Too Big to Fail: the Panic of 1927

Kazuki Yokoyama

Graduate School of Economics, Nagoya City University

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YOKOYAMA Kazuki

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YOKOYAMA Kazuki

Graduate of Economics
Nagoya City University
kazky@econ.nagoya-cu.ac.jp

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Abstract

This paper measures that the Bank of Japan adopted the "too big to fail" doctrine against the panic of 1927. The results at this paper imply that supported banks had higher closure risk or occupied key positions in the local loan-markets. And this paper finds that the Bank of Japan bailed out solvent banks if they had political importance.

JEL Classification：G21, G28, N25.

Keywords：lender of last resort (LLR); too big to fail; the panic of 1927; bank closure.

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Sudden crises of systemic illiquidity may trigger panics (Diamond and Dybvig 1983; Carlson 2005). In a normally functioning interbank market, the surplus liquidity in some banks can be transferred to illiquid banks. On the other hand, the panic may result in even solvent banks becoming illiquid since they cannot borrow from other banks. The lender of last resort (hereafter the LLR) has a role of emergency lending to illiquid banks (Bagehot 1873; Miron 1986; Bordo 1990). Since bank managers can take additional risks in such a rescue under skewed incentives, the LLR assistance is expected to refuse the moral hazard problem (Rochet and Tirole 1996; Goodhart and Huang 2005). Insolvent banks are more likely to fail due to market discipline during the panic (Gorton 1985; Calomiris and Mason 2003a). If the LLR can target relatively solvent banks, the costs of a partial bailout could be much less than that of a system-wide bailout (Calomiris and Mason 2003b). However, the LLR may prevent insolvent banks from failing as the optimal choice if the authority regards that they occupy key positions in the banking system or if the number of bank failures is large (Freixas, *et al.* 2002; Acharya and Yorulmazer 2007). This is the "too big to fail" doctrine.[1]

During the first half of the 1920s, the Bank of Japan had provided liquidity support for large banks with transaction relationships with itself (Ishii 1980; Okazaki 2006a).[2] Such liquidity support caused the moral hazard problems and resulted in the panic of 1927 (Fukai 1941; Takahashi and Morigaki 1993; Teranishi 1999). Against the panic of 1927, the Bank of Japan avoided this bailout policy, and the screening committee was organized to select which banks to rescue (Takahashi and Morigaki 1993). However, Ehiro (2000) finds that some closed banks were provided the special loans even though they were insolvent.

The purpose of this paper is to explore whether the Bank of Japan provided the special loans for insolvent banks against the panic of 1927. This paper uses the basic idea of the propensity scoring approach.[3] The analysis is conducted on two levels. The first examines causes of bank closure during the panic period to estimate closure risk. This paper uses a cross-sectional data set consisting of observations on 1364 ordinary banks in 1926. 30 ordinary banks closed during the panic period 15 March from 25 April. The logit model regression provides the

[1] For example, Gup (2005) collects historical or cross-country comparisons.

[2] Kasuya (2001) surveys related literature.

[3] Rosenbaum and Rubin (1983) provide the idea of the propensity scoring approach.

estimated propensity to close. The second level of analysis is the tobit model regressions, which test whether both bank importance and the estimated propensity affected provision of the special loans.

The contribution of this paper is to measure the "too big to fail" doctrine in terms both of bank closure risk and of bank importance. Yabushita and Inoue (1993) find that financial indices, such as capital ratio (paid-in capital / total assets) or ROE (return on equity), can explain bank closure in 1927. Market discipline may have worked well. This paper retests causes of bank closure during the panic period and regards the estimated propensity to close as the measure of "to fail." This paper also uses both bank-level information on the market share and prefecture-level information on votes of the election of 1928 regarding these two indices as the measure of bank importance, "too big." Freixas, *et al.* (2002) interpret the "too big to fail" as designed to rescue banks which occupy key positions in the banking system rather than banks simply with large size. Brown and Dinç (2005) explore regulatory interventions in emerging markets in the 1990s and point out that bank failures are due to the incentives of politicians.

The results at this paper imply that the Bank of Japan bailed out banks with higher closure risk. These insolvent banks occupied key positions in the local loan-markets. The bank of Japan may have rescued borrowers of them rather than depositors. And the bailout policy may have reflected political concerns to some extent. Supported banks were "too big to fail."

The first section below summarizes historical background. Then Section 2 presents information on methodology and data used in this paper. Empirical results are presented in Section 3. Section 4 discusses implications of this work. Section 5 concludes the paper.

1. Historical Background

1.1 Depression in the 1920s

As shown in Table 1, real gross value-added of the Japan's banking sector decreased during the period from 1924 to 1928 while real GNP was increasing. The banking sector in the 1920s faced serious depression due to the bad-loan problems. The value of bad loans which was outstanding in the end of 1926 reached 201 in millions yen (54.1% of gross value-added of the banking sector).[4] Three factors

[4] Using commerce-services deflator estimated by Ohkawa, *et al.* (1974, Table 31).

caused a large amount of bad loans. First, the Great Earthquake of 1923 damaged banks in the urban areas. Second, connected lending caused in poor performance of loan portfolios (Kato 1957; Okazaki, *et al.* 2005). The third factor is the moral hazard due to emergency lending by the Bank of Japan (Teranishi 1989; Takahashi and Morigaki 1993).

Table 2 shows the annual data of the number of ordinary banks in the first column and the number of the average size of bank capital in the second column. During the 1920s, the number of banks decreased sharply, and the average size was increasing. Decreasing of the number of banks was caused by bank closure due to bank runs or by bank consolidation which the government promoted.

The prudential policy was incomplete before the Bank Law of 1928.[5] The deposit insurance system had no legal foundation until GHQ reforms during the second half of the 1940s (Ehiro 2000; Asai 2000). Deposit rate regulation did not work well (Teranishi 1991). And entry regulation was less strict. The Bank Law has two main reforms. The first is that the minimum capital requirement was increased substantially. The government regarded that financial difficulties in small-sized banks had caused the inefficiency of the banking system during the 1920s (Asai 2000). Second, bank directors were prohibited to engage in other business. Director interlocking between banks and firms resulted in most banks becoming insolvent (Kato 1957; Okazaki, *et al.* 2005). The prohibition of bank director interlocking aimed to prevent connected lending from causing poor performance of bank portfolios.

1.2 The Panic of 1927

Two waves of bank runs occurred in the spring of 1927. On 14 March, the Finance Minister, Kataoka Naoharu, made an ill-advised remark during the debate on the bad-loan problem. On the following day, newspapers printed his remark. The news triggered the first wave of bank runs.

The second impact was more serious. While leakage of poor performance of loan portfolios triggered the first wave, liquidity concerns triggered the second panic (Korenaga, *et al.* 2001). The Bank of Taiwan, which aimed to develop the Taiwanese economy, had also faced to the bad-loans problem due to connected lending. The main customer went bankrupt. The interbank markets became confused since most

[5] Hoshi and Kashyap (2001) explain the history of the modern financial system in Japan.

of call loans to the Bank of Taiwan were recovered suddenly. The Ministry of Finance permitted closure of the Bank of Taiwan on 18 April.[6] This triggered the second wave of bank runs. Even big five banks, Mitsui, Mitsubishi, Sumitomo, Yasuda and Dai-ichi, faced bank runs during the second wave of bank runs.[7] And The Bank of Japan (1983) explains that the impact of closure of Jugo bank on 21 April was also critical since the Ministry of the Imperial Household had the deposit account at Jugo Bank.

As shown in Table 3, loans by the Bank of Japan increased remarkably during the period of the second panic. From 16 to 23 April, the percentage change of loans by the Bank of Japan is 106. The Minseito Party Cabinet resigned due to the responsibility for closure of the Bank of Taiwan, and the Seiyukai Party Cabinet was organized.[8]

Takahashi Korekiyo, the new Finance Minister, imposed moratorium from 22 April to 12 May to prevent the panic from expanding. Then the panic ended. The Ministry of Finance permitted closure of 30 ordinary banks during the panic period from 15 March to 25 April. On 8 May, the Bills on the Special Loans by the Bank of Japan passed the Diet. The bills have three main points: the special loans were provided with bill discount within a year; the Bank of Japan could demand compensation for losses from the government within 500 millions yen; and the 10 year term of redemption. Takahashi and Morigaki (1993) argue that the interest rates of the special loans were too low to prevent supported banks from taking additional risks, and point out that the average of the interest rate was 3%. Discount rate in 1927 was 5.4% (Bank of Japan 1983). As Ishii (1999) explains, the Bank of Japan tended to provide the special loans for banks with transactions with the Bank of Japan during the first half of the twentieth century. However, the government ordinance allowed banks with no record of transactions with the Bank of Japan to be provided the special loans (Takahashi and Morigaki 1993).

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[6] The government sought the approval of the Privy Council to obtain an emergency imperial order to rescue the Bank of Taiwan. However, on 17 April, the Privy Council refused to sanction the order for the sake of resignation of the Cabinet.

[7] Ishii (2001) finds evidence that the headquarters of Mitsui, Mitsubishi, Sumitomo and of Dai-ichi in Tokyo faced bank runs.

[8] Nakamura (1988) explains the relationship between political concerns and closure of the Bank of Taiwan.

Inoue Junnosuke, who belonged to the Minseito Party, was installed as the governor of the Bank of Japan on 10 May. He organized the screening committee for bank bailout since he had recognized that the special loans against the Great Earthquake of 1923 had caused some moral hazard issues.[9]

The total amount of the special loans reached 762 millions yen. The Bank of Japan bailed out 103 ordinary banks, which included 14 closed ones. The total amount of the special loans provided for 14 closed banks reached 284 millions yen. The government established the Bank Relations and Supervision Department in the Bank of Japan to refuse the moral hazard problem.[10]

2. Methodology and Data

2.1 Estimation Methodology

This paper uses the propensity scoring approach to test whether the Bank of Japan provided the special loans for insolvent banks against the panic of 1927. The analysis is conducted on two levels; the logit model regression and the tobit model regression. First, to estimate the propensity to close, this paper fits the following logit model:

$$P\left(CL_i = 1 \middle| X\right)_i = \phi\left[Fundamentals_i, Gdp_j\right] \quad (1).$$

Subscript i indicates the i-th bank and subscript j indicates the j-th prefecture. The dependent latent variable CL_i equals 1 if the bank closed during the panic period from 15 March to 25 April, otherwise 0. The results of the logit model provide each predicted value of $P(CL_i=1 \mid X)_i$.

The explanatory variable $Fundamentals_i$ indicates bank fundamentals. This paper uses three variables; capital ratio, ROE (return on equity), and scale. Capital ratio is (capital + accumulated fund) / (capital + accumulated fund + deposits). ROE is measured as profit by capital. And scale is log (capital + accumulated fund + deposits). The probit model regressions by Yabushita and Inoue (1993) show that these financial indices affected bank closure significantly. And Gdp_j is per capita

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[9] Fukai Eigo, who was installed the governor of the Bank of Japan in 1935, reminisced this episode in his memoirs (Fukai 1941, pp.215-234).

[10] Some of the special loans against the panic of 1927 became the bad-loans of the Bank of Japan (Matsuzaki 1928). The Bank of Japan could not collect over 52 millions yen of them even in 1952 (Ehiro 2000).

GDP of the j-th prefecture in which the main office of the bank was located. This variable is used to control local economic conditions. Results of the logit model regression provides the estimated propensity to close, $P(CL_i=1 \mid X)_i$.[11]

The second level of the analysis is to estimate the following tobit model:

$$LLR_i = \max\left(\alpha, \gamma + \beta_1 Ms_i + \beta_2 Min_j + \beta_3 P\left(CL_i = 1 \middle| X\right)_i + \beta_4 Gdp_j + \varepsilon_i\right) \qquad (2).$$

Subscript i indicates the i-th bank and subscript j indicates the j-th prefecture. And ε_i is the error term.

The censored variable LLR_i, which is (the amount of the special loans for the i-th Bank) / (capital+fund), denotes financial support normalized by capital size.[12] Ms_i denotes the market share. This paper uses two variables as Ms_i ; Ds_i, which is (deposits of the i-th bank) / (the total amount of deposits of banks in the j-th prefecture), and Ls_i, which is (loans of the i-th bank) / (the total amount of loans of banks in the j-th prefecture). Min_j, is the percentage of votes obtained by the Minseito Party in the Lower House election of 1928. As section 1 explained, Inoue Junnosuke, the governor of the Bank of Japan, belonged to the Minseito Party. This paper regards the variable Min_j, as the proxy of the political power of the i-th bank in the j-th prefecture. $P(CL_i=1 \mid X)_i$, which is the estimated propensity to close, denotes bank closure risk. And Gdp_j is the variable to control local economic conditions as in the logit model (1).

2.2 Data Availability

The data for capital, deposits and profit are from “the 51st. Annual Report” of the Banking Department at the Ministry of Finance at the end of 1926. This paper uses log (per capita income tax of each prefecture) as the proxy of Gdp_j, per capita GDP of each prefecture. The data source of per capita income tax is “the 47th. Statistical Yearbook” of the Cabinet Statistical Bureau. The data source of the percentage of votes is “the List of the 16th. Lower House election” by the Lower House Secretariat. The Bank of Japan (1969, pp.168–529) provides data on closed banks, which were permitted by the Ministry of Finance. The number of closed

[11] This paper regresses the linear probability model or the probit model. Results are similar to reports in this paper.

[12] This paper also regresses the tobit models using the amount of the special loans as the censored variable. Results are similar to reports in this paper.

ordinary banks is 30. The Bank of Japan (1962) summarizes data for the special loans against the panic of 1927. The number of supported bank is 103. While “The 51st. Annual Report” reveals financial data for 1402 ordinary banks, this paper excludes extraordinary observations; some were located in the exceptive region (Hokkaido Okinawa, Sakhalin and Taiwan); some had the extraordinary values of deposit (0 or nearly 0); and some closed or were merged before 15 March are excluded. This paper uses 1364 observations.

Table 4 shows summary statistics for the explanatory variables; means, standard deviations, and minimum and maximum values. The minimum value of ROE (return on equity) is 0 since the data available from the Ministry of Finance archives are censored at zero. That is, even when a bank’s ROE (return on equity) was negative, the analysis has only the value 0. The minimum value of Ds, which is (deposits in thousands of yen of the i-th bank) / (the total amount of deposits of banks in the j-th prefecture), equals 0.000000483. And the minimum value of *LLR*, which is (the special loans for the i-th Bank) / (capital+fund), equals 0.

3. Results

3.1 Bank Closure Risk

Table 5 reports results of the logit model regression on causes of bank closure during the panic period. The estimated coefficient of capital ratio is negative significant. This implies that closed banks may have been insolvent and that market discipline by uninsured depositors may have worked well during the panic period. The estimated coefficient of ROE (return on equity) is also negative significant. Solvency and profitability can explain bank closure well. The results here are consistent with the probit model regressions by Yabushita and Inoue (1993).

The estimated coefficient of scale is positive significant. This implies that larger banks faced closure risk during the panic. The estimated coefficient of Per capita income tax is also positive significant. Teranishi (1999) points out that the panic of 1927 may have damaged middle-sized and large-sized banks in the urban area. This explanation is consistent with the results here.

Table 6 shows that summary statistics both for CL and for Propensity estimated by the logit model in Table 5; means, standard deviations, and minimum and maximum values. The mean value of the estimated propensity to close equals that of CL. The minimum value of estimated propensity to close is 0.00000000000007, exactly. The maximum value of the estimated propensity to close is 0.296. Since the

propensity scores are from the logit model, they are between 0 and 1.

3.2 The LLR Assistance

Table 7 reveals the results of the tobit model regressions. The equations in Panel A, B and C include the local deposit-market share Ds, the local loan-market share Ls, and both Ds and Ls, respectively. Ds is not a significant variable with robustness. On the other hand, the estimated coefficients of Ls are positive significant both in Panel B and in C (3.765 and 4.119, respectively). The estimated coefficients of Min are positive. And the estimated coefficients of Propensity are positive significant both in Panel B and in C (19.534 and 20.615, respectively).

As shown in Table 8, this paper tests other tobits using the cross-terms: Ls*Propensity in Panel A and Min*Propensity in B, respectively. The cross-term Ls*Propensity is not significant. On the other hand, the estimated coefficient of Min*Propensity is negative significant. This implies that the effect of Min on the LLR assistance may have been substitute to that of Propensity.

4. Discussion

4.1 Implications

Ehiro (2000) argues that the bailout policy against the panic of 1927 dealt with demands of small businesses that were damaged due to bank closure while it failed to rescue the depositors of closed banks. This argument is consistent with the results at this paper. The Bank of Japan concerned bank importance in the local loan-markets. The bailout policy against the panic of 1927 may have included the aspects of the industrial policy.[13]

The Bank of Japan provided financial support for banks with higher closure risk or bailed out solvent banks if they were politically important for the Minseito Party even under the Seiyukai Party Cabinet. Takahashi and Morigaki (1993) argue that the LLR policy during the 1920s reflected the incentives of politicians. This paper cannot reject the argument.

Okazaki (2006a) emphasizes that, during the interwar period, the Bank of Japan bailed out relatively solvent banks. The argument can be consistent with implications of the results at this paper. Acharya and Yorulmazer (2007) provides

[13] Ishii (1999) emphasizes that the special loans by the Bank of Japan may have promoted not only the local economic growth but also income inequality among prefectures.

the theoretical framework on time-inconsistency of bank bailout policies: if the number of bank closure is large, the LLR bails out closed banks, whereas if the number of bank closure is small, closed banks are not rescued by the LLR but acquired by surviving banks. The bailout policy by the Bank of Japan may have included time-inconsistency framework.

4.2 Shouwa Bank

Inoue Junnosuke, the governor of the Bank of Japan, suggested the establishment of a new bank, Shouwa Bank, in order to reorganize some closed banks. The establishment of Shouwa bank may have been a model for the contemporary bridge banks. It was aimed to prevent sound corporations from losing financial support. The headquarters of 4 big banks, Mitusi, Mitsubishi, Yasuda and Dai-ichi, held meetings in July and decided to reorganize 6 closed banks into a new bank; Nakai, Nakazawa, Hachijushi, Murai, Kuki, and Oumi. 5 banks except Kuki were provided the special loans. The interest rate of the special loans for them was 2% (the Bank of Japan 1969, p.367). It did not include penalty-premium since discount rate in 1927 was 5.4% (Bank of Japan 1983). Yamazaki (2000) explains that Shouwa bank became solvent during the 1930s. Bailing out these 6 banks succeeded in rescuing some sound corporations. The Bank of Japan dealt with demands of small businesses of these banks.

Table 9 shows names of closed banks, the prefecture where the main office of the bank located, closure date and the estimated propensity score. Nakai, Nakazawa, Hachijushi, Murai, and Oumi had much higher closure risk while they were provided the special loans. Kuki, which was not provided, had lower closure risk. Some branches of Nakai Bank was located in Saitama prefecture. Kuki Bank may have been suffered form its contagion (the Bank of Japan 1969, p.409). The Bank of Japan provided financial support not for a sound bank, Kuki, but for 5 unsound banks to organize Shouwa Bank, a bridge bank. 13.4% of the total special loans were provided for it.

5. Conclusion

This paper measures the “too big to fail” doctrine against the panic of 1927. Supported banks had higher closure risk but occupied key positions in the local loan-markets. And this paper finds that the Bank of Japan may have bailed out solvent banks if they had political importance for the Bank of Japan.

When the LLR target relatively insolvent banks, the costs of a system-wide bailout could be much more than that of a partial bailout. However, the Bank of Japan had the ways of reducing the costs. The establishment of a bridge bank may be one of them. And, as Ishii (1980) and Okazaki (2006a) explain, the Bank of Japan had the transaction relationships with much of supported banks. Okazaki (2006b) points out that such relationships may have provided information on supported insolvent banks. Exploring the costs of bank regulation after the panic may prove fruitful grounds for further studies.

Table 1 *Gross Value Added of the Banking Sector in Millions of Yen (1934-1936 prices): the 1920s*

year	Real GVA of the Banking Sector	Real GNP
1921	486	12153
1922	416	11831
1923	457	11292
1924	433	11659
1925	390	12332
1926	372	12424
1927	348	12843
1928	345	13673
1929	348	13735
1930	232	13882

Source: Hijikata (1933), Ohkawa, *et al.* (1974)

Table 2 *The Number of Ordinary Banks and the Average Size*

year	The Number of Ordinary Banks	The Average Size of Capital of Ordinary Banks (in Thousands of Yen)
1922	1799	1315
1923	1701	1440
1924	1629	1499
1925	1537	1569
1926	1420	1680
1927	1283	1848
1928	1031	2118
1929	881	2467
1930	782	2602
1931	683	2859

Source: Goto (1970)

Table 3 *Loans by the Bank of Japan during the Panic Period (in millions of yen)*

Date	Loans by the Bank of Japan	Percentage Change
03/12	228	
03/19	301	27.8
03/26	528	56.2
04/09	525	-0.6
04/16	581	10.1
04/23	1677	106.0
04/30	1484	-12.2

Source: The Bank of Japan (1983;pp.173-179)

Table 4 *Summary Statistics*

The data set is comprised of 1364 ordinary banks in the end of 1926. Capital ratio is (capital + accumulated fund) / (capital + accumulated fund + deposits) . ROE (return on equity) is measured as profit by capital. *Scale* is log (capital + accumulated fund + deposits). P*er capita income tax* is measured as the natural log of per capita income tax of each prefecture where the main office was located. Ds is (deposits of the i-th bank) / (the total amount of deposits of banks in the j-th prefecture). Min denotes the percentage of votes obtained by the Minseito Party in the Lower House election of 1928. And LLR is (the amount of the special loans for the i-th Bank) / (capital+fund).

	Mean	Std. dev.	Min.	Max.
Capital ratio	0.395	0.194	0.008	0.996
ROE (return on equity)	0.118	0.117	0.000	2.706
Scale	14.350	1.500	10.118	20.520
Per capita income tax	4.990	0.475	4.354	6.144
Ds	0.033	0.078	0.000	0.956
Min	0.420	0.086	0.222	0.728
LLR	0.059	0.407	0.000	7.194

Table 5 *Results of the Logit Model Regression: Causes of Bank Closure*

The data set is comprised of 1364 ordinary banks in the end of 1926. The results of the logit model regression are shown; estimated coefficients, robust standard errors, and significant levels (p-values). The dependent variable CL equals 1 if the bank closed during the panic period from 15 March to 25 April, otherwise 0. *Capital ratio is* (capital + accumulated fund) / (capital + accumulated fund + deposits) . *ROE* (return on equity) is measured as profit by capital. *Scale* is log (capital + accumulated fund + deposits). And *Per capita income tax* is log (the per capita income tax of the j-th prefecture in millions yen). Observed P. is the percent of total number of closed banks.

	Estimated coefficient	Robust standard error	Significant level
Capital ratio	-2.701	0.968	0.005
ROE (return on equity)	-10.553	3.314	0.001
Scale	0.249	0.082	0.002
Per capita income tax	0.939	0.330	0.004
Intercept	-10.387	2.437	0.000
Log likelihood	-126.0		
Pseudo R-square	0.126		
Observed P.	0.022		
Observations at CL = 1	30		

Table 6 *Summary Statistics for the Estimated Propensity*

CL equals 1 if the bank closed during the panic period from 15 March to 25 April, otherwise 0. Propensity is the propensity score estimated by the logit model regression in Table 5.

	Mean	Std. dev.	Min.	Max.
CL	0.022	0.147	0.000	1.000
Propensity	0.022	0.031	0.000	0.296

Table 7 *Results of the Tobit Model Regressions: the LLR Assistance*

The data set is comprised of 1364 ordinary banks in the end of 1926. The results of the tobit model regression are shown; estimated coefficients, standard errors, and significant levels (p-values). The dependent variable LLR is (the amount of the special loans for the i-th Bank) / (capital+fund). Ds is (deposits of the i-th bank) / (the total amount of deposits of banks in the j-th prefecture). Min denotes the percentage of votes obtained by the Minseito Party in the Lower House election of 1928. Propensity denotes the estimated propensity score. Per capita income tax is log (the per capita income tax of the j-th prefecture in millions yen). Ls is (loans of the i-th bank) / (the total amount of loans of banks in the j-th prefecture)

Panel A: Using the Variable Ds			
	Estimated coefficient	Standard error	Significant level
Ds	0.252	0.267	0.346
Min	2.487	1.179	0.035
Propensity	21.626	3.954	0.000
Per capita income tax	-1.022	0.305	0.001
Intercept	0.433	1.473	0.769
Log likelihood	-426.7		
Pseudo R-square	0.067		
Observations at LLR > 0	103		

Panel B: Using the Variable Ls			
	Estimated coefficient	Standard error	Significant level
Ls	3.765	1.026	0.000
Min	2.289	1.168	0.050
Propensity	19.534	3.571	0.000
Per capita income tax	-0.754	0.301	0.013
Intercept	-0.891	1.485	0.548
Log likelihood	-420.4		
Pseudo R-square	0.081		
Observations at LLR > 0	103		

Panel C: Using the Variables Ds and Ls			
	Estimated coefficient	Standard error	Significant level
Ds	-0.220	0.302	0.467
Ls	4.119	1.136	0.000
Min	2.234	1.169	0.056
Propensity	20.615	3.888	0.000
Per capita income tax	-0.773	0.303	0.011
Intercept	-0.792	1.491	0.595
Log likelihood	-420.1		
Pseudo R-square	0.081		
Observations at LLR > 0	103		

Table 8 *Results of the Tobit Model Regressions: Retests*

The data set is comprised of 1364 ordinary banks in the end of 1926. The results of the logit model regression are shown; estimated coefficients, robust standard errors, and significant levels (p-values). The dependent variable LLR is (the amount of the special loans for the i-th Bank) / (capital+fund). Ds is (deposits of the i-th bank) / (the total amount of deposits of banks in the j-th prefecture). Min denotes the percentage of votes obtained by the Minseito Party in the Lower House election of 1928. Propensity denotes the estimated propensity score. Per capita income tax is log (the per capita income tax of the j-th prefecture in millions yen). Ls is (loans of the i-th bank) / (the total amount of loans of banks in the j-th prefecture).

Panel A: Using the Cross-Term Ls*Propensity			
	Estimated coefficient	Standard error	Significant level
Ls	5.648	1.752	0.001
Min	2.027	1.179	0.086
Propensity	22.323	4.196	0.000
Ls*Propensity	-48.263	36.122	0.182
Per capita income tax	-0.789	0.304	0.010
Intercept	-0.677	1.495	0.651
Log likelihood	-419.5		
Pseudo R-square	0.083		
Observations at LD > 1	103		

Panel B: Using the Cross-Term Min*Propensity			
	Estimated coefficient	Standard error	Significant level
Ls	2.935	1.065	0.006
Min	5.809	1.787	0.001
Propensity	100.062	30.281	0.001
Min*Propensity	-173.793	64.294	0.007
Per capita income tax	-0.736	0.298	0.014
Intercept	-2.541	1.604	0.113
Log likelihood	-416.6		
Pseudo R-square	0.089		
Observations at LD > 1	103		

Table 9 *The List of Closed Banks*

Table shows names of closed banks, the prefecture where the main office of the bank located, closure date and the estimated propensity score. The values of Propensity score are estimated by the logit model regression in Table 5. If the bank was provided the special loans by the Bank of Japan, "Yes" is shown in the column "Provided." If the bank transferred its business to Shouwa Bank, the bridge bank, "Yes" is shown in the column "Shouwa Bank."

Bank Name	Prefecture	Date	Propensity	Provided	Shouwa Bank
Tokyo Watanabe	Tokyo	03/15	0.080		
Nakai	Tokyo	03/19	0.189	Yes	Yes
Yamashiro	Kyoto	03/22	0.036		
Nakazawa	Tokyo	03/22	0.114	Yes	Yes
Hachijushi	Tokyo	03/22	0.146	Yes	Yes
Murai	Tokyo	03/22	0.212	Yes	Yes
Souda	Kanagawa	03/22	0.097	Yes	
Kuki	Saitama	03/22	0.007		Yes
Asanuma	Gifu	03/23	0.039		
Sousen	Kyoto	03/23	0.018		
Soeda	Fukuoka	03/24	0.014		
Toukatsu	Chiba	03/31	0.020	Yes	
Dai-Rokujugo	Hyogo	04/08	0.063	Yes	
Kurate	Fukuoka	04/13	0.025	Yes	
Kurita	Shiga	04/15	0.023	Yes	
Oumi	Osaka	04/18	0.228	Yes	Yes
Gamou	Shiga	04/19	0.035		
Sen'you	Osaka	04/19	0.033		
Ashina	Hiroshima	04/19	0.022		
Hiroshima Sangyo	Hiroshima	04/20	0.007		
Moji	Fukuoka	04/20	0.008		
Nishi Ehara	Okayama	04/20	0.031	Yes	
Takeda Waribiki	Tokyo	04/21	0.039		
Taishou	Tokyo	04/21	0.090	Yes	
Jugo	Tokyo	04/21	0.246	Yes	
Akashi Shoukou	Hyogo	04/21	0.028		
Shikano	Yamaguchi	04/23	0.021		
Kasen	Osaka	04/25	0.068	Yes	
Wakasa	Fukui	04/25	0.010		
Uozumi	Hyogo	04/25	0.025		

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