Princeton, NJ, 1963).
- Friedman, M. and Schwartz, A. J., *Monetary statistics of the United States: estimates, sources, methods* (New York, 1970).
- Fratianni, M. and Giri, F., 'The tale of two great crises', *Journal of Economic Dynamics and Control*, 81 (2017), pp. 5–31.
- Gonjo, Y., 'La modernisation de la Banque de France (1930–1946)', *Études et documents*, 8 (1996), pp. 281–356.
- Gorton, G., Laarits, T. and Muir, T., '1930: first modern crisis', National Bureau of Economic Research working paper 25452 (2019).
- Grossman, R. S., 'The shoe that didn't drop: explaining banking stability during the Great Depression', *Journal of Economic History*, 54 (1994), pp. 654–82.
- Guinnane, T., Harris, R., Lamoreaux, N. R., and Rosenthal, J. L., 'Putting the corporation in its place', *Enterprise & Society*, 8 (2007), pp. 687–729.
- Hautcoeur, P.-C., 'La Banque de France et la crise bancaire de 1930–32', *Études et documents*, 2 (1990), pp. 295–315.
- Hekimian, R., 'The French banking sector during the interwar: what lessons can be drawn from the stock market?', Univ. of Paris Nanterre EconomiX working paper 2017-3 (2017).
- Hoffman, P. T., Postel-Vinay, G., and Rosenthal, J.-L., *Priceless markets: the political economy of credit in Paris, 1660–1870* (Chicago, Ill., 2000).
- Hoffman, P. T., Postel-Vinay, G., and Rosenthal, J.-L., *Dark matter credit: the development of peer-to-peer lending and banking in France* (Princeton, NJ, 2019).
- Irwin, D. A., 'Did France cause the Great Depression?', National Bureau of Economic Research working paper 16350 (2010).
- Jackson, J., *The politics of depression in France 1932–1936* (2002).
- James, H., *The creation and destruction of value: the globalization cycle* (Cambridge, Mass., 2009).
- Johnson, H. C., *Gold, France, and the Great Depression, 1919–1932* (New Haven, Conn., 1998).
- Jonker, J. and van Zanden, J. L., 'Method in the madness? Banking crises between the wars, an international comparison', in C. H. Feinstein, ed., *Banking, currency and finance in Europe between the wars* (Oxford, 1995), pp. 77–93.
- Jorge-Sotelo, E., 'The limits to lender of last resort interventions in emerging economies: evidence from the gold standard and the Great Depression in Spain', *European Review of Economic History*, 24 (2020), pp. 98–133.
- Kindleberger, C. P., *The world in depression, 1929–1939: revised and enlarged edition*, vol. 4 (1986).
- Lacoue-Labarthe, D., 'La France a-t-elle connu des paniques bancaires inefficaces?', *Revue d'économie politique*, 115 (2005), pp. 633–56.
- Laufenburger, H., *Les banques françaises; enquête sur les changements de structure du crédit et de la banque, 1914–1938* (Paris, 1940).
- Le Bris, D. and Hautcoeur, P.-C., 'A challenge to triumphant optimists? A blue chips index for the Paris Stock Exchange, 1854–2007', *Financial History Review*, 17 (2010), pp. 141–83.

- Lefebvre-Teillard, A., *La société anonyme au XIXe siècle: du Code de commerce à la loi de 1867, histoire d'un instrument juridique du développement capitaliste* (Paris, 1985).
- Lescure, M., 'Banking in France in the inter-war period', in C. H. Feinstein, ed., *Banking, currency, and finance in Europe between the wars* (Oxford, 1995), pp. 314–36.
- Lescure, M., 'La crise bancaire des années 1930: la crise des banques locales et régionales en France?', in M. Lescure and A. Plessis, eds., *Banques locales et banques régionales en Europe au XXe siècle* (Paris, 2004), pp. 162–205.
- Lescure, M., '1914–1918, les débuts du "great reversal" des banques françaises', in F. Cardoni, ed., *Les banques françaises et la Grande Guerre* (Paris, 2016), pp. 209–27.
- Levy-Garboua, V. and Monnet, É., 'Les taux d'intérêt en France: une perspective historique'. *Revue d'économie financière*, 1 (2016), pp. 35–58.
- Lévy-Leboyer, M., 'Préface', in M. Lévy-Leboyer, ed., *Les banques en Europe de l'Ouest de 1920 à nos jours* (Paris, 1995), pp. v–xviii.
- Loriot, J., 'Les banques', *Revue d'économie politique*, 44 (1930), pp. 538–56.
- Margairaz, M., *L'état, les finances et l'économie. Histoire d'une conversion 1932–1952* (Vincennes, 1991).
- Marseille, J., 'Les origines "inopportunes" de la crise de 1929 en France', *Revue économique*, 31 (1980), pp. 648–84.
- Michel, E., 'Fortune privée immobilière 1936 et dette hypothécaire (1935)', *Journal de la Société Statistique de Paris*, 78 (1937), pp. 321–33.
- Mignet, C., 'Etude statistique des phénomènes monétaires', *Bulletin mensuel de la statistique de l'INSEE* (1952).
- Mitchell, B. R., ed., *International historical statistics: Europe 1750–1993* (Basingstoke, 1998).
- Mitchener, K. J. and Richardson, G., 'Network contagion and interbank amplification during the Great Depression', *Journal of Political Economy*, 127 (2019), pp. 465–507.
- Mouré, K., *Managing the Franc Poincaré: economic understanding and political constraint in French monetary policy, 1928–1936* (Cambridge, 1991).
- Natoli, S., Piselli, P., Triglia, I., and Vercelli, F., 'Historical archive of credit in Italy', *Bank of Italy economic history working paper* 36 (2016).
- Patat, J.-P. and Lutfalla, M., *Histoire monétaire de la France au XXe siècle* (Paris, 1986).
- Perceou, J., *Des faillites, banqueroutes et des liquidations judiciaires* (Paris, 1935).
- Plessis, A., 'Les banques françaises dans les grandes crises du 20e siècle', *Vingtième siècle. Revue d'histoire*, 52 (1996), pp. 85–93.
- Praquin, N., 'Commercial legislation and the emergence of corporate auditing in France, 1856–1935', *Accounting History Review*, 22 (2012), pp. 161–89.
- Prévost, M. and Pissavy A., *Traité pratique et formulaire de la faillite et de la liquidation judiciaire* (Paris, 1936).
- Reinhart, C. M. and Rogoff, K. S., *This time is different: eight centuries of financial folly* (Princeton, NJ, 2009).
- Richardson, G., 'The check is in the mail: correspondent clearing and the collapse of the banking system, 1930 to 1933', *Journal of Economic History*, 67 (2007), pp. 643–71.
- Ripert, G., *Traité élémentaire de droit commercial* (Paris, 1948).
- Romer, C. D., 'The nation in depression', *Journal of Economic Perspectives*, 7, 2 (1993), pp. 19–39.
- Roulleau, G., *Les règlements par effets de commerce en France et à l'étranger* (Paris, 1914).
- Saint Marc, M., *Histoire monétaire de la France: 1800–1980* (Paris, 1983).
- Sauvy, A., *Histoire économique de la France entre les deux guerres* (Paris, 1984).
- Schularick, M. and Taylor, A. M., 'Credit booms gone bust: monetary policy, leverage cycles, and financial crises, 1870–2008', *American Economic Review*, 102 (2012), pp. 1029–61.
- Sicsic, P., 'The inflow of gold to France from 1928 to 1934', *Banque de France. Notes d'études et de recherche*, 22 (1993).
- Straus, A., 'La politique des banques régionales dans l'entre-deux-guerres: entre croissance et rationalisation', in M. Lescure and A. Plessis, eds., *Banques locales et banques régionales en Europe au XXe siècle* (Paris, 2004), pp. 206–51.
- Teneul, G.-F., *Le financement des entreprises en France: depuis la fin du XIXe siècle à nos jours* (Paris, 1961).
- Ungaro, S., 'Do central clearing parties reduce risk on repo markets?', Paris School of Economics job market paper (2018).
- Wolf, N., 'Scylla and Charybdis. Explaining Europe's exit from gold, January 1928–December 1936', *Explorations in Economic History*, 45 (2008), pp. 383–401.

Official publications

- Annuaire statistique de la France, retrospectif* (Paris, 1966).
- Assemblée générale des actionnaires de la Banque de France. Compte rendu au nom du conseil général de la Banque* (Paris, 1920–40).
- France, Ministère des finances, *Bulletin de statistique et de législation comparée* (Paris, 1920–40).
- League of Nations, *Statistical Yearbooks* (1926–40).