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Local finance-growth nexus: Does bank ownership matter?

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Abstract

This paper examines the effects of the ownership form of banks on the finance-growth nexus in Japan. If the cooperative ownership of banks has comparative advantages in local financial development, the failure of a cooperative bank should be more harmful than that of a commercial bank. The evidence in this paper, however, provokes skepticism to this view, suggesting less efficient operation of some cooperative banks in local communities probably due to weak mechanisms for management discipline.

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1 Introduction

In local financial markets, cooperative banks and their joint-stock counterparts compete against each other. In the same way as other enterprises, joint-stock banks are organizations that aim to maximize their profits. In contrast, the stated aim of cooperative banks is the maximization of consumer surplus to the extent of keeping them solvent (Hesse and Čihák, 2007). Regarding this fundamental property, existing studies, including Fonteyne (2007) and Cuevas and Fischer (2006), point out the possible advantages of cooperative banks over their joint-stock counterparts in breaking the market failure that leads to credit rationing. According to Cuevas and Fischer (2006), it is a "natural solution" to credit rationing to form the cooperatives among the agents that is rationed out from access to finance.

Another possible advantage of cooperative banks is their potential ability to facilitate financial development in a rural area. In a competitive market, joint-stock banks may have an extremely small incentive to develop a physical or institutional infrastructure that facilitates the smooth operation of financial intermediation in a rural area (e.g., a branch network), because of the public good nature of information about the quality of potential customers (Hellmann et al., 1997, 2000). That is, if the bank invests, but the quality of the local market is poor, it loses its investment. Even if the quality is high, competitive entry despoils its profit immediately. In contrast, cooperative banks, which pursue objectives other than profit maximization, could develop such infrastructure for local financial development at the expense of their own profitability. In addition, it should also be noted that in several countries, including Japan, the area of operation for cooperative banks is geographically restricted directly/indirectly by the government. In these cases, cooperative banks have no other choices except for cultivating their own geographically restricted area of operation. For these reasons, it may seem plausible that cooperative banks have potential advantages over their joint-stock counterparts in promoting local economic growth by delivering more sophisticated financial services in rural areas. In fact, the literature provides strong evidence that local financial development could promote local economic growth (see, for instance, Guiso et al., 2004).

Nonetheless, the literature also casts doubt over the possible advantages of cooperative banks over joint-stock ones, mainly because of weak governance mechanisms embedded in them (e.g., Cuevas and Fischer, 2006; Hesse and Čihák, 2007). The standard agency theory supposes that several equipments and mechanisms for corporate governance, such as the board of directors, executive compensation, market for corporate control, concentrated holdings, or monitoring by financial institutions, work to solve agency conflicts between stockholders (principals) and managers (agents) (e.g., Allen and Gale, 2000). Like other non-profit organizations, however, formal governance mechanisms for cooperative banks appear very weak. Since the members/depositors of cooperative banks have only a fixed-value claim and are protected by a safety net (e.g., deposit insurance), they may be less motivated to exert effective oversight over bank management. Moreover, in a one-person/one-vote arrangement for cooperative banks, the incentive to vote in the general meeting would be lower for the average members than for a shareholders of joint-stock banks (Cuevas and Fischer, 2006).

In this paper, we investigate the effects of the ownership forms of banks on local economic development. Our hypothesis is straightforward. If cooperative banks have an advantage over joint-stock ones in breaking the market failures that leads to credit rationing or in promoting rural financial development, the marginal effects of the failure

of a cooperative bank should be more harmful than that of its joint-stock counterpart in the economy.

To test this hypothesis, we focus on a single advanced country, which has been unified from a legal, a regulatory, and an institutional point of view, Japan. The reason why we study the case of Japan is its experience of the so-called lost decade in the 1990s, which is characterized by difficult and chaotic economic conditions. In those days, bank failures were pervasive throughout the country. As Table 1 shows, 173 banks in total failed during FY 1992–FY 2001 and the financial assistance provided to failed banks by the Deposit Insurance Corporation of Japan (DICJ) amounted to 21.9 trillion yen.[1] The level of financial integration within Japan, as well as other advanced economies, would probably be higher than the level of integration across countries.[2] Hence, if we find the evidence that the ownership form of failed banks matters for local growth within Japan, we believe that we can conjecture that it would be also true across countries. Japan's experiences, therefore, provide a rare opportunity to investigate the hypothesis stated above.

Similar to other related studies, however, the issue of causality arises and so does the need for conducting irrefutable tests of the hypothesis. Since bank failures were coincident with economic downturns during the lost decade in Japan, how can we identify the direction of causality? To deal with the causality issue, we adopt the method developed by Rajan and Zingales (1998) (henceforth RZ). RZ argue that better-developed financial sectors help overcome the market frictions that drive a wedge between the prices of external and internal finance. If their assertion is true, more-bank-dependent industries should suffer disproportionately more from local banking crises than less-bank-dependent industries, and the failure of cooperative banks should affect local economic growth more severely than that of commercial banks. This provides solid evidence on the comparative advantages of the cooperative ownership of banks in promoting local development in the debate over the direction of causality.

The rest of the paper is organized as follows. Section 2 provides a brief overview of the Japanese banking system. Section 3 describes the data and the empirical methodology used in this paper. The empirical results and their interpretations are reported in Section 4. Finally, Section 5 provides concluding remarks.

2 The Japanese Banking System: A Brief Overview

The Japanese financial institutions that take deposits and make loans are classified into two general groups based on their ownership forms, that is, joint-stock banks and cooperative ones. The former includes city banks (*toshi ginkō*), trust banks, long-term credit banks,[3] regional banks (*chihō ginkō*), and second-tier regional banks (*daini chihō ginkō*). On the other hand, the latter includes Shinkin banks (*shin'yō kinko*), credit cooperatives (*shin'yō kumiai*), and other financial institutions for labor, agriculture, fishery, and forestry.

Major banks, including city banks, trust banks, and the former long-term credit banks, are with headquarters and their branch networks in Tokyo, Osaka, and other major cities, and primarily lend to large customers. Regional banks conduct a majority of their

[1] The amounts of grant and asset purchases are about 16.3 trillion yen and 5.6 trillion yen, respectively.

[2] Boyreau-Debray and Wei (2004) provide a brief survey of the existing literature on financial integration both within developed countries and across OECD member countries.

[3] By 2006, however, all long-term credit banks have changed into ordinal commercial banks.

operations within the prefecture in which they are based and have strong ties with local enterprises.

Shinkin banks and credit cooperatives, which are dominant entities in the cooperative banking sector in Japan, provide financial services to small and medium enterprises and local residents within a geographically restricted area. In principle, these banks adopt a one-member/one-vote principle. However, most of the banks actually appoint the representatives of their members (*soudai*), and a meeting of them (*soudai-kai*) works as the supreme decision-making body in the institutions. Since other cooperative financial institutions for labor, agriculture, fishery, and forestry are the entities that provide financial services only to specific customers and very small in size, we exclude them from the analysis in this paper.

3 Data and Methodology

Following RZ and others,[4] we estimate the following model

$$\begin{aligned}(\text{Value added growth})_{i,j} = Constant &+ \sum_i \alpha_i (\text{Prefecture specific effects})_i \\ &+ \sum_j \beta_j (\text{Industry specific effects})_j \\ &+ \gamma (\text{Bank dependence})_{i,j} \\ &\quad \times (\text{Commercial bank failures})_i \\ &+ \delta (\text{Bank dependence})_{i,j} \\ &\quad \times (\text{Cooperative bank failures})_i \\ &+ \varphi (\text{Value added share})_{i,j} + \epsilon_{i,j},\end{aligned}$$

where the dependent variable is the average annual growth rate of value added in manufacturing sector j and prefecture i over the period 1992–2001, $(\text{Bank dependence})_{i,j}$ is the bank dependence index of industry j in prefecture i, $(\text{Commercial bank failures})_i$ is the index of the severity of the failures of regional and second-tier regional banks, $(\text{Cooperative bank failures})_i$ is the index of the severity of the failures of Shinkin banks and credit cooperatives, $(\text{Value added share})_{i,j}$ is the share of industry j in total value added in manufacturing in prefecture i in 1992, and $\epsilon_{i,j}$ is the disturbance term.[5]

Our main interest here is the coefficient of the interaction terms γ and δ. If more-bank-dependent sectors suffer from a relatively lower level of growth during the banking crises, then γ and δ would be negative. On the other hand, these coefficients would be zero, if the banking crises merely reflect local economic weakness.

The most disaggregated comprehensive data on value added is at the prefecture-industry level: data at the firm level is typically limited to large listed firms, and this limited data may not be sufficient because banking crises would have relatively stronger negative effects on SMEs than large listed firms.

[4]The RZ methodology has also been used in a variety of related problems, for instance, to examine the role played by the concentration of the banking sector on firms with access to capital (Cetorelli and Gambera, 2001), the linkages between financial development and international trade pattern (Beck, 2003, 2002), bank competition and firm creation (Bonaccorsi di Patti and Dell'Ariccia, 2004), and the real effect of banking crises on short-term economic fluctuations (Dell'Ariccia et al., 2008).

[5]Japan Standard Industry Classification (JSIC) was drastically revised in 2002. Thus, continuous data for the following years is not available.

Note that any price indices, as well as the local level of financial development,[6] geographical locations of prefectures, the technical features of industries, labor and capital inputs, or a population growth, does not affect the differences in the growth rate across sectors or prefectures, which is what matters to the tests in this paper; the industry- and the prefecture-specific effects are controlled by the two sets of dummy variables.

To measure the severity of local banking crises for each prefecture, we construct a new variable that is defined as the sum of the loan amounts granted to the local customers by the local banks that failed during the period FY 1992–FY 2001 with respect to their ownership forms—commercial banks (regional and second-tier regional banks) and cooperative banks (Shinkin banks and credit cooperatives)—as a share of the prefecture's total in 1992.[7] This variable reflects the existence of bank failures and the relative size of the failed banks in a local bank loan market. The number of failed local banks during FY 1992–FY 2001 is shown in Table 1.

The corporate finance literature generally mentions that small enterprises are more dependent on domestic bank finance than are large firms since the latter can raise capital through domestic securities markets or international capital markets. Thus, other factors being equal, sectors dominated by small firms should be more severely affected by local bank failures. Following Dell'Ariccia et al. (2008), we define bank dependence as the log of the average number of employees per establishment but with the sign reversed. Since this bank-dependence index varies with both prefectures and industries, it has an advantage over the original RZ index, which is defined as the fraction of capital expenditure not financed with internal funds for U.S. firms and, therefore, assumed to be stable across space and varying only with industries.

Following RZ and others, we also include industry j's share in prefecture i of the total value added in manufacturing in 1992 to account for "convergence" effects, that is, the tendency of larger industries to experience slower growth. Note that the initial level of value added, for instance, is controlled by the two sets of dummy variables. For more details on the data, see Table 2.

4 Results

Table 3 provides the results. For the specification (1) and (2), the point estimates of the interaction terms predict that the failure of the cooperative bank affects local growth more severely than that of the commercial bank. These results are also true for the specification (3) and (4), wherein the prefecture dummy is replaced by the wide regional dummy.[8] However, none of these results are statistically significant. The results provoke skepticism to the comparative advantages of the cooperative ownership of banks over their commercial ownership in promoting local economic growth.

[6] RZ show, by using the cross-country evidence, that financial development disproportionately boosts the growth of industries that are naturally heavy users of external finance.

[7] In the analysis, we regard Hokkaido Takushoku Bank, which was formally grouped with a city bank but had a large market share in Hokkaido, as a regional bank in Hokkaido.

[8] In the specification (3) and (4), Japan is divided into fourteen regions: Hokkaido, Kita & Minami Tohoku, Kita & Minami Kanto, Koshinetsu, Hokuriku, Chukyo, Kansai, Chugoku, Shikoku, Kita & Minami Kyushu, and Okinawa.

5 Conclusion

This paper examines the effects of the ownership forms of banks on local economic growth using the prefecture-industry level data during Japan's "lost decade." If the cooperative ownership of the bank has comparative advantages over its commercial ownership in promoting local economic growth, the failure of a cooperative bank would be more harmful in comparison to that of a commercial bank. The evidence in this paper, however, provokes skepticism to this view, suggesting less efficient operation of some cooperative banks in local communities probably due to weak mechanisms for management discipline.

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Table 1: Number of failed local banks during FY 1992–FY 2001

	Regional banks	
Year	Tier I	Tier II
1992	0	0
1993	0	0
1994	0	0
1995	0	1
1996	0	2
1997	0	2
1998	0	0
1999	0	5
2000	0	0
2001	0	1
2002	0	1
Total	0	12

	Cooperative banks	
Year	Shinkin banks	Credit cooperatives
1992	1	0
1993	1	1
1994	0	2
1995	0	5
1996	1	3
1997	0	7
1998	0	32
1999	4	28
2000	5	13
2001	9	36
2002	4	6
Total	25	133

Sources: Japan Financial News Co., Ltd., *Nikkin Shiryo Nempo*, and Deposit Insurance Corporation of Japan's website (`http://www.dic.go.jp/english/index.html`).

Table 2: Data Description

Variable	Description	Source
Value added growth	Average annual growth rate of value added in manufacturing at the 2-digit JSIC level (22 industries) (in percentage terms)	Author's calculations based on the Census of Manufactures, Ministry of Economy, Trade and Industry (METI)
Bank dependence	Log of the average number of employees per establishment at the 2-digit JSIC level with the sign reversed	Author's calculations based on the Census of Manufactures, METI
Commercial bank failure	Ratio of the sum of loans granted to the local customers by the failed first-tier and second-tier regional banks during FY 1992–FY 2001 to the prefecture's total in 1992 (including Hokkaido Takushoku Bank) (in percentage terms)	Author's calculations based on *Nikkin Shiryo Nenpo* published by the Japan Financial News Co., Ltd., the DICJ's website, and *Kin'yu Map* (various years) published by the Financial Journal Co., Ltd.
Cooperative bank failure	Ratio of the sum of loans by the failed cooperative banks and credit cooperatives during FY 1992–FY 2001 to the prefecture's total in 1992 (in percentage terms)	Author's calculations based on *Nikkin Shiryo Nenpo*, the DICJ's website, *Kin'yu Map* (various years), and the financial statements of the Shinkin banks and credit cooperatives
Value added share	Industry's share of value added in manufacturing at the 2-digit JSIC level (22 industries) in the prefecture's total in 1992 (in percentage terms)	Author's calculations based on the Census of Manufactures, METI

Table 3: Results of regression

Regression of (value added growth)$_{i,j}$ on	(1)		(2)		(3)		(4)	
	Coef	p value	Coef	p value	Coef	p value	Coef	p value
(Bank dependence)$_{i,j}$								
×(Joint-stock bank failures)$_i$	−0.058	0.080			−0.070	0.042		
	(0.033)				(0.034)			
(Bank dependence)$_{i,j}$								
×(Cooperative bank failures)$_i$			−0.065	0.268			−0.094	0.133
			(0.059)				(0.062)	
(Joint-stock bank failures)$_i$					−0.194	0.090		
					(0.114)			
(Cooperative bank failures)$_i$							−0.403	0.025
							(0.179)	
$SHARE92_{i,j}$	−0.145	0.000	−0.149	0.000	−0.144	0.000	−0.150	0.000
	(0.030)		(0.030)		(0.029)		(0.029)	
Prefecture Dummies	Yes		Yes		No		No	
Region Dummies	No		No		Yes		Yes	
Industry Dummies	Yes		Yes		Yes		Yes	
obs	932		932		932		932	
adj R^2	0.393		0.392		0.359		0.362	

Notes: Dependent variable is the average annual growth rate of value added in the manufacturing sector during 1992–2001. Regressions are estimated with OLS. White robust standard errors, which have been corrected for heteroskedasticity, appear in round brackets. Regressions are estimated excluding 2% of the outliers on either tail of the dependent variable.