Too connected to Fail? “Friends and Family Discounts” & the French Banking Panic of 1930

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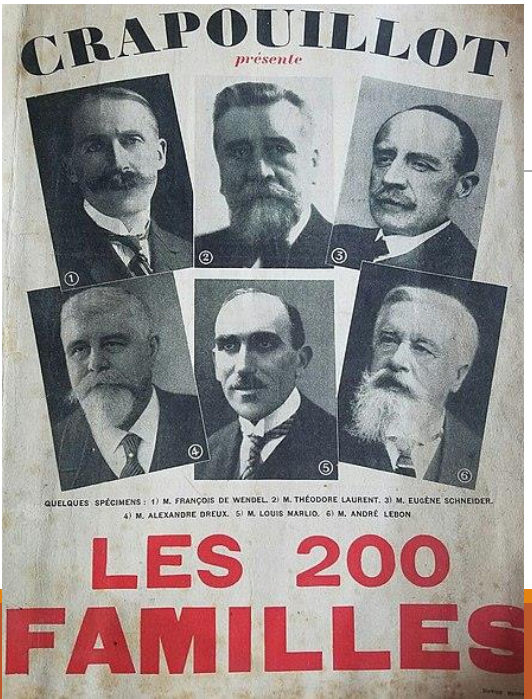
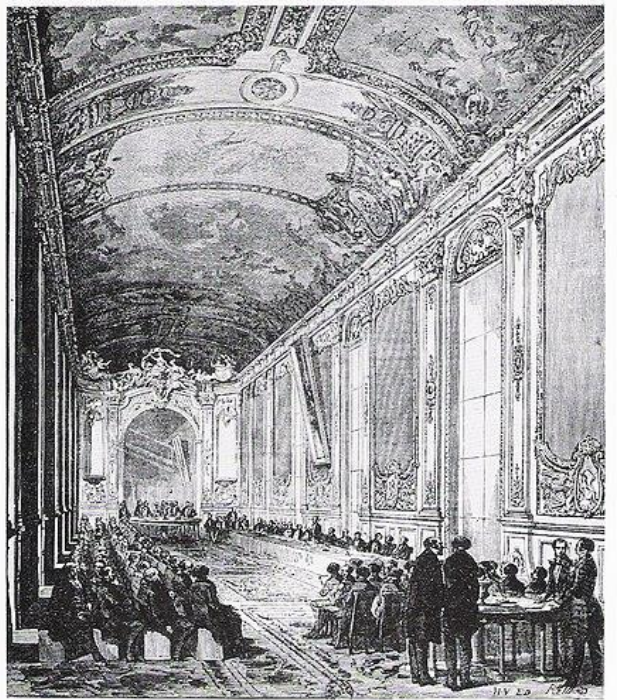




Central Bank "Design"

Growing interest in understanding how institutional design shapes central bank decision making and outcomes (Reis 2013).

Large literature focusing on CB independence – commitment, transparency and accountability

Also concern about the governance. Yet we know little about how CB governance might affect CB lending (both normal times & LOLR).

In theory, CB lending is only about collateral and solvency. In practice?

Central Bank “Design”

Other factors might affect CB lending or asset purchases:

- Personal connections. Conflicts of interest (especially in countries with weak institutions, rules of law)
- Heterogenous quality of information on banks
- Fear of losses (Goncharov et al. JF 2021)
- Political economy of relationship with gov. (Drechsler et. al. JF 2016)

Central Bank "Design"

Seems obvious today that better if CB are non-private institutions & in charge of banking supervision (i.e. homogenous information on banks). Relationship banking is not supposed to apply to CB.

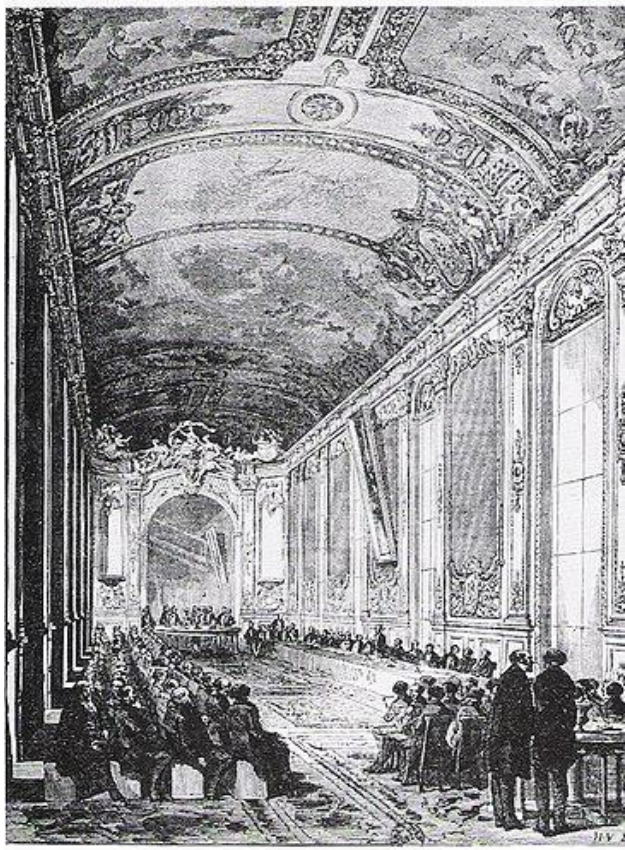
Can history support this? Do we know a clear case showing how bad was "private" central banking?

Not so obvious because:

- Evidence that LOLR worked in 19th century (with private CBs)
- Large lit. on connected lending show that sometimes optimal to rely on private personal information & relationship (Lamoreaux 1994, Cohen et al. 2008, Engelberg, Gao, and Parsons 2012; Fisman, Paravisini, and Vig. 2017)

Empirical Setting

1. The Banque de France in 1930-1931 -- a shareholder- owned central bank (founded in 1800) that took into account private incentives in decision making. 40 000 shareholders, but only 200 had voting power.
2. Largest banking panics ever in France (but BdF role in it never studied)
3. Novel, daily data on discount-window lending that identifies individual borrowers and the quantities they borrowed from the central bank
4. Merged with i) dataset on bank balance sheets from Baubeau et al. 2021 EHR); ii) bank connections to 200 shareholders and BdF board



Findings: selective LOLR policy

Once the panic started, BdF lent disproportionately more to “connected banks” (banks with ties to BdF’s 200 largest shareholders): 30-40% more on average during the panic (65% more when SIFIs are excluded)

No statistical difference between “connected” and “unconnected” lending to banks before the panic!

Why selective lending?

- Not constrained by the gold standard (ample free gold)
- Fear of losses: BdF wanted to use personal connections to avoid them

Consequences of selective LOLR policy

1. Exacerbated and prolonged the panic. Credit rationing not optimal for LOLR (Gorton-Ordonez 2020). Extends crisis through Fall 1931. Because of spillovers, even “connected” banks eventually suffered!

2. BdF realized large losses on discount window lending to connected banks
   - Government bailed out a bank to rescue the BdF (first gov. bank bailout in French history)

3. Change in governance in 1936: end voting power of the 200 shareholders + new appointment process of the board

Why didn't the BdF follow Bagehot's dictum and lend widely to halt the panic of 1930-31?

Hypothesis: in panic, a "private" CB might:

- favor paying dividends to shareholders and help their banks to survive
- rely on private connections to obtain information or guarantee, in times of radical uncertainty to avoid losses (including to shareholders; because ex ante fiscal backing)

Same consequence: favor connected lending, independent of ex ante bank characteristics. (does not internalize the risk of spillovers from non-connected to connected)

Test: Use Diff-in-Diff empirical design to examine whether shareholder links explain BdF lending during the crisis (everything else equal).

Important for identification: BdF lending was secret (no stigma, no signal for depositors) + underdeveloped interbank market

Data

Daily loans of the BdF to 'major' banks: Jan. 1930 - Dec. 1931. Discount lending (+ advances on securities)

Comptes Principaux. A summary of operations made by the BdF for these 2 years only. Original ledgers have not been kept

Similar to recent studies using confidential Fed & ECB data (Drechsler et al. 2016, Acharya et al. 2017) It's historical data, so no need for anonymity!

Focus on 65 commercial banks that borrowed (97% of DW borrowing)

- These banks constitute 85% of all assets in the French banking system prior to the panic.
- Balance sheet information (Baubeau et al. 2021)

- N.B: Other 217 institutions listed were foreign banks or non-bank financial institutions, for which we have no other information.

Data: Connections between between Shareholders and BdF

1. Information on board members of banks & BdF 200 voting shareholders (*Assemblée Générale*), hand collected from annual reports & *Annuaire Desfossés*, which published information on all firms listed in the stock market in Paris. The 200 voted on dividends, key appointments within bank (discount window lending committee and Board of directors.

2. Shareholder ties ("connected"): at least one board member of a commercial bank is a voting shareholder of BdF (26%) or bank is corporate shareholder of the BdF (5%) + Family ties (13%)

Banking Panic of Autumn 1930

Spark (before the econ. crisis starts in France):(Nov. 3): failure of Oustric, a modest and recent bank (1919)

Contagion (Nov. 4-5): run on Banque Adam – old (1784**)** major regional bank in the north – because Oustric had became its main shareholder in 1929

"Lehman moment" (Nov 5-11): the BdF let Banque Adam fail. Minor participant in a syndicate of banks in order to liquidate Adam, but didn't provide liquidity when facing run.

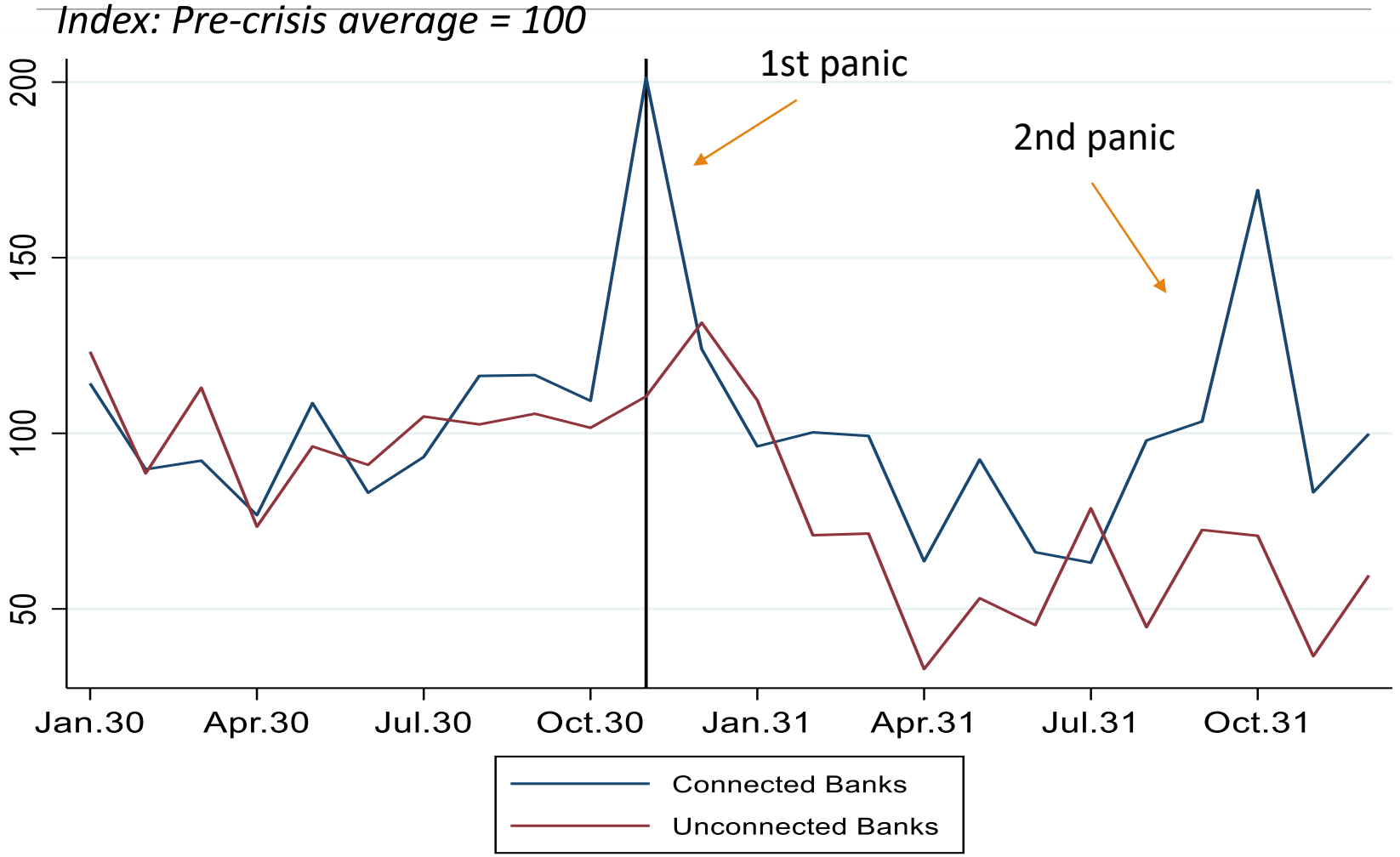
- Social protests in port city of Boulogne – traders relied on this bank for credit
- Runs on banks throughout France in December & included banks in Paris and a nationwide bank, Banque Nationale du Crédit (BNC)

Panic. BdF (Nov. 27): "the failure of *Banque Adam* had repercussions, not only in the north, but throughout France, on the public mind, and especially on small depositors"

Panic continued until early 1931. **2nd wave of panic starting summer 1931** (Baubeau et al. 2021 EHR)

Lending to connected and unconnected Banks

In terms of quantities, lending to unconnected vs. connected banks was twice as large in the year prior to the crisis: 1 billion vs. 500 million FF.



Connected and Unconnected banks in 1929 look similar in observables

Bank Attributes	Unconnected (45 banks)	Connected (20 banks)	Difference (UC-C)	p-value
Assets	1499.4 (440.8)	1231.6 (525.2)	267.7 (749,1)	0.72
Growth of assets (%)	15.2 (3.3)	11.1 (3.3)	4.1 (5.5)	0.46
Deposits	1196.4 (379.8)	1016.9 (461.3)	179.4 (648.2)	0.78
Deposit/Assets (%)	69 (2.4)	68.4 (5.3)	0.5 (5.1)	0.91
Capital Ratio	12.3 (1.2)	16.3 (4.2)	-4 (3.3)	0.23
Liquidity Ratio	49.1 (2.8)	48.8 (4.4)	.3 (5.1)	0.95
Return on assets (ROA)	1.4 (0.1)	1.8 (0.3)	-0.4 (0.3)	0.20
Return on equity (ROE)	14.5 (1.5)	13.9 (1.5)	0.6 (2.5)	0.81
Regional bank	44.4 (7.4)	45 (11.4)	-0.1 (0.13)	0.96

Difference-in-Differences Estimation

Compare connected and unconnected before and after the crisis starts by estimating:

$$\log(Y_{i,t}) = \alpha + d_t + b_i + \beta\,(Connected_i * Panic_t) + \gamma X_{i,t} + \epsilon_{i,t},$$

d_t, time fixed effects (day, week, month)

b_i, bank fixed effects

Standard errors clustered at the bank level

Time varying controls: interact bank characteristics (log of assets, liquidity ratio, capital ratio) with either crisis dummy or time-fixed effects

Zero-inflated Poisson (ZIP) **regressions,** because excess of zeros (40% of monthly data, 63% weekly, 85% daily), i.e., banks didn't borrow every day, week, or month

Estimating Differences in BdF Lending during the Crisis using Weekly Data

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	All	All	All	Excl. SIFIs	Excl. bankrupt	Excl. SIFIs & bankrupt
Connected*Panic	0.411*	0.398**	0.377**	0.658***	0.632***	0.579***
	(0.214)	(0.195)	(0.177)	(0.165)	(0.0960)	(0.146)
Constant	15.28***	14.58***	12.90***	18.56***	13.61***	19.55***
	(0.172)	(0.465)	(2.529)	(2.465)	(3.129)	(2.497)
Observations	6,708	6,708	6,708	6,292	5,876	5,564
Week FE	YES	YES	YES	YES	YES	YES
Bank FE	YES	YES	YES	YES	YES	YES
Post-crisis interactions	NO	YES	NO	NO	NO	NO
Weekly interactions	NO	NO	YES	YES	YES	YES

Standard errors clustered at the bank level in parentheses

*** p<0.01, ** p<0.05, * p<0.1

A tale of two (regional) banks

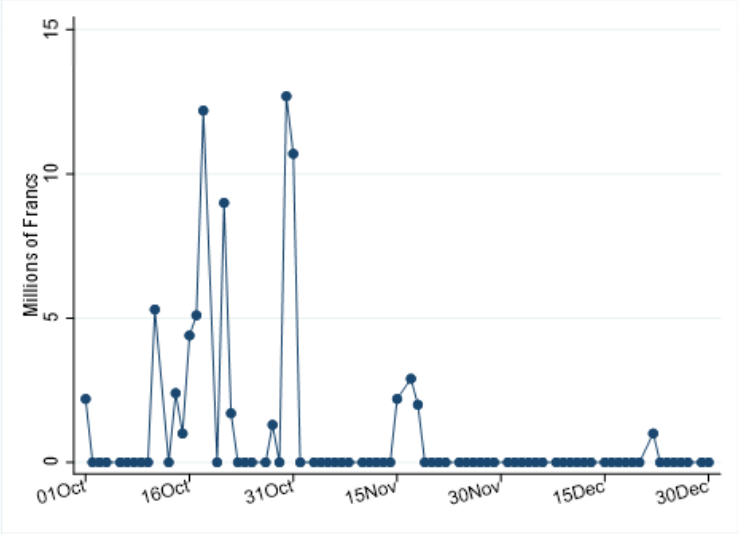
Banque Adam (as well as Oustric) were frequent borrowers at BdF before the crisis. The BdF stopped lending & let them fail

But, during the panic, BdF lent massively to another major regional bank (Banque d'Alsace et de Lorraine), which also suffered from runs immediately after Oustric failure (because of financial ties with Oustric)

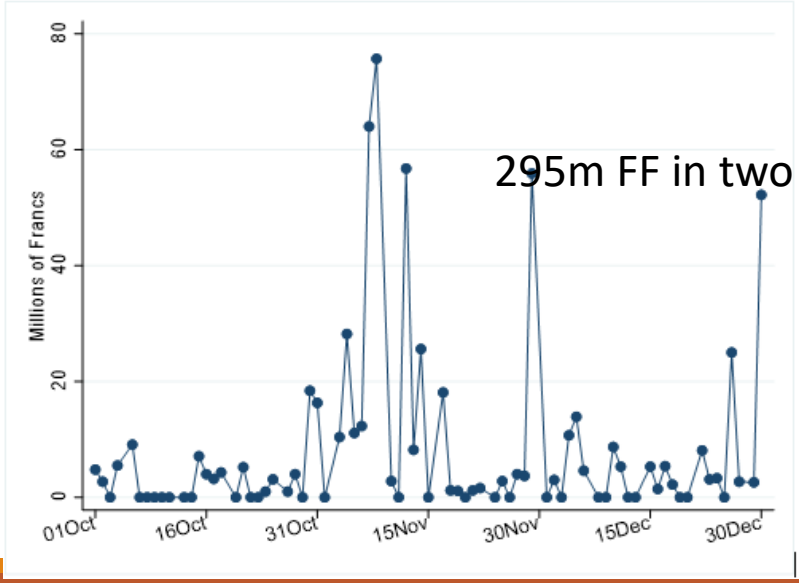
Banque Adam and Banque d'Alsace Lorraine (BAL) were very similar (capital, liquidity ratio; 17th vs. 24th in asset size) and had long relationship with BdF (« widely trusted »)…

Key difference: BAL' s board of directors had two BdF shareholders

Panel A. Loans to Banque Adam (October-December 1930)



Panel B. Loans to Banque d'Alsace et Lorraine (October-December 1930)



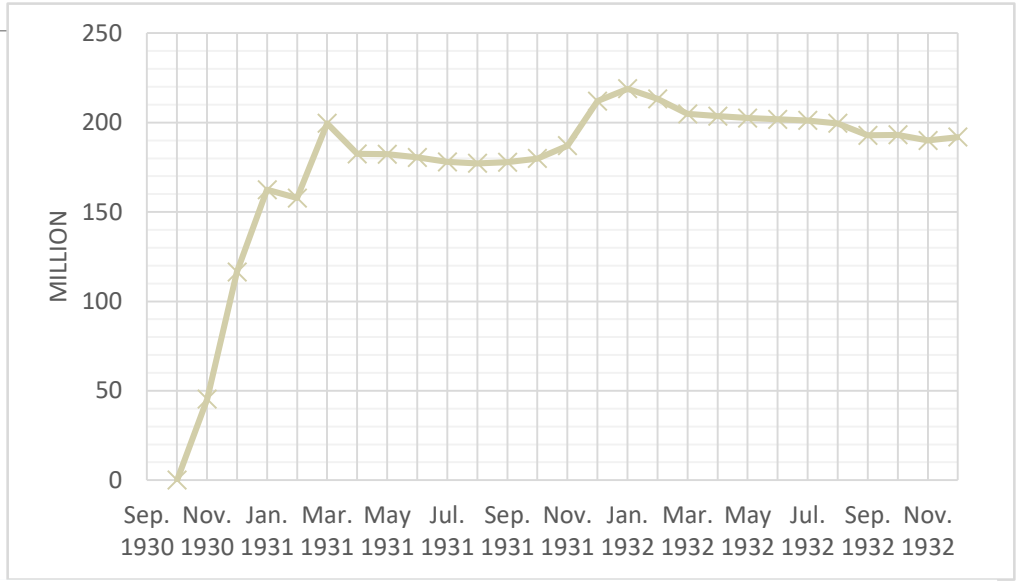
295m FF in two weeks!

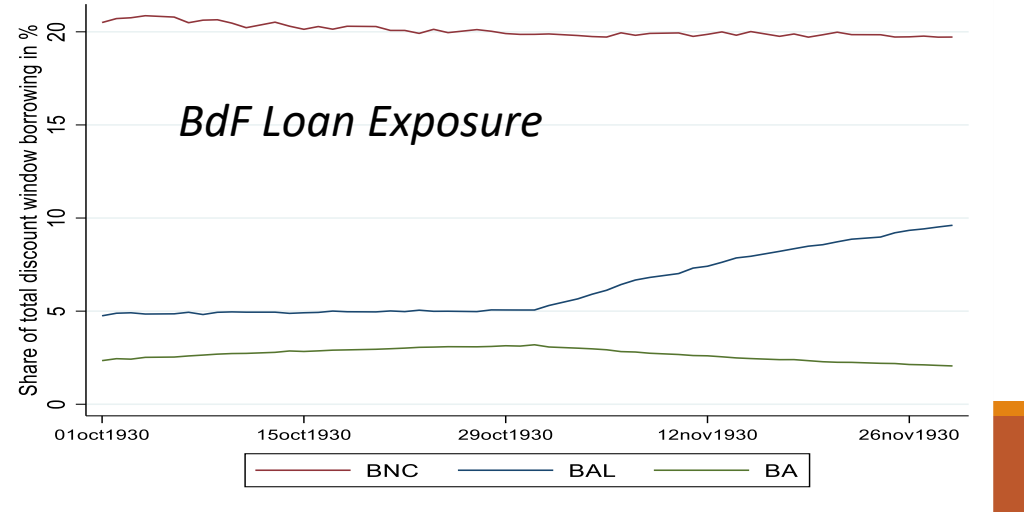
Bailing out the central bank

Non-performing loans becomes unbearable

- Window dressing: published: 130m(without BAL): internally 178m.
- End of 1930
  - Reserves: 46m
  - Capital: 182m
- And BAL owed BdF: 760 million as of 12/30
  - Could not pay
- But BdF raises its dividend! How?
- Secret agreement with MoF removes NPL of BAL

BdF Non-performing loans increase massively (unpublished amount)





Overhaul of BdF Governance

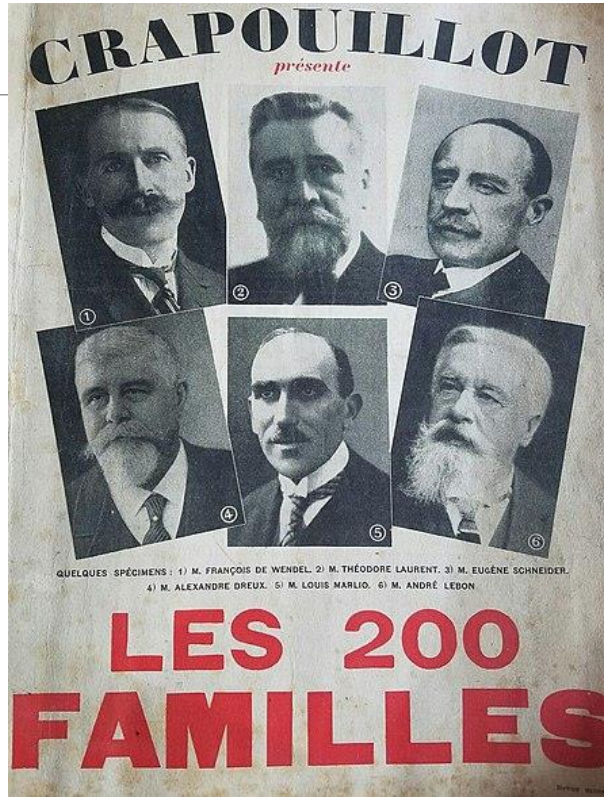
Voters blamed the BdF for not acting in the public interest (e.g., let many regional banks fail)

200 voting shareholders became the symbol of "financial elite" Criticism of BdF met conspiracy theory, populism and antisemitism

Daladier October 1934:

- *The empire of two hundred families weighs on transports and on credit. You know it, you, who since the disappearance of the small local and regional bankers, are obliged to count on the modern lord. The current fact is that the industrialist has become the vassal of the financier*

Popular Front (left wing gov.), May 1936: one of its first actions was to abolish the voting power of the 200, changing the voting structure to a one-share, one-vote model, and reforming the selection of the board of directors and policy committees so that it operated in the public's interest.



Conclusion

Central bank response to French banking crises of the Great Depression: not absent but *selective LOLR*

Selective LOLR was neither based on bank financial characteristics (liquidity, solvency), nor random, but reflected personal links of banks to the BdF through shareholders (and family)

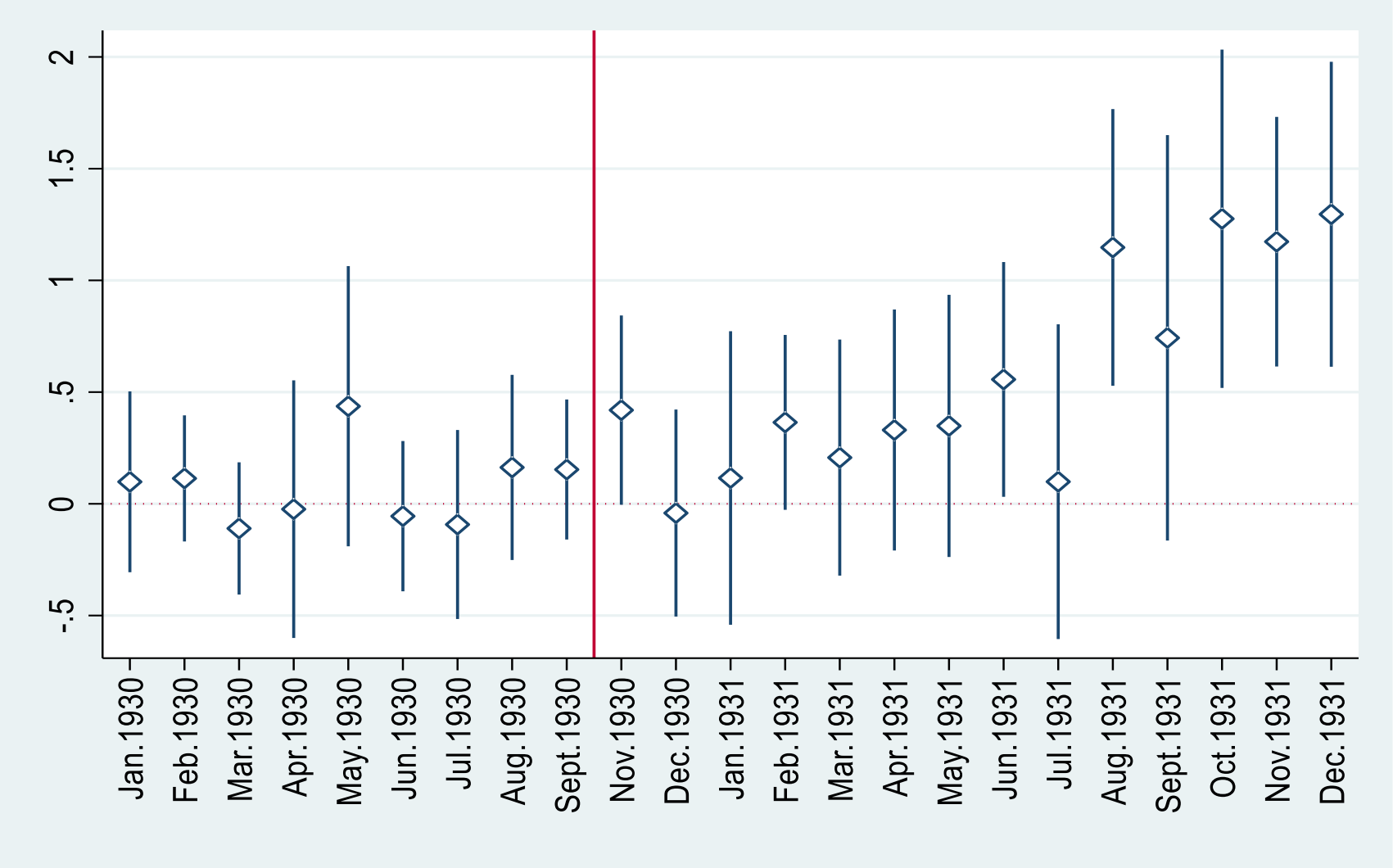
A problem of governance: likely not pure cronyism; the BdF wanted to avoid losses to pay dividends, no ex ante fiscal backing

Bad economic consequences: did not stop banking panics, the CB became too much exposed to connected banks and had to be bailed out!

Key to explain the shift to “public” central banking with banking supervision.

Modern central banks are not completely immune from loss considerations (Goncharov et. al., 2021) nor to concerns about private incentives

Event Study Results



$$\log(Y_{i,t}) = \alpha + d_t + b_i + \sum_{\tau=-q}^{-1} \beta_\tau \ (Connected_i * Panic_\tau) + \sum_{\tau=1}^{m} \delta_t \ (Connected_i * Panic_\tau) + \gamma X_{i,t} + \epsilon_{i,t},$$

Estimates using Alternative Definitions of Connectedness

	(1)	(2)	(3)	(4)
VARIABLES	Shareholders (bank and individuals)		Shareholders (individuals)	
Connected*Panic	0.319*	0.283*	0.295*	0.264*
	(0.166)	(0.148)	(0.169)	(0.148)
Constant	14.55***	12.79***	14.53***	12.78***
	(0.509)	(2.426)	(0.539)	(2.496)
Observations	6,708	6,708	6,708	6,708
Day FE	YES	YES	YES	YES
Bank FE	YES	YES	YES	YES
Post-crisis interactions	YES	NO	YES	NO
Weekly interactions	NO	YES	NO	YES

Standard errors clustered at the bank level in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Supplementary Material

Gold Standard and the BdF

Requirement to back monetary issuance with gold reserves did not limit the extent of BdF lending in 1930-31 because France had ample free gold due to large inflows from abroad (Eichengreen, 1992).

During our sample period, discount window lending could have increased tenfold without pushing France off the gold standard.

Was Banque Adam a lemon?

	Banque Adam	Banque d'Alsace Lorraine
Capital-asset ratio	7.3%	10.4%
Liquidity ratio (% of assets)	45.9%	38.6%
Short-term deposits as a share of total liabilities	33.4%	77.4%
Return on assets (ROA)	1.0%	0.9%
Return on equity (ROE)	20%	11.3%
Opinion of the BdF on the bank (from "fiches d'escompte")	"One of the top provincial banks. Widely trusted. "	"Skillfully managed and widely trusted institution"

Distribution of Banque de France Shares

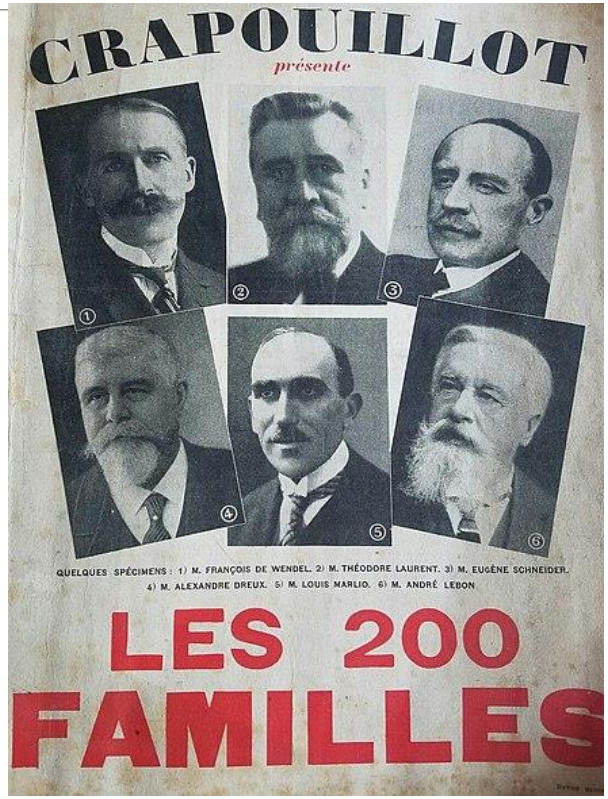
Number of shareholders owning …		Percent of all shareholders
1 share	12,318	39
2 shares	6,997	22.5
Between 3 and 5 shares	6,455	21
Between 6 and 50 shares	5,171	16.5
Between 51 and 100 shares	148	0.5
More than 100 shares	160	0.5
TOTAL	31,249	100

- *Source :* Assemblée Générale des actionnaires de la Banque de France, compte rendu, 1931.

General Assembly was stable

From 1900 into the 1930s, the number of shares required to attend the General Assembly fluctuated between 50 and 60 (Manas 2019, Figure 11, p.149).

Given the wealth required to amass more than 50 shares, the composition of the Assembly proved to be very stable over time.



ZIP model

The Poisson model assumes that the conditional variance of the dependent variable is equal to the conditional mean.

Because of "excess zeros," the conditional variance is greater than the conditional mean, and the data exhibit overdispersion.

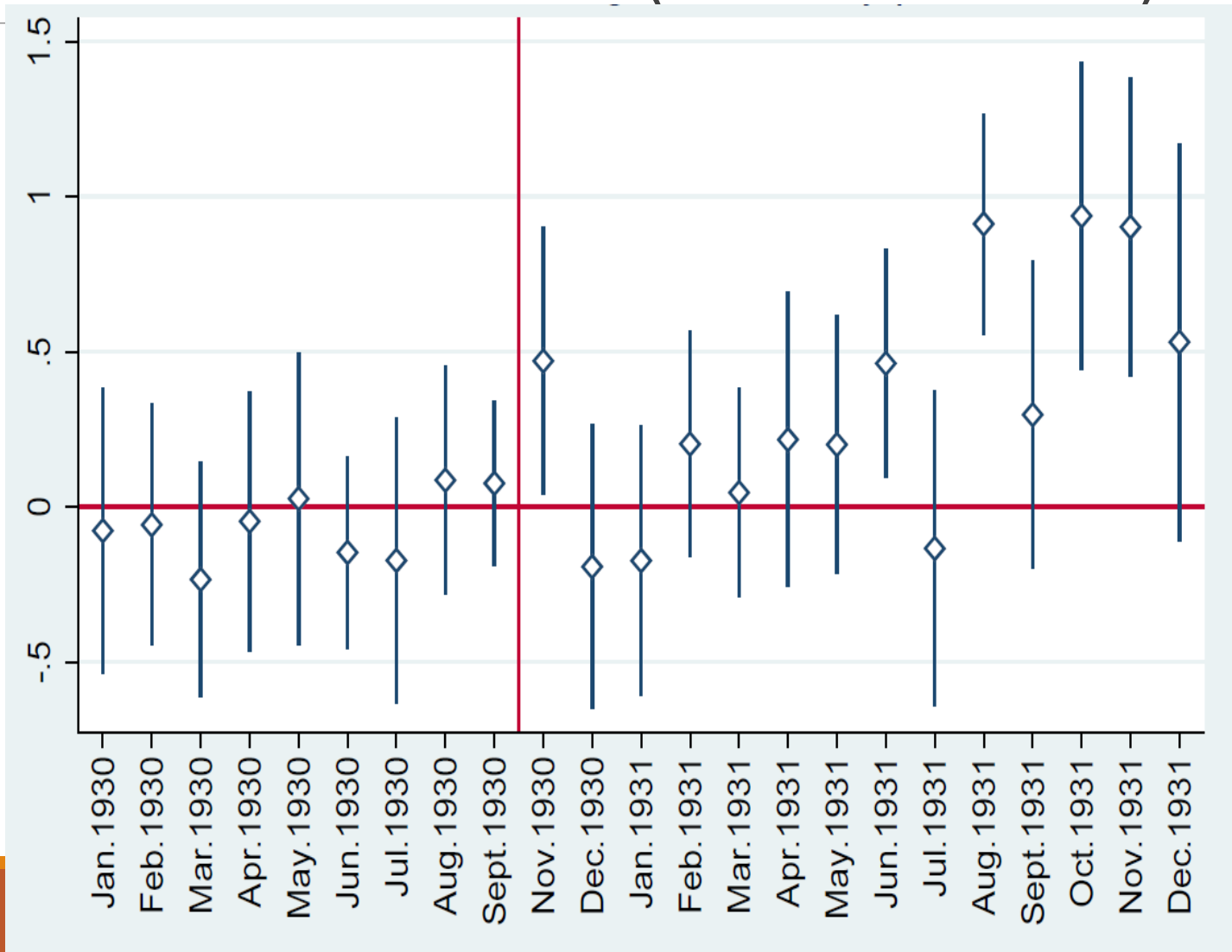
A zero-inflated Poisson (ZIP) model allows to account for this overdispersion by estimating two models:

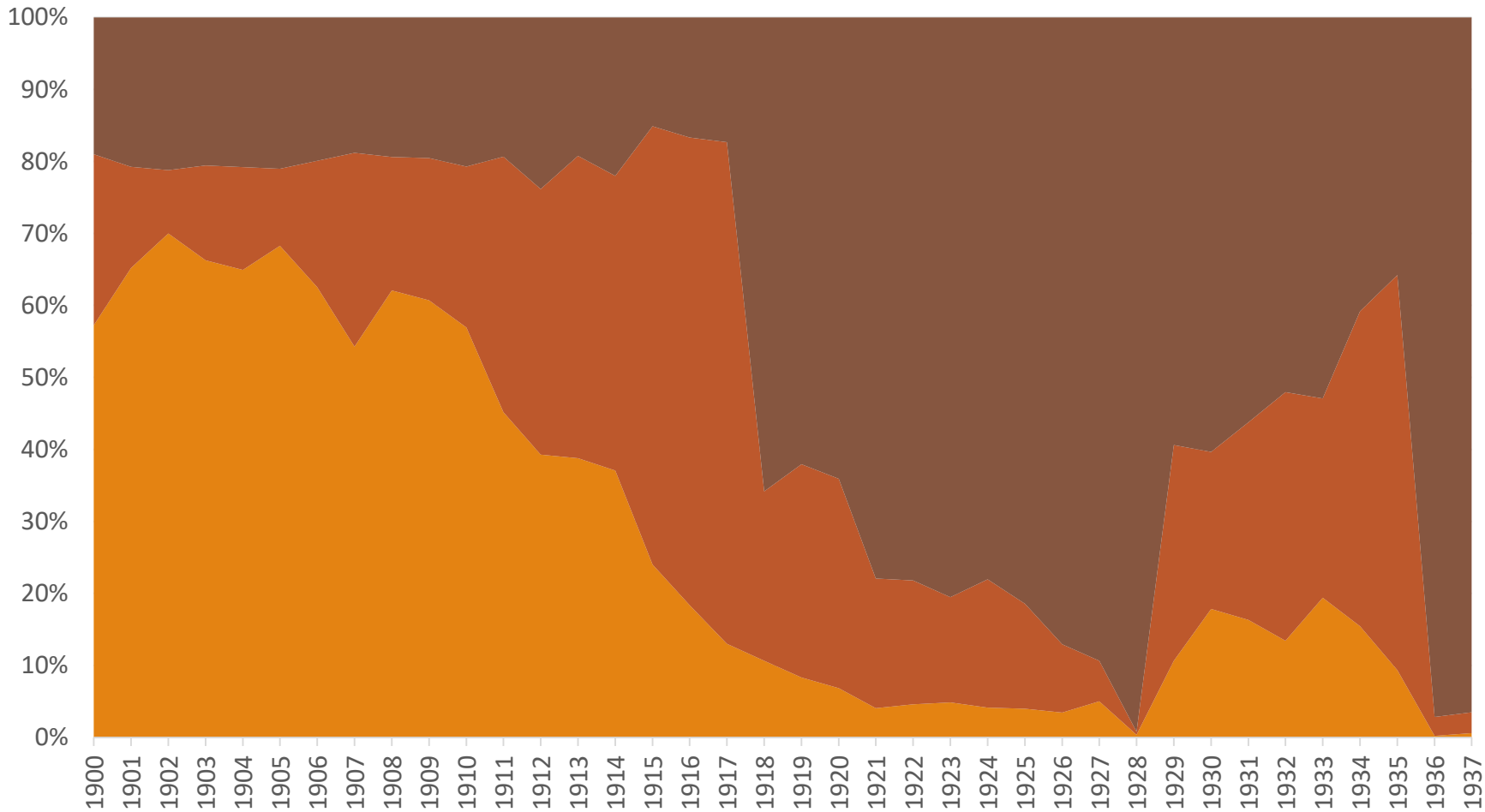
1. A logistic regression first predicts the probability *p* that our variable of interest equals zero. T
2. The second step estimates the Poisson model, assuming that a Poisson random variable is observed with probability *1-p*

In the first step (the logit predicting zeros), we use the bank-fixed effects as explanatory variables. Adding other variables (time-fixed effects or time-varying controls) to this model does not produce significantly different results.

Following Wilson's (2015) recommendation, we verified that the BIC and AIC criteria favor a ZIP model over the Poisson model

Event Study: Definition of connected banks (as in Table 3)

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Dividends to Profits ratio
Reserves to Profits ratio
Taxes to Profits ratio

Table A.1 : Composition of the assets of the Banque de France, 1930-1931 (end of the year).

	Gold	Foreign exchange and current accounts	Discount of commercial paper	Advances on collateral	Loans to the Treasury
1929	46%	29%	10%	3%	10%
1930	52%	26%	8%	3%	9%
1931	59%	19%	6%	4%	9%

Source: Assemblée Générale des actionnaires de la Banque de France, compte rendu

Table A.2: Sources of Revenue of the BdF (Million FF)

	Loans to the Treasury	Discounting of commercial paper	Lombard loans	Foreign exchange operations
1920	474	194	116	0
1928	422	109	108	609
1929	0	272	137	1250
1930	0	185	128	738
1931	0	174	130	495*
1932	0	120	125	239
1933	0	107	123	50

Source: Gonjo (1996), from the annual reports of the BdF.
Note: * For 1931, revenue from foreign exchange operations was positive because the French government fully compensated the losses caused by the devaluation of Sterling in September. Losses were compensated in December, before the closing of accounts, by an amount of 2342 millions FF. (See the Annual Report of the BdF, 1931).

Insider Lending in Central Banks

Could be efficient way of monitoring banks

Potentially susceptible to distortion or manipulation by insiders for personal gain

May impose negative externalities on the economy

May have political consequences

More particularly, is selective lending a concern during crises?

In the current context, perhaps:

- Jay Powell, Chairman BOG, "really no limit" to what the central bank could do with its emergency lending facilities (*NY Times*, 5/19/20).
  - Luigi Zingales, "The 'too big to fail' that existed for banks [in 2008] has now been extended to a lot of other firms."
  - Extension of Fed's traditional emergency lending may invite (dis)favoritism – unwillingness to take on losses
    - Fed has been reluctant to lend to the airline industry despite $50 billion earmarked by CARES Act
    - Should the Fed be worried about losses to its balance sheet?
- ECB's lending through (T)LTRO and possible purchases of primary corporate debt (rather than secondary) raise questions about discretion as well as issues about compliance with other EU directives (e.g., green energy)

Framing the issue in terms of a central bank's objective function

Generally believed that modern central banks have clear mandates with respect to policy as specified in their charters.

- Inflation targeting in normal times, Lender of Last Resort (LOLR) during crises, etc.

Historically, CB "mandates" perhaps less clear

Many central banks around the world (especially in Europe) were founded as private banks

Shareholder-owned central banks may want to maximize profits or minimize losses.

- Is a CB with this design problematic?
- Does its earlier existence perhaps explain why most central banks are now public or quasi-public entities today?

We use a novel laboratory from history to explore the potential for conflicting objectives

French banking crisis of 1930-31

The Banque de France (BdF) was a central bank (e.g., fiscal agent of the state), but also a private bank with shareholders whose stock traded on the Paris Bourse and paid dividends.

- Largest shareholders of the bank (highly concentrated group) determined bank officers (Regents), discount-window lending committee (*Conseil d'escompte*), portfolio committee

Some "elite" BdF shareholders had direct ties to commercial banks by sitting on their boards of directors

- We construct measures of these connections

Analyze the discount-window lending of the BdF before, during, and after the crisis for "connected" and "unconnected" banks

- Super unique daily data on bank-level lending hand collected from BdF archives
- Central banks usually destroy amounts and lenders identities of discount window loans as it is considered sensitive (e.g., stigma)

Preview of Findings

BdF did not discriminate in DW lending prior to the crisis

- Gladly made profits by lending short term to unconnected banks

BdF makes fateful decision, its "Lehman moment," and lets two unconnected banks fail rather than lending to them, triggering a banking crisis

After this event, it then lends relatively more to "connected" banks

- BdF lent so heavily to one particular connected bank that then imperils the BdF's balance sheet.
  - Ultimately succeeds in getting Treasury to bail it out – 1st in French history.
- Crisis window coincides with distress on balance sheet of BdF, but bank pays higher dividend to shareholders than in preceding year!

When FdF balance sheet again becomes imperiled in Fall 1931, depositors now know it won't lend to connect bank and run unconnected banks, triggering a second banking crisis

Selective lending proves economically and politically costly

- BdF decisions lead to two banking crises, which led to depositor losses, a contraction in lending, a decline in output, and increased unemployment
- Prominent BdF shareholders stripped of decision-making power within the bank
- Bank "democratized" to remove influence financial and industrial elite
- One-share, one-vote system implemented
- Transformed to central banking in the "public interest"

Outline of Rest of Talk

1. The BdF and Bank Connections
2. The Banking Panic of Autumn 1930 and the BdF's balance sheet
3. Analysis of selective lending hypothesis
4. Consequences of BdF policies

Structure of the Banque de France (BdF)

Privately-owned bank, profit-maximizing central bank established under Napoleon in 1800

40,947 shareholders

Article 11 (1806 Law): General Assembly of the BdF consists of only the 200 largest shareholders

These 200 members of the General Assembly are the voting shareholders, concentrating authority in a minority of owners.

- 65% held only 1 or 2 shares
- 180 shareholders held 50-100 shares
- Only 84 held more than 100 shares

These 200 chose key decisionmakers of the BdF and approved annual report

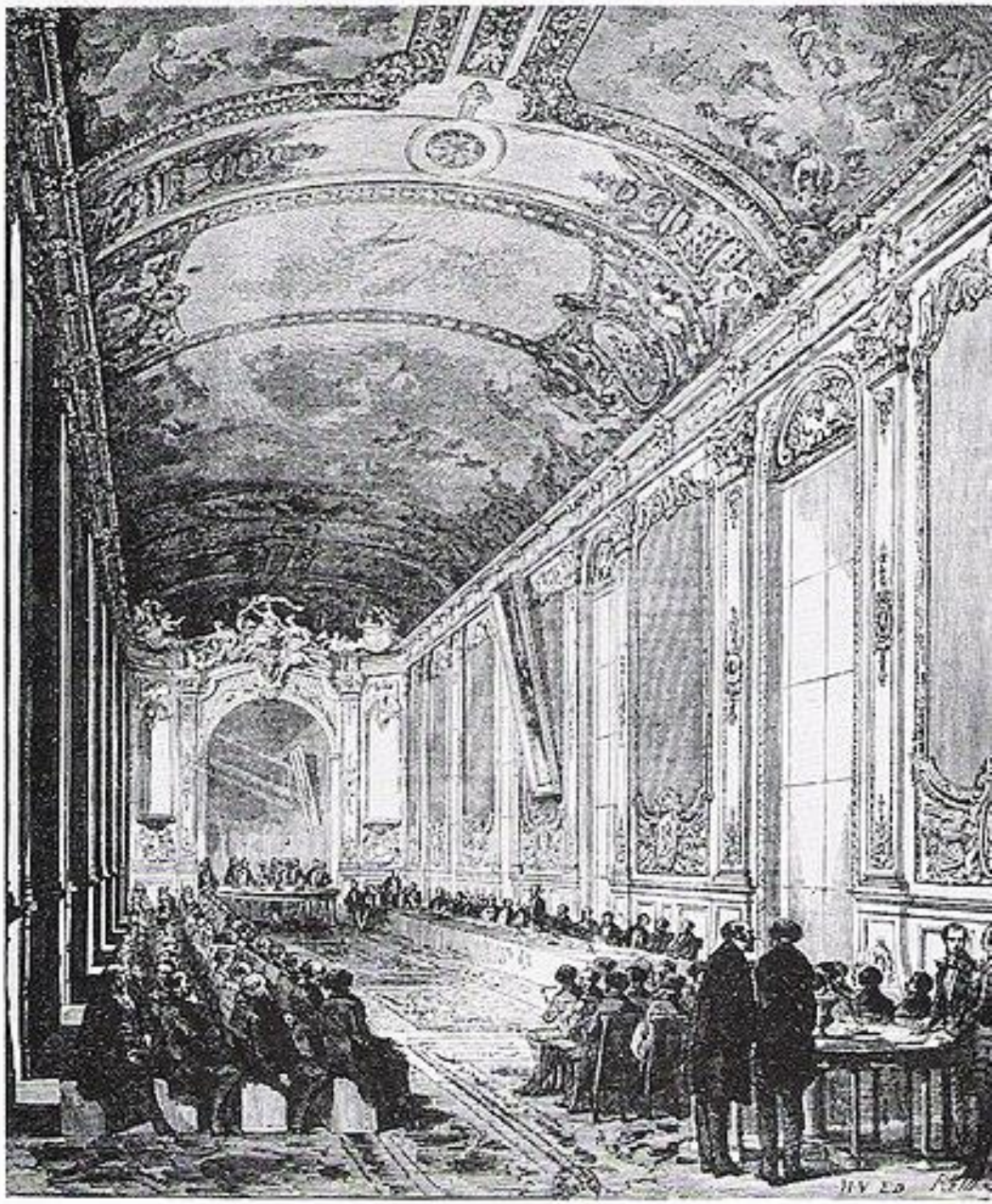
15 members of the Council of Regency (or the Banks' Board, aka "Regents")

3 censors (auditors and authors of annual report)

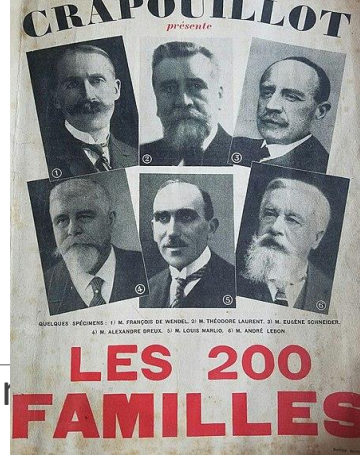
Approved Members of the Discount Committee (*Conseil d'escompte)* or policy committee of the BdF – all of whom were also shareholders, nominated by censors

Governor and two deputy governors appointed by the Ministry of Finance, but also had to be shareholders

- Governor had to hold 100 shares, which in 1929 would have been valued at around 320,000 FF or $152,000 (nominal!)



200 Voting Shareholders: "The 200 Families"



Men of wealth, political power and financial elite (Jeanneney, 1981)

- "Spider web theory of industrial and financial control" (*New York Times* comm on French view in 1936)
- Held 150 board of directors' seats of 95 of the largest commercial, financial, and industrial
- Many of these ran other banks or sat on their boards

Council of Regency (Board of BdF) reflected this

- Baron Edouard de Rothschild (Powerful French and International Banking Family)
- D. David Weill (Head of Banque of Lazard Frères)
- Francois de Wendel – Head of Comité des Forges (French armament trust) and Senator
- Regents viewed by contemporaries as "hereditary"

The BdF and LOLR

Some previous experience: "lifeboat operation" employed during 1889 crisis (Hautcoeur et al. 2014)

The BdF had two possible objectives to follow during 1930-1 crisis: profit maximization and LOLR

We are testing whether it was willing to act as an LOLR when liquidity demand rose toward the end of 1930 – with the outbreak of a financial panic – given how it might affect bank profits.

- If fully successful, LOLR policy can be highly profitable for a CB, because of increase in lending at a "penalty rate."
  - Ex.: Rise in CB revenues during the 2007-8 financial crisis
- But failures of commercial banks and decrease in the value of collateral/assets during a crisis have the potential to make a central bank "insolvent"
  - Ex.: Counterfactual outcome for ECB balance sheet if Eurozone governments had not bailed out banks.

Banking Panic of Nov.-Dec. 1930

November 3, 1930. Run on Banque Oustric -- a rather small speculative investment bank.

November 3-4, 1930. Run on Banque Adam, a major regional bank in northern France, partly owned by Oustric.

November 4. Meanwhile, BdF providing large discount window loans to Banque d'Alsace Lorraine (BAL) – a connected bank

November 5-6. BdF does not provide liquidity to Oustric & Banque Adam (unconnected banks) and lets them fail: "Lehman Moment"

November 7-8 BdF provides additional large DW loans to BAL

- 650 million FF over 2-week period.

Nov. 10. A syndicate of bankers formed (under the direction of Rothschild) to liquidate Banque Adam

- 49 million FF from large French banks, 21 million FF from board members of Adam,
- BdF participates, but small share: 10 million FF

Panic continues into December 1930

Nov. 11-12 runs nevertheless continue on many small and medium-sized commercial banks – “lifeboat operation” insufficient to stop this panic.

Cabinet member implicated in listing of Oustric stock on Paris Bourse. Scandal leads to ousting of PM Tardieu.

BAL defaults, unable to repay loans to BdF

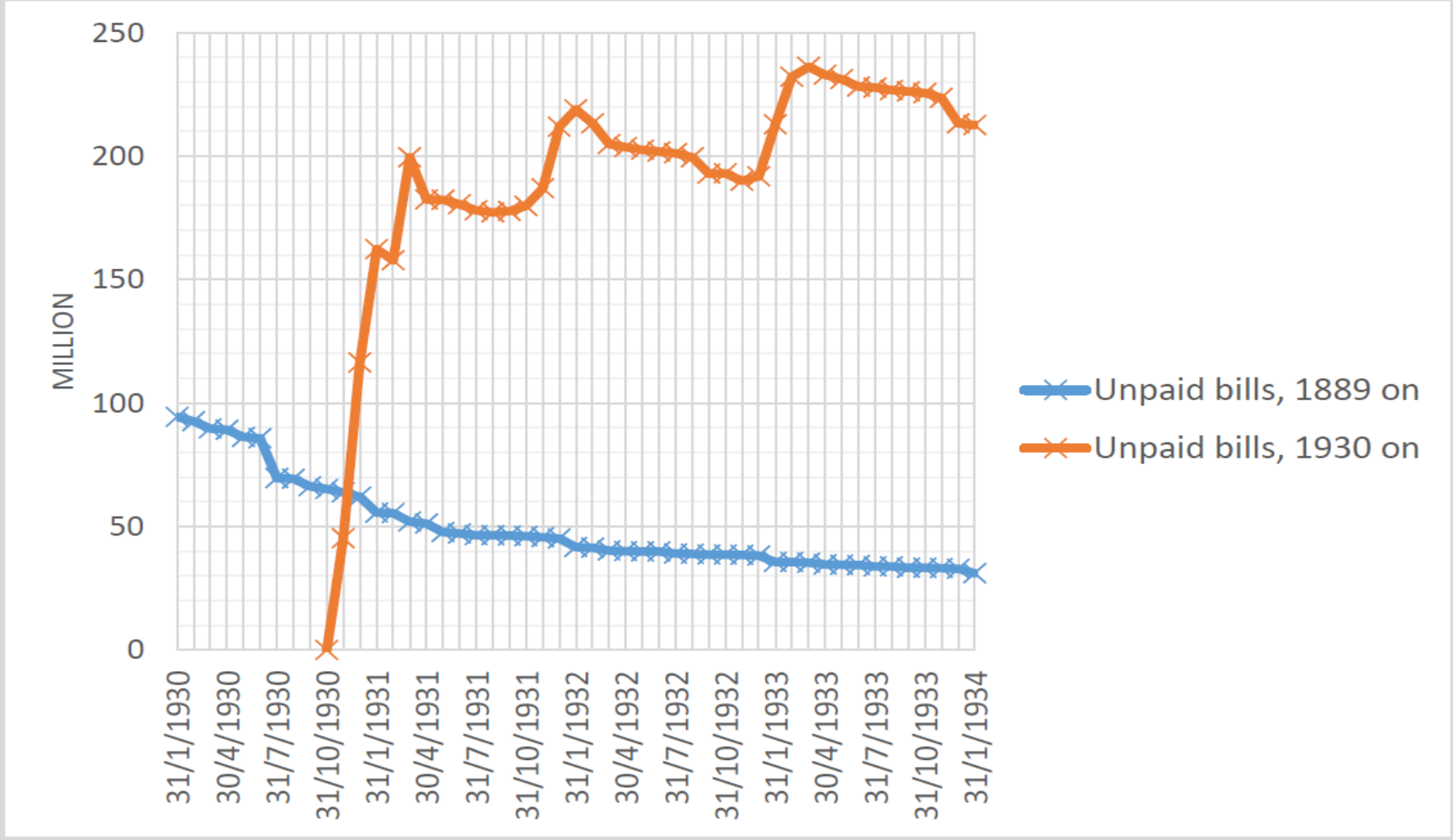
BdF asks the government to bail out the BAL on Dec. 23, 1930

- Governor of BdF writes to Finance Minister and argues that loans granted to the BAL were "in contradiction with the statutes of the BdF''
- Clear attempt to prevent further damage to its balance sheet and prevent losses to shareholders

December 26, 1930. Secret deal between the Treasury and the BAL, encouraged by BdF.

- Parliament not informed until September 1931!
  - The Government ex post justifies that bailing-out BAL was a national priority because fears that the BAL could have been acquired by German banks.
- No historical evidence to support this claim

New, non-performing loans on BdF balance sheet surge due to banking panic



Source: Authors' calculations based on daily balance sheet of the Banque de France (Banque de France archives).

Rise of non-performing loans limited BdF options & made constraints bind

Uncertainty about government's willingness to bail out troubled banks or the BdF (had never tried it)

→ BdF cannot play moral hazard game and just assume all risk of loans it makes.

Bank runs on small banks, then first failures. Large banks are unwilling to bail them out (as with Adam and then BAL).

BdF consistently paid a dividend to shareholders, the size of which had been growing in 1920s.

Banknotes in circulation are capped by law (and gold standard rules…), so no way to generate profit through additional issuance or to use OMO

What, then, could it do during the crisis?

Vague legal definition of "good collateral" permitted BdF to pursue a policy of *selective lending* during panic:

"*The banking crisis, which began abruptly at the end of October, led to numerous failures among the banks that borrow from our institution. No matter how much assistance we provided to all those who asked, we were unable to prevent the collapse of banks that had either suffered losses or invested their deposits in assets that that we could not accept as collateral [mobilize] without violating our statutes*."

(27 Nov. 1930. Governor of BdF at board meeting)

Behind this assertion is, in fact, a policy based on discretionary criteria:

- Definition of safe collateral and interpretation of the law (the ''statutes'') are in fact flexible (Baubeau 2004, Hautcoeur et al. 2014, & contemporary examples we found in archives)
- The line between solvency and liquidity blurs during crises (Carlson, Mitchener, Richardson 2011)

Solution: offer “friends and family” discounts

Hypothesis: during the crisis when demand for liquidity was high, the BdF lent more to banks that were “connected” to it.

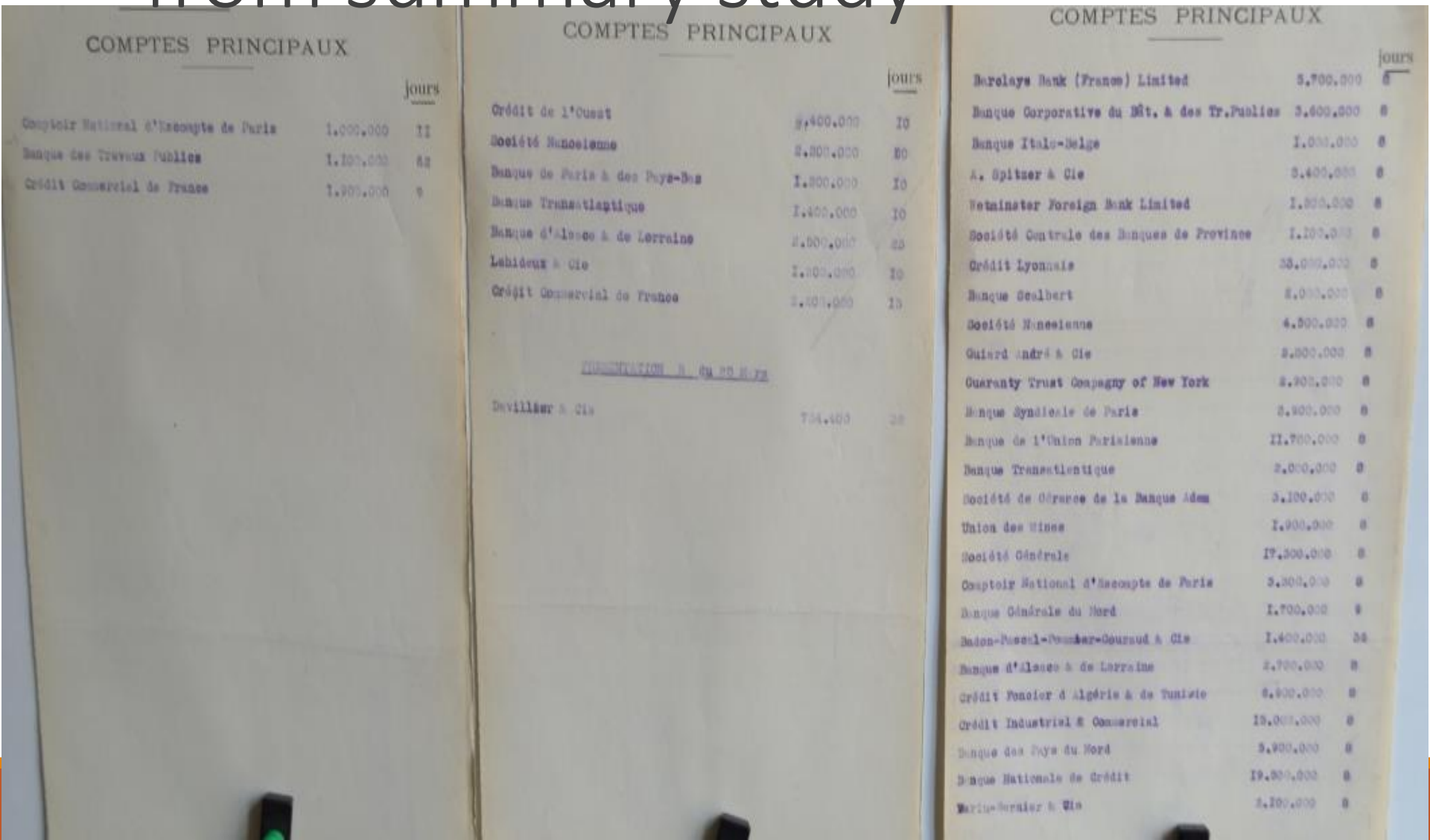
Why?

- A private central bank cares about risk, losses, and profits.
- 200 key shareholders are also directors of banks

Who to lend to?

- Commercial banks whose directors had ties to the BdF

Sample of the archival data from summary study



COMPTES PRINCIPAUX

jours

Comptoir National d'Escompte de Paris 1.000.000 II

Banque des Travaux Publics I.[illegible] 82

Crédit Commercial de France I.[illegible] 9

COMPTES PRINCIPAUX

jours

Crédit de l'Ouest [illegible] IO

Société Marseillaise [illegible] 80

Banque de Paris & des Pays-Bas I.[illegible] IO

Banque Transatlantique I.[illegible] IO

Banque d'Alsace & de Lorraine [illegible] 25

Lehideux & Cie I.[illegible] IO

Crédit Commercial de France [illegible] 15

Devillaer & Cie [illegible] 28

COMPTES PRINCIPAUX

jours

Barclays Bank (France) Limited 5.700.000 8

Banque Corporative du Mât. & des Tr.Publics 3.600.000 8

Banque Italo-Belge I.[illegible] 8

A. Spitzer & Cie [illegible] 8

Westminster Foreign Bank Limited I.[illegible] 8

Société Centrale des Banques de Province I.[illegible] 8

Crédit Lyonnais [illegible] 8

Banque Colbert [illegible] 8

Société Marseillaise 4.500.000 8

Guiard André & Cie [illegible] 8

Guaranty Trust Company of New York [illegible] 8

Banque Syndicale de Paris [illegible] 8

Banque de l'Union Parisienne II.[illegible] 8

Banque Transatlantique [illegible] 8

Société de Gérance de la Banque Adam [illegible] 8

Union des Mines I.[illegible] 8

Société Générale IT.[illegible] 8

Comptoir National d'Escompte de Paris [illegible] 8

Banque Générale du Nord I.[illegible] 9

Badon-Pascal-Fournier-Courcoux & Cie I.[illegible] 34

Banque d'Alsace & de Lorraine [illegible] 8

Crédit Foncier d'Algérie & de Tunisie [illegible] 8

Crédit Industriel & Commercial [illegible] 8

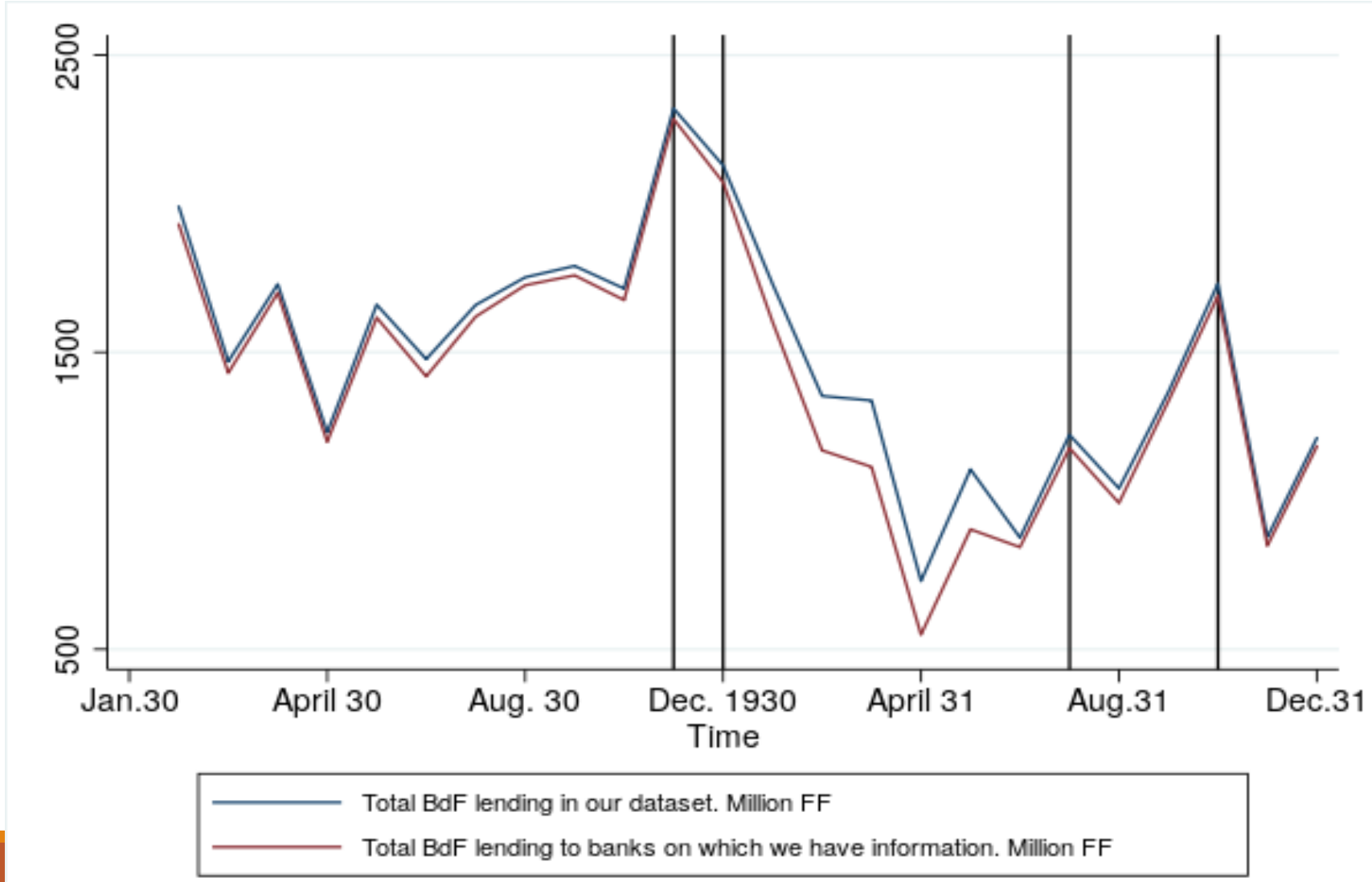
Banque des Pays du Nord [illegible] 8

Banque Nationale de Crédit [illegible] 8

Marlio-Bernier & Cie [illegible] 8

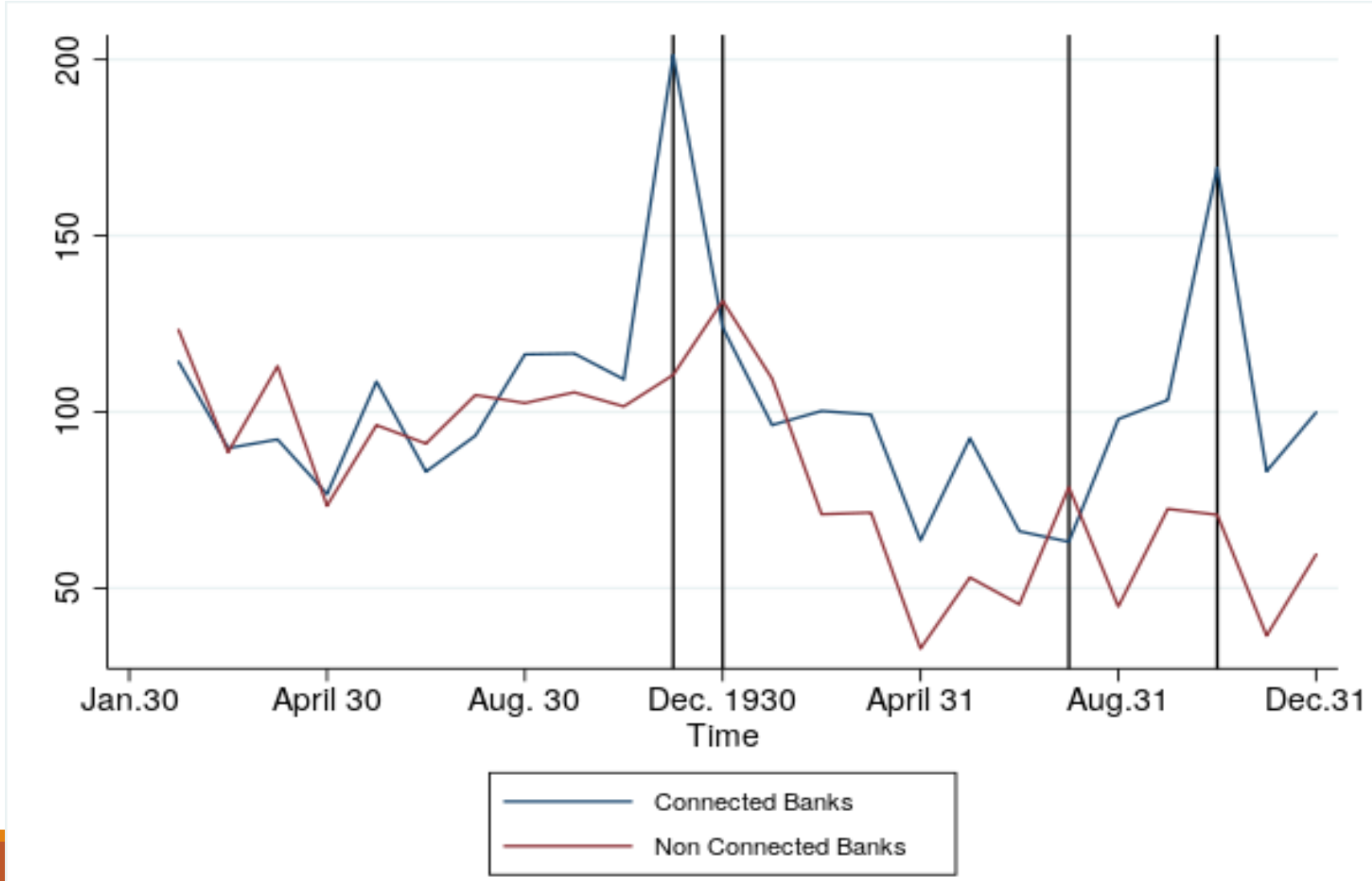
	Number	Share of total assets of French deposit-taking banks	Estimated share of the domestic portfolio of the BdF [note: around 40-50% of loans made to non-financial entities]
'Main Banks' borrowing from BdF (includes foreign banks, non-bank financial entities)	282		25%
Total French deposit-taking banks	230	100%	
Banks borrowing from the BdF on which we have information on balance sheets and connections	67	85%	24%

Comparing all borrowers with those having balance-sheet information



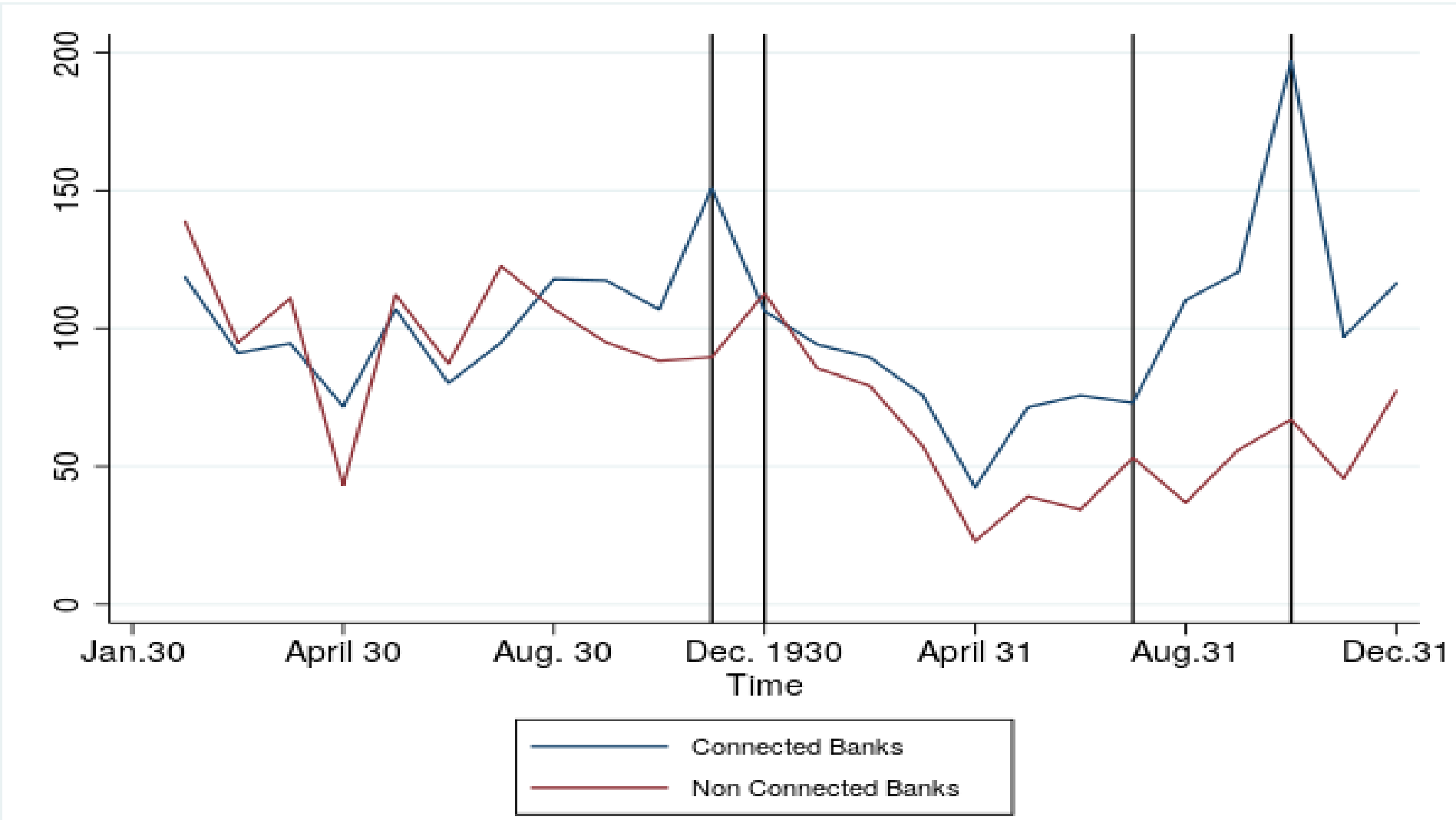
Comparing BdF lending to connected and unconnected banks

[mean (January –October 1930) = 100]



Comparing BdF lending to connected and unconnected banks, excluding failures and bail outs

[mean (January –October 1930) = 100]



Some preliminary takeaways

No real difference in lending prior to crisis.

- The bank was willing to lend to unconnected banks and made money by doing so.
- BdF established strict lending criteria (as discussed in minutes of *Conseil d'escompte*), but this existed prior to the crisis.
  - Screening "on quality" occurred ex ante

Suggests mechanism is not operating through adverse selection, but we examine this more thoroughly in a regression framework.

- Parallel trends seems satisfied in terms of visual inspection

Is this difference in lending causal?

Diff-in-diff estimation

$Y_{it} = a + \mathrm{B}Conn_i * Crisis_t + \gamma X_{it} + \varepsilon_{it}$, where

Y_{it} is lending of bank i in time t

$Conn_i$ is dummy measuring connections to BdF

$Crisis_t$ is indicator = 1, starting in November 1930.

Include bank-specific fixed effects and time dummies

Time-varying controls, X_{it} based on bank-balance sheet characteristics

- e.g., Liquidity ratio has been shown to be a predictor of bank failures in France (Baubeau et. al., 2020)

Monthly panel data set on borrowers

No differential pre-trends in lending (earlier graph)

Panic dating

Narrative approach (Romer and Romer, Friedman and Schwartz, Jalil, Mitchener and Richardson)

- Read the newspaper articles and determine when these occurred.
- Assumption: big enough panic that it will be reported.

Time series approach

- Structural break tests using weekly averages of our daily data.
- Look for first week that is a 2 SD outlier relative to pre-period average and that is sustained as an outlier for more than one week.

Different approaches identify November 1930 as start of the panic.

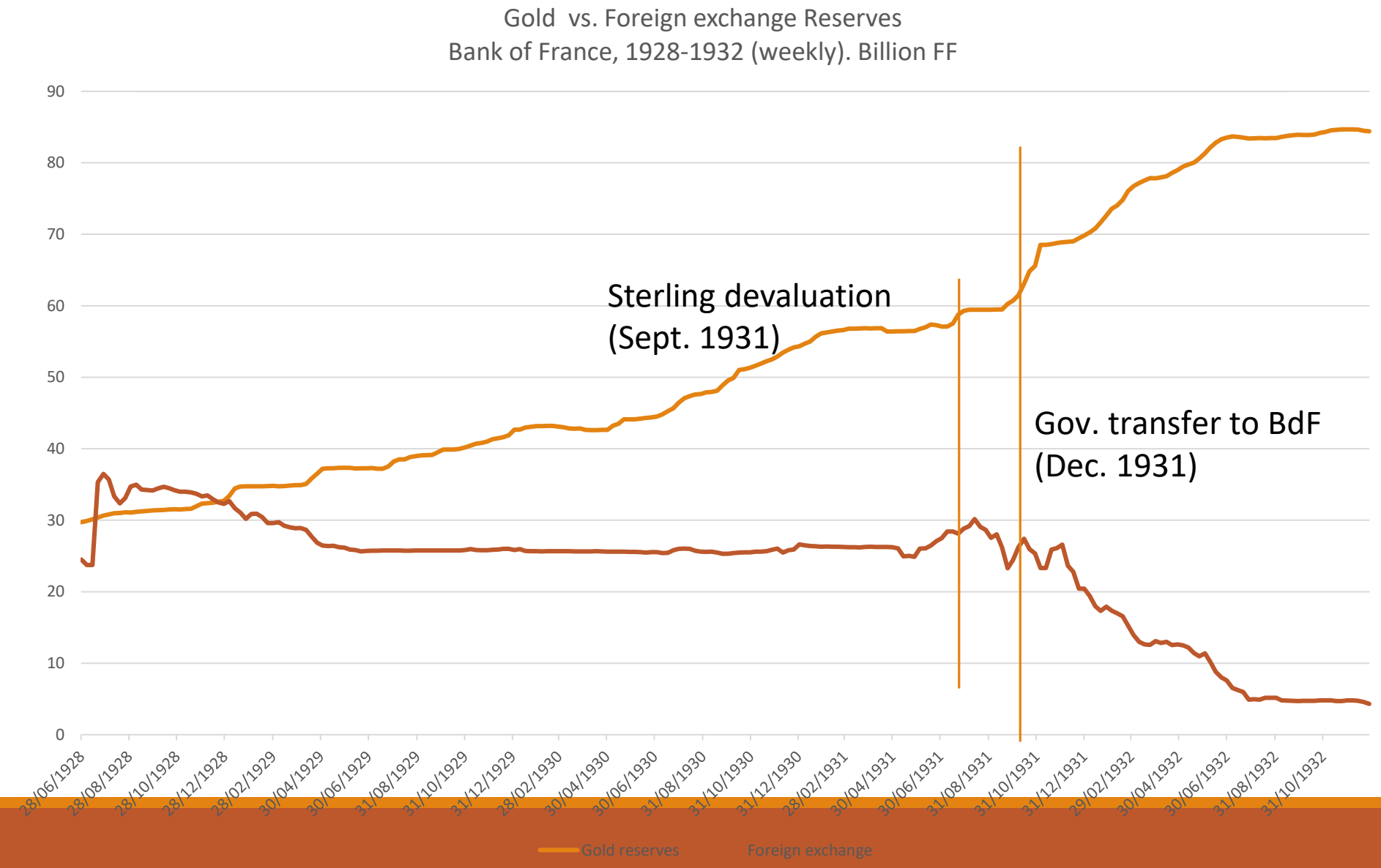
We initially define treatment effect for the whole post-crisis period

Tests whether the BdF prioritizes loss minimization.

The balance sheet of the BdF continues to worsen in early 1931, and received a second negative shock in the fall

- Another panic erupts (separating this out allows for nonlinearities in effects)
- England's decision to devalue in September 1931
  - BdF tried to liquidate sterling holdings in advance by purchasing gold in 1930 and early 1931
  - BdF ends up realizing $2.3 billion FF in losses due to sterling
    - Equals 2% of total assets, but losses are greater than total annual revenue.
  - Feeling financial strain of both of these events, BdF persuades government to assume these losses in December 1931.

BdF Increase in Gold Reserves



Balance Tests for bank characteristics

Bank Attribute	Connected (21 banks)	Unconnected (45 banks)	Difference (NC-C)	p-value
Assets	1030.8 (215.8)	1295.6 (189.5)	264.7 (317.5)	0.40
Deposits	872.4 (196.2)	1064.1 (169.3)	191.6 (284.7)	0.50
Capital Ratio	13.5 (1.2)	13.2 (0.76)	-0.3 (1.4)	0.83
Liquidity Ratio	50.6 (2.1)	50.4 (1.4)	-0.2 (2.5)	0.94
Regional bank	45.7 (5.5)	43.3 (3.7)	-2.3 (6.6)	0.72
Investment bank	4.9 (2.4)	8.9 (2.1)	3.9 (3.5)	0.26

Note: this table reports the mean and (in parenthesis) standard error of the mean, for connected and non connected banks in the four years preceding the crisis (i.e. 1926, 1927, 1928, 1929), as well as the difference between these means and the p-value associated with the null hypothesis that the difference = 0. We look at the period 1926-1929 for analysis pre-crisis trend because France stabilized its economy (inflation, exchange rate) in 1926. Figures of assets and deposits expressed in thousands French Francs. Capital and liquidity ratios expressed as % of total assets. “Regional bank” and “investment bank” expressed as % of total number of banks in each group (i.e 45.7% of connected banks are regional banks).

Estimates of BdF Lending to connected banks after panic begins in September 1930

	(1)	(2)	(3)	(4)
Independent Variables	All banks (F.E.)	Surviving banks (F.E.)	All banks (Poisson)	Surviving banks (Poisson)
Connected * crisis	0.841*	0.950**	0.369***	0.402***
	(0.442)	(0.448)	(0.114)	(0.115)
Log(assets)	1.895**	2.107**	-0.000383***	-0.000345**
	(0.906)	(0.998)	(0.000148)	(0.000154)
liquidity_ratio	0.0138	0.00129	0.000545	-0.00676
	(0.0270)	(0.0340)	(0.00727)	(0.00810)
Constant	-18.33	-20.55*	9.400***	9.958***
	(11.21)	(12.12)	(0.868)	(0.861)
Observations	1,536	1,368	1,536	1,368
R-squared	0.083	0.095		
Number of ID	66	58	66	58
Month FE	YES	YES	YES	YES
Bank FE	YES	YES	YES	YES

Notes: Monthly data. Robust standard errors shown in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Estimates of BdF Lending to connected banks using two panic windows

Independent Variables	(1) All banks (F.E.)	(2) Surviving banks (F.E.)	(3) All banks (Poisson)	(4) Surviving banks (Poisson)
Connected*Crisis1	0.0123	0.0444	0.0637	0.0434
	(0.404)	(0.391)	(0.152)	(0.135)
Connected*Crises2	0.489	0.686*	0.481***	0.620***
	(0.395)	(0.390)	(0.162)	(0.190)
Log (assets)	1.892**	2.058**	-0.000386***	-0.000354**
	(0.910)	(1.016)	(0.000148)	(0.000156)
liquidity_ratio	0.0168	0.00526	0.000699	-0.00692
	(0.0263)	(0.0341)	(0.00705)	(0.00781)
Constant	-18.44	-20.12	9.354***	9.936***
	(11.35)	(12.37)	(0.863)	(0.870)
Observations	1,536	1,368	1,536	1,368
R-squared	0.079	0.090		
Number of ID	66	58	66	58
Month FE	YES	YES	YES	YES
Bank FE	YES	YES	YES	YES

Notes: Crisis 1 is November – December 1930. Crisis 2 is July-November 1931. Monthly data. Robust standard errors shown in parentheses.*** p<0.01, ** p<0.05, * p<0.1

BdF pays dividends throughout the crisis. Dividend *rises* in 1930!

Year	Revenues from commercial operations (Millions FF)	Dividend (gross), per share (FF)	Total sum paid to shareholders (Millions FF)
1928	**932**	**426.8**	64
1929	**1,708**	**634.1**	95
1930	**1,101**	**738.1**	113
1931	**865**	**458.3**	70
1932	**596**	**238.1**	37

Supports view that shareholder value mattered.

Consequences of selective lending

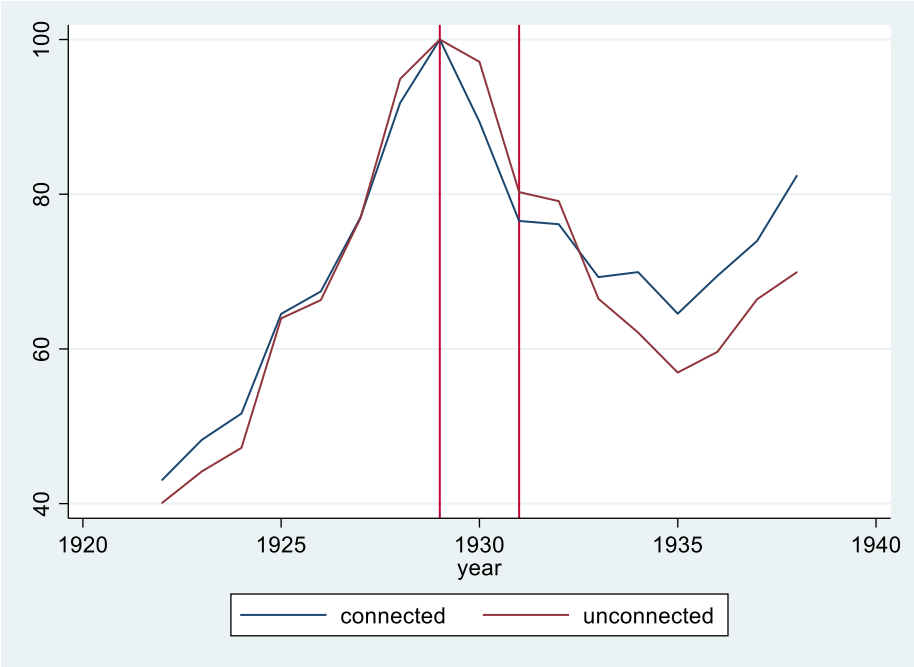
More failures of unconnected banks

- For our sample of “main banks” 5 unconnected fail versus 2 failures for connected
- If we include unconnected banks that borrowed from the BdF, but whose borrowing was not large enough to be included in our archival source on a daily basis, then the number of failures increases to 24
  - These were the banks most likely to fail in the 1930s (Baubeau, et.al., 2020)

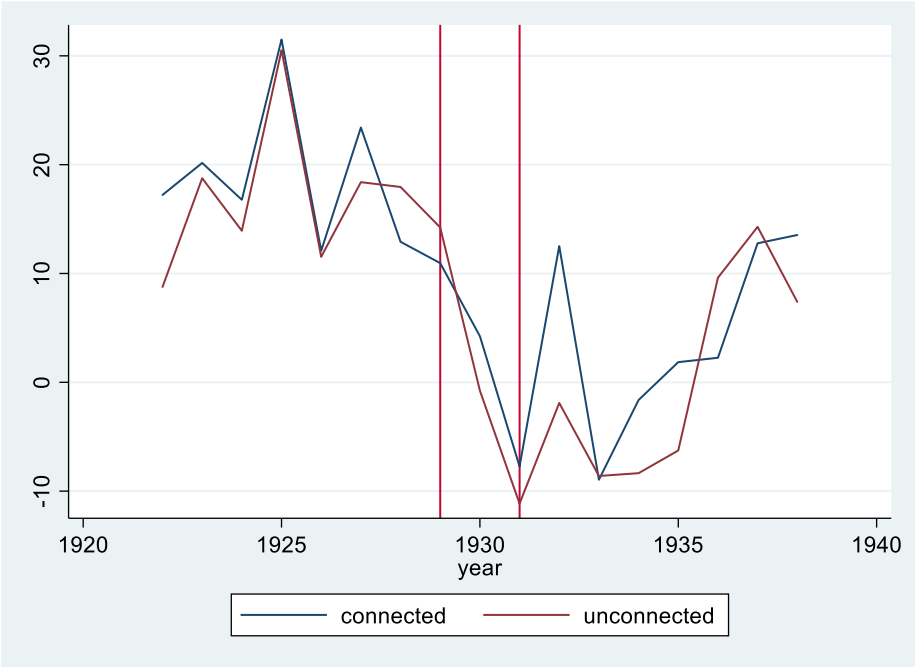
Faster recovery of assets for connected banks after second panic subsides

Asset recovery is stronger for connected banks after crisis ends

EVOLUTION OF TOTAL ASSETS OF EACH GROUP. INDEX. 1929=100



AVERAGE ANNUAL GROWTH RATE OF EACH GROUP (IN%).



Simple cross sectional regression: connected banks grew 10% faster than unconnected in 1932 (statistically significant at 1% level).

Note: Results are similar if we use credit instead of total assets

Bank Reform of 1936: A central bank for the public interest

Spearheaded by the Popular Front

New Law of July 24, 1936 changed BdF's structure to "strengthen independence":

1 shareholder = 1 vote in general meeting, replacing general assembly and 200 key-voter structure dating back to Napoleon

Governance of bank reformed:

Governor and two deputy governors and three censors elected by general meeting

20 councilors replacing 15 Council of Regents

- 2 elected by the assembly
- 9 represent the "interests of the nation"
- 8 are chosen for economic interests and credit users
- 1 elected by Bank staff

Consequences

Short run

- Led to first bail out of a bank by the French Treasury
- No LOLR led to some additional failures of unconnected banks
- Banking crisis may have been worse than it needed to have been
  - BdF more concerned with paying dividends and avoiding losses
  - How to frame that counterfactual?

Long Run

- Political reaction led to call for "democratization of bank" in 1936
- End of the "Rein of the Regents" and "Independence" from financial elite
  - Council of Regency eliminated
  - 200 Families removed from controlling interest of bank

Future Directions: Add Oomph

Digging deeper into the daily data for the first crisis

Conjecture: Forward-looking, profit max CB decides it will limit risk once it sees a crisis emerging. Preserve shareholder value.

Implication: BdF selectively lends in first week of crisis

- BAL (two board members are "200" shareholders) receives 750 million FF in first week of crisis
- Uses banks with connections as "screening" mechanism
  - Can monitor those banks more easily

Banque Adam receives only 100 million

- Insufficient to stop the bank run. Illiquidity → insolvency.

Economic Consequences are clearer under this hypothesis

- The BdF caused the banking panic of Nov-Dec 1930
- It created a "Lehman Moment." After failure of Banque Adam, depositors then believed it would not act as an LOLR
  - 29 banks fail and BdF's decision to support BAL backfires
    - Blows up problem loans on BdF's balance sheet
- Devaluation of pound sterling "known" stress on BdF balance sheet
  - Reported in newspapers → "informed" bank run
  - Depositors now know that BdF will not act as a LOLR

Extra slides

The New Big Result

The BdF caused the banking panic of 1930!

What did it do?

- Allowed a key bank (Adam) to fail in November 1930, sparking widespread depositor panic.

What didn't it do?

- Act as a LOLR. Lend at a penalty rate to all banks early in the crisis period.

Why didn't it do this?

- Profit maximization motive led it to lend selectively in the first week of the panic in order to minimize shareholder losses and minimize bankruptcy risk.
- It chose to let a well-established, unconnected bank fail and support a bank with two shareholders (BAL)
- Supporting both would have been too big of a potential balance sheet risk (prove this), so it let profit motive override LOLR motive

Consequences

- 29 banks in first wave fail – BdF responsible for spreading panic and fear – "Lehman Moment"
- Its support of BAL backfires and leads to first bailout of a bank in France – setting a dangerous precedent.
- Secret deal with BAL and more losses on BdF balance sheet leads to another panic whereby small banks again are starved of liquidity.
  - Second run is an "informed bank run" because BAL secret support is announced (revealing BdF supported it during the first crisis), so given new budget problems due to pound sterling, everyone knows now that it will definitely prioritize connected banks.

Evidence

- We document this as a causal difference over the whole period.

Massive political cost to BdF

- BdF reformed

CBs and Bankruptcy

Focus on the CB bankruptcy literature as motivation

From a balance sheet perspective, central banks often face “virtual” bankruptcy during crises

- During crises, CB lend to “all” on the belief that they will get paid in the future and ”cover costs” – penalty rate ensures positive return.
- What did Bagehot actually have to say about effects on Bank’s balance sheet of this policy?

If a CB is profit maximizing, however, it may choose to discriminate in lending amounts and who it lends to.

- CB could screen out bad banks during crisis -- not French case
- CB could screen on some other criteria – French case

Screening by BdF

We examine whether they screened on connections – lent to banks that are connected through shareholders to limit losses.

The central bank was only willing to tolerate so much risk on its balance sheet and regulated this through a screening approach based on shareholder connections.

It lent, assuming that connections to directors were “safer”

- Monitored lending argument a la Lamoreaux limits moral hazard
- More likely to get a + ROI. This would still make it rational to screen based on shareholders.
- We cannot completely rule that out the alternative hypothesis of cronyism
  - Not a problem for conclusions, just for framework of profit maximizing.
  - Less of a problem when we show it paid dividends – evidence profit maximization mattered.

Analysis

We establish this using weekly loans to BAL

Check that the loans to BAL were big in first week of crisis so we can argue it chose to lend to a connected bank.

- Relative to loans to BAL in previous weeks
- Relative to all DW lending, what share in that week? In a typical week?
- How big on CB's balance sheet?
- How big on total lending portfolio?

Show that ex post data on non-performing loans, BAL is a large portion of the bad loans.

- This has implications for the bail out, but less important for the denying credit to Adam story.

We can make a counterfactual estimate about how much lending BdF would have had to do to keep Banque Adam solvent, based on its size and what was lent to BAL during crisis and then assess the potential damage adding this to its balance sheet.

- We can also just double the size of the BAL losses as an estimate.

We can do an explicit financial comparison of BAL with Adam and see if it chose to support the ex ante "safer and sounder bank" or just a connected bank.

- Bank Adam solder than the BdF (according to NY Times) – two large banks, equally distressed, both with ties to Oustric, but only one connected to the BdF. Was it also safer ex ante?
- Are they similar in size? Risk?

To avoid bankruptcy, it induces a Lehman moment, causing a panic

- The forward looking BdF decides that is too much risk to lend to both Adam and BAL, so it limits risk by lending to the connected bank
- Refused to LOLR and support unconnected banks.
- Depositors see Adam fail and run other banks – show the data on these runs -- timing

Focus on the anatomy of the crisis – making use of the High Frequency Data

What if we don't assume it only chooses profit max once it's already in trouble, when the bad loans appear, but instead right when the crisis starts.

By this account, when it sees a crisis, BdF or any private begins to consider tradeoffs

- As it takes on loans, acting as an LOLR, a public central bank does not care – constraint does/may not bind.
- But if potential losses are large enough, a private central bank cares about the bottom line

BdF makes a forward-looking decision to support only one of the two medium-sized banks because it did not want to face the possibility of having two failed institutions on its balance sheet.

It had to minimize losses for shareholders and since no shareholders have ties to Adam, it lets that one go despite its obvious need for liquidity (document with narrative evidence).

- Question: How much does Adam get from the BdF before it fails?
- Adam's troubles were more public – clearer link to Oustric – and it was facing heavy withdrawals.

It chose only to offer support to Adam's *creditors*– only after it was insolvent, not liquidity support when it was needed, and its position was small.

- Why? Because it already knew it had large exposure to BAL and didn't want more on its books (private information).
- All the market knows is that it didn't lend to Adam, so its actions don't calm bank runs.
- Banks connected to Adam and Oustric fail.

In making this choice, it precipitated the banking panic, spreading fear in the market. The trigger was Outstric, but the panic was generated by the BdF's selective lending in the first week. Adam is the "Lehman moment" when depositors first realize that BdF will not act as a LOLR.

Consequences

In this set up, the cost to BdF decisions then become economically consequential (it caused a panic) as does our analysis that ends up focusing on lending behavior (causal regressions).

We can hold it responsible for all but one of the bank failures in the first wave – it created unnecessary fear that other banks would collapse by not acting as an LOLR.

- It's not novel that a CB did not lend; what's novel is incentives distort decision?
- Interpretation of crisis is novel.

Worse, ex post, it couldn't even save a connected bank and then calls for help from Treasury

- Results in first bailout of a bank in French history, setting dangerous precedent of state involvement in the banking system.

We can likely hold it responsible for the second wave of failures because:

1. In September, balance sheet worsens with pound devaluation, so depositors rationally run banks, anticipating that the bank will not lend to all banks as BdF did not do so in the first crisis.

Political consequences remain the same as before - big.

Discounted bills (total cumulative value over a year)
104,030 454 700
83 077 878 500
80 804 991 400


Jules Berlheau
Charles Blavette
Jean Dasté
Gaston Modot
Nadia Sibirskaia
La Vie est à Nous
un film de
Jean RENOIR

Estimates of BdF Lending to connected banks after panic begins in September 1930

	(1)	(2)	(3)	(4)
Independent Variable	Fixed Effects All banks	Fixed Effects Surviving banks	Poisson All banks	Poisson Surviving banks
Connected*Crisis	0.830*	0.888**	0.369**	0.402**
	(0.427)	(0.443)	(0.157)	(0.171)
Observations	1,536	1,368	1,536	1,368
Number of banks	66	58	66	58
Month FE	YES	YES	YES	YES
Bank FE	YES	YES	YES	YES
Time-varying Controls	YES	YES	YES	YES

Note: Robust standard errors shown in parentheses.*** p<0.01, ** p<0.05, * p<0.1

Estimates of BdF Lending to connected banks using two panic windows

	(1)	(2)	(3)	(4)
Independent Variables	F.E. All banks	F.E. Surviving banks	Poisson All banks	Poisson Surviving banks
Connected * Crisis 1	0.00767	0.0190	0.0637	0.0434
	(0.403)	(0.388)	(0.226)	(0.149)
Connected * Crisis2	0.474	0.623*	0.481**	0.620**
	(0.367)	(0.373)	(0.208)	(0.294)
Observations	1,536	1,368	1,536	1,368
Number of ID	66	58	66	58
Month FE	YES	YES	YES	YES
Bank FE	YES	YES	YES	YES
Controls	YES	YES	YES	YES

Note: Crisis 1 is November – December 1930. Crisis 2 is July-November 1931. Robust standard errors shown in parentheses.*** p<0.01, ** p<0.05, * p<0.1