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An Illusory Feeling of Stability: Bank Failures in France in the 1920s

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DAVID DEMILLY*

*Université Paris-Panthéon-Assas, CRED, France and Banque de France.

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Demilly David

Banque de France
CRED (Paris - Panthéon - Assas)

Abstract

This article uses historical data from French banks to document the sources of bank failures in France between 1918 and 1928. The analysis shows that failed banks faced a liquidity and not a solvency issue. Indeed, a high capital ratio has led to an illusory feeling of stability, encouraging banks to invest in risky activities. Suffering losses or unable to meet repayment requests, they were forced to default. Conversely, banks' readily available liquidity is associated with a reduced probability of failure, highlighting its protective role against shocks and strengthening the argument of the liquidity shortage. These results specific to the 1920s can be explained by the context of monetary instability which favored speculation. However, the involvement of the banking sector in financing public debt has prevented most banks from falling into the trap of excessive risk-taking and illiquidity, thus avoiding a significant increase in banking failures.

Keywords: Bankruptcy; Liquidation; Financing Policy; Financial Risk and Risk Management; Capital and Ownership Structure; Banks; Depository Institutions.
JEL Classification: G33; G32; G21

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1 Introduction

This article studies the determinants of bank failures in France during the 1920s. The analysis shows that the failed banks were in a situation of illiquidity and that the high level of the capital ratio did not prevent such an event from occurring. On the contrary, failed banks had a higher capital ratio than those that survived. This result may seem counterintuitive. However, as noted by Goodhart (1999) bank solvency and liquidity problems[1] are closely linked, each potentially causing the other. Regulatory measures such as minimum capital and liquidity ratios are implemented together to mitigate their occurrence. This study provides additional evidence of this relationship by showing how illiquidity can lead to insolvency, thereby demonstrating that capital is insufficient to prevent bank failures.

Theoretical literature demonstrates the key role of bank capital for stability by limiting risk-taking, absorbing losses and reducing the likelihood of bank runs. Cooper and Ross (2002) show that in an environment with a safety net, and therefore an increase in moral hazard, increasing equity makes it possible to reduce risk taking. Admati and Hellwig (2013) emphasize that in case of poor management, losses will be suffered by shareholders, which creates incentives to reduce risk-taking. Finally, capital makes it possible to face the risks of maturity transformation, inherent to the banking activity of collecting short-term resources such as demand deposits and granting loans. Yet this activity can lead to bank runs (Bryant, 1980; Diamond and Dybvig, 1983). Diamond and Rajan (2000) show that capital plays a crucial function in enabling banks to withstand deposit runs and avoid distress.

This stabilizing role of capital is not unanimous, leading, according to Klimenko and Rochet (2015), to a "Controversy over banking capital". Klimenko and Rochet (2015) underline a "polarization of the debate between two groups which refuse a real dialogue". Some researchers challenge the thesis according to which capital is a sufficient condition for stabilizing the banking and financial system and propose alternative measures. While the Basel II framework emphasized risk-weighted capital ratios, Calomiris (2012) and Calomiris & Herring (2013) have been critical of their effectiveness and instead high-

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[1]Theory distinguishes insolvency from illiquidity. Illiquidity refers to a situation where a bank cannot meet its short-term obligations because of insufficient liquid assets, despite potentially having sufficient overall value. Insolvency, on the other hand, occurs when a bank's liabilities exceed its assets, meaning it lacks the financial capacity to repay its debts entirely.

lights alternative instruments, such as contingent convertible capital (CoCos). CoCos are debt instruments that automatically convert into equity when a bank's capital ratio falls below a given threshold, thereby providing an automatic recapitalization mechanism to strengthen financial stability. White (1983) distinguishes between subscribed capital and paid-up capital, emphasizing that the latter—often overlooked in favor of the former—plays a more critical role in ensuring financial stability. The first represents the total commitment of the shareholders, including the amount which they have undertaken to provide but which have not yet been actually paid while the second corresponds to the amount injected by the shareholders into the bank. White (1983) shows that paid-up capital allows for better shareholder involvement, encouraging managers to manage risks more effectively.

To test the role of the capital ratio as a determinant of the failure or survival of banks during the 1920s in France, I construct financial ratios from historical balance-sheet data of French banks between 1901 and 1928 and use Cox and Logit models. This database includes 277 banks and records a total of 29 failures—13 between 1918 and 1928, and 16 between 1901 and 1914. Integrating the pre-war period will thus make it possible to compare the results and notice whether they only apply to the 1920s, suggesting a potential effect of the macroeconomic context.

The study of the origin of banking instability in France in the 1920s is relevant for two reasons. First, the absence of banking regulation in France before 1941 provides a counterfactual and limits the biases of a poorly designed or overly rigid regulatory framework (Barth et al., 2004; Acharya, 2009). Furthermore, the Bank of France was a lender of last resort only for illiquid, solvent banks with an account there (Bignon and Jobst, 2017; Avaro and Bignon, 2019) and banks did not have safety nets like deposit insurance; limiting the perverse effects of these measures on market discipline. Finally, no notable regulatory changes occurred during the 1920s that could explain shifts in banks' risk-taking behavior. Second, monetary and political instability until 1928, marked by a sharp depreciation of the Franc, did not increase financial instability (Baubeau and Riva, 2020); which suggests a limited macroeconomic impact on bank failures. While theoretical studies demonstrate a non-unidirectional causal link between banking and currency crises (Kaminsky and Reinhart, 1999; Goldstein, 2005; Goldstein and Razin, 2013), the focus is often placed on the shift from banking turmoil to currency collapse. However, the reverse mechanism—currency crises contribute to banking sector distress—is relevant in the French context during this period of significant monetary instability.

The paper shows that banks were facing a problem of liquidity rather than solvency. Subscribed and paid-up capital ratios are associated with an increase in the probability

of failure, while the cash ratio—bank resources readily available—is associated with a reduction in the risk of failure. The variable capturing market risks is significant and positive, highlighting the impact of risks taken on bank failures. Qualitative analysis based on unexplored archives (Bank of France supervisory reports and failure files from commercial courts) substantiates the liquidity issue by showing that banks allocated their resources to risky, illiquid, and undiversified activities. Despite significant increases in capital for some banks during their operations, it was insufficient to meet immediate liquidity needs. These results suggest that highly capitalized banks experienced a feeling of stability, which encouraged them to take significant risks. But this turned out to be illusory since, unable to respond to requests for reimbursement, they were forced to default. Capitalization, when it does not take into account the liquidity risks undertaken by the bank, cannot ensure stability of the banking sector at all times and can even become a source of instability. Conversely, cash allows for absorbing shocks and meeting repayment demands, strengthening the resilience of banks.

Post-war France experienced monetary instability and then uncertainty that affected the structure and activities of the banking sector. Cox and Logit regressions for both 1901–1914 and 1918–1928 show that the results hold only for the latter, underscoring the impact of the 1920s macroeconomic context on the banking sector. Moreover, between 1919 and 1926, monetary instability was marked by a continuous depreciation of the exchange rate and three currency crises, driven in part by speculative pressures and growing concerns over the government's ability to finance its debt, which fueled mistrust in the currency. The arrival to power of Poincaré in 1926 brought a de facto stabilization, ending the instability but introducing uncertainty about Franc's final value (Sicsic, 1992). In this context and despite the phenomenon of banking concentration in favor of regional and national banks (Bonhoure et al., 2024), new banks emerged, aiming to offer small savers access to the speculative opportunities created by these monetary events (Bernard, 1975). Bonin (2000) highlights an increase in distrust towards banks perceived as taking excessive risks with national savings (Bonin, 2000). Meanwhile, most banks financed public debt through "Bons de la Défense Nationale", which constituted safe and liquid assets that insulated them from speculation and help account for the lower incidence of annual failures in the 1920s compared to 1901–1914. In contrast, banks that failed in the 1920s were often newly created banks and had a higher proportion of "Securities and financial participation" and held few government bonds.

The contributions of this article are threefold.
First, this episode contributes to research and debates on the factors of banking instability and in particular on the role of capital. Many researchers have highlighted the importance of solvency and liquidity ratios in order to prevent banking distress defined

as bank failures and runs (White, 1983; Admati and Hellwig, 2013 and 2024; Hanson et al., 2021). Others highlight the importance of financial leverage for banks, allowing them to exercise their liquidity production function (Gorton, 2012; DeAngelo and Stultz, 2015). The results of this paper provide a counterintuitive conclusion since here the capital ratio is associated with an increase in the probability of failure. Paid-up capital is also a leading indicator of the probability of failure, reflecting the fact that the more capital shareholders pay, the higher the probability of the bank failing. This paper qualifies the importance of equity as the only variable that can mitigate the risks of financial instability. The stabilizing nature of the equity ratio therefore depends on the context and can give an illusory feeling of stability, in particular encouraging risk-taking. Conversely, liquid banking resources are associated with a lower risk of bank failure because they make it possible to meet repayment demands and play an important role in absorbing shocks. This study is in agreement with regulations or recommendations on the need to link solvency and liquidity ratios.

Second, this article provides an analysis of the sources of banking instability in France in the 1920s, which has received limited academic attention. Studies on banking instability in France before 1941 focus mainly on the Great Depression (Lacoue Labarthe, 2005; Baubeau et al., 2021). Baubeau and Riva (2020) show that the low number of failures during the interwar period contributed to the feeling of stability, justifying the implementation of late banking regulation. Espic (2024) analyzes the four main French banks and shows that during the period of de facto stabilization of the Franc (1926-1928), the disappearance of short-term public debt led to abundant liquidity; incentivizing banks to find new investment opportunities, which could foster instability. Using a database of between 85 and 277 banks from 1918 to 1928, I show that bank capitalization is positively correlated with the probability of failure, while cash is associated with a decrease in this probability. These results can be attributed to the monetary context, which was conducive to speculation, characterized by significant "financial participation" on the part of some banks. These banks, despite their high capitalization, were not able to meet repayment requests and were faced with liquidity issues. However, the majority of the banking sector that financed public debt via safe and liquid bonds was not faced with liquidity problems; explaining the low annual number of bank failures during the 1920s.

Third, this article examines how the economic and monetary context of the 1920s affected the banking sector. While some studies have explored the macroeconomic environment—particularly the causes and consequences of the Franc's depreciation—and others have focused on the evolution of the banking sector, this article brings these two perspectives together. Sicsic (1992) highlights the 1926–1928 debates on the exchange rate, showing the Franc was undervalued in July 1928. In this context of monetary insta-

bility and postwar reconstruction, the banking landscape changed. Bernard (1975) notes the emergence of banks aiming to profit from speculation, while Bouvier (1984) studies evolving banking practices. Bonhoure et al. (2024) analyze branch expansion and the absorption of local banks by regional ones. This article argues that, in a context of instability and uncertainty, some banks that favored securities and financial investments were weakened—despite high capitalization—whereas those that invested in public debt were shielded from these effects.

The rest of the document is organized as follows. Section 2 presents the literature about banking instability and the historical context of the 1920s in France. Section 3 presents the archives and the database. Section 4 discusses the choice of explanatory variables and specifications. Section 5 presents the results. Section 6 concludes.

2 Literature review and historical background

This section first draws on theoretical and empirical research on financial instability to determine which factors are likely to weaken or strengthen the banking sector. These factors will be adapted to the specificity of the period studied and the data collected in order to construct the ratios presented in section 4.

2.1 What we know about the factors of financial instability

It is possible to divide the determinants of financial instability into three categories: solvency, liquidity and market or credit risks. The impact of each of them can be enhanced when combined with each other.

The first category focuses on solvency risk, typically assessed through capital ratios designed to enhance stability by limiting risk-taking and absorbing losses (Aiyar et al., 2014). This dual function is well documented in both theoretical (Furlong and Keeley, 1989; Holmstrom and Tirole, 1997) and empirical literature. Capital requirements are shown to reduce moral hazard and substitute for insufficient market discipline (Cooper and Ross, 2002). Empirical findings support their stabilizing role, particularly during crises (Berger and Bouwman, 2013; Admati and Hellwig, 2013, 2024). Yet, the effectiveness of capital remains contested. Some authors argue that high capital requirements may themselves generate instability—by signaling underperformance (Myers and Majluf, 1984), reducing allocative efficiency (Jensen and Meckling, 1976), or by inducing higher future risk-taking (Blum, 1999; Borio and Zhu, 2012). Others question capital's preventive power more fundamentally, suggesting it cannot, on its own, avert financial crises. For instance, Aiyar et al. (2014) warn that "there is no magic equity ratio" and Jordà

et al. (2021) find that while equity cushions crisis impact, it does not eliminate systemic risk. These critiques have prompted proposals for more refined approaches: Calomiris (2012) proposes contingent convertible capital (CoCos) as an alternative or complement to equity requirements, while White (1983) distinguishes between subscribed and paid-up capital to better align shareholder incentives. These perspectives suggest that capital's stabilizing role depends not only on its level but also on its composition and interaction with other dimensions of financial fragility, such as liquidity and leverage.

The second category focuses on liquidity risk, particularly related to the maturity transformation activity of banks; which can lead to bank runs. These bank runs can be explained by the type of resources collected by banks but also by the resources they have available to meet withdrawal requests. Banks are inherently unstable institutions since they finance long-term investments via the short-term deposits they collect. This maturity gap between assets and liabilities is a particularity of the banking sector that exposes them to the risk of bank runs. Diamond and Dybvig (1983) showed that banks faced with a bank run become illiquid and are forced to sell the resources placed at a loss; making them insolvent. The more short-term resources a bank collects, the higher the risk of bank runs. However, to reduce this risk of illiquidity and allow banks to cope with large withdrawals, the Basel III Committee defined two liquidity ratios (LCR and NSFR) which increase the amount of liquidity immediately available to banks. Carlson (2005) confirms this need for immediately available resources since he notes that a lack of liquidity can promote the triggering of a bank panic. Calomiris, Heider and Hoerova (2015) develop a theory of cash reserve requirements as a tool to manage liquidity and solvency risk.

The third category analyses the risks taken by banks, in particular credit and market risks. Many authors (Allen and Gale, 2000; Calomiris and Mason, 2003; Goldstein and Razin, 2013) show that when an external negative shock occurs, it leads to a deterioration of assets or exposes the bankrupt bank to these bad choices. Other authors focus on debt and its impact on instability. Laeven and Valencia (2013) show that out of 129 episodes of banking crises, 45 were preceded by a credit boom. Schularick and Taylor (2012) show a link between debt during the boom period and the amplitude of the recession following the turnaround. Fisher (1933) and Calomiris (2007) highlight debt growth as a predictor of instability and show that short-term loans are a problem in a deflationary context. Others (Reinhart and Rogoff, 2013; Kumhof et al., 2015) show that real estate debt, which can be defined as long-term loans, is a key predictor of bank failures. Similarly, Postel-Vinay (2016) emphasizes that in early 1930s Chicago, banks heavily exposed to real estate mortgages failed primarily due to the illiquidity of these assets, not their credit quality—highlighting the central role of liquidity in banking distress. However,

this link between credit growth and financial fragility is not universal: Molteni (2024) shows that, during interwar Italy, rapid credit expansion and higher leverage did not lead to banking failures. Instead, this growth reflected a broader process of financial development and increased banking access, challenging the view that credit booms are systematically destabilizing.

2.2 Developments in the banking sector driven by the context of macroeconomic instability

During the 1920s, the banking sector underwent changes in terms of structure and activity, justified in part by the context of monetary instabilities and uncertainties. Described as more stable than during the pre-war period with a lower annual number of failures (Baubeau and Riva, 2020), the banking sector adapted to these different developments, pushing the supervisory department of the Bank of France to boast of his "mastery" (supervisory report, Lille, 1927). However, certain banks sought to take advantage of these events through speculation, which increased risk-taking—a dynamic particularly noted by Emile Moreau upon his arrival as governor of the Bank of France in 1926, when he observed that the Bank's discount portfolio "left something to be desired" (Moreau, 1954).

Regarding the evolution of the banking sector's structure, the post-war period was marked by banking concentration on the one hand and the creation of new banks on the other. Bonin (2000) and Bonhoure et al. (2024) highlighted that the 1920s were characterized by a period of expansion in bank branches. Bonhoure et al. (2024) showed that this expansion was primarily driven by the largest French banks, which, following the losses incurred from Russian loans, sought to rebuild their capital (Ambigapathy, 2004). The 1920s also saw the emergence of new actors to meet economic demands, competing with the traditional banking sector, attracting savings, and encouraging the creation of well-capitalized banks. Bernard (1975) emphasizes the creation of investment companies that aimed to "enable small savers to participate in the windfall previously reserved for a certain segment of the population." Baubeau et al. (2021) confirmed this thesis and demonstrated that the second half of the 1920s was characterized by savers seeking profitable investments. Ambigapathy (2004) noted a democratization of the stock market to attract savers, allowing smaller banks to invest in industrial financing. This is why many financial intermediaries (banks, discounters, local banks) were created to take advantage of this favorable climate and meet the demand by offering securities-based investments.

Concerning banking activities, banks also adapted to the economic and monetary conditions of the 1920s. These modifications which had a significant impact on the value of banking operations (Sauvy, 1984; Cassiers, 1995) were therefore reflected in both the

liabilities and the assets of bank balance sheets.

On the liabilities side, banks captured more savings and deposits; increasing their short and long term resources. Indeed, faced with the capital needs of businesses, many measures were taken. The Treasury supported provincial banks in their efforts to create a national network to meet capital needs, as well as large banks through the establishment of agencies aimed at collecting savings (Ambigapathy, 2004). Local banks attracted the savings of small depositors by exploiting the low returns offered by the main banks financing public expenditure and by benefiting from increased rural wealth, which boosted deposits (Ambigapathy, 2004). Lescure (2004) indicated that the more deposits increased, the more creative savings (placed in the long term) and reserve savings (left to banks without specific maturities) decreased; not increasing their capacity of action. Baubeau (2016), Bonin (2000), Lescure (1995, 2016) showed that during this period, the deposits of professionals and urban elites became volatile due to monetary conditions and capital flight. Which explained, according to Bonin (2000), why the "Monnaie dormante" of the countryside became the main cause of this expansion.

On the asset side, the majority of the banking sector mainly financed public debt and therefore had a safe and liquid balance sheet. A large part of the banking system, driven by national banks, sought to meet the financing needs of the State (Ambigapathy, 2004). War and reconstruction spending was mainly financed by debt, particularly short-term, subscribed by the public and banks (Blancheton, 2012; Quennouelle-Corre, 2013; Duchaussoy and Monnet, 2019; Espic, 2024). Ambigapathy (2004) notes that Parisian banks searched for sufficient investors across the country to subscribe to "Bons de la Défense Nationale", the main instruments granting access to liquidity. Yet, as some savers sought higher-yielding assets than government securities in response to inflation, holdings of public debt gradually declined during the 1920s. Their precise share, remains difficult to assess due to the opacity of discount portfolios: Debeir (1980) and Loriot (1927) both emphasized that it was "impossible" to distinguish between commercial paper and Treasury bills in portfolio accounts, limiting our ability to evaluate banks' true exposure to public debt and their role in financing economic activity.

However, some banks adopted a different strategy by trying to take advantage of monetary instability. From 1919, when the Allies ended their support for the Franc, the problem of exchange rate depreciation became central. Bernard (1975) noted that this sudden change was for the "collective conscience the most serious, most inexplicable, most spectacular shock". From then on, France experienced three exchange rate crises. The first from March to December 1919 took place in a context where France was suffering a deterioration in its trade deficit. The Franc experienced a new depreciation from 1923

following the failure of the occupation of the Ruhr by France in order to force Germany to repay its debts (Hautcoeur and Sicsic, 1999). This second crisis was mainly the result of banking speculation on the Franc (Bernard, 1975). Finally, the arrival in power of the "Cartel des Gauches" in 1924, carrying a reform of the capital tax crystallized the fears of savers who did not renew or sell their Treasury or "Bons de la Défense Nationale" (Sargent, 1981; Sicsic, 1992; Hautcoeur and Sicsic, 1999), thus triggering the third exchange rate crisis. The failure of the new loan, which was to allow the consolidation of the debt, accelerated the depreciation (Sicsic, 1992; Hautcoeur and Sicsic, 1999). This crisis could be explained in part, according to Jeanneney (1976) by speculative operations of the Bank of Paris on the foreign exchange market while Sicsic (1992) specified that this strong depreciation remained largely unexplained.

The stabilization of the exchange rate did not put an end to speculation; instability gave way to uncertainty. The arrival in power of Raymond Poincaré in July 1926 marked an immediate return of confidence. However, this return to monetary and political stability led to the appearance of uncertainties and therefore the maintenance of monetary speculation. Indeed, some actors anticipated a strong revaluation of the Franc. In the spring of 1927, some, including the Rothschild Bank, feared the early stability of the exchange rate, forcing the Bank of France to buy 3 million pounds in a single day. This speculation lasted for several weeks and ended on May 20, 1927, the speculators' reserves being exhausted.

3 Source and database

The data used in this article are based on the Crédit Lyonnais "Albums". This source, presented in detail by Baubeau and Riva (2020) and Baubeau et al. (2021), gathers the annual balance sheets of more than 300 French banks between 1901 and 1941. Building on this source, this article constructs its own database, specifically focused on the 1920s, while also extending the coverage by incorporating data for the pre-1914 period. This section will briefly summarize the content of these documents and their relevance to the analysis before justifying the choice of variables and the selected time frame.

3.1 Presentation of the archives

The bank balance sheet data used for this analysis, from a reliable source, provide a comprehensive and detailed view of the French banking sector. Indeed, Crédit Lyonnais collected, via its "Services des Etudes Financières", a large amount of information, allowing it to have a precise knowledge of banks in France. This department ensured, according to Flandreau (2003), "the role of economic and financial monitoring". Through various

channels such as press clippings, decisions of commercial courts or "half-spies sometimes working for the competition and from whom the department buys tips" (Flandreau, 2003), Crédit Lyonnais had an effective information system ensuring it had a global view of the state of health of banks and their activities. In this context, it collected the balance sheets of many client or competitor banks, grouped together in "Albums". Baubeau et al. (2021) show that these archives are representative of the French banking sector since they note that the total deposits in 1938 from the Album data correspond to 98% of all deposits in the banking sector at the time. This also mitigates the risk of partial interpretations that might arise from analyses restricted to specific segments of the banking sector, such as large, small, or Paris-based banks.

Three Albums covering the period 1901–1941 are available, pertaining to joint-stock public limited banks that received deposits and discounted commercial paper. More specifically, the sample included most investment banks and the largest cooperative banks (e.g. banques populaires and caisses de crédit agricole), but excluded brokers, individual financiers, real estate and insurance companies, and public credit institutions (such as Crédit National and the Caisse des Dépôts et Consignations), as well as state-supervised savings institutions (such as caisses d'épargne).

The information contained in these Albums is homogeneous, facilitating quantitative analysis, allowing temporal comparisons and reducing biases, particularly standardization biases (Frydman and Xu, 2023). Because no formal bank reporting regulation existed in France during this period, Crédit Lyonnais established its own harmonization standards to process heterogeneous financial statements. Compiled from annual reports sent to shareholders, the information was drawn from balance sheets communicated directly by the banks, as many institutions — particularly the largest ones — published their annual balance sheets even though such disclosure was not legally required. These data were then standardized within a unified structure in which the balance sheet items were identical regardless of the bank. Differences across Albums exist but are negligible and do not affect the construction of financial ratios.

The albums offer a diversified overview of the French banking sector over time, reinforcing the value of this source as a representative basis for analysis. As shown in Figure 1, this source contains, in addition to balance-sheet items, complementary information such as the institutional type of the bank (local, regional, national). However, since the institutional type is not consistently reported across banks and years, I rely instead on an alternative classification based on bank size. Each year, banks are divided into three groups—small, medium, and large—according to their total assets, recalculated annually to avoid distortions from inflation or overall balance-sheet growth. The classification is

based on the number of institutions rather than their aggregated assets, thereby highlighting entry and exit dynamics across size categories. The resulting three series overlap closely, indicating that the banks analyzed were diverse and not concentrated in one particular segment of the banking sector (see Figure 7 in the Appendix).

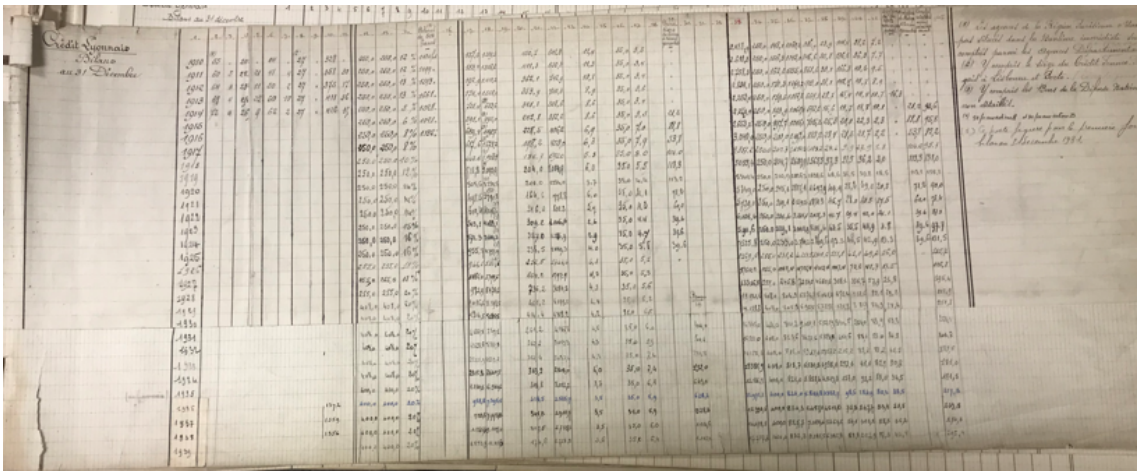

Figure 1. One page of balance sheets
Source: Crédit Lyonnais

Finally, the archival data from Crédit Lyonnais offer valuable insights into the growing number of balance sheets collected, indicative of a substantial increase in the number of banks analyzed by this institution throughout the 1920s. As shown in Figure 2, the number of available balance sheets—and thus the number of banks—increased steadily from around 60 in 1901 to 277 by the late 1920s.

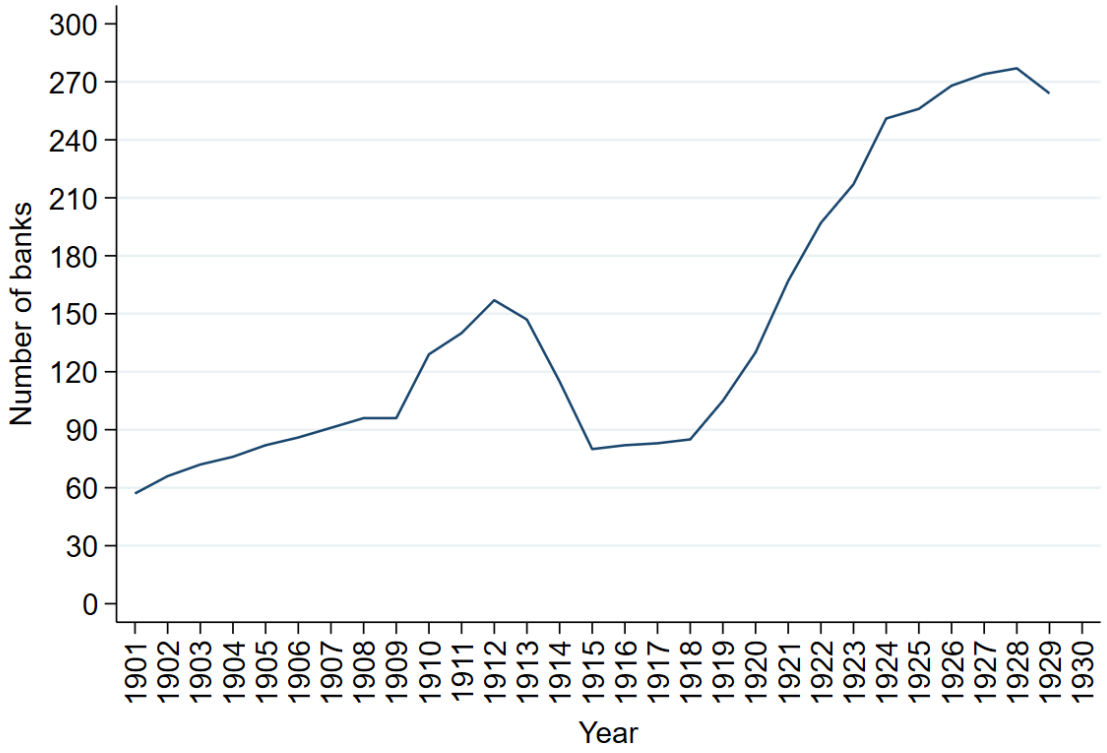

Figure 2. Number of annual bank balance sheets (1901 - 1930)
Source: Crédit Lyonnais

3.2 Database

The analysis of this database shows that the granularity and standardization of information are an asset for the construction of financial ratios, justifying the choice not to modify the structure in depth. Table 6 (in appendix) presents all the balance sheet items for the period 1901 – 1941. These data distinguish, for example, the subscribed capital from the unpaid capital, thus making it possible to analyze the behavior of shareholders in the years preceding the failure—regardless of the bank considered. Do shareholders decide to support the bank by subscribing to new shares—thereby increasing its capital to absorb losses and restore financial health—or by fully paying up previously subscribed shares, or do they instead refrain from any further contribution altogether?

The study of Table 6 shows that Crédit Lyonnais grouped together, for certain years and certain banks, several items into one. This is the case for the item "Sight Deposits and Term Deposits" which aggregates the information from these two items. In this situation, it is impossible to know the amount of each separately. Since this does not disrupt the creation of the financial ratios in the following section, it is not necessary to make any changes. Moreover, I created "Other" that represent non-standardized items, mentioned manually by Crédit Lyonnais and whose amounts are insignificant and do not disturb the

result of the regressions. This is the case for the item "Current account of the Treasury in Indochina" present in the balance sheet of the Bank of Indochina. All items will be used to define financial ratios presented in Section 4.1.

This source also indicates, where applicable, the nature of bank exits, namely failure, cession or dissolution. Figure 3 reports the number of bank exits recorded in the Albums, notably thirteen failures between 1918 and 1928 and sixteen before 1914. Since the purpose of this article is to study the source of banking failures in the 1920s, I created a dummy "Failure" where 1 is the year a bank failed, 0 otherwise. Dissolution or cessions are therefore excluded from this variable. Moreover, an additional source (also available from Crédit Lyonnais) lists all bank failures between 1901 and 1928, including banks that are not present in the Albums (Baubeau and Riva, 2020). It indicates the identity of the bank and the year of the failure. This comprehensive data ensures that no bank failure recorded in the Album is omitted.

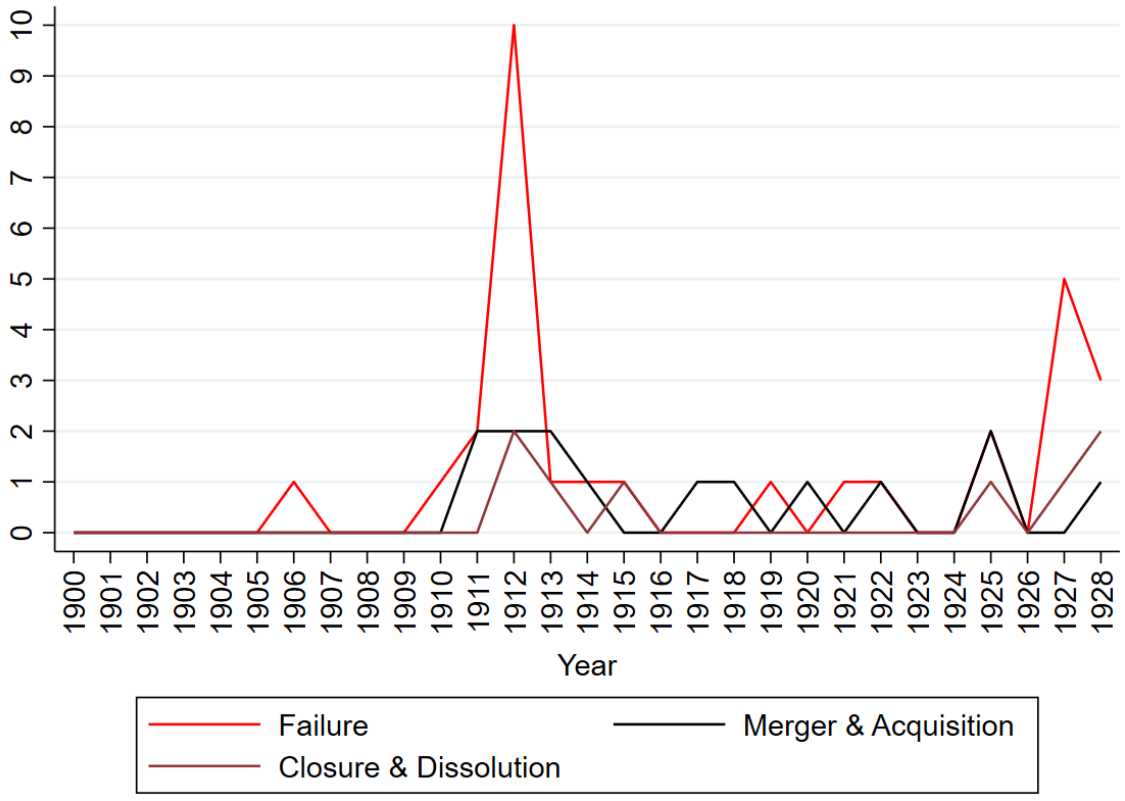

Figure 3. Annual evolution of bank exits in Albums (1901 - 1928)
Source: Crédit Lyonnais

4 Measure of banking instability and specifications

This section draws on studies on instability and historical data to construct financial ratios that can explain banking failures. It will present the summary statistics and detail econometric model selected as well as the choice of specifications, justified by the historical context and the variables used.

4.1 Financial ratios for measuring financial (in) stability

Table 1 presents the financial ratios constructed from the collected data. Each ratio is defined as one or more balance-sheet items in the numerator, with the total balance-sheet size in the denominator. All items contained in the database have been integrated into these ratios, which are constructed as mutually exclusive and collectively exhaustive categories of the balance sheet.

These ratios integrate the theoretical dimension of (in)stability detailed previously and are therefore classified into three categories: "Solvency", "Maturity transformation and liquidity", "Credit and market risks". While these three categories are grounded in the theoretical literature on financial instability, the construction of the variables must also reflect the specificity of the data collected from historical archives. Accordingly, the "Sundry and other" category was introduced to capture information that does not fit into the three groups but reflects important features specific to the archival sources. These two ratios may have their own analytical interest and will therefore be integrated into the specifications. Finally, the "Others 1" to "Others 2", respectively in the assets and liabilities side, are in almost all situations positions specifically created for a bank and for a year. These two items, very heterogeneous in the data contained, will not be included in econometric regressions.

The first category "Solvability" contains two ratios "Capital" and "Paid-up capital". The first corresponds to the subscribed capital, that is to say the financial commitments of shareholders. The second, obtained by making the difference between the subscribed capital and the unpaid capital, is defined as the amount that the shareholders have actually paid to the company. This difference between subscribed and paid, analyzed by White (1983), is important in the way in which shareholders will follow the managers and therefore on the activity and risk-taking of the bank. In the case where capital variable is significant and negative, this will confirm the stabilizing role of capital since the increase in the capital ratio is associated with a decrease in the probability of failure. On the contrary, if this variable is significant and positive, an increase in the equity ratio leads to an increase in the probability of failure; demonstrating its destabilizing effect.

The second category "Transformation of maturity and liquidity" refers to two distinct aspects of bank runs. The first concerns the collected deposits that may trigger such runs, while the second relates to the liquid resources available to banks to face them. The second column of Table 2 shows that certain balance sheet items have been merged to form only one item. It is therefore difficult to distinguish short-term resources from long-term resources. Also, all depositor resources collected by banks are grouped into a single variable "Deposits", which captures the potential vulnerability of banks to runs. "Cash" and "Liquid assets" contain the resources immediately available and safe and liquid assets respectively to respond to withdrawal requests. In the case where a link exists between failures and bank runs, the coefficient of the "Deposits" variable should be significant and positive. If the "Cash" or "Liquid assets" coefficient is significant and negative, this means that the increase in liquid resources is associated with a decrease in the probability of failure and is an indicator of stability.

The third category "Credit and market risks" focuses on risks taken by banks. Two credit ratios, "Short-term loans" and "Long-term loans", were constructed to analyze the differences in maturity and risk. Short-term loans are considered less risky and more liquid and this also applies to the context of the 1920s. These loans correspond to Treasury bonds and commercial papers re-discountable with the Bank of France (in case the bank client has a discount account). The "Market risks" encompasses a diversity of risks, including speculation, exchange rate fluctuations (Flandreau and Sicsic, 2003; Espic, 2024) and investments in companies. If "Short-term loans" are significant and negative, then these less risky assets allow banks to reduce both potential credit losses and their liquidity vulnerability.

Ratios	Bank balance sheet items
	Solvability
Capital	Subscribed Capital / Balance sheet
Paid up capital	(Subscribed Capital - Unpaid capital) / Balance sheet
	Maturity transformation and liquidity
Deposits	(Sight deposit + Term deposit + Credit account + Sight deposit and Term deposit and Credit account) / Balance sheet
Cash	(Profit and loss + Central bank reserve) / Balance sheet
Liquid assets	(Cash on hand + Bills of exchange + Discount) / Balance sheet
	Credit and market risks
Short-term loans	(Commercial paper + Debitor account + Debtor by acceptances) / Balance sheet
Long-term loans	(Collateralized loans + Debitor account and Collateralized loans + Reports and Collateralized loans) / Balance sheet
Market risk	(Reports + Reports and advances + Reports and Debitor account and Securities and Financial participation) / Balance sheet
	Sundry and other
Sundry asset	(Miscellaneous + Real Estate and other) / Balance sheet
Sundry liability	Miscellaneous / Balance sheet
Other asset	(Other 1) / Balance sheet
Other liability	(Other 2) / Balance sheet

Table 1. Financial ratios

Note: The Table presents the financial ratios based on one or several balance sheet items. For each ratio, I divide the items by the size of balance sheets. Source: Crédit Lyonnais and own classification.

4.2 Descriptive statistics

This section presents three graphs on the financial ratios of French banks. The first summarizes their long-term evolution for the entire sector between 1901 and 1928. The second compares financial ratios between failed and surviving banks. The third examines failure dynamics by aligning banks around the year of default, showing how ratios evolved in the years just before collapse. Taken together, these figures provide an initial view of the potential role of financial ratios in bank failures. All ratios—except "Other" (excluded as it groups heterogeneous items) and "Unpaid capital" (replaced by "Paid-up capital")—are used identically in the econometric regressions.

Figure 4 illustrates the evolution of financial ratios between 1901 and 1928 for all banks. The capital ratio stood at around 0.28–0.30 in 1914 but fell sharply after 1918, stabilizing

near 0.20. Paid-up capital followed a similar pattern, moving from 0.22–0.25 before the war to 0.15–0.18 thereafter. Deposits, at 0.55–0.60 prewar, collapsed during the war and gradually returned to their earlier level. Short-term loans, very high before 1914 (around 0.65), dropped markedly during the war and stabilized at a lower level, while long-term loans, negligible before the war, rose significantly in the 1920s to 0.08–0.10. Finally, cash ratio declined from a stable 0.15–0.18 before 1914 to around 0.10 after 1918, remaining persistently lower throughout the decade.

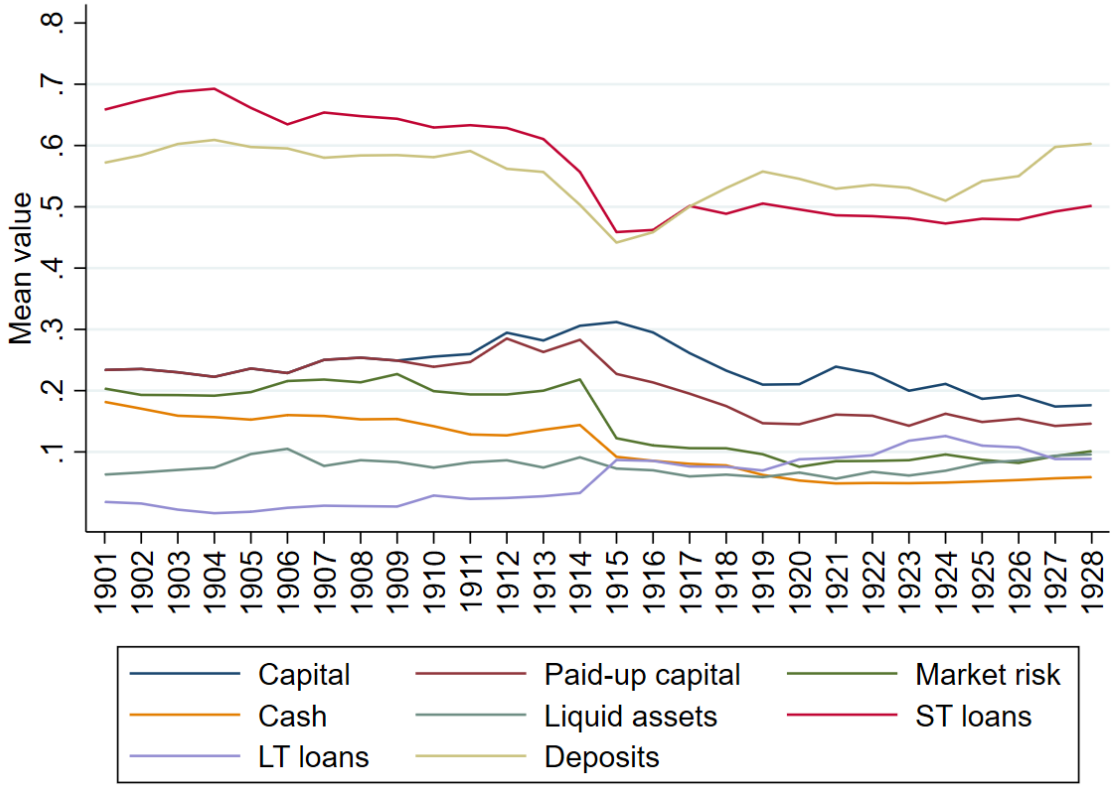

Figure 4. Long-term evolution of financial ratios (1901–1928)
Sources: Crédit Lyonnais and own calculation

Figure 5 presents the average ratios for 1918–1928 and 1901–1914 (see Figure 8 in the appendix). More precisely, for failed banks, the reported values correspond to the average ratios of all such banks in the year of their disappearance. For surviving banks, the values represent the average across all banks over the entire period. The analysis shows that, despite higher capitalization, banks that failed in the 1920s had riskier balance sheets than those that survived.

Between 1918 and 1928, failed banks showed a higher capital ratio (29.7% vs. 19.8%) but a slightly lower unpaid capital ratio (7% vs. 7.7%) than surviving banks. These results suggest that higher capital did not ensure bank survival, as shareholders of failed

banks had, on average, contributed more capital relative to total assets. An intertemporal comparison further shows that solvency ratios declined across the entire sector during the 1920s, with a sharper fall among surviving banks (25.6%) than among failed banks (28.9%). After the war, failed banks also allocated a larger share of their resources to market risks (14.4% vs. 8.9%) and a significantly smaller share to short-term loans (49.7% vs. 78.2%) than surviving banks. Compared to 1901–1914, surviving banks reduced their exposure to market risks far more than failed banks (–11.9 vs. –0.5 percentage points), suggesting an adaptation to a more unstable context. These results indicate that banks failing in the 1920s were more exposed to risky activities and lacked the liquid resources needed to meet repayment requests, supporting the view that their difficulties stemmed from liquidity rather than solvency problems.

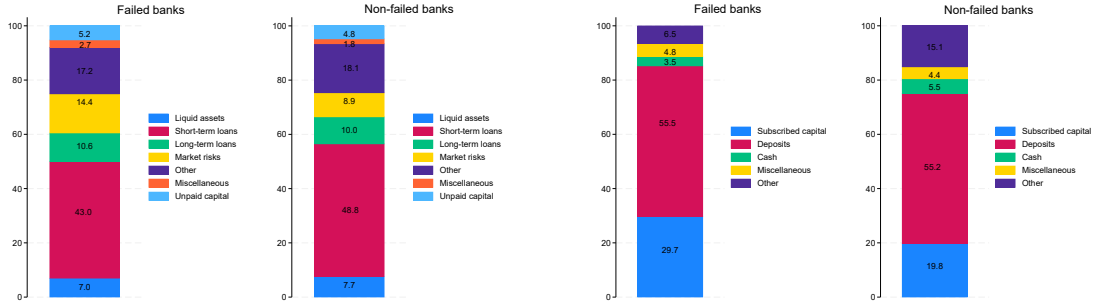

Figure 5a. Asset side

Figure 5b. Liability side

Figure 5. Summary statistics: average financial ratios between failed and non-failed banks (1918–1928)

Note: The figures show the average share of each financial ratio over the balance sheet size. Sources: Crédit Lyonnais and own calculation.

Figure 6 aligns banks around their year of failure and traces the average evolution of financial ratios in the years preceding collapse. The capital ratio reached relatively high levels, between 25 and 35% of the balance sheet, rising from $t-5$ to $t-2$ before declining at failure. Paid-up capital followed a similar trajectory but at lower levels, generally between 20 and 25%, suggesting that a substantial share of subscribed capital was not fully paid in. Cash ratio rose from around 5–10% at $t-5$ to nearly 15–20% on the eve of failure. Short-term loans, initially close to 45–50%, declined steadily to below 40%, while long-term loans expanded from marginal values to about 15–20%. Deposits remained relatively stable at around 55–60%, providing continuity in funding, whereas market risk exposure increased steadily, surpassing 15% by failure.

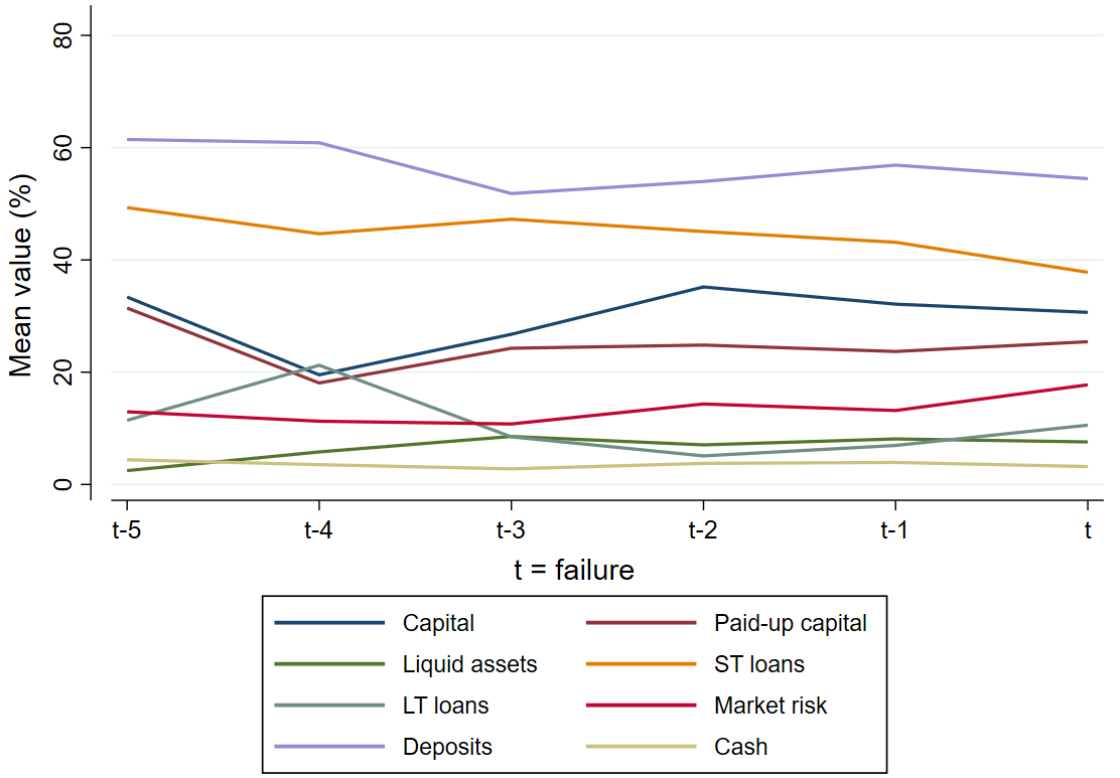

Figure 6. Pre-failure dynamics of financial ratios (1918 - 1928)

Note: The figures show the average value of each financial ratio in the years preceding bank failure (t–5 to t). Relative time is defined as $\text{rel}_t = \text{Year} - \text{failyear}$, with a window from $t-5$ to t. For each cohort and each rel_t, financial ratios are averaged across institutions (simple mean, unweighted). All ratios are expressed as shares of total balance sheet items. Sources: Crédit Lyonnais archives and own calculations.

These findings raise the question of the relationship between capital and risk-taking in the context of the regulatory and institutional framework of the time. Historical research shows that banking crises are not inherent to financial cycles but largely reflect the "rules of the game" established by political and institutional arrangements (Calomiris 2009). This perspective underlines that the relationship between capital and stability depends not only on bank balance sheets but also on the broader regulatory framework. Indeed, French banks operated in an environment without capital requirements. Unlike under the rules of Basel, banks in the 1920s were free to determine the composition of their balance sheets. High capitalization levels could be interpreted as signals of solidity, helping banks to attract or reassure depositors. However, in the absence of constraints linking capital to risk-weighted exposures, capitalization levels did not necessarily capture the risk level of balance-sheet items. In particular, while capital provided a buffer against potential credit losses, it did not mitigate the liquidity risks stemming from illiquid or speculative investments. This suggests that while high capitalization may have been pursued as a

rational strategy to enhance credibility and resilience, it ultimately failed to prevent bank failures when liquidity pressures arose.

4.3 Econometric specifications

The objective is to identify the financial variables that influenced the likelihood of failure at the individual bank level in France during the 1920s. In the Albums, it is indicated whether the institution exited the sector due to failure, which serves as the basis for the outcome variable. I estimate this relationship primarily using a Cox model, which is well suited as it exploits time-to-failure information. To reinforce the robustness of the results, I also report Logit estimations (see Appendix), which offer a complementary assessment of failure probabilities independent of duration and consistently confirm the main findings from the Cox model.

The use of these models and control variables are due to the necessity of considering the specific nature of the data available. Indeed, when a bank fails, there is no more balance sheet, which means that this sample cannot be handled as real panel data. As a result, time and individual fixed effects cannot be included in these models. The Logit mean model, that smooths temporal variations, and the inclusion of control variables partially address this issue. Moreover, analyzing the source of bank failures through control variables also helps to capture the fragility inherent in banking activity by situating it within its historical context.

I estimate the Cox regression:

$$\begin{aligned}\log\left(\frac{\mathrm{h}(t|\mathbf{x})}{\mathrm{h}_0(t)}\right) = h_0(t)\exp\Big(&\beta_1 \cdot \text{Capital}_{it} + \beta_2 \cdot \text{Deposit}_{it} + \beta_3 \cdot \text{Cash}_{it} + \beta_4 \cdot \text{Liquid asset}_{it} \\ &+ \beta_5 \cdot \text{Short-term loans}_{it} + \beta_6 \cdot \text{Long-term loans}_{it} + \beta_7 \cdot \text{Market risk}_{it} \\ &+ \beta_8 \cdot \text{Sundry asset}_{it} + \beta_9 \cdot \text{Sundry liability}_{it} + \beta_{10} \cdot \text{Controls}_{it}\Big) \qquad (1)\end{aligned}$$

Where the left-hand side of the equation expresses the log of the ratio between the hazard function $h(t|\mathbf{x})$, given covariates $\mathbf{x}$, and the baseline hazard function $h_0(t)$, which represents the risk of the event when all covariates are zero. $\mathrm{h}(t|\mathbf{x})$ is the hazard rate conditional on a vector of covariates $\mathbf{x}$; $\mathrm{h}_0(t)$ is the basic (unconditional) hazard rate. The coefficients β_1 through β_9 are the coefficients that represent the impact of specific covariates on the hazard. In addition, the model includes control variables, represented by $\beta_{10} \cdot \text{Control}_{it}$, which account for other factors that may influence the probability of failure.

For each of these models, several specifications are performed to account for the temporal

differences between 1901-1914 and 1918-1928, as discussed in section 3.2, and the multicollinearity issues presented in Table 7 (in the Appendix). The correlation matrix, which includes all the financial ratios, shows a strong positive correlation between subscribed capital and paid-up capital. It is therefore relevant for each of these three models to perform regressions excluding paid-up capital from other financial ratios and to conduct additional regressions excluding paid-up capital from other explanatory variables. Additionally, regressions should be carried out using the same models and specifications for the 1901-1914 period.

5 Results and interpretation

This section presents the findings derived from the financial ratios and models previously outlined. It will highlight the results of the main regressions, focusing on significant ratios. To test whether certain ratios are associated with subsequent bank failures, a specification with a one-year lag will be discussed in the second subsection. Finally, historical insights from additional sources will be integrated to contextualize and illustrate the findings.

The results show that, in the 1920s, a high level of capitalization fostered an illusory sense of stability, encouraging banks to engage in excessive risk-taking, which ultimately led to their failure. In contrast, readily available liquid resources enabled banks to honor withdrawal requests and absorb short-term shocks, serving as a key indicator of banking stability. This perception of stability was further reinforced by the post-war economic context. Monetary instability prompted some banks to take excessive risks, emboldened by this misleading perception of stability. However, the abundant liquidity — largely fueled by the state's financing needs, in which banks played a major role — helped the majority of the banking sector avoid falling into the trap of illiquidity, thereby explaining the relatively low number of failures during that period.

5.1 Failed banks facing illiquidity problems

The tables 2 and 3 below present the results of the Cox regressions for the period 1918–1928, while the results of the alternative specifications (Logit and Logit-mean models) are provided in the Appendix. Each table displays eight regressions, each adding an additional independent variable. The results from the models support the findings from the descriptive statistics, confirming that the banks that failed in the 1920s faced issues of illiquidity, rather than insolvency, and used their resources in risky activities. Indeed, the variables capital and paid-up capital are positively associated with the probability

of bank failure, whereas the cash variable is negatively associated with that probability. Both the market risk ratio and the control variable stock index exhibit a positive correlation with bank failure.

First of all, contrary to the findings of most academic studies, high levels of capital (subscribed or paid-up) are associated with a greater probability of failure and a shorter survival time. Indeed, both capital and paid-up capital are positively correlated and statistically significant at the 10% level (or 5% in some specifications) across all three models. These two variables (with one exception) remain significant even after adding other financial ratios. The results demonstrate that higher capital ratios during the period under study were associated with more failures. In other words, banks with a high level of capital are more at risk of failing, and their survival time decreases as this level increases. Ultimately, the increase in a bank's capitalization during this period proved to be a strong and reliable predictor of failure. These results suggest that capital appears to be an indicator of fragility and that banks have not faced solvency problems.

Second, readily available liquidity, measured by the "Cash" variable, serves as a protective factor against the risk of bank failure. Results from the Cox model show that liquidity acts as a buffer against financial shocks, enabling banks to extend their survival (Tables 2 and 3). Moreover, with the exception of Logit mean model (Tables 10 and 11 in appendix), this ratio is significantly negative at the 10% level. Thus, an increase in this ratio is associated with a reduced probability of failure. This finding reinforces the conclusions drawn from the capital analysis, underscoring that the banks that failed during the 1920s primarily struggled with liquidity shortages. Indeed, banks with sufficient liquidity were better able to respond to liquidity demands, particularly those arising from reimbursement requests.

Third, the results emphasize the influence of macroeconomic conditions and risk-taking on the likelihood of bank failures. Tables 8 and 9 (in appendix) show that the control variable "Stock index" is significantly positive at the 10% level, suggesting that an increase in the stock index is associated with a higher probability of failure. This rise may have encouraged certain banks to increase their risk-taking. This interpretation is further supported by the "Market risks" variable, which is significantly positive. Greater exposure to market risks correlates with a higher probability of failure. This exposure may result from speculation or equity investments in companies, tying up funds in businesses that banks hope will be profitable. The growth of the stock index can encourage banks to take on more risk, amplifying their vulnerability to market fluctuations and liquidity needs, thus heightening the risk of failure. Moreover, Tables 34 and 35 (in Appendix) show that while the Market risk ratio alone is not significant, its interactions with the Exchange

rate and the Stock index are positive and significant. This suggests that Market Risk became decisive mainly during episodes of sharp exchange rate or stock market fluctuations. Although these results are less robust and conclusive than those for the Capital or Cash variables, they suggest that macroeconomic factors and risk-taking played a role in the instability of failed banks in the 1920s.

Finally, the "Deposits" variable, previously non-significant, becomes significantly positive when the "Sundry" ratio is included. This inclusion suggests several potential explanations for the observed interaction. First, a high deposit ratio could signal increased liquidity vulnerability if the bank holds illiquid assets, making liquidity management more challenging during a crisis. Another possibility is that this ratio, combined with sundry liabilities, reflects a risky financing strategy, increasing exposure to liquidity pressures if illiquid or speculative assets fail to generate expected cash flows. Lastly, sundry assets and sundry liabilities could indicate complex risk management or hard-to-assess accounting practices, thus increasing the likelihood of failure, even though these elements are not directly significant.

	Cox							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	2.422*	5.198*	4.066*	4.098*	4.193*	4.464*	4.341*	6.463**
	(2.39)	(2.24)	(2.17)	(2.14)	(2.28)	(2.22)	(2.42)	(2.87)
Deposits		3.248	2.181	3.135	3.174	3.543	3.513	5.853*
		(1.44)	(1.11)	(1.43)	(1.45)	(1.38)	(1.47)	(2.00)
Cash			- 17.66*	- 17.57*	- 17.47*	- 20.10*	- 20.79**	- 18.19*
			(- 2.15)	(- 2.23)	(- 2.30)	(- 2.55)	(- 2.73)	(- 2.48)
ST loans				- 1.973	- 1.889	- 0.509	- 0.981	- 1.207
				(- 1.51)	(- 1.35)	(- 0.28)	(- 0.53)	(- 0.66)
LT loans					0.360	1.532	1.018	- 0.186
					(0.27)	(0.96)	(0.65)	(- 0.10)
Market risks						3.353*	2.932*	3.133*
						(2.13)	(2.24)	(2.41)
Liquid assets							- 2.074	- 2.296
							(- 0.63)	(- 0.73)
Sundry liability								6.906*
								(2.22)
Sundry asset								- 1.209
								(- 0.20)
Balance sheet size	- 0.00241	- 0.00289	- 0.00332	- 0.00336	- 0.00340	- 0.00421	- 0.00422	- 0.00407
	(- 0.68)	(- 0.70)	(- 0.70)	(- 0.68)	(- 0.68)	(- 0.66)	(- 0.66)	(- 0.66)
N	2227	2227	2227	2227	2227	2227	2227	2227

Table 2. Econometric results: sources of banking failures with capital (1918 - 1928)

Note: This Table reports the results of ordinary least squares estimations. The Table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 13 banks. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percent levels, respectively.

	Cox							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	2.531*	4.381**	3.519*	3.548*	3.528*	3.254*	3.329*	4.322**
	(2.29)	(2.66)	(2.46)	(2.41)	(2.59)	(2.30)	(2.44)	(2.83)
Deposits		2.215	1.456	2.384	2.382	2.409	2.507	3.571*
		(1.57)	(1.08)	(1.56)	(1.58)	(1.40)	(1.48)	(2.06)
Cash			- 18.28*	- 18.12*	- 18.15*	- 20.96*	- 21.80**	- 20.81*
			(- 2.14)	(- 2.19)	(- 2.24)	(- 2.53)	(- 2.71)	(- 2.57)
ST loans				- 1.927	- 1.957	- 0.930	- 1.445	- 1.725
				(- 1.53)	(- 1.48)	(- 0.55)	(- 0.84)	(- 1.02)
LT loans					- 0.137	0.734	0.182	- 0.859
					(- 0.11)	(0.50)	(0.12)	(- 0.49)
Market risks						2.703	2.232	2.162
						(1.90)	(1.85)	(1.85)
Liquid assets							- 2.428	- 2.696
							(- 0.72)	(- 0.85)
Sundry liability								4.254
								(1.47)
Sundry asset								- 2.073
								(- 0.32)
Balance sheet size	- 0.00260	- 0.00310	- 0.00351	- 0.00357	- 0.00355	- 0.00422	- 0.00424	- 0.00404
	(- 0.70)	(- 0.72)	(- 0.71)	(- 0.70)	(- 0.70)	(- 0.68)	(- 0.68)	(- 0.67)
N	2227	2227	2227	2227	2227	2227	2227	2227

Table 3. Econometric results: sources of banking failures with paid-up capital (1918 - 1928)

Note: This Table reports the results of ordinary least squares estimations. The Table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 13 banks. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percent levels, respectively.

5.2 Illiquidity problems explained by illusory feeling of stability

Tables 12 to 15 in the appendix present the results of the Logit and Cox models with a one-year lag before failure for the period 1918 - 1928. The results align with those from the previous section on the liquidity problem, further elaborating that the high capital ratio provides banks with a sense of stability, which in turn encourages them to take on more risks. The more contrasting results for the "Cash" variable show that this ratio plays a key role in ensuring stability in the short term, suggesting that banks experienced sudden and unexpected liquidity needs.

Determining the exact timing of bank failures is not always straightforward. Indeed, the official failure date may be imprecise or delayed, due to factors such as a desire for restructuring or a potential takeover by another bank, which could ultimately fail. This phenomenon is particularly relevant in the context of the 1920s, characterized by significant banking concentration, where there was a tendency for troubled banks to be acquired by solvent competitors. It is also possible to identify banks in economic distress before their failure is officially recognized. A case in point is the "Banque Petyt" whose financial difficulties were documented in a supervisory report from the Bank of France (Lille, 1926), which noted: "It is sufficient to recall the concerns raised at the time about its situation, which worsened month by month. [...] The pressing and repeated suggestions made to the transferor urged him to seek a merger as a way out of increasingly serious difficulties. The indecision, if not the blindness, that led him to procrastinate and maintain the illusory hope of recovery through his own means.". Therefore, delaying the failure by one year allows us to test whether the models are sensitive to this potential measurement error.

The following models are designed to test for the presence of deferred failure and to assess whether financial deterioration systematically precedes recorded failure. I estimate Logit and Cox models with a lagged failure variable.

I estimate the following Cox regression model with all explanatory variables lagged by one year:

$$\log\left(\frac{\mathrm{h}(t|\mathbf{x})}{\mathrm{h}_0(t)}\right) = \gamma_1 \cdot \text{Capital}_{i,t-1} + \delta_2 \cdot \text{Cash}_{i,t-1} + \theta_3 \cdot \text{Short-term loans}_{i,t-1} + \lambda_4 \cdot \text{Market Risks}_{i,t-1} + \cdots + \omega_6 \cdot \text{Controls}_{i,t-1} \tag{2}$$

Where the left-hand side of the equation expresses the log of the ratio between the haz-

ard function $h(t|\mathbf{x})$, given covariates $\mathbf{x}$, and the baseline hazard function $h_0(t)$, which represents the risk of the event when all covariates are zero. The covariates are measured at time $t-1$ in order to assess whether financial conditions observed one year prior are associated with an increased hazard of failure at time t. The coefficients $\gamma_1, \delta_2, \theta_3, \lambda_4, \omega_6$ capture the marginal effects of each covariate on the hazard rate. Control variables account for other observable bank-level characteristics.

Subscribed and paid-up capital remain positive and statistically significant across all regression models. Paid-up capital, in particular, shows stronger significance in certain specifications, reaching the 1% threshold compared to 5% or 10% in regressions without lags. This pattern underscores the importance of accounting for the lagged effects of capitalization and its destabilizing role during this period. The delayed impact suggests that higher capital levels initially created a false sense of stability, encouraging banks to take on riskier and less liquid positions that only translated into distress over time. This dynamic is especially pronounced for paid-up capital, indicating that higher levels of fully contributed equity amplified risk-taking behavior.

The Cash variable is negative and significantly different from zero in all specifications based on the Logit model (Tables 12 and 13), but it presents more contrasting results in specifications based on the Cox model (Tables 14 and 15). Overall, these results support the thesis that liquidity helps prevent liquidity crises and the failures that stem from such difficulties. However, the Cox model regression analysis shows that a higher cash ratio is not always associated with a lower probability of failure. This can be interpreted as a short-term liquidity effect, corresponding to the concept of bank runs. In other words, the liquidity needs faced by banks are often sudden. Holding significant liquidity each period does not necessarily prolong a bank's survival; rather, it depends on the amount of liquidity available at the time of withdrawal requests.

"Stock index" and "Market risk" ratio remain relevant explanatory factors for bank failures. Indeed, as with the regressions without lag, the stock index is positive and significant, confirming the impact of the overall increase in the price of financial assets on banks' risk-taking. The market risk variable is significant and positively associated with an increased probability of failure in both the Logit and Cox models when the specification includes the paid-up capital variable. Therefore, an increase in market risk is linked to a higher probability of failure. Banks exposed to greater market risk face a higher likelihood of failure. However, this ratio loses its significance when paid-up capital is included in the specification. This could suggest that the effect of market risk on the probability of failure is already accounted for by the paid-up capital variable. This interpretation is consistent with the thesis that higher paid-up capital created an illusory

sense of stability, encouraging banks to shift toward riskier and less liquid positions.

Robustness tests were conducted and are detailed in appendix (section 7.4). Each of them confirms the results: both subscribed and paid-up capital are significantly positive. The first alternative involves narrowing the study period to focus on the 1920 – 1928 interval. The second approach retains only banks with at least three balance sheets, allowing for a more appropriate temporal analysis. A third approach is to regress without control variables in order to ensure that the ratios are not influenced by other factors and that the results remain robust and applicable across different specifications. Finally, the last approach introduces noise into the data to account for unexpected variations, ensuring that the models remain stable and the results consistent.

5.3 Risk-taking and illiquidity, without a systematic link to moral hazard

Exploring the causes of the positive correlation between capital ratios and the probability of bank failure in the 1920s requires documenting the reasons for these failures using archival materials. Although the complete set of files documenting the causes of failures has not been preserved[2], the paper relies on a substantial body of surviving material, notably the archives of the commercial courts, as well as on cases mentioned in the supervisory reports produced by the Bank of France in the context of its counterparty risk management.[3]

These two sources provide reliable qualitative information, allowing for precise documentation of banking activities and the use of collected resources. The first consists of the failure files from the commercial courts. During failure proceedings, a judge appoints a trustee responsible for assessing the institution's assets and drafting a detailed report on its operations and the causes of its failure, which is then submitted for approval by the creditors. Such official procedures enable a systematic reconstruction of each institution's trajectory, from its founding to its liquidation. These reports include key details such as the founding date, initial capital, and original activity of the bank. Trustees often add context when relevant—for example, early capital increases, management changes, or shifts in business model—making it possible, in many cases, to trace the bank's trajectory from its creation to its liquidation. The second consists of supervisory reports from the Bank of France, prepared for the Governor to assess the condition of the Bank's

[2]Access to failures files from commercial court remains partial, as many were destroyed.

[3]The analysis is based on 20 failure files from commercial courts and 15 case studies extracted from Bank of France supervisory reports covering the period 1918–1928. These banks do not appear in Crédit Lyonnais Albums, thus expanding the scope of the failures studied.

counterparties. Indeed, they cover only banks linked to the central bank[4], which included institutions of all sizes, including local banks. While they do not always report capital increases or other financial events, they provide extensive information on the character of managers as well as on major changes, notably potential episodes of excessive risk-taking. Conducted annually across the Bank's entire branch network (about one hundred branches), these inspections primarily aimed to limit financial risks that could impact the Bank of France itself (Bignon and Jobst, 2017).

The results based on this exploited archives confirm previous observations and extend the analysis by incorporating additional failed banks from that period that were not included in the Albums. The analysis identifies three explanatory patterns of failures, most of which are characterized by insufficient risk diversification and significant exposure to illiquid assets. More precisely, these patterns—observed in roughly equal proportions—highlight either an excessive concentration of loans or investments on a limited number of counterparties, or, in certain instances, deliberate fraudulent behavior. Moreover, most of the failed banks held a relatively small proportion of immediately liquid assets such as "Bons de la Défense Nationale", in sharp contrast to the strategy adopted by the majority of the banking sector, which was predominantly invested in government bonds. Finally, these documents do not reveal systematic moral hazard issues, as shareholders were informed of the decisions made and, in many cases, approved capital increases to finance strategic choices.

The first pattern of bank failure relates to credit risk, characterized by excessive exposure to insolvent counterparties, which generated substantial losses and quickly eroded bank capital. These credit losses weakened solvency and, by reducing repayment flows, also created liquidity shortages. The inability to recover claims at maturity often led to liquidity pressures, precipitating the collapse of these institutions. This mechanism is observable in the case of the Caisse Générale d'Escompte et de Crédit: after the failure of one of its major debtors in 1924, its situation deteriorated, despite the temporary provision of liquidity by the Bank of France intended to "allow time for the anticipated recoveries," which ultimately did not materialize. The inability to meet its own commitments led to its dissolution in 1926, with delays in the realization of its assets prompting legal action and the formal declaration of failure. The Banque Lafont, failed as early as 1919, also fits this pattern: its capital was "entirely absorbed by exaggerated overdrafts," mainly granted to clients who themselves defaulted. The fragility of the bank was further aggravated by an asset portfolio composed of more than 80% of immobilizations "difficult to liquidate." The same mechanism is observed at the Banque Berrier (failed in 1924), which

[4]Not all banks had access to the Bank of France's discount window and were therefore not subject to its supervision.

faced "heavy losses from granting loans to insolvent clients," as well as at the Banque Besnard (failed in 1923), whose major difficulties stemmed from "excessive overdrafts" granted to defaulting debtors.

The second pattern identified concerns poor investment decisions and insufficient diversification, which exposed banks to concentrated positions in illiquid assets and created liquidity pressures. Banque Certes et Marty acquired "seven-eighths of the shares of the Figeac coal mines," making itself entirely dependent on the economic viability of this single enterprise. The majority of its "unpaid bills" stemmed from discounting operations granted to the coal mines, highlighting an extreme concentration of its commitments. Reports indicated very limited available funds and a disorganized discounting activity, split between two branches, making the situation "obscure" and difficult to supervise. The supervisor also emphasized the need to avoid any "abrupt or jerky action," notably a sudden suspension of liquidity support, which could worsen the situation. The Banque commerciale de crédit pour le commerce, l'industrie, la marine et l'agriculture, declared failed in 1921, similarly illustrates the adverse effects of poor investment choices. More than 60% of its assets consisted of various shares described as "unrealisable," while its resources were deemed "insufficient to complete the operations undertaken." Banque de la Métropole, which failed in 1928, followed a similar trajectory: after organizing a bond issuance for a company, it exhausted its liquidity with the first tranche and found itself unable to meet the repayment deadlines. Finally, the Banque de l'Union Diamantaire, which also failed in 1928, exhibited asset deficiencies worsened by risky investments. Unable to complete the "renovation works" it had undertaken and forced to relinquish its rights over a newly acquired entertainment venue, it saw the revenues generated by the theater's operations prove insufficient to meet its debt obligations. This situation was further aggravated by additional expenses, such as the hiring of a "head of hall."

The last pattern for bank failures is based on fraudulent behavior, motivated in most cases by a "gambling for resurrection" strategy (Jensen and Meckling, 1976), and sometimes by a clear intent to deceive depositors or shareholders. The Banque Centrale Immobilière et Commerciale, which failed in 1924, provides a characteristic example of this type of misconduct: its administrators "defrauded and embezzled" the institution's funds in an attempt to resolve its liquidity problems, thereby worsening the fragility of the bank rather than resolving it. Abandoning its initial corporate purpose, the bank engaged in "anxious investments" and expanded its branch network. This growth, which generated "excessively high overhead costs," was carried out without securing sufficient resources, leading the branches to use client deposits to cover their operating expenses, thereby triggering claims on "maturing notes." The Crédit International et Colonial, which failed in 1920, faced a comparable situation: initially focused on colonial financing, the institu-

tion shifted toward speculation in oil ventures and foreign exchange operations. Despite formal shareholder approval, the capital raisings remained incomplete, and the bank accumulated recurring losses. In 1920, it attempted to remedy its difficulties through a "national loan," but without genuine subscriptions, before its manager ultimately disappeared. While the strictly fraudulent nature of the conduct in these two cases might be open to debate, the case of the Moniteur Financier, whose failure was pronounced in 1927, leaves little doubt. Specializing in "rapid grouped operations" and promising returns of "at least 20%," the institution quickly became the subject of a judicial investigation as early as 1926; unable to reimburse its clients, its founder was eventually sentenced to eight years in prison. Finally, the Banque Privée, which failed in 1928, followed a similar pattern: its two founders were sentenced to thirteen and eight months in prison respectively for breach of trust.

The analysis, summarized in Table 4, shows that the three causes of failure discussed above occurred in roughly equal proportions. It also suggests that major information asymmetries were not widespread, although some cases reveal clear instances of moral hazard, reflecting opportunistic behavior by managers at the expense of clients or shareholders. In the case of Banque Certes et Marty, the supervisor explicitly criticizes the use of "subterfuges and procrastinations" and emphasizes the need for "absolute sincerity and loyalty" in commercial transactions. Similarly, regarding the failure of Banque Berrier in 1924, the supevisor highlights the absence of balance sheets and the presence of explanations described as "vague and lacking sincerity," indicative of a deficient communication of essential financial information. Some cases nevertheless show that information asymmetries are partially acknowledged by economic actors and influence their financing or refinancing decisions. This is evident in the case of the Banque Centrale Immobilière et Commerciale, where the "new prospective financiers" demanded full transparency about the financial situation, particularly the liabilities, before considering any capital injection. The Banque Industrielle, Hôtelière et Thermale similarly illustrates this phenomenon: although shareholders initially agreed to support the institution by absorbing the losses, they ultimately refused to fully release the subscribed capital after becoming aware of the extent of the difficulties, leading to a reduction of the share capital. Finally, the Crédit International et Colonial presents a particularly severe agency problem between managers and shareholders: after the founder's departure, management was entrusted to an administrator who enjoyed almost absolute power without any checks and balances, using the institution's resources for personal gain before being convicted of breach of trust. Thus, while moral hazard manifests in different forms depending on institutional and relational configurations, it emerges as a significant factor that can substantially influence investors' decisions to commit or withdraw capital.

Name	Main cause	Type of moral hazard	Source
Banque Lafont	Loans		Bank of France
Banque Berrier	Loans	Managers ↔ Clients	Bank of France
Banque Besnard	Loans		Bank of France
Banque Commerciale du Nord Est	Loans		Bank of France
Caisse Générale d'Escompte et de Crédit	Loans		Commercial court
Banque Industrielle, Hôtelière et Thermale	Loans	Managers ↔ Shareholders	Commercial court
Banque Certes et Marty	Investments	Managers ↔ Clients	Bank of France
Banque Commerciale de Crédit	Investments		Commercial court
Banque de la Métropole	Investments		Commercial court
Banque de l'Union Diamantaire	Investments		Commercial court
Banque Centrale Immobilière et Commerciale	Gambling	Managers ↔ Shareholders/creditors	Commercial court
Crédit International et Colonial	Gambling	Managers ↔ Shareholders	Commercial court
Moniteur Financier	Fraud		Commercial court
Banque Privée	Fraud		Commercial court

Table 4. Summary of bank failures: Causes and Moral Hazard

Note: This Table lists the names of failed banks identified in the archives, along with the main cause of failure for each, the presence of moral hazard where applicable, and the specific archival source. "Investment" refers to financial participations or securities acquired by the bank, typically defined as limited partnerships—financial commitments in which the investor is liable only up to the amount of their contribution and is not involved in daily management.

Several supervisory reports and failure files provide detailed balance sheets for the failed banks. Their study confirms the lack of diversification, the insufficiency of immediately mobilizable liquid assets, and a strong exposure to risky activities. Unlike the standardized balance sheets of Crédit Lyonnais, these documents present more precise data, tailored to the specificities of each institution. However, to facilitate comparative analysis, the balance sheet items were reclassified according to uniform criteria, notably the degree of liquidity, the level of risk, and distinctions between loans and financial assets, as well as between equities and bonds. This restructuring made it possible to maintain satisfactory granularity, with all items grouped into twelve categories. The aggregated analysis of these balance sheets reveals that failed banks held a very limited volume of liquid assets, representing only 4.7% of their total assets, thus confirming the critical importance of the liquidity ratio and supporting recurring observations about the lack of "available funds." Furthermore, around 40% of their assets were composed of loans, for which associated guarantees were very often absent or insufficient. Speculative activities on financial markets accounted for nearly 20% of the assets, which aligns with findings on the weight of "significant immobilizations".

Finally, the balance sheets show that the failed banks favored investments in equities over bonds, thereby exposing themselves to riskier and less liquid assets. For compari-

son, according to the work of Teneul (1961) and Espic (2024), public bonds represented 46% of the portfolios of French commercial banks at the end of 1926. Failed institutions thus appear to have adopted an economic model inverted compared to the rest of the banking sector, with bonds accounting for only 3% of their total assets, and 40% when considering only the combined total of financial assets (equities and bonds). The monetary instability of the period generated alternating phases of liquidity tightening and abundance. These fluctuations significantly affected banks' liquidity management, requiring rapid adjustments to meet withdrawal demands or absorb inflows.

Variable	Description	% (on total asset)
Loans	Amounts due from customers and advances (loans, overdrafts)	45.36%
Securities	Financial assets (stocks, bonds)	18.15%
Other	Marginal elements not classified elsewhere	15.26%
Tangible fixed assets	Durable physical assets (land, buildings, equipment)	6.40%
Cash and equivalents	Immediately available funds (cash, demand deposits, BdF holdings)	4.66%
Provisions	Value corrections and provisions for potential risks	4.46%
Miscellaneous accounts	Interim entries and various balances (suspense accounts, agents)	2.19%
Equipment	Preliminary expenses and minor fixed assets	2.10%
Other receivables and income	Incidental amounts and various recoveries	0.71%
Long-term investments	Durable investments in entities (equity interests, LT bonds)	0.55%
Equity and internal funds	Internal resources (paid-up capital, retained earnings)	0.10%
Collateral and guarantees	Real rights securing receivables (pledges, liens)	0.05%

Table 5. Asset Composition of Failed Banks

Note: This Table presents the main balance sheet items of failed banks. The categories are based on all balance sheet components identified in the archival sources. A brief description of each category is provided. Percentages refer to the share of failed banks for which balance sheet information was available.

6 Conclusion

This article analyzes the sources of bank failures in France during the 1920s. To conduct this study, I collect balance sheet data from French banks from the archives of Crédit Lyonnais. From this data, I constructed financial ratios which are based on the literature and ongoing debates surrounding the establishment of prudential ratios designed to enhance bank resilience and, by extension, foster greater banking stability. Finally, I estimate Cox and Logit models under several specifications.

The regression results show that bank failures during this period can be attributed primarily to issues of illiquidity rather than insolvency. Indeed, banks with higher levels of subscribed or paid-up capital faced an increased risk of failure. By contrast, the cash ratio—defined as immediately available liquidity—is associated with a lower probability of failure. Market risk, which includes speculation on the exchange rate as well as

holdings in securities and financial participation, influences and reinforces the positive relationship between equity and failure. Regressions based on a one-year lag strengthen the significance of capital ratios while reducing that of the cash variable. This suggests that the positive effect of capital on the probability of failure is particularly pronounced in the year preceding the event. Qualitative analysis of previously unexplored archival sources on bank failures provides further insight, showing that many of these banks experienced successive capital increases, which were used to finance risky, illiquid, and poorly diversified assets.

Therefore, banks with a significant level of capital had a feeling of stability and were encouraged to invest in illiquid assets subject to potential market variations. This stability was only illusory because, faced with losses or requests for reimbursement, they did not have the necessary liquid resources and were forced to default.

These same regressions, when applied to the pre-war period, do not produce similar results, underscoring the uniqueness of the 1920s and the influence of the French context on banking activity and failures. The period was marked by pronounced monetary and political instability, followed by uncertainty over the final stabilization level of the Franc, which created opportunities for speculation. However, most banks invested in French public debt—regarded as a safe and liquid asset—and were thus protected from this risk. While this study does not aim to analyze the macroeconomic determinants of banking (in)stability, the evidence suggests that such factors likely contributed to the observed dynamics, lending further weight to the specificity and counterintuitive nature of the results.

7 Appendix

7.1 Preliminary Analysis

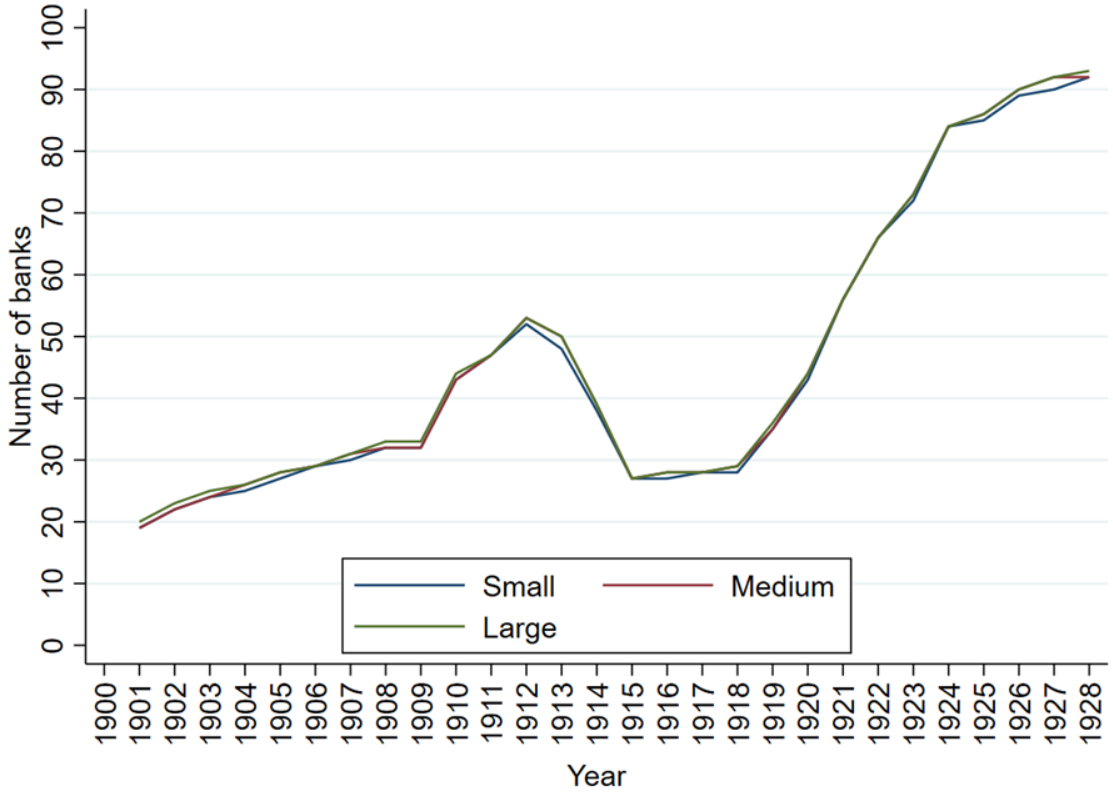

Figure 7. Evolution of the number of banks by size (1900–1928)
Source: Crédit Lyonnais and own calculation

Assets	**Liabilities**
Cash on hand	Subscribed Capital
Commercial paper	Central bank reserve
Reports	Credit account
Debitor account	Sight deposit
Real estate and other	Term deposit
Bills of exchange	Profit and loss
Collateralized loans	Miscellaneous
Discount	Credit account and sight deposit
Securities	Sight deposit and term deposit
Financial participation	Credit account and sight / term deposits
Miscellaneous	Credit account and sight deposit
Unpaid capital	Other 2
Securities and financial participation	
Collateralized loans and debitor account	
Reports and collateralized loans	
Debtors by acceptances	
Other 1	

Table 6. Bank balance sheet items

Note: The Table presents all balance sheet items contained in the three albums. Source: Crédit Lyonnais

	Capital	Paid-up capital	Deposits	Cash	ST loans	LT loans	Market risks	Liquid assets	Sundry liabilty	Sundry asset
Capital	1.0000									
Paid-up capital	0.8433	1.0000								
Deposits	- 0.4927	- 0.4391	1.0000							
Cash	0.1457	0.1749	- 0.2219	1.0000						
ST loans	- 0.3321	- 0.2869	0.5121	- 0.0345	1.0000					
LT loans	- 0.1083	- 0.0488	- 0.0860	- 0.1171	- 0.3386	1.0000				
Market risks	0.2555	0.3724	- 0.2140	0.1984	- 0.4130	- 0.0879	1.0000			
Liquid assets	0.0050	0.0001	- 0.0142	0.0453	- 0.1154	- 0.0714	- 0.0465	1.0000		
Sundry liability	- 0.1442	- 0.0982	- 0.2635	- 0.1034	- 0.1639	0.5247	- 0.0618	- 0.0331	1.0000	
Sundry asset	0.1796	0.2381	- 0.1009	0.1529	- 0.0944	- 0.0455	- 0.0175	0.0152	- 0.0367	1.0000

Table 7. Correlation coefficients matrix

Note: The Table presents the financial ratios based on one or several balance sheets items. The purpose is to divide the items by the size of balance sheets. Source: Crédit Lyonnais.

7.2 Econometric regressions with control variables (1918 - 1928)

I estimate the logistic standard regression:

$$\begin{aligned}\ln\left(\frac{P(\text{Failure}_{it})}{1-P(\text{Failure}_{it})}\right) = \beta_0 &+ \beta_1 \cdot \text{Capital}_{it} + \beta_2 \cdot \text{Deposit}_{it} + \beta_3 \cdot \text{Cash}_{it} + \beta_4 \cdot \text{Liquid asset}_{it} \\ &+ \beta_5 \cdot \text{Short-term loans}_{it} + \beta_6 \cdot \text{Long-term loans}_{it} + \beta_7 \cdot \text{Market risk}_{it} \\ &+ \beta_8 \cdot \text{Sundry asset}_{it} + \beta_9 \cdot \text{Sundry liability}_{it} + \beta_{10} \cdot \text{Controls}_{it} + \epsilon_{it} \end{aligned} \tag{3}$$

Where $P(\text{Failure}_{it})$ is the probability that bank i failed at t, β_0 is the intercept. The coefficients β_1 through β_9 measure the effect of different financial ratios on the probability of failure. In addition, the model includes control variables, represented by $\beta_{10} \cdot \text{Controls}_{it}$, which account for other factors that may influence the probability of failure. Finally, ϵ_{it} is the error term, capturing unobserved factors that affect the probability of bank failure.

I estimate the logistic (mean) regression:

$$\begin{aligned}\ln\left(\frac{\pi_i(\text{Failure})}{1-\pi_i(\text{Failure})}\right) = \beta_0 + \frac{1}{N}\sum_{i=1}^{N} \Big(&\beta_1 \cdot \text{Capital}_i + \beta_2 \cdot \text{Deposit}_i + \beta_3 \cdot \text{Cash}_i + \beta_4 \cdot \text{Liquid asset}_i \\ &+ \beta_5 \cdot \text{Short-term loans}_i + \beta_6 \cdot \text{Long-term loans}_i + \beta_7 \cdot \text{Market risk}_i \\ &+ \beta_8 \cdot \text{Sundry asset}_i + \beta_9 \cdot \text{Sundry liability}_i\Big) + \epsilon_i \end{aligned} \tag{4}$$

	Logit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	2.238*	4.924*	4.101*	3.973*	3.958*	4.030*	4.004*	5.970*
	(2.02)	(2.14)	(2.18)	(2.07)	(2.19)	(2.04)	(2.10)	(2.44)
Deposits		3.263	2.409	3.272	3.268	3.491	3.496	5.741
		(1.53)	(1.30)	(1.59)	(1.62)	(1.51)	(1.54)	(1.95)
Cash			- 16.58*	- 16.17*	- 16.18*	- 18.65*	- 19.10*	- 16.81*
			(- 2.06)	(- 2.08)	(- 2.14)	(- 2.33)	(- 2.44)	(- 2.29)
ST loans				- 1.936	- 1.950	- 0.820	- 1.041	- 1.345
				(- 1.42)	(- 1.36)	(- 0.47)	(- 0.58)	(- 0.75)
LT loans					- 0.0605	0.913	0.662	- 0.573
					(- 0.04)	(0.64)	(0.43)	(- 0.34)
Market risks						2.987*	2.799**	2.842**
						(2.46)	(2.71)	(2.89)
Liquid assets							- 1.274	- 1.530
							(- 0.36)	(- 0.44)
Sundry liability								6.450*
								(2.11)
Sundry asset								0.407
								(0.08)
Balance sheet size	- 0.00230	- 0.00284	- 0.00309	- 0.00297	- 0.00297	- 0.00349	- 0.00353	- 0.00338
	(- 0.72)	(- 0.73)	(- 0.72)	(- 0.71)	(- 0.71)	(- 0.68)	(- 0.67)	(- 0.66)
Stock index	0.00475*	0.00456*	0.00462*	0.00481*	0.00480*	0.00473*	0.00483*	0.00477*
	(2.29)	(2.22)	(2.21)	(2.29)	(2.26)	(2.24)	(2.32)	(2.34)
Exchange rate	- 0.00221	- 0.00151	- 0.000964	- 0.00110	- 0.00110	- 0.000464	- 0.00005	0.000288
	(- 0.21)	(- 0.15)	(- 0.09)	(- 0.10)	(- 0.10)	(- 0.04)	(- 0.00)	(0.03)
Constant	- 6.478***	- 8.961***	- 7.632***	- 7.310***	- 7.290***	- 8.333***	- 8.133***	- 10.08***
	(- 5.60)	(- 3.86)	(- 3.64)	(- 3.44)	(- 3.81)	(- 3.61)	(- 3.94)	(- 3.85)
N	2227	2227	2227	2227	2227	2227	2227	2227
Pseudo-R^2	0.0633	0.0803	0.1031	0.1161	0.1161	0.1319	0.1331	0.1432

Table 8. Econometric results: sources of banking failures with capital (1918 - 1928)

Note: This Table reports the results of ordinary least squares estimations. The Table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 13 banks. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	2.650*	4.732**	4.164**	4.057**	3.992**	3.488*	3.544*	4.498**
	(2.21)	(2.75)	(2.76)	(2.66)	(2.81)	(2.44)	(2.46)	(2.87)
Deposits		2.591	2.026	2.916	2.924	2.818	2.859	3.963*
		(1.82)	(1.48)	(1.92)	(1.93)	(1.73)	(1.75)	(2.34)
Cash			- 17.21*	- 16.65*	- 16.80*	- 18.98*	- 19.56*	- 18.33*
			(- 2.08)	(- 2.07)	(- 2.13)	(- 2.32)	(- 2.42)	(- 2.28)
ST loans				- 1.917	- 2.021	- 1.246	- 1.492	- 1.823
				(- 1.46)	(- 1.47)	(- 0.77)	(- 0.89)	(- 1.10)
LT loans					- 0.484	0.196	- 0.0882	- 1.225
					(- 0.37)	(0.14)	(- 0.06)	(- 0.72)
Market risks						2.243*	2.014*	1.863*
						(2.01)	(2.07)	(2.00)
Liquid assets							- 1.534	- 1.810
							(- 0.45)	(- 0.55)
Sundry liability								4.321
								(1.60)
Sundry asset								- 0.333
								(0.06)
Balance sheet size	- 0.00236	- 0.00300	- 0.00321	- 0.00309	- 0.00308	- 0.00349	- 0.00353	- 0.00334
	(- 0.74)	(- 0.75)	(- 0.74)	(- 0.73)	(- 0.74)	(- 0.71)	(- 0.69)	(- 0.68)
Stock index	0.00462*	0.00434*	0.00442*	0.00463*	0.00458*	0.00461*	0.00474*	0.00470*
	(2.19)	(2.07)	(2.04)	(2.14)	(2.09)	(2.13)	(2.24)	(2.25)
Exchange rate	- 0.00307	- 0.00293	- 0.00234	- 0.00264	- 0.00254	- 0.00201	- 0.00153	- 0.00163
	(- 0.30)	(- 0.29)	(- 0.22)	(- 0.25)	(- 0.24)	(- 0.19)	(- 0.14)	(- 0.15)
Constant	- 6.314***	- 8.067***	- 6.978***	- 6.684***	- 6.572***	- 7.066***	- 6.878***	- 7.636***
	(- 5.82)	(- 4.79)	(- 4.19)	(- 3.97)	(- 4.45)	(- 4.33)	(- 4.59)	(- 4.74)
N	2227	2227	2227	2227	2227	2227	2227	2227
Pseudo-R^2	0.0664	0.0806	0.1058	0.1191	0.1194	0.1281	0.1299	0.1357

Table 9. Econometric results: sources of banking failures with paid-up capital (1918 - 1928)

Note: This Table reports the results of ordinary least squares estimations. The Table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 13 banks. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit with mean							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	2.334*	5.293*	4.771*	4.877*	5.150*	4.992*	4.919*	7.318**
	(2.24)	(2.31)	(2.32)	(2.20)	(2.38)	(2.39)	(2.35)	(2.78)
Deposits		3.541	2.853	3.790	3.846	3.696	4.430	6.996*
		(1.78)	(1.56)	(1.62)	(1.64)	(1.63)	(1.71)	(2.36)
Cash			- 15.73	- 15.47	- 15.30	- 17.25	- 20.04	- 18.47
			(- 1.52)	(- 1.49)	(- 1.49)	(- 1.60)	(- 1.80)	(- 1.73)
ST loans				- 1.578	- 1.328	- 0.342	- 1.100	- 1.694
				(- 1.17)	(- 0.93)	(- 0.21)	(- 0.69)	(- 1.10)
LT loans					1.022	1.905	0.849	- 1.011
					(0.53)	(0.93)	(0.41)	(- 0.48)
Market risks						2.250	1.736	1.707
						(1.66)	(1.30)	(1.20)
Liquid assets							- 3.785	- 4.397
							(- 0.92)	(- 1.12)
Balance sheet size							- 0.00340	- 0.00337
							(- 0.59)	(- 0.56)
Sundry liability								7.665*
								(2.18)
Sundry asset								- 2.230
								(- 0.41)
Constant	- 3.766***	- 6.466***	- 5.316***	- 5.170***	- 5.496***	- 6.093***	- 5.313***	- 7.236***
	(- 9.29)	(- 3.73)	(- 3.11)	(- 2.87)	(- 3.25)	(- 3.42)	(- 3.45)	(- 3.40)
N	330	330	330	330	330	330	330	330
Pseudo-R^2	0.0256	0.0519	0.0741	0.0839	0.0853	0.0932	0.1219	0.1364

Table 10. Econometric results: sources of banking failures with capital (1918 - 1928)

Note: This Table reports the results of ordinary least squares estimations. The Table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 13 banks. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data and model used, these specifications do not contain year and bank fixed effects. This model consists of averaging the balance sheet items of each bank according to whether they fail or survive during the period considered. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit with mean							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	2.197	4.074*	3.820*	3.800*	3.881*	3.517*	3.760*	4.986**
	(1.91)	(2.29)	(2.27)	(2.24)	(2.49)	(2.41)	(2.28)	(2.61)
Deposits		2.285	1.845	2.646	2.642	2.438	3.311	4.330*
		(1.67)	(1.40)	(1.54)	(1.53)	(1.46)	(1.67)	(2.18)
Cash			- 16.45	- 16.30	- 16.27	- 17.65	- 20.56	- 20.85
			(- 1.59)	(- 1.59)	(- 1.60)	(- 1.68)	(- 1.88)	(- 1.90)
ST loans				- 1.513	- 1.421	- 0.745	- 1.495	- 2.032
				(- 1.15)	(- 1.05)	(- 0.49)	(- 1.00)	(- 1.39)
LT loans					0.396	0.997	0.00730	- 1.420
					(0.22)	(0.53)	(0.00)	(- 0.65)
Market risks						1.680	1.071	0.754
						(1.31)	(0.83)	(0.58)
Liquid assets							- 4.030	- 4.541
							(- 0.97)	(- 1.19)
Balance sheet size							- 0.00345	- 0.00335
							(- 0.62)	(- 0.60)
Sundry liability								3.967
								(1.16)
Sundry asset								- 3.300
								(- 0.63)
Constant	- 3.617***	- 5.238***	- 4.281***	- 4.050***	- 4.148***	- 4.472***	- 3.803***	- 4.257***
	(- 9.57)	(- 4.66)	(- 3.50)	(- 3.28)	(- 3.99)	(- 4.10)	(- 3.79)	(- 3.55)
N	330	330	330	330	330	330	330	330
Pseudo-R^2	0.0188	0.0341	0.0596	0.0688	0.0691	0.0734	0.1060	0.1131

Table 11. Econometric results: sources of banking failures with paid-up capital (1918 - 1928)

Note: This Table reports the results of ordinary least squares estimations. The Table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 13 banks. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data and model used, these specifications do not contain year and bank fixed effects. This model consists of averaging the balance sheet items of each bank according to whether they fail or survive during the period considered. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

7.3 Regressions with lag and control variables

First, I use the following Logit regression

$$\ln\left(\frac{P(\text{Failure}_{it})}{1-P(\text{Failure}_{it})}\right) = \alpha + \gamma_1 \cdot \text{Capital}_{i,t-1} + \delta_2 \cdot \text{Cash}_{i,t-1} + \theta_3 \cdot \text{Short-term loans}_{i,t-1} + \lambda_4 \cdot \text{Market risks}_{i,t-1} + ... + \omega_6 \cdot \text{Controls}_{i,t-1} + \epsilon_{it} \quad (4)$$

Where $P(\text{Failure}_{it})$ is the probability that bank i fails at time t. The explanatory variables are measured at time $t-1$, allowing us to assess whether lagged financial ratios are associated with an increased probability of failure one year later. This lag structure ensures that balance sheet indicators precede the failure event, avoiding simultaneity bias and better capturing potential early warning signals. The coefficients $\gamma_1, \delta_2, \theta_3, \lambda_4, \omega_6$ represent the marginal effects of these financial indicators and control variables. The error term ϵ_{it} captures unobserved determinants of bank failure.

	Logit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	3.243*	7.423*	6.504*	6.408*	5.907*	6.123*	6.174*	8.378**
	(2.50)	(2.31)	(2.54)	(2.56)	(2.54)	(2.32)	(2.49)	(2.80)
Deposits		4.667	3.535	4.181	3.989	4.388	4.400	6.934
		(1.55)	(1.38)	(1.50)	(1.55)	(1.46)	(1.48)	(1.88)
Cash			- 18.58*	- 17.85*	- 19.24*	- 21.09*	- 21.04*	- 17.91*
			(- 2.00)	(- 2.04)	(- 2.22)	(- 2.37)	(- 2.40)	(- 2.41)
ST loans				- 1.373	- 1.920	- 0.691	- 0.615	- 0.826
				(- 0.86)	(- 1.16)	(- 0.33)	(- 0.28)	(- 0.38)
LT loans					- 2.765	- 1.737	- 1.666	- 3.216
					(- 1.70)	(- 0.97)	(- 0.81)	(- 1.58)
Market risks						3.041*	3.112*	3.308*
						(2.15)	(2.55)	(2.83)
Liquid assets							0.499	0.225
							(0.13)	(0.06)
Sundry liability								8.333*
								(2.22)
Sundry asset								3.291
								(0.59)
Balance sheet size	- 0.00172	- 0.00220	- 0.00249	- 0.00242	- 0.00241	- 0.00292	- 0.00289	- 0.00278
	(- 0.67)	(- 0.68)	(- 0.68)	(- 0.67)	(- 0.68)	(- 0.64)	(- 0.62)	(- 0.60)
Stock index	0.00511*	0.00507*	0.00504*	0.00511*	0.00494*	0.00490*	0.00490*	0.00464*
	(2.49)	(2.46)	(2.42)	(2.45)	(2.28)	(2.27)	(2.25)	(2.19)
Exchange rate	0.00388	0.00455	0.00547	0.00538	0.00538	0.00633	0.00610	0.00692
	(0.35)	(0.41)	(0.48)	(0.47)	(0.47)	(0.56)	(0.52)	(0.58)
Constant	- 7.564***	- 11.32***	- 9.688***	- 9.466***	- 8.643***	- 9.967***	- 10.06***	- 12.45***
	(- 5.40)	(- 3.51)	(- 3.50)	(- 3.50)	(- 3.51)	(- 3.38)	(- 3.78)	(- 3.86)
N	1867	1867	1867	1867	1867	1867	1867	1867
Pseudo-R^2	0.0948	0.1204	0.1455	0.1515	0.1585	0.1754	0.1756	0.1890

Table 12. Econometric results: sources of banking failures with capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks with lag of 1 year regarding the bank failure. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 10 banks. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	3.878**	7.321**	6.886**	6.742***	6.601***	6.093**	6.130**	7.038***
	(2.83)	(3.01)	(3.28)	(3.33)	(3.37)	(2.94)	(3.08)	(3.40)
Deposits		3.835	3.112	3.690	3.738	3.659	3.664	4.864*
		(1.90)	(1.64)	(1.76)	(1.89)	(1.72)	(1.73)	(2.18)
Cash			- 20.13*	- 19.05*	- 21.56*	- 22.40*	- 22.40*	- 20.47*
			(- 2.06)	(- 2.06)	(- 2.32)	(- 2.38)	(- 2.38)	(- 2.22)
ST loans				- 1.249	- 1.890	- 1.322	- 1.275	- 1.530
				(- 0.83)	(- 1.23)	(- 0.72)	(- 0.66)	(- 0.80)
LT loans					- 3.614*	- 3.013	- 2.979	- 4.275*
					(- 2.17)	(- 1.72)	(- 1.56)	(- 2.37)
Market risks						1.608	1.646	1.649
						(1.20)	(1.34)	(1.36)
Liquid assets							0.409	0.0690
							(0.11)	(0.02)
Sundry liability								5.780
								(1.51)
Sundry asset								1.661
								(0.27)
Balance sheet size	- 0.00178	- 0.00240	- 0.00266	- 0.00258	- 0.00257	- 0.00284	- 0.00282	- 0.00267
	(- 0.68)	(- 0.70)	(- 0.69)	(- 0.68)	(- 0.69)	(- 0.67)	(- 0.65)	(- 0.64)
Stock index	0.00501*	0.00482*	0.00483*	0.00488*	0.00465*	0.00467*	0.00468*	0.00446*
	(2.41)	(2.30)	(2.27)	(2.30)	(2.10)	(2.14)	(2.12)	(2.06)
Exchange rate	0.00268	0.00313	0.00405	0.00393	0.00423	0.00496	0.00471	0.00489
	(0.25)	(0.29)	(0.36)	(0.35)	(0.38)	(0.44)	(0.40)	(0.41)
Constant	- 7.379***	- 10.22***	- 8.918***	- 8.708***	- 7.979***	- 8.391***	- 8.441***	- 9.398***
	(- 5.54)	(- 4.30)	(- 3.96)	(- 3.97)	(- 4.02)	(- 3.98)	(- 4.28)	(- 4.58)
N	1867	1867	1867	1867	1867	1867	1867	1867
Pseudo-R^2	0.1030	0.1268	0.1565	0.1616	0.1740	0.1784	0.1785	0.1858

Table 13. Econometric results: sources of banking failures with paid-up capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks with lag of 1 year regarding the bank failure. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 10 banks. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Cox							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	2.776**	6.460*	5.180*	5.313*	4.926*	5.416*	5.328**	7.948**
	(2.58)	(2.44)	(2.41)	(2.40)	(2.39)	(2.34)	(2.58)	(3.26)
Deposits		4.215	2.991	3.811	3.607	4.105	4.095	6.900*
		(1.55)	(1.24)	(1.43)	(1.45)	(1.39)	(1.45)	(2.06)
Cash			- 13.86	- 13.74	- 14.08*	- 16.99*	- 17.52*	- 14.20*
			(- 1.84)	(- 1.90)	(- 1.97)	(- 2.26)	(- 2.43)	(- 2.29)
ST loans				- 1.547	- 1.824	- 0.225	- 0.605	- 0.726
				(- 1.10)	(- 1.24)	(- 0.11)	(- 0.28)	(- 0.34)
LT loans					- 1.574	- 0.301	- 0.694	- 2.250
					(- 1.01)	(- 0.16)	(- 0.33)	(- 1.11)
Market risks						3.662*	3.341*	3.708*
						(2.09)	(2.21)	(2.50)
Liquid assets							- 1.356	- 1.572
							(- 0.44)	(- 0.53)
Sundry liability								9.279**
								(2.80)
Sundry asset								0.862
								(0.15)
Balance sheet size	- 0.00165	- 0.00210	- 0.00235	- 0.00236	- 0.00231	- 0.00309	- 0.00308	- 0.00300
	(- 0.65)	(- 0.67)	(- 0.67)	(- 0.66)	(- 0.67)	(- 0.61)	(- 0.61)	(- 0.60)
N	2225	2225	2225	2225	2225	2225	2225	2225

Table 14. Econometric results: sources of banking failures with capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks with lag of 1 year regarding the bank failure. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 10 banks. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Cox							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	2.998**	5.593**	4.572**	4.724**	4.420**	4.301*	4.386**	5.667**
	(2.72)	(3.18)	(2.88)	(2.87)	(2.97)	(2.56)	(2.67)	(3.19)
Deposits		3.065	2.145	2.946	2.850	2.948	3.065	4.465*
		(1.78)	(1.27)	(1.55)	(1.62)	(1.40)	(1.44)	(2.03)
Cash			- 14.31	- 14.09	- 14.46	- 17.77*	- 18.52*	- 16.98*
			(- 1.78)	(- 1.80)	(- 1.84)	(- 2.15)	(- 2.30)	(- 2.12)
ST loans				- 1.509	- 1.842	- 0.669	- 1.163	- 1.412
				(- 1.13)	(- 1.35)	(- 0.36)	(- 0.59)	(- 0.74)
LT loans					- 2.093	- 1.172	- 1.668	- 3.127
					(- 1.38)	(- 0.68)	(- 0.86)	(- 1.69)
Market risks						2.893	2.473	2.504
						(1.87)	(1.84)	(1.96)
Liquid assets							- 1.804	- 2.147
							(- 0.59)	(- 0.72)
Sundry liability								6.485
								(1.96)
Sundry asset								- 0.406
								((0.07)
Balance sheet size	- 0.00175	- 0.00226	- 0.00250	- 0.00250	- 0.00245	- 0.00306	- 0.00303	- 0.00288
	(- 0.66)	(- 0.69)	(- 0.68)	(- 0.67)	(- 0.69)	(- 0.63)	(- 0.63)	(- 0.62)
N	2225	2225	2225	2225	2225	2225	2225	2225

Table 15. Econometric results: sources of banking failures with paid-up capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks with lag of 1 year regarding the bank failure. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 10 banks. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

7.4 Robustness checks

7.4.1 Reduce time period

	Logit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	2.564*	5.528*	4.685*	4.612*	4.557*	4.775*	4.754*	6.561*
	(2.27)	(2.10)	(2.20)	(2.09)	(2.18)	(2.04)	(2.11)	(2.38)
Deposits		3.540	2.660	3.761	3.745	4.073	4.072	6.100
		(1.42)	(1.24)	(1.58)	(1.60)	(1.50)	(1.53)	(1.86)
Cash			- 15.70	- 15.70	- 15.77*	- 17.77*	- 18.35*	- 16.58*
			(- 1.85)	(- 1.90)	(- 1.96)	(- 2.13)	(- 2.24)	(- 2.14)
ST loans				- 2.401	- 2.452	- 1.335	- 1.560	- 1.803
				(- 1.67)	(- 1.64)	(- 0.74)	(- 0.83)	(- 0.96)
LT loans					- 0.221	0.698	0.433	- 0.592
					(- 0.16)	(0.48)	(0.28)	(- 0.35)
Market risks						2.872*	2.681*	2.792*
						(2.02)	(2.23)	(2.38)
Liquid assets							- 1.189	- 1.408
							(- 0.36)	(- 0.44)
Sundry liability								6.032
								(1.88)
Sundry asset								- 0.226
								(0.04)
Balance sheet size	- 0.00179	- 0.00227	- 0.00247	- 0.00236	- 0.00235	- 0.00286	- 0.00389	- 0.00283
	(- 0.69)	(- 0.71)	(- 0.70)	(- 0.68)	(- 0.68)	(- 0.63)	(- 0.62)	(- 0.61)
Stock index	0.00434*	0.00417*	0.00419*	0.00444*	0.00442*	0.00432*	0.00442*	0.00436*
	(2.13)	(2.05)	(2.05)	(2.16)	(2.13)	(2.07)	(2.16)	(2.18)
Exchange rate	- 0.00424	0.00143	0.00138	0.00118	0.00116	0.000137	0.00171	0.00184
	(- 0.04)	(0.01)	(0.15)	(0.12)	(0.12)	(0.14)	(0.17)	(0.19)
Constant	- 6.669***	- 9.380***	- 8.132***	- 7.782***	- 7.705***	- 8.772***	- 8.566***	- 10.32***
	(- 5.31)	(- 3.45)	(- 3.41)	(- 3.15)	(- 3.46)	(- 3.19)	(- 3.48)	(- 3.41)
N	1907	1907	1907	1907	1907	1907	1907	1907
Pseudo-R^2	0.0631	0.0821	0.1030	0.1232	0.1233	0.1377	0.1388	0.1470

Table 16. Econometric results: sources of banking failures with capital (1920 - 1928)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 13 banks. Columns (1) to (8) are estimated using annual data between 1920 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	3.044*	5.416**	4.787**	4.705**	4.622**	4.301**	4.388**	5.333**
	(2.55)	(2.94)	(2.94)	(2.83)	(2.95)	(2.78)	(2.80)	(3.16)
Deposits		2.894	2.281	3.367*	3.386*	3.376	3.422	4.455*
		(1.77)	(1.46)	(1.99)	(2.00)	(1.84)	(1.87)	(2.38)
Cash			- 16.19	- 15.90	- 16.18	- 17.98*	- 18.83*	- 17.96*
			(- 1.84)	(- 1.85)	(- 1.92)	(- 2.10)	(- 2.20)	(- 2.10)
ST loans				- 2.327	- 2.481	- 1.771	- 2.048	- 2.327
				(- 1.70)	(- 1.75)	(- 1.07)	(- 1.20)	(- 1.36)
LT loans					- 0.718	- 0.112	- 0.449	- 1.412
					(- 0.53)	(- 0.08)	(- 0.30)	(- 0.86)
Market risks						2.011	1.753	1.658
						(1.65)	(1.68)	(1.63)
Liquid assets							- 1.545	- 1.803
							(- 0.49)	(- 0.60)
Sundry liability								4.154
								(1.43)
Sundry asset								- 0.982
								(- 0.17)
Balance sheet size	- 0.00183	- 0.00244	- 0.00259	- 0.00248	- 0.00245	- 0.00283	- 0.00285	- 0.00274
	(- 0.71)	(- 0.73)	(- 0.72)	(- 0.70)	(- 0.70)	(- 0.66)	(- 0.65)	(- 0.64)
Stock index	0.00417*	0.00388	0.00391	0.00418*	0.00412	0.00413	0.00429*	0.00425*
	(1.99)	(1.86)	(1.84)	(1.97)	(1.91)	(1.94)	(2.05)	(2.07)
Exchange rate	- 0.00168	- 0.00185	- 0.000337	- 0.000727	- 0.000755	- 0.000506	- 0.000194	- 0.000512
	(- 0.17)	(- 0.19)	(- 0.04)	(- 0.08)	(- 0.08)	(- 0.05)	(- 0.02)	(- 0.05)
Constant	- 6.450***	- 8.401***	- 7.403***	- 7.070***	- 6.892***	- 7.385***	- 7.168***	- 7.867***
	(- 5.44)	(- 4.38)	(- 4.02)	(- 3.69)	(- 4.13)	(- 3.89)	(- 4.15)	(- 4.21)
N	1907	1907	1907	1907	1907	1907	1907	1907
Pseudo-R^2	0.0680	0.0849	0.1076	0.1276	0.1284	0.1355	0.1377	0.1425

Table 17. Econometric results: sources of banking failures with paid-up capital (1920 - 1928)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 13 banks. Columns (1) to (8) are estimated using annual data between 1920 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit with mean							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	2.518*	5.668*	5.083*	5.258*	5.509*	5.529*	5.547*	7.630*
	(2.31)	(2.20)	(2.20)	(2.05)	(2.20)	(2.19)	(2.14)	(2.56)
Deposits		3.713	2.974	4.153	4.210	4.174	4.894	7.042*
		(1.65)	(1.44)	(1.57)	(1.58)	(1.57)	(1.60)	(2.15)
Cash			- 14.46	- 14.38	- 14.22	- 15.91	- 18.28	- 17.36
			(- 1.38)	(- 1.37)	(- 1.37)	(- 1.48)	(- 1.67)	(- 1.66)
ST loans				- 1.933	- 1.709	- 0.586	- 1.210	- 1.616
				(- 1.41)	(- 1.18)	(- 0.37)	(- 0.79)	(- 1.08)
LT loans					0.922	1.961	1.022	- 0.426
					(0.47)	(0.96)	(0.50)	(- 0.21)
Market risks						2.706	2.424	2.687
						(1.74)	(1.52)	(1.64)
Liquid assets							- 3.329	- 3.900
							(- 0.86)	(- 1.07)
Balance sheet size							- 0.00298	- 0.00313
							(- 0.86)	(- 1.07)
Sundry liability								6.680*
								(2.10)
Sundry asset								- 2.804
								(- 0.49)
Constant	- 3.885***	- 6.735***	- 5.584***	- 5.438***	- 5.737***	- 6.576***	- 5.971***	- 7.663***
	(- 9.14)	(- 3.42)	(- 2.90)	(- 2.59)	(- 2.90)	(- 2.89)	(- 2.91)	(- 3.17)
N	327	327	327	327	327	327	327	327
Pseudo-R^2	0.0300	0.0576	0.0775	0.0924	0.0936	0.1031	0.1285	0.1396

Table 18. Econometric results: sources of banking failures with capital (1920 - 1928)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 13 banks. Columns (1) to (8) are estimated using annual data between 1920 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data and model used, these specifications do not contain year and bank fixed effects. This model consists of averaging the balance sheet items of each bank according to whether they fail or survive during the period considered. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit with mean							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	2.548*	4.717*	4.364*	4.425*	4.510*	4.231*	4.573*	5.713**
	(2.21)	(2.45)	(2.37)	(2.32)	(2.59)	(2.66)	(2.49)	(2.69)
Deposits		2.584	2.077	3.136	3.133	2.962	3.823	4.690*
		(1.68)	(1.40)	(1.62)	(1.61)	(1.58)	(1.69)	(2.09)
Cash			- 15.13	- 15.20	- 15.16	- 16.32	- 19.02	- 19.72
			(- 1.44)	(- 1.45)	(- 1.45)	(- 1.55)	(- 1.74)	(- 1.79)
ST loans				- 1.882	- 1.788	- 1.092	- 1.765	- 2.214
				(- 1.41)	(- 1.31)	(- 0.74)	(- 1.21)	(- 1.53)
LT loans					0.408	1.042	0.123	- 1.024
					(0.23)	(0.55)	(0.06)	(- 0.49)
Market risks						1.801	1.368	1.226
						(1.27)	(0.95)	(0.87)
Liquid assets							- 3.630	- 4.146
							(- 0.94)	(- 1.18)
Balance sheet size							- 0.00296	- 0.00298
							(- 0.62)	(- 0.59)
Sundry liability								3.453
								(0.95)
Sundry asset								- 3.844
								(- 0.70)
Constant	- 3.766***	- 5.621***	- 4.650***	- 4.418***	- 4.521***	- 4.909***	- 4.369***	- 4.747***
	(- 9.63)	(- 4.43)	(- 3.38)	(- 3.07)	(- 3.71)	(- 3.58)	(- 3.51)	(- 3.44)
N	327	327	327	327	327	327	327	327
Pseudo-R^2	0.0260	0.0444	0.0672	0.0819	0.0821	0.0864	0.01157	0.1223

Table 19. Econometric results: sources of banking failures with paid-up capital (1920 - 1928)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 13 banks. Columns (1) to (8) are estimated using annual data between 1920 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data and model used, these specifications do not contain year and bank fixed effects. This model consists of averaging the balance sheet items of each bank according to whether they fail or survive during the period considered. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Cox							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	2.663*	5.659*	4.432*	4.515*	4.595*	4.860*	4.776*	6.535**
	(2.59)	(2.15)	(2.06)	(2.05)	(2.16)	(2.09)	(2.27)	(2.66)
Deposits		3.472	2.317	3.480	3.514	3.863	3.845	5.789
		(1.33)	(1.02)	(1.38)	(1.40)	(1.34)	(1.41)	(1.84)
Cash			- 16.97	- 16.95*	- 16.85*	- 18.95*	- 19.78*	- 17.51*
			(- 1.93)	(- 2.04)	(- 2.11)	(- 2.33)	(- 2.51)	(- 2.31)
ST loans				- 2.399	- 2.332	- 1.118	- 1.559	- 1.725
				(- 1.76)	(- 1.62)	(- 0.61)	(- 0.82)	(- 0.90)
LT loans					0.289	1.297	0.814	- 0.173
					(0.21)	(0.80)	(0.51)	(- 0.09)
Market risks						2.959	2.567	2.762*
						(1.83)	(1.90)	(2.05)
Liquid assets							- 1.784	- 1.966
							(- 0.61)	(- 0.70)
Sundry liability								6.128
								(1.85)
Sundry asset								- 0.632
								(- 0.10)
Balance sheet size	- 0.00195	- 0.00239	- 0.00273	- 0.00275	- 0.00278	- 0.00347	- 0.00346	- 0.00334
	(- 0.67)	(- 0.69)	(- 0.68)	(- 0.66)	(- 0.65)	(- 0.61)	(- 0.61)	(- 0.60)
N	2037	2037	2037	2037	2037	2037	2037	2037

Table 20. Econometric results: sources of banking failures with capital (1920 - 1928)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 13 banks. Columns (1) to (8) are estimated using annual data between 1920 and 1928. Each column consists of the addition of an independent variable. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Cox							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	2.821**	4.871**	3.902*	3.967*	3.939**	3.773*	3.901*	4.736**
	(2.61)	(2.78)	(2.49)	(2.43)	(2.63)	(2.41)	(2.59)	(2.86)
Deposits		2.442	1.590	2.701	2.697	2.766	2.884	3.784*
		(1.51)	(1.02)	(1.58)	(1.60)	(1.44)	(1.52)	(1.97)
Cash			- 17.44	- 17.31*	- 17.36*	- 19.71*	- 20.76*	- 19.86*
			(- 1.92)	(- 1.98)	(- 2.03)	(- 2.30)	(- 2.49)	(- 2.36)
ST loans				- 2.319	- 2.357	- 1.497	- 2.006	- 2.211
				(- 1.77)	(- 1.72)	(- 0.88)	(- 1.15)	(- 1.27)
LT loans					- 0.176	0.542	- 0.0139	- 0.828
					(- 0.13)	(0.36)	(0.01)	(- 0.47)
Market risks						2.296	1.829	1.804
						(1.61)	(1.52)	(1.53)
Liquid assets							- 2.154	- 2.379
							(- 0.73)	(- 0.85)
Sundry liability								3.810
								(1.16)
Sundry asset								- 1.535
								(- 0.24)
Balance sheet size	- 0.00260	- 0.00310	- 0.00351	- 0.00357	- 0.00355	- 0.00422	- 0.00424	- 0.00404
	(- 0.70)	(- 0.72)	(- 0.71)	(- 0.70)	(- 0.70)	(- 0.68)	(- 0.68)	(- 0.67)
N	2227	2227	2227	2227	2227	2227	2227	2227

Table 21. Econometric results: sources of banking failures with paid-up capital (1920 - 1928)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 13 banks. Columns (1) to (8) are estimated using annual data between 1920 and 1928. Each column consists of the addition of an independent variable. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

7.4.2 Keep banks with 3 balance sheets or more

	Logit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	3.467*	7.922*	6.899*	6.847*	6.308*	6.892*	7.023*	8.811*
	(2.46)	(2.32)	(2.20)	(2.18)	(2.03)	(2.05)	(2.04)	(2.00)
Deposits		5.001	3.870	4.872	4.648	5.229	5.272	7.292
		(1.52)	(1.26)	(1.54)	(1.51)	(1.60)	(1.60)	(1.67)
Cash			- 15.59	- 15.43	- 16.42	- 18.80	- 18.69	- 15.92
			(- 1.32)	(- 1.32)	(- 1.37)	(- 1.46)	(- 1.45)	(- 1.24)
ST loans				- 2.107	- 2.563	- 1.243	- 1.090	- 1.210
				(- 1.32)	(- 1.56)	(- 0.62)	(- 0.51)	(- 0.57)
LT loans					- 2.529	- 1.614	- 1.457	- 2.694
					(- 0.78)	(- 0.46)	(- 0.41)	(- 0.68)
Market risks						3.192	3.323	3.545
						(1.57)	(1.56)	(1.63)
Liquid assets							0.774	0.579
							(0.25)	(0.18)
Sundry liability								7.016
								(0.97)
Sundry asset								3.266
								(0.42)
Balance sheet size	- 0.00121	- 0.00161	- 0.00177	- 0.00169	- 0.00165	- 0.00211	- 0.00207	- 0.00200
	(- 0.55)	(- 0.66)	(- 0.69)	(- 0.67)	(- 0.67)	(- 0.73)	(- 0.72)	(- 0.70)
Stock index	0.00584*	0.00588	0.00609*	0.00630*	0.00614*	0.00596*	0.00599*	0.00572*
	(2.18)	(2.17)	(2.23)	(2.27)	(2.21)	(2.12)	(2.13)	(2.03)
Exchange rate	0.0167	0.0171	0.0178	0.0180	0.0182	0.0189	0.0186	0.0190
	(1.21)	(1.24)	(1.29)	(1.30)	(1.31)	(1.35)	(1.32)	(1.35)
Constant	- 9.562***	- 13.59***	- 12.13***	- 11.88***	- 11.14***	- 12.61***	- 12.82***	- 14.75***
	(- 5.56)	(- 4.06)	(- 3.79)	(- 3.67)	(- 3.43)	(- 3.46)	(- 3.39)	(- 3.10)
N	2155	2155	2155	2155	2155	2155	2155	2155
Pseudo-R^2	0.1373	0.1646	0.1825	0.1958	0.2014	0.2197	0.2202	0.2282

Table 22. Econometric results: sources of banking failures with capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks with balance sheets for 3 years or more. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 10 banks. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	4.230**	8.002**	7.231**	7.151**	6.841**	6.733*	6.813*	7.639*
	(2.91)	(2.81)	(2.72)	(2.66)	(2.59)	(2.41)	(2.40)	(2.31)
Deposits		4.267	3.399	4.349	4.330	4.467	4.488	5.519
		(1.60)	(1.33)	(1.62)	(1.65)	(1.64)	(1.63)	(1.67)
Cash			- 16.33	- 15.68	- 17.15	- 19.16	- 19.09	- 17.56
			(- 1.37)	(- 1.32)	(- 1.41)	(- 1.48)	(- 1.48)	(- 1.37)
ST loans				- 1.931	- 2.467	- 1.758	- 1.657	- 1.834
				(- 1.24)	(- 1.56)	(- 0.95)	(- 0.86)	(- 0.95)
LT loans					- 3.306	- 2.779	- 2.683	- 3.756
					(- 1.00)	(- 0.80)	(- 0.76)	(- 0.95)
Market risks						1.931	2.009	2.035
						(0.95)	(0.96)	(0.96)
Liquid assets							0.616	0.367
							(0.21)	(0.12)
Sundry liability								4.778
								(0.72)
Sundry asset								2.533
								(0.33)
Balance sheet size	- 0.00123	- 0.00179	- 0.00191	- 0.00184	- 0.00181	- 0.00209	- 0.00207	- 0.00197
	(- 0.56)	(- 0.71)	(- 0.72)	(- 0.71)	(- 0.71)	(- 0.74)	(- 0.74)	(- 0.72)
Stock index	0.00572*	0.00561*	0.00587*	0.00602*	0.00582*	0.00569*	0.00571*	0.00543
	(2.12)	(2.05)	(2.13)	(2.16)	(2.07)	(2.03)	(2.03)	(1.92)
Exchange rate	0.0154	0.0153	0.0165	0.0164	0.0171	0.0176	0.0174	0.0176
	(1.10)	(1.09)	(1.16)	(1.15)	(1.20)	(1.24)	(1.22)	(1.23)
Constant	- 9.377***	- 12.52***	- 11.34***	- 11.10***	- 10.46***	- 11.07***	- 11.21***	- 12.05***
	(- 5.56)	(- 4.58)	(- 4.23)	(- 4.08)	(- 3.86)	(- 3.78)	(- 3.70)	(- 3.49)
N	2155	2155	2155	2155	2155	2155	2155	2155
Pseudo-R^2	0.1497	0.1770	0.1977	0.2096	0.2194	0.2262	0.2266	0.2311

Table 23. Econometric results: sources of banking failures with paid-up capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks with balance sheets for 3 years or more. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 10 banks. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Cox							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	3.555**	8.158*	6.973*	6.870*	6.383*	6.634*	6.869*	8.793*
	(2.67)	(2.37)	(2.18)	(2.16)	(2.03)	(2.05)	(2.04)	(1.99)
Deposits		5.052	3.779	4.723	4.462	4.753	4.848	6.877
		(1.50)	(1.20)	(1.46)	(1.42)	(1.50)	(1.50)	(1.59)
Cash			- 17.41	- 16.69	- 17.76	- 19.23	- 19.18	- 15.87
			(- 1.41)	(- 1.39)	(- 1.43)	(- 1.48)	(- 1.47)	(- 1.20)
ST loans				- 2.086	- 2.478	- 1.153	- 0.962	- 0.995
				(- 1.30)	(- 1.49)	(- 0.55)	(- 0.43)	(- 0.45)
LT loans					- 2.084	- 1.381	- 1.196	- 2.371
					(- 0.65)	(- 0.39)	(- 0.33)	(- 0.60)
Market risks						2.838	2.995	3.300
						(1.35)	(1.36)	(1.45)
Liquid assets							0.975	0.801
							(0.32)	(0.25)
Sundry liability								7.011
								(0.96)
Sundry asset								2.463
								(0.31)
Balance sheet size	- 0.00130	- 0.00170	- 0.00191	- 0.00187	- 0.00179	- 0.00227	- 0.00223	- 0.00211
	(- 0.57)	(- 0.68)	(- 0.72)	(- 0.70)	(- 0.69)	(- 0.76)	(- 0.75)	(- 0.72)
N	2155	2155	2155	2155	2155	2155	2155	2155

Table 24. Econometric results: sources of banking failures with capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks with balance sheets for 3 years or more. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 10 banks. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Cox							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	4.041**	7.640**	6.809*	6.734*	6.395*	6.343*	6.574*	7.426*
	(3.03)	(2.74)	(2.56)	(2.49)	(2.43)	(2.27)	(2.24)	(2.15)
Deposits		4.009	3.074	3.989	3.875	3.997	4.087	5.049
		(1.50)	(1.19)	(1.47)	(1.46)	(1.46)	(1.46)	(1.50)
Cash			- 18.07	- 17.03	- 18.74	- 20.25	- 20.26	- 18.64
			(- 1.47)	(- 1.40)	(- 1.49)	(- 1.55)	(- 1.55)	(- 1.40)
ST loans				- 1.888	- 2.357	- 1.626	- 1.476	- 1.591
				(- 1.21)	(- 1.48)	(- 0.85)	(- 0.74)	(- 0.80)
LT loans					- 2.877	- 2.464	- 2.344	- 3.215
					(- 0.87)	(- 0.70)	(- 0.66)	(- 0.82)
Market risks						1.788	1.886	1.985
						(0.84)	(0.87)	(0.90)
Liquid assets							1.016	0.780
							(0.32)	(0.24)
Sundry liability								4.439
								(0.66)
Sundry asset								0.826
								(0.10)
Balance sheet size	- 0.00139	- 0.00191	- 0.00209	- 0.00204	- 0.00197	- 0.00225	- 0.00222	- 0.00213
	(- 0.59)	(- 0.73)	(- 0.75)	(- 0.74)	(- 0.73)	(- 0.77)	(- 0.77)	(- 0.75)
N	2155	2155	2155	2155	2155	2155	2155	2155

Table 25. Econometric results: sources of banking failures with paid-up capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks with balance sheets for 3 years or more. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 10 banks. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

7.4.3 Adding Noise to the Model

The noise of financial ratios makes it possible to test the robustness of the results by checking whether the relationships between these independent variables and failure remain stable despite the introduction of random disturbances. The purpose is to evaluate the sensitivity of the model to variations in the data and to analyze whether the observed relationships are significant or simply due to coincidences in the data. The value of 0.05 makes it possible to test the robustness of the results without introducing too significant disturbances, which could make the analysis more difficult to interpret. The regressions of the previous specifications are therefore estimated via the Logit and Cox model by introducing noise.

Therefore, the Logit model takes the following form:

$$\begin{aligned}\ln\left(\frac{P(\text{Failure}_{it})}{1-P(\text{Failure}_{it})}\right) &= \alpha + \gamma_1 \cdot (\text{Capital}_{it} + \epsilon_{\text{capital},it}) + \delta_2 \cdot (\text{Cash}_{it} + \epsilon_{\text{cash},it}) \\ &\quad + \theta_3 \cdot (\text{Short-term loans}_{it} + \epsilon_{\text{Short-term loans},it}) + \lambda_4 \cdot (\text{Market risks}_{it} + \epsilon_{\text{market},it}) \\ &\quad + \phi_5 \cdot ... + \omega_6 \cdot \text{Controls}_{it} + \epsilon_{it} \qquad (6)\end{aligned}$$

Where $\epsilon_{\text{capital},it}$, $\epsilon_{\text{cash},it}$, $\epsilon_{\text{Short-term loans},it}$, $\epsilon_{\text{Market risks},it}$ represent noise terms added to the respective variables. These noise terms are randomly generated (for example, using a normal distribution centered at zero with a specific variance, such as 0.05).

The Cox model takes the following form:

$$\begin{aligned}\lambda(t|X_{it}) = \lambda_0(t) \exp\big(&\gamma_1 \cdot (\text{Capital}_{it} + \epsilon_{\text{capital},it}) + \delta_2 \cdot (\text{Cash}_{it} + \epsilon_{\text{cash},it}) + \theta_3 \cdot (\text{Short-term loans}_{it} + \epsilon_{\text{Short-} \\ &+ \lambda_4 \cdot (\text{Market risks}_{it} + \epsilon_{\text{market},it}) + ... + \omega_6 \cdot \text{Controls}_{it}\big) \qquad (7)\end{aligned}$$

Where $\epsilon_{\text{capital},it}$, $\epsilon_{\text{cash},it}$, $\epsilon_{\text{Short-term loans},it}$, $\epsilon_{\text{market risks},it}$ represent noise terms added to the respective variables. These noise terms are randomly generated, typically drawn from a normal distribution centered at zero with a given variance, such as 0.05.

	Logit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	2.293*	4.479**	4.100**	3.997**	4.108**	4.097**	4.078**	4.781***
	(2.12)	(2.70)	(2.72)	(2.61)	(2.82)	(2.61)	(2.59)	(3.61)
Deposits		2.801	2.354	3.205	3.213	3.326	3.348	4.348*
		(1.81)	(1.57)	(1.95)	(1.95)	(1.86)	(1.86)	(2.56)
Cash			- 8.154**	- 8.469**	- 8.436**	- 8.772**	- 8.695**	- 8.661**
			(- 2.69)	(- 2.76)	(- 2.79)	(- 3.01)	(- 2.96)	(- 2.90)
ST loans				- 1.991	- 1.862	- 0.940	- 1.102	- 1.242
				(- 1.50)	(- 1.32)	(- 0.57)	(- 0.66)	(- 0.75)
LT loans					0.594	1.337	1.162	0.671
					(0.47)	(1.06)	(0.83)	(0.50)
Market risks						2.478*	2.286*	2.550*
						(2.08)	(2.09)	(2.48)
Liquid assets							- 1.220	- 1.293
							(- 0.35)	(- 0.39)
Sundry liability								3.636
								(1.19)
Sundry asset								2.243
								(0.96)
Balance sheet size	- 0.00227	- 0.00280	- 0.00305	- 0.00293	- 0.00295	- 0.00318	- 0.00321	- 0.00297
	(- 0.72)	(- 0.73)	(- 0.73)	(- 0.71)	(- 0.71)	(- 0.68)	(- 0.66)	(- 0.64)
Stock index	0.00473*	0.00463*	0.00440*	0.00460*	0.00465*	0.00462*	0.00459*	0.00461*
	(2.28)	(2.26)	(2.16)	(2.22)	(2.24)	(2.24)	(2.20)	(2.18)
Exchange rate	- 0.00223	- 0.00172	- 0.00105	- 0.00111	- 0.00110	- 0.000427	0.0000784	- 0.000665
	(- 0.22)	(- 0.17)	(- 0.10)	(- 0.11)	(- 0.11)	(- 0.04)	(0.01)	(- 0.06)
Constant	- 6.494***	- 8.603***	- 7.929***	- 7.572***	- 7.743***	- 8.639***	- 8.485***	- 9.336***
	(- 5.74)	(- 4.96)	(- 4.86)	(- 4.54)	(- 5.16)	(- 5.07)	(- 5.21)	(- 6.37)
N	2227	2227	2227	2227	2227	2227	2227	2227
Pseudo-R^2	0.0654	0.0810	0.1010	0.1156	0.1161	0.1290	0.1303	0.1395

Table 26. Econometric results: sources of banking failures with capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks with a noise on financial ratios. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	2.350	3.751*	3.715*	3.559*	3.605*	3.115*	3.187*	3.421**
	(1.91)	(2.44)	(2.57)	(2.47)	(2.57)	(2.24)	(2.18)	(2.59)
Deposits		1.827	1.520	2.357	2.354	2.222	2.285	2.796*
		(1.48)	(1.21)	(1.86)	(1.81)	(1.67)	(1.65)	(2.05)
Cash			- 8.845**	- 9.074**	- 9.069**	- 9.107**	- 9.054**	- 9.131**
			(- 2.93)	(- 2.97)	(- 2.99)	(- 3.13)	(- 3.09)	(- 3.10)
ST loans				- 1.945	- 1.931	- 1.246	- 1.435	- 1.537
				(- 1.51)	(- 1.44)	(- 0.79)	(- 0.91)	(- 1.00)
LT loans					0.0702	0.626	0.413	0.00140
					(0.06)	(0.51)	(0.30)	(0.00)
Market risks						1.913	1.667	1.865
						(1.70)	(1.58)	(1.84)
Liquid assets							- 1.503	- 1.625
							(- 0.44)	(- 0.48)
Sundry liability								2.321
								(0.80)
Sundry asset								2.151
								(0.93)
Balance sheet size	- 0.00250	- 0.00299	- 0.00317	- 0.00308	- 0.00308	- 0.00329	- 0.00333	- 0.00312
	(- 0.76)	(- 0.76)	(- 0.76)	(- 0.74)	(- 0.74)	(- 0.71)	(- 0.69)	(- 0.67)
Stock index	0.00469*	0.00454*	0.00437*	0.00455*	0.00455*	0.00457*	0.00459*	0.00456*
	(2.23)	(2.16)	(2.06)	(2.14)	(2.13)	(2.19)	(2.20)	(2.18)
Exchange rate	- 0.00313	- 0.00297	- 0.00222	- 0.00251	- 0.00251	- 0.00198	- 0.00141	- 0.00203
	(- 0.31)	(- 0.29)	(- 0.21)	(- 0.24)	(- 0.24)	(- 0.19)	(- 0.13)	(- 0.18)
Constant	- 6.251***	- 7.475***	- 6.978***	- 6.604***	- 6.618***	- 7.096***	- 6.958***	- 7.335***
	(- 5.70)	(- 5.08)	(- 4.89)	(- 4.49)	(- 5.01)	(- 4.84)	(- 4.94)	(- 5.22)
N	2227	2227	2227	2227	2227	2227	2227	2227
Pseudo-R^2	0.0617	0.0707	0.0951	0.1097	0.1097	0.1171	0.1192	0.1244

Table 27. Econometric results: sources of banking failures with paid-up capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks with a noise on financial ratios. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Cox							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	2.420*	4.734**	4.112**	4.208**	4.423**	4.621**	4.574**	5.347***
	(2.46)	(2.84)	(2.76)	(2.75)	(2.98)	(2.83)	(2.79)	(3.78)
Deposits		2.833	2.186	3.161	3.225	3.596	3.632	4.660*
		(1.72)	(1.37)	(1.74)	(1.77)	(1.73)	(1.73)	(2.41)
Cash			- 7.834*	- 8.664**	- 8.711**	- 9.242**	- 9.062**	- 8.547*
			(- 2.55)	(- 2.66)	(- 2.69)	(- 3.02)	(- 2.96)	(- 2.56)
ST loans				- 2.076	- 1.862	- 0.844	- 1.102	- 1.151
				(- 1.62)	(- 1.37)	(- 0.51)	(- 0.66)	(- 0.71)
LT loans					1.087	1.900	1.640	1.245
					(0.87)	(1.42)	(1.16)	(0.89)
Market risks						2.767*	2.455*	2.833*
						(1.99)	(2.00)	(2.40)
Liquid assets							- 1.511	- 1.578
							(- 0.46)	(- 0.51)
Sundry liability								3.622
								(1.09)
Sundry asset								1.931
								(0.77)
Balance sheet size	- 0.00239	- 0.00285	- 0.00315	- 0.00314	- 0.00326	- 0.00363	- 0.00366	- 0.00332
	(- 0.68)	(- 0.70)	(- 0.71)	(- 0.70)	(- 0.69)	(- 0.65)	(- 0.64)	(- 0.62)
N	2227	2227	2227	2227	2227	2227	2227	2227

Table 28. Econometric results: sources of banking failures with capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks with a noise on financial ratios. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Cox							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	2.282*	3.558*	3.272*	3.323*	3.362*	3.107*	3.191*	3.400*
	(2.02)	(2.41)	(2.44)	(2.40)	(2.52)	(2.21)	(2.12)	(2.33)
Deposits		1.577	1.070	1.957	1.945	1.990	2.127	2.573
		(1.27)	(0.85)	(1.47)	(1.44)	(1.34)	(1.32)	(1.62)
Cash			- 8.722**	- 9.415**	- 9.424**	- 9.633**	- 9.494**	- 9.258**
			(- 2.81)	(- 2.91)	(- 2.92)	(- 3.19)	(- 3.14)	(- 2.86)
ST loans				- 1.979	- 1.887	- 1.073	- 1.404	- 1.440
				(- 1.59)	(- 1.44)	(- 0.67)	(- 0.87)	(- 0.91)
LT loans					0.492	1.136	0.799	0.489
					(0.40)	(0.86)	(0.55)	(0.34)
Market risks						2.252	1.852	2.080
						(1.68)	(1.54)	(1.75)
Liquid assets							- 1.945	- 2.044
							(- 0.59)	(- 0.62)
Sundry liability								2.048
								(0.65)
Sundry asset								1.816
								(0.67)
Balance sheet size	- 0.00273	- 0.00310	- 0.00335	- 0.00336	- 0.00340	- 0.00371	- 0.00376	- 0.00350
	(- 0.72)	(- 0.72)	(- 0.74)	(- 0.72)	(- 0.72)	(- 0.67)	(- 0.66)	(- 0.63)
N	2227	2227	2227	2227	2227	2227	2227	2227

Table 29. Econometric results: sources of banking failures with paid-up capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks with a noise on financial ratios. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

7.4.4 Without control variables

	Logit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	2.595*	4.964*	4.327**	4.103*	4.046**	3.870*	3.865*	5.536**
	(2.53)	(2.41)	(2.60)	(2.51)	(2.62)	(2.42)	(2.51)	(2.92)
Deposits		2.834	2.079	3.057	3.057	3.055	3.057	5.122*
		(1.58)	(1.39)	(1.72)	(1.72)	(1.62)	(1.61)	(2.02)
Cash			- 15.34	- 14.33	- 14.39	- 16.87*	- 16.91*	- 14.91*
			(- 1.94)	(- 1.87)	(- 1.93)	(- 2.09)	(- 2.16)	(- 2.05)
ST loans				- 2.067	- 2.134	- 1.170	- 1.195	- 1.590
				(- 1.48)	(- 1.43)	(- 0.66)	(- 0.62)	(- 0.85)
LT loans					- 0.270	0.571	0.541	- 0.858
					(- 0.19)	(0.38)	(0.33)	(0.48)
Market risks						2.664**	2.642**	2.601**
						(2.78)	(2.84)	(3.05)
Liquid assets							- 0.157	- 0.520
							(- 0.05)	(- 0.16)
Sundry liability								6.437*
								(2.35)
Sundry asset								2.121
								(0.49)
Constant	- 5.781***	- 7.963***	- 6.740***	- 6.370***	- 6.296***	- 6.998***	- 6.967***	- 8.645***
	(- 13.80)	(- 5.04)	(- 4.88)	(- 4.68)	(- 5.22)	(- 5.07)	(- 6.06)	(- 5.36)
N	2227	2227	2227	2227	2227	2227	2227	2227
Pseudo-R^2	0.0247	0.0389	0.0592	0.0730	0.0731	0.0875	0.0875	0.0989

Table 30. Econometric results: sources of banking failures with capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks without control variables. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	3.213**	5.097**	4.680**	4.498**	4.424**	3.835**	3.858**	4.761**
	(2.79)	(3.06)	(3.28)	(3.14)	(3.28)	(2.82)	(2.75)	(3.23)
Deposits		2.286	1.782	2.793*	2.838	2.646	2.668	3.856*
		(1.85)	(1.58)	(1.98)	(1.94)	(1.75)	(1.72)	(2.25)
Cash			- 16.25*	- 15.08	- 15.24	- 17.18*	- 17.34*	- 16.08*
			(- 1.98)	(- 1.88)	(- 1.94)	(- 2.08)	(- 2.15)	(- 2.03)
ST loans				- 2.039	- 2.189	- 1.574	- 1.654	- 2.069
				(- 1.49)	(- 1.52)	(- 0.93)	(- 0.93)	(- 1.20)
LT loans					- 0.635	- 0.0695	- 0.172	- 1.513
					(- 0.47)	(- 0.05)	(- 0.11)	(- 0.87)
Market risks						1.861	1.775	1.597
						(1.92)	(1.85)	(1.78)
Liquid assets							- 0.553	- 0.938
							(- 0.18)	(- 0.31)
Sundry liability								4.893
								(1.95)
Sundry asset								1.130
								(0.25)
Constant	- 5.764***	- 7.413***	- 6.370***	- 6.056***	- 5.929***	- 6.194***	- 6.107***	- 6.894***
	(- 14.36)	(- 6.97)	(- 5.94)	(- 5.58)	(- 6.46)	(- 6.58)	(- 7.43)	(- 7.42)
N	2227	2227	2227	2227	2227	2227	2227	2227
Pseudo-R^2	0.0307	0.0429	0.0658	0.0796	0.0803	0.0868	0.0871	0.0947

Table 31. Econometric results: sources of banking failures with paid-up capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks without control variables. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Cox							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	2.934**	5.393*	4.359*	4.430*	4.498*	4.667*	4.576**	6.526**
	(3.13)	(2.43)	(2.42)	(2.37)	(2.54)	(2.47)	(2.66)	(3.16)
Deposits		2.772	1.699	2.733	2.752	2.819	2.831	5.031
		(1.41)	(1.03)	(1.36)	(1.38)	(1.35)	(1.40)	(1.94)
Cash			- 16.63	- 16.23*	- 16.15*	- 18.49*	- 19.30*	- 16.68*
			(- 1.96)	(- 2.00)	(- 2.06)	(- 2.21)	(- 2.43)	(- 2.23)
ST loans				- 2.090	- 2.021	- 0.677	- 1.163	- 1.463
				(- 1.51)	(- 1.35)	(- 0.34)	(- 0.57)	(- 0.72)
LT loans					0.272	1.394	0.869	- 0.474
					(0.20)	(0.88)	(0.52)	(- 0.26)
Market risks						2.977*	2.568*	2.671*
						(2.26)	(2.07)	(2.27)
Liquid assets							- 2.023	- 2.335
							(- 0.65)	(- 0.76)
Sundry liability								7.029*
								(2.42)
Sundry asset								- 0.485
								(- 0.08)
N	2227	2227	2227	2227	2227	2227	2227	2227

Table 32. Econometric results: sources of banking failures with capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks without control variables. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Cox							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	3.040**	4.537**	3.755**	3.812**	3.779**	3.509*	3.624**	4.574**
	(2.95)	(2.87)	(2.73)	(2.65)	(2.87)	(2.56)	(2.67)	(3.13)
Deposits		1.716	0.921	1.911	1.913	1.765	1.910	3.005
		(1.46)	(0.86)	(1.40)	(1.40)	(1.22)	(1.28)	(1.80)
Cash			- 17.13*	- 16.62*	- 16.69*	- 19.24*	- 20.19*	- 19.06*
			(- 1.96)	(- 1.98)	(- 2.03)	(- 2.22)	(- 2.44)	(- 2.33)
ST loans				- 2.041	- 2.092	- 1.110	- 1.646	- 1.983
				(- 1.53)	(- 1.47)	(- 0.61)	(- 0.87)	(- 1.07)
LT loans					- 0.215	0.606	0.0362	- 1.142
					(- 0.16)	(0.41)	(0.02)	(- 0.65)
Market risks						2.356	1.885	1.783
						(1.93)	(1.61)	(1.62)
Liquid assets							- 2.360	- 2.691
							(- 0.77)	(- 0.90)
Sundry liability								4.632
								(1.78)
Sundry asset								- 1.267
								(- 0.20)
N	2227	2227	2227	2227	2227	2227	2227	2227

Table 33. Econometric results: sources of banking failures with paid-up capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks without control variables. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

7.4.5 With interaction terms

	Logit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	2.238*	4.924*	4.101*	3.973*	3.958*	4.216*	4.170*	6.476*
	(2.02)	(2.14)	(2.18)	(2.07)	(2.19)	(2.00)	(2.10)	(2.44)
Deposits		3.263	2.409	3.272	3.268	3.654	3.645	6.248
		(1.53)	(1.30)	(1.59)	(1.62)	(1.51)	(1.55)	(1.95)
Cash			- 16.58*	- 16.17*	- 16.18*	- 18.01*	- 18.40*	- 15.78*
			(- 2.06)	(- 2.08)	(- 2.14)	(- 2.24)	(- 2.35)	(- 2.17)
ST loans				- 1.936	- 1.950	- 0.768	- 0.973	- 1.242
				(- 1.42)	(- 1.36)	(- 0.42)	(- 0.52)	(- 0.68)
LT loans					- 0.0605	1.000	0.768	- 0.517
					(- 0.04)	(0.68)	(0.50)	(- 0.30)
Market risks						0.465	0.321	0.0175
						(0.24)	(0.16)	(0.01)
Liquid assets							- 1.149	- 1.369
							(- 0.33)	(- 0.40)
Sundry liability								7.091*
								(2.18)
Sundry asset								0.706
								(0.14)
Market risks x Exchange rate						0.0519*	0.0510*	0.0570*
						(2.20)	(2.09)	(2.32)
Market risks x Stock index						- 0.0102	- 0.00997	- 0.0106
						(- 1.01)	(- 0.96)	(- 0.96)
Balance sheet size	- 0.00230	- 0.00284	- 0.00309	- 0.00297	- 0.00297	- 0.00345	- 0.00348	- 0.00336
	(- 0.72)	(- 0.73)	(- 0.72)	(- 0.71)	(- 0.71)	(- 0.65)	(- 0.64)	(- 0.63)
Stock index	0.00475*	0.00456*	0.00462*	0.00481*	0.00480*	0.00665*	0.00669*	0.00674*
	(2.29)	(2.22)	(2.21)	(2.29)	(2.26)	(2.06)	(2.09)	(2.07)
Exchange rate	- 0.00221	- 0.00151	- 0.000964	- 0.00110	- 0.00110	- 0.00107	- 0.00102	- 0.00110
	(- 0.21)	(- 0.15)	(- 0.09)	(- 0.10)	(- 0.10)	(- 0.79)	(- 0.73)	(- 0.81)
Constant	- 6.478***	- 8.961***	- 7.632***	- 7.310***	- 7.290***	- 8.035***	- 7.840***	- 10.07***
	(- 5.60)	(- 3.86)	(- 3.64)	(- 3.44)	(- 3.81)	(- 3.36)	(- 3.62)	(- 3.53)
N	2227	2227	2227	2227	2227	2227	2227	2227
Pseudo-R^2	0.0523	0.0612	0.0795	0.0912	0.1011	0.1049	0.1011	0.1194

Table 34. Econometric results: sources of banking failures with capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks with a noise on financial ratios. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid-up capital	2.650*	4.732**	4.164**	4.057**	3.992**	3.692*	3.731*	4.820**
	(2.21)	(2.75)	(2.76)	(2.66)	(2.81)	(2.42)	(2.47)	(2.91)
Deposits		2.591	2.026	2.916	2.924	2.950	2.982	4.225*
		(1.82)	(1.48)	(1.92)	(1.93)	(1.75)	(1.78)	(2.39)
Cash			- 17.21*	- 16.65*	- 16.80*	- 18.42*	- 18.97*	- 17.60*
			(- 2.08)	(- 2.07)	(- 2.13)	(- 2.24)	(- 2.33)	(- 2.18)
ST loans				- 1.917	- 2.021	- 1.204	- 1.442	- 1.766
				(- 1.46)	(- 1.47)	(- 0.72)	(- 0.85)	(- 1.06)
LT loans					- 0.484	0.262	- 0.0138	- 1.212
					(- 0.37)	(0.19)	(- 0.01)	(- 0.72)
Market risks						- 0.455	- 0.666	- 1.009
						(- 0.22)	(- 0.30)	(- 0.47)
Liquid assets							- 1.458	- 1.738
							(- 0.44)	(- 0.54)
Sundry liability								4.668
								(1.71)
Sundry asset								- 0.133
								(- 0.03)
Market risks x Exchange rate						0.0534*	0.0527*	0.0554*
						(2.21)	(2.12)	(2.21)
Market risks x Stock index						- 0.0103	- 0.0101	- 0.0103
						(- 1.01)	(- 0.96)	(- 0.96)
Balance sheet size	- 0.00236	- 0.00300	- 0.00321	- 0.00309	- 0.00308	- 0.00346	- 0.00349	- 0.00331
	(- 0.74)	(- 0.75)	(- 0.74)	(- 0.73)	(- 0.74)	(- 0.69)	(- 0.67)	(- 0.66)
Stock index	0.00462*	0.00434*	0.00442*	0.00463*	0.00458*	0.00656*	0.00664*	0.00664*
	(2.19)	(2.07)	(2.04)	(2.14)	(2.09)	(1.98)	(2.03)	(2.02)
Exchange rate	- 0.00307	- 0.00293	- 0.00234	- 0.00264	- 0.00254	- 0.0127	- 0.0121	- 0.0128
	(- 0.30)	(- 0.29)	(- 0.22)	(- 0.25)	(- 0.24)	(- 0.93)	(- 0.88)	(- 0.94)
Constant	- 6.314***	- 8.067***	- 6.978***	- 6.684***	- 6.572***	- 6.693***	- 6.506***	- 7.345***
	(- 5.82)	(- 4.79)	(- 4.19)	(- 3.97)	(- 4.45)	(- 4.06)	(- 4.21)	(- 4.37)
N	2227	2227	2227	2227	2227	2227	2227	2227
Pseudo-R^2	0.0583	0.0635	0.0875	0.1002	0.1055	0.1064	0.1132	0.1204

Table 35. Econometric results: sources of banking failures with paid-up capital (1918 - 1928)

Note: This table reports the results of ordinary least squares estimations for banks with a noise on financial ratios. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure. Columns (1) to (8) are estimated using annual data between 1918 and 1928. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

7.5 Summary statistics and regressions: 1901 - 1914

7.5.1 Summary statistics

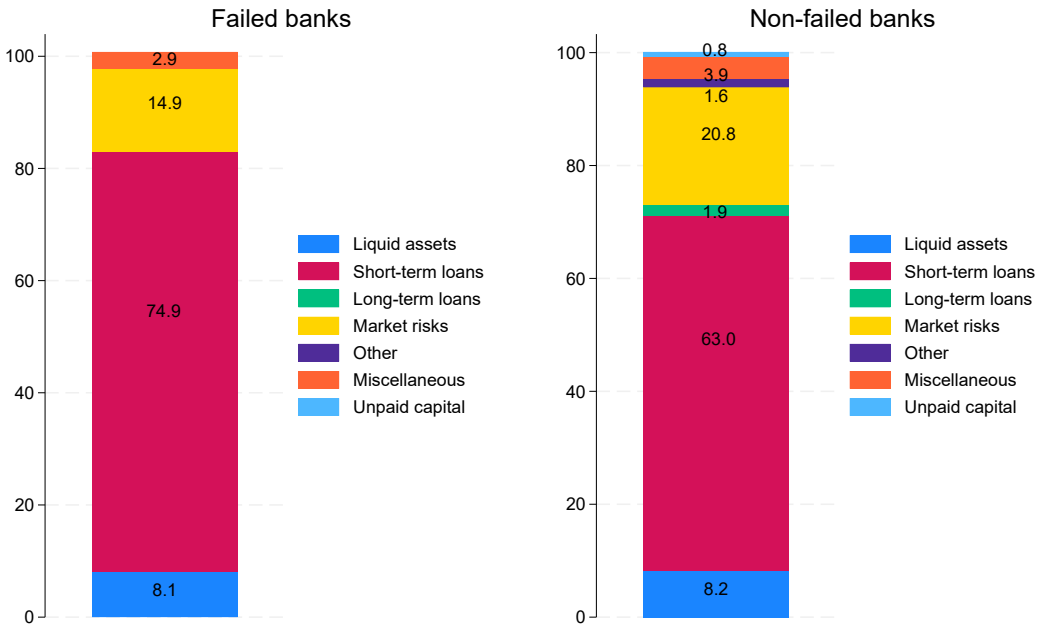

Figure 8. Summary statistics: average ratios between failed and non-failed banks (1901 - 1914)

Note: The figure shows the average share of each ratio over the balance sheet size. A distinction between failed and non-failed banks. Source: Crédit Lyonnais and own calculation.

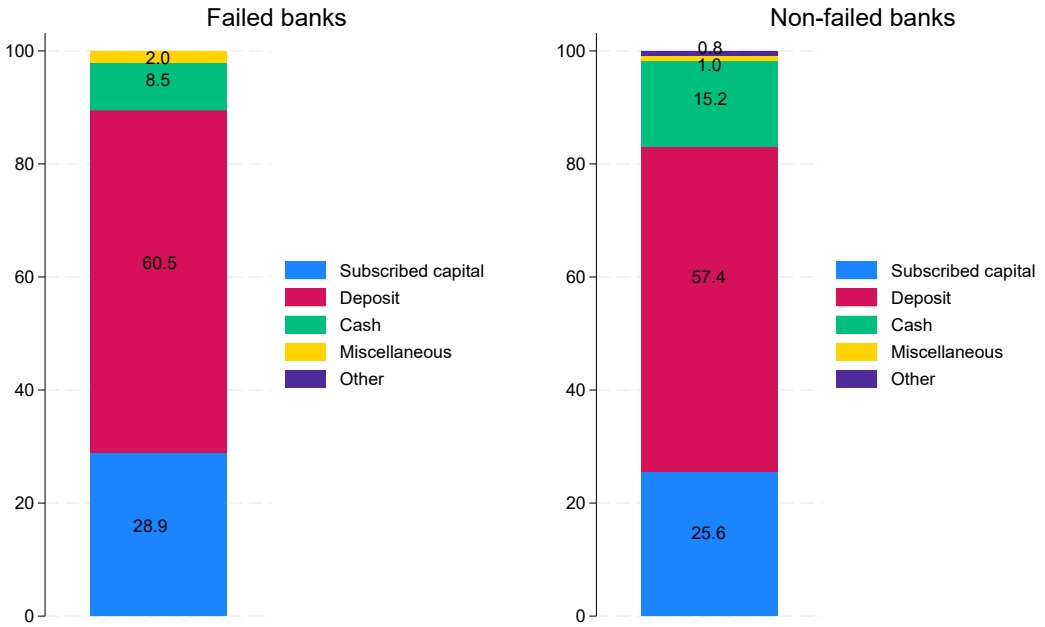

Figure 9. Summary statistics: average ratios between failed and non-failed banks (1901 - 1914)

Note: The figure shows the average share of each ratio over the balance sheet size. A distinction between failed and non-failed banks. Source: Crédit Lyonnais and own calculation.

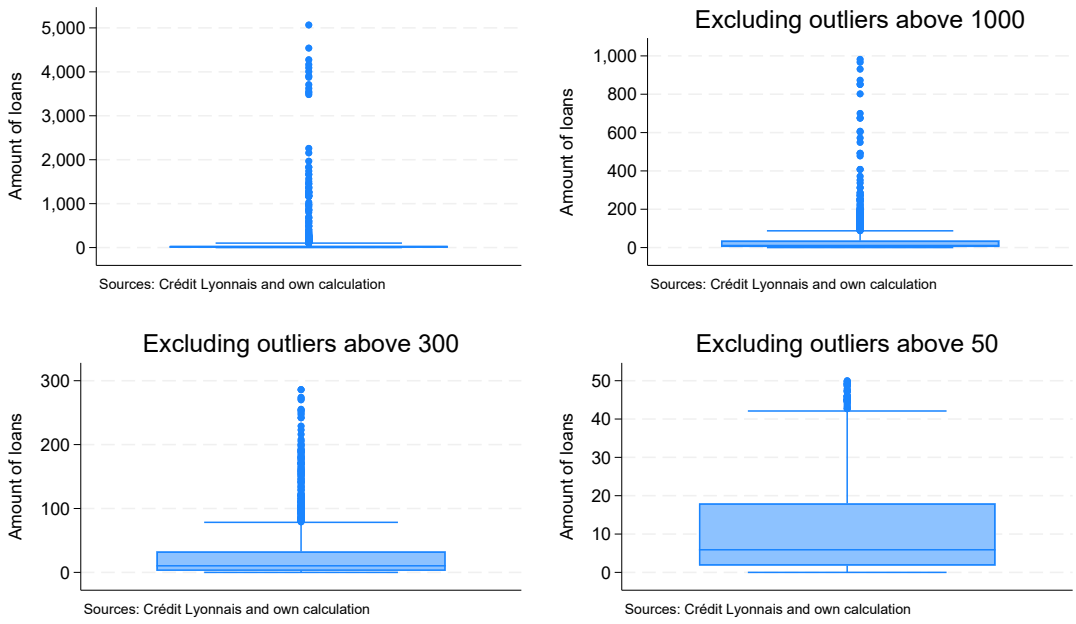

Figure 10. Summary statistics: short-term loans distribution (1901 - 1914)

Note: The figure represents the distribution of short-term loans between 1901 and 1914, with different approaches to eliminating extreme values (outliers). The first graph includes all loans while the other three graphs successively exclude loans above 1000, 300 and 50.

Analysis of the different graphs indicates the presence of a long tail towards the right, affecting the average and giving the impression of a strong dispersion of the amounts borrowed. By gradually removing them (beyond 1000, 300 and 50), we see that most of the distribution is concentrated on much more modest loans, highlighting their exceptional nature.

7.5.2 Regressions based on three models

	Logit (15 bank failures)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Capital	- 0.157	1.593	- 5.438	- 6.070	- 7.793	- 8.374	- 8.695
	(- 0.14)	(0.72)	(- 1.20)	(- 1.38)	(- 1.34)	(- 1.50)	(- 1.50)
Deposits		1.875	- 5.269	- 6.456	- 8.337	- 8.923	- 9.068
		(0.80)	(- 1.18)	(- 1.44)	(- 1.39)	(- 1.53)	(- 1.50)
Cash			- 10.29	- 10.76	- 12.97	- 13.82	- 13.90
			(- 1.57)	(- 1.69)	(- 1.62)	(- 1.74)	(- 1.74)
ST loans				0.971	2.511	3.669	4.495
				(0.99)	(1.14)	(1.32)	(1.84)
Market risks					2.365	3.507	4.011
					(0.91)	(1.14)	(1.39)
Liquid assets						2.616	3.238
						(1.30)	(1.80)
Sundry liability							3.956
							(1.45)
Balance sheet size	- 0.0124	- 0.0130	- 0.0144	- 0.0132	- 0.0132	- 0.0122	- 0.0110
	(- 1.64)	(- 1.67)	(- 1.63)	(- 1.44)	(- 1.45)	(- 1.41)	(- 1.40)
Stock index	0.311**	0.308**	0.323**	0.324**	0.327**	0.329**	0.319**
	(2.97)	(2.96)	(3.02)	(3.01)	(3.02)	(2.94)	(2.89)
Public debt	- 1.280	- 1.262	- 1.404	- 1.416	- 1.408	- 1.387	- 1.334
	(- 1.53)	(- 1.50)	(- 1.46)	(- 1.45)	(- 1.46)	(- 1.42)	(- 1.40)
Constant	8.468	6.591	17.04	17.53	17.34	15.85	14.38
	(0.41)	(0.30)	(0.63)	(0.64)	(0.65)	(0.62)	(0.57)
N	1295	1295	1295	1295	1295	1295	1295
Pseudo-R^2	0.0692	0.0984	0.1064	0.1187	0.1202	0.1470	0.1600

Table 36. Econometric results: sources of banking failures with capital (1901 - 1913)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 15 banks. Columns (1) to (8) are estimated using annual data between 1901 and 1913. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Paid up capital	- 0.0287	1.897	- 2.529	- 2.909	- 4.275	- 5.165	- 5.828
	(- 0.03)	(0.86)	(- 0.71)	(- 0.85)	(- 0.90)	(- 0.97)	(- 1.12)
Deposits		2.096	- 2.477	- 3.324	- 4.820	- 5.707	- 6.163
		(0.89)	(- 0.69)	(- 0.94)	(- 0.97)	(- 1.01)	(- 1.12)
Cash			- 7.467	- 7.706	- 9.542	- 10.75	- 11.24
			(- 1.28)	(- 1.34)	(- 1.30)	(- 1.29)	(- 1.39)
ST loans				0.806	2.144	3.446	4.431
				(0.84)	(1.02)	(1.12)	(1.63)
Market risks					2.048	3.367	4.041
					(0.79)	(0.94)	(1.23)
Liquid assets						2.661	3.361
						(1.13)	(1.62)
Sundry liability							4.231
							(1.57)
Balance sheet size	- 0.0122	- 0.0127	- 0.0142	- 0.0133	- 0.0136	- 0.0127	- 0.0115
	(- 1.63)	(- 1.62)	(- 1.67)	(- 1.50)	(- 1.52)	(- 1.48)	(- 1.46)
Stock index	0.310**	0.306**	0.318**	0.318**	0.322**	0.323**	0.314**
	(2.96)	(2.95)	(3.03)	(3.03)	(3.05)	(2.98)	(2.93)
Public debt	- 1.279	- 1.250	- 1.369	- 1.371	- 1.387	- 1.374	- 1.327
	(- 1.52)	(- 1.48)	(- 1.44)	(- 1.43)	(- 1.42)	(- 1.39)	(- 1.39)
Constant	8.434	6.125	13.61	13.72	14.03	13.01	11.81
	(0.41)	(0.28)	(0.51)	(0.52)	(0.52)	(0.49)	(0.46)
N	1295	1295	1295	1295	1295	1295	1295
Pseudo-R^2	0.0692	0.0984	0.1064	0.1187	0.1202	0.1470	0.1600

Table 37. Econometric results: sources of banking failures with paid-up capital (1901 - 1913)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 15 banks. Columns (1) to (8) are estimated using annual data between 1901 and 1913. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. To overcome this impossibility, three control variables were added: stock index which corresponds to the stock market index, public debt and the balance sheet total which corresponds to the balance sheet total of each bank per year. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Capital	1.533	3.277	- 3.331	- 3.996	- 4.501	- 5.154	- 6.418
	(1.43)	(1.75)	(- 1.00)	(- 1.19)	(- 1.05)	(- 1.34)	(- 1.72)
Deposits		1.875	- 4.786	- 5.993	- 6.537	- 7.118	- 8.119*
		(1.00)	(- 1.51)	(- 1.87)	(- 1.54)	(- 1.86)	(- 2.28)
Cash			- 9.210	- 9.845*	- 10.35	- 11.27*	- 13.09*
			(- 1.91)	(- 2.05)	(- 1.88)	(- 2.14)	(- 2.33)
ST loans				1.266	1.762	3.081	4.934**
				(1.67)	(1.10)	(1.49)	(3.16)
Market risks					0.736	1.949	3.602*
					(0.39)	(0.90)	(2.03)
Liquid assets						3.314	4.757**
						(1.80)	(3.15)
Sundry assets							5.943**
							(2.70)
Constant	- 4.879***	- 6.466***	0.278	0.389	0.439	- 0.332	- 1.142
	(- 11.49)	(- 4.01)	(0.09)	(0.12)	(0.14)	(- 0.13)	(- 0.45)
N	1295	1295	1295	1295	1295	1295	1295
Pseudo-R^2	0.0088	0.0152	0.0374	0.0454	0.0461	0.0546	0.0710

Table 38. Econometric results: sources of banking failures with capital (1901 - 1913)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 15 banks. Columns (1) to (8) are estimated using annual data between 1901 and 1913. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Paid-up capital	1.667	3.583	- 0.667	- 1.239	- 1.502	- 2.925	- 4.659
	(1.60)	(1.88)	(- 0.25)	(- 0.47)	(- 0.40)	(- 0.70)	(- 1.25)
Deposits		2.078	- 2.338	- 3.423	- 3.704	- 5.015	- 6.454
		(1.08)	(- 0.88)	(- 1.28)	(- 0.97)	(- 1.17)	(- 1.77)
Cash			- 6.727	- 7.233	- 7.484	- 9.115	- 11.43
			(- 1.54)	(- 1.68)	(- 1.49)	(- 1.61)	(- 1.95)
ST loans				1.177	1.446	3.110	5.165**
				(1.55)	(0.86)	(1.18)	(2.74)
Market risks					0.387	2.000	3.880
					(0.19)	(0.69)	(1.76)
Liquid assets						3.449	5.010**
						(1.41)	(2.79)
Sundry assets							6.181*
							(2.57)
Constant	- 4.910***	- 6.660***	- 2.186	- 2.129	2.114	- 2.485	- 3.052
	(- 11.81)	(- 4.01)	(- 0.85)	(- 0.82)	(- 0.81)	(- 1.16)	(- 1.39)
N	1295	1295	1295	1295	1295	1295	1295
Pseudo-R^2	0.0106	0.0184	0.0322	0.0392	0.0394	0.0482	0.0656

Table 39. Econometric results: sources of banking failures with paid-up capital (1901 - 1913)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 15 banks. Columns (1) to (8) are estimated using annual data between 1901 and 1913. Each column consists of the addition of an independent variable. Due to the specificity of the data, these specifications do not contain year and bank fixed effects. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit with mean (15 bank failures)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Capital	0.458	1.615	- 2.590	- 3.385	- 5.330	- 7.986**	- 9.074**	- 8,923**
	(0.036)	(0.99)	(- 0.85)	(- 1.14)	(- 1.56)	(- 2.70)	(- 2.97)	(- 2.96)
Deposits		1.268	- 3.017	- 4.621	- 6.866	- 9.261**	- 9.810**	- 8,953**
		(0.82)	(- 1.06)	(- 1.52)	(- 1.86)	(- 2.91)	(- 3.13)	(- 2.77)
Cash			- 6.481	- 7.346*	- 9.836*	- 12.85***	- 13.57***	- 12.67***
			(- 1.84)	(- 2.05)	(- 2.50)	(- 3.89)	(- 4.00)	(- 3.82)
ST loans				1.632	3.873	9.441*	11.14**	10,71**
				(1.38)	(1.88)	(2.29)	(2.82)	(2.67)
Market risks					2.991	8.297*	9.629*	9.673*
					(1.51)	(2.09)	(2.41)	(2.40)
Liquid assets						11.01**	13.00***	12.39**
						(2.78)	(3.37)	(3.18)
Sundry asset							5.533	5.145
							(1.37)	(1.35)
Balance sheet size								- 0.0118
								(1.09)
Constant	- 2.561***	- 3.630**	0.717	0.885	0.958	- 2.295	- 3.370	- 3.379
	(- 5.39)	(- 2.81)	(0.26)	(0.32)	(0.38)	(0.73)	(- 1.02)	(- 1.01)
N	196	196	196	196	196	196	196	196
Pseudo-R^2	0.0692	0.0984	0.1064	0.1187	0.1202	0.1470	0.1600	0.1600

Table 40. Econometric results: sources of banking failures with capital (1901 - 1913)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 15 banks. Columns (1) to (8) are estimated using annual data between 1901 and 1913. Each column consists of the addition of an independent variable. Due to the specificity of the data and model used, these specifications do not contain year and bank fixed effects. This model consists of averaging the balance sheet items of each bank according to whether they fail or survive during the period considered. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Logit with mean							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Paid up capital	0.784	2.285	0.232	- 0.483	- 2.174	- 5.324*	- 6.361*	- 6,290*
	(0.63)	(1.40)	(0.10)	(- 0.23)	(- 0.69)	(- 2.06)	(- 2.50)	(- 2.51)
Deposits		1.678	- 0.523	- 1.906	- 3.804	- 6.654*	- 7.150*	- 6.326*
		(1.06)	(- 0.24)	(- 0.81)	(- 1.07)	(- 2.28)	(- 2.56)	(- 2.23)
Cash			- 4.010	- 4.632	- 6.740	- 10.25***	- 10.94***	- 10.23***
			(- 1.39)	(- 1.62)	(- 1.73)	(- 3.32)	(- 3.55)	(- 3.32)
ST loans				1.442	3.390	9.640*	11.36**	10,87**
				(1.26)	(1.48)	(2.25)	(2.77)	(2.64)
Market risks					2.541	8.605*	9.986*	10.00*
					(1.05)	(2.06)	(2.41)	(2.41)
Liquid assets						11.31**	13.31***	12.69**
						(2.77)	(3.35)	(3.17)
Sundry asset							5.518	5.142
							(1.35)	(1.33)
Balance sheet size								- 0.0121
								(- 1.11)
Constant	- 2.655***	- 4.054**	1.807	- 1.691	- 1.663	- 5.110	- 6.263*	- 6.158*
	(- 5.68)	(- 3.09)	(- 0.87)	(- 0.84)	(- 0.87)	(- 1.83)	(- 2.12)	(- 2.04)
N	196	196	196	196	196	196	196	196
Pseudo-R^2	0.0692	0.0984	0.1064	0.1187	0.1202	0.1470	0.1600	0.1600

Table 41. Econometric results: sources of banking failures with paid-up capital (1901 - 1913)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 15 banks. Columns (1) to (8) are estimated using annual data between 1901 and 1913. Each column consists of the addition of an independent variable. Due to the specificity of the data and model used, these specifications do not contain year and bank fixed effects. This model consists of averaging the balance sheet items of each bank according to whether they fail or survive during the period considered. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Cox (15 bank failures)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Capital	- 0.274	1.567	- 3.154	- 3.448	- 4.957	- 6.352	- 6.982
	(- 0.24)	(0.77)	(- 0.92)	(- 1.05)	(- 1.09)	(- 1.26)	(- 1.51)
Deposits		2.065	- 2.676	- 3.546	- 5.309	- 6.732	- 7.107
		(0.92)	(- 0.80)	(- 1.07)	(- 1.09)	(- 1.22)	(- 1.38)
Cash			- 7.414	- 7.648	- 9.703	- 11.66	- 11.82
			(- 1.43)	(- 1.50)	(- 1.46)	(- 1.56)	(- 1.74)
ST loans				0.876	2.436	4.370	5.402*
				(0.90)	(1.14)	(1.36)	(2.10)
Market risks					2.298	4.208	4.957
					(0.93)	(1.20)	(1.70)
Liquid assets						4.060	4.833*
						(1.67)	(2.53)
Sundry asset							4.202
							(1.87)
Balance sheet size	- 0.0125	- 0.0134	- 0.0143	- 0.0133	- 0.0133	- 0.0124	- 0.0112
	(- 1.66)	(- 1.68)	(- 1.69)	(- 1.51)	(- 1.51)	(- 1.45)	(- 1.44)
N	1295	1295	1295	1295	1295	1295	1295
Pseudo-R^2	0.0692	0.0984	0.1064	0.1187	0.1202	0.1470	0.1600

Table 42. Econometric results: sources of banking failures with capital (1901 - 1913)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 15 banks. Columns (1) to (8) are estimated using annual data between 1901 and 1913. Each column consists of the addition of an independent variable. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Cox						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Capital	0.684	2.322	- 1.974	- 2.705	- 4.436	- 6.135	- 6.942
	(0.63)	(1.21)	(- 0.62)	(- 0.87)	(- 0.97)	(- 1.22)	(- 1.52)
Deposits		1.815	- 2.543	- 4.033	- 6.030	- 7.643	- 8.028
		(0.87)	(- 0.80)	(- 1.28)	(- 1.24)	(- 1.40)	(- 1.59)
Cash			- 6.710	- 7.484	- 9.798	- 11.97	- 12.44
			(- 1.41)	(- 1.60)	(- 1.52)	(- 1.67)	(- 1.87)
ST loans				1.529	3.178	5.305	6.203*
				(1.79)	(1.51)	(1.69)	(2.47)
Market risks					2.486	4.569	5.117
					(0.97)	(1.28)	(1.69)
Liquid assets						4.770	5.500**
						(1.94)	(2.89)
Sundry asset							4.854*
							(1.99)
N	1295	1295	1295	1295	1295	1295	1295

Table 43. Econometric results: sources of banking failures with capital (1901 - 1913)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 15 banks. Columns (1) to (8) are estimated using annual data between 1901 and 1913. Each column consists of the addition of an independent variable. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Cox						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Paid up capital	- 0.0616	1.942	- 0.661	- 0.942	- 1.968	- 3.613	- 4.600
	(- 0.06)	(0.98)	(- 0.28)	(- 0.41)	(- 0.60)	(- 0.83)	(- 1.18)
Deposits		2.304	- 0.363	- 1.155	- 2.347	- 3.981	- 4.670
		(1.05)	(- 0.15)	(- 0.46)	(- 0.64)	(- 0.81)	(- 1.07)
Cash			- 5.013	- 5.196	- 6.626	- 8.808	- 9.471
			(- 1.17)	(- 1.23)	(- 1.23)	(- 1.28)	(- 1.48)
ST loans				0.792	2.052	4.104	5.258*
				(0.82)	(1.02)	(1.22)	(2.05)
Market risks					1.851	3.924	4.850
					(0.80)	(1.06)	(1.63)
Liquid assets						3.989	4.842*
						(1.49)	(2.42)
Sundry asset							4.343
							(1.90)
Balance sheet size	- 0.0122	- 0.0130	- 0.0138	- 0.0129	- 0.0131	- 0.0124	- 0.0114
	(- 1.64)	(- 1.64)	(- 1.67)	(- 1.51)	(- 1.52)	(- 1.47)	(- 1.47)
N	1295	1295	1295	1295	1295	1295	1295
Pseudo-R^2	0.0692	0.0984	0.1064	0.1187	0.1202	0.1470	0.1600

Table 44. Econometric results: sources of banking failures with paid-up capital (1901 - 1913)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 15 banks. Columns (1) to (8) are estimated using annual data between 1901 and 1913. Each column consists of the addition of an independent variable. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

	Cox						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Paid-up capital	0.973	2.975	0.686	0.0124	- 1.142	- 3.374	- 4.464
	(0.95)	(1.52)	(0.26)	(0.00)	(- 0.30)	(- 0.69)	(- 1.07)
Deposits		2.275	- 0.155	- 1.467	- 2.799	- 4.911	- 5.559
		(1.04)	(- 0.06)	(- 0.53)	(- 0.67)	(- 0.91)	(- 1.20)
Cash			- 4.361	- 4.921	- 6.432	- 9.052	- 9.907
			(- 0.99)	(- 1.16)	(- 1.14)	(- 1.27)	(- 1.51)
ST loans				1.346	2.582	4.992	6.050*
				(1.59)	(1.24)	(1.44)	(2.37)
Market risks					1.817	4.231	4.982
					(0.73)	(1.07)	(1.59)
Liquid assets						4.655	5.502**
						(1.63)	(2.72)
Sundry asset							4.911*
							(2.00)
N	1295	1295	1295	1295	1295	1295	1295

Table 45. Econometric results: sources of banking failures with paid-up capital (1901 - 1913)

Note: This table reports the results of ordinary least squares estimations. The table presents the coefficient and standard deviation of a regression where the dependent variable is the failure of 15 banks. Columns (1) to (8) are estimated using annual data between 1901 and 1913. Each column consists of the addition of an independent variable. Point estimates marked ***, **, and * are statistically significant at the 1, 5, and 10 percents levels, respectively.

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