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# Roles of Outside Directors in Cooperative Financial Institutions

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## Abstract

As the governance of financial institutions is becoming an important issue, there are many papers empirically investigating the governance issues of banks, which are stock companies. However, cooperative structured financial institutions (co-ops), which have a unique governance structure different from stock companies, play a substantial role in the Japanese banking markets, and, therefore, it is worth examining whether some governance scheme developed for stock companies are effective at cooperative financial institutions. Our results showed that the presence of outside directors at co-ops (“Shinkin Banks”) contributes to an improvement in efficiency.

## 1. Introduction

In many countries around the world, stock companies are not the only institutions that constitute an important part of the financial system. For example, in countries such as Germany, France, and the Netherlands, cooperative structured financial institutions (co-ops) carry significant weight. In Japan, the subject of this study’s analysis, co-ops hold as much as a 25% share of household deposits. On the other hand, over 150 co-ops went bankrupt during the first half of the financial system crisis period from the 1990s to the 2000s. According to research by the Deposit Insurance Corporation of Japan (DIC [2006]) that investigated the cause of these bankruptcies, there were problems in the management in 63% of co-ops that went bankrupt.

In contrast to stock companies in which one large shareholder can control the management of the company, co-op owners have one vote per person and do not engage

in takeover bids. As a result, there are few checks on management in co-ops. There is a possibility that the large number of co-op bankruptcies may be linked to these types of problems in governance structure. Of course, there have been similar problems in the governance structure of corporate banks as well, but there have been many advancements in recent years with regard to strengthening the governance of corporations. Conversely, such advancements have not been made with regard to co-ops.

A working group of the Finance Council established by the Financial Services Agency published a report in June 2009 on the status of co-ops (FSA [2009]). This report recommended appointing outside directors at board as a means for strengthening governance. According to studies analyzing the function of outside directors in stock companies, many evaluated the role of outside directors positively given a certain set of circumstances (Weisbach (1988), Daily and Dalton (1992), Byrd and Hickman (1992), Shivdasani (1993), Barnhart and Rosenstein (1994), Brickley et al. (1994), Kiel and Nicholson (2003)). However, there has been very little research on outside directors of co-ops. It is also unclear whether the arguments made for stock companies can simply be applied to co-ops, which have a unique governance structure.

As such, this paper uses stochastic frontier analysis to verify whether the existence of outside directors in credit associations (“Shinkin banks”)—a kind of co-ops that carry substantial weight in the Japanese financial market—have an impact on management performance. Our results showed that the presence of outside directors contributes to an improvement in efficiency.

## **2. Background of Analysis**

### **Previous studies on the Function of outside Directors**

One of the roles of outside directors is to monitor management and thereby increase the efficiency. Although it is the duty of all directors to monitor management, outside directors are by definition people outside of the company in question, and are well suited for monitoring because they have another primary job and are highly independent from the CEO (e.g., Fama (1980), Fama and Jensen (1983)). However, there has been no consensus in previous studies on the relationship between the ratio of outside directors and management performance.

While Daily and Dalton (1992) find that outside directors have a positive effect on management performance, Klein (1998) asserts that internal directors contribute more rather than outside directors. Furthermore, Hermalin and Weisbach (1991) could not find any relationship between the ratio of outside directors and management

performance. In short, no clear results can be found within previous studies as to whether external directors work their function of improving management efficiency.

Particularly, there has been very little research in Japan that analyzes the effect of outside directors on management performance and efficiency; moreover, research on the role of outside directors in financial institutions is particularly little.

### **Shinkin Banks and Non-Executive Directors**

Financial institutions in Japan can be divided into banks, which have a stock-based capital structure, and co-ops including “Shinkin bank”, which have mutual capital structure.<sup>1</sup> Co-ops do not have outside directors because of the nature of the legal system. However, many co-ops appoint local business owners, lawyers, accountants, and politicians as part-time directors, and previous studies has indicated that part-time directors, who have a high degree of independence from the chairman of the board, may fulfill a role of outside directors (in corporations), and can be expected to act as a management monitor.

Because they have a wealth of experience, connections, and insight, part-time directors are in a good position to determine whether the management of the Shinkin bank is headed in the right direction. Another fact that makes them advantageous as monitors is that they have a separate main source of income, and thus do not have to worry about losing their position as a part-time director if they disagree with the chairman of the board.

For the Shinkin banks that were the subject of our analysis, the average number of part-time directors for the period spanning FY 1999 to FY 2006 fell by 0.73, from 3.69 to 2.96 members. As a result, the share of part-time directors among total directors dropped from 0.34 to 0.29.<sup>2</sup> This trend stands in contrast to the environment surrounding (listed) stock companies, which have been proactively pushing for the appointment of outside directors because of the possibility of additional legal and listing standard requirements.

### **3. Data and Analysis Method**

This study employs technical efficiency as an indicator of Shinkin banks’ management

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<sup>1</sup> In addition to the Shinkin banks that are the focus of this study’s analysis, there are also credit unions and agricultural cooperatives. Some life insurance companies also have a mutual structure.

<sup>2</sup> Average number of directors per Shinkin bank (total of full-time and part-time directors) was 10.77 in FY 1999 and 10.05 in FY 2006.

performance. Here, stochastic frontier analysis is used to obtain technical efficiency based on a cost function. To observe the differences around the time of the change in the management environment in recent years, we calculate individual technical efficiency by using cross sectional data for FY 1999 and FY 2006. More specifically, for estimated functional form, the following standard translog cost function is applied.

$$\ln C = \alpha_0 + \sum_i \alpha_i \ln Y_i + \sum_j \beta_j \ln p_j + \frac{1}{2} \sum_i \sum_k \alpha_{ik} \ln Y_i \ln Y_k + \frac{1}{2} \sum_j \sum_l \beta_{jl} \ln p_j \ln p_l + \sum_i \sum_j \delta_{ij} \ln Y_i \ln p_j + u + v \quad (1)$$

Here, C, Y, and P are variables for total cost, outputs, and input prices, respectively.  $\alpha$ ,  $\beta$  and  $\delta$  are estimation parameters.  $v$  is a standard statistical error term with  $N(0, \sigma_v^2)$ . In addition,  $u$  ( $u > 0$ ) is an indicator that shows inefficiency for each Shinkin bank and is assumed to be uncorrelated to any of the independent variables and  $v$ .

When estimating a stochastic frontier function, it is necessary to pre-specify the distribution function for the inefficiency indicator  $u$ . Here, in accordance with much of the previous research, we assume a half-normal distribution. Moreover, we adopt the indicators proposed by Battese and Coelli (1988) in individual technical efficiency, which is calculated using the estimated values for the parameters.<sup>3</sup>

The following three outputs are considered: interest on loans and discounts ( $Y_1$ ), other interest income ( $Y_2$ ), and commissions and fees ( $Y_3$ ). Input prices are as follows: the labor price ( $p_1$ ; personnel expense/ number of full-time employees and directors), the price of fund ( $p_2$ ; interest expenses on deposits/ total amount of deposits), and the price of capital ( $p_3$ ; non-personnel expense/ value of movable and immovable capital). Total cost (C) is the sum of these three input expenses.

(Table1 insert here)

A regression analysis on the efficiency indicators measured in this way was performed to test whether the variable for governance had a statistically significant impact. For the governance variables that are likely to have an impact on Shinkin bank efficiency,

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<sup>3</sup> See Kumbhakar and Lovell (2000) for details on stochastic frontier analysis.

we used number of directors (NS), the ratio of outside directors to all directors (ODR), and the size of representative council members (RCM). RCM is the number of members who comprise the representative council, and are elected from among the members of the Shinkin bank<sup>4</sup>. If larger the number of members in managerial or decision making institutions relate to lower efficiency, we can expect that the estimates for NS and RCM will have a statistically significant negative value. In addition, we incorporated control variables for the capital asset ratio (CAR), bad loan ratio (BLR), loan to deposit ratio (LDR), and log of total assets (LAS). Furthermore, in accordance with previous studies that reports a drop in efficiency directly following a merger, a dummy variable for Shinkin banks that experienced a merger for each fiscal year (MGDM) is included.

Financial statements for Shinkin banks were obtained through “National Shinkin Bank Financial Statements,” published by Kinyu Tosho Consultant Sha, and governance variables were obtained from the “Japan Finance Directory” published by The Japan Financial News Co.,Ltd. Descriptive statistics for the data are given in Table 1. Governance variables could not be obtained for a few Shinkin banks, and as such, there is a small discrepancy in sample numbers.

#### 4. Analysis results

Based on the stochastic frontier analysis, Table 2 gives the efficiency indicators for FY 1999 and FY 2006, Since the average efficiency for FY 2006 is greater than that for FY 1999 and the standard deviation is smaller, we can see that there is an overall trend for improvement in Shinkin bank efficiency.

(Table2 insert here)

Table 3 displays the results of the regression analysis. In addition to an analysis that uses the measured efficiency indicators (Efficiency Level), we also performed an analysis that substituted these for ranking data within each FY sample (Efficiency Rank).

First the results for FY 1999 showed that among the variables for governance, only the

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<sup>4</sup> Shinkin Law allows representative council to be the highest decision making body instead of members' general meeting, which is equivalent to general shareholders' meetings for stock companies. Of course, there are several important differences between them. Most importantly, the members of representative council are in effect selected by the management and individual members of representative council have only one vote.

estimation value for NS was insignificant. Since ODR has a significant positive estimation value, we can see that the existence of outside directors contributes positively to improvements in Shinkin bank efficiency. Moreover, RCM has a significant negative estimation value, indicating that a streamlined decision-making body leads to improvements in Shinkin bank efficiency. Although the sign for each of the control variables does not conflict with what they should logically be, the estimates for CAR and MGDM were insignificant. Moreover, we conduct a likelihood ratio test to confirm appropriateness for including the governance variables in the estimation formula, and we find that the null hypothesis that the estimates for all governance variables are 0 can be rejected at 1% significance level.

Next, the results for FY 2006 showed that the estimates for all governance variables were significant. Unlike FY 1999, NS had a significant negative coefficient, indicating the possibility that smaller boards of directors could lead to improvements in efficiency. Results for ODR and NS for FY 2006 were consistent with those for FY 1999. For the control variables, the CAR that was insignificant in FY 1999 was significant for FY 2006. It was confirmed that the null hypothesis that the estimates for all governance variables are 0 can be rejected at 1% significance level for FY 2006 as well.

(Table3 insert here)

## **5. Conclusion**

This study examines whether the existence of outside directors in Shinkin bank co-ops, which carry substantial weight in the Japanese financial market, have an impact on management performance.

Results in this paper confirmed that differences in the governance structure between Shinkin banks have a significant effect on management performance. In particular, results showing that the existence of outside directors contributes to improvement in efficiency is an interesting outcome that dovetails with the government's guidelines for improving governance at Shinkin banks. In stock companies, pressure exerted by large shareholders may also encourage appointment of outside directors, but in co-ops where each owner has only one vote, this type of pressure is absent. Thus, to ingrain an outside director system, pressure from regulatory authorities such as the Financial Services Agency is needed.

In addition, the result that showed that the number of directors was only significant in FY 2006 indicates the possibility that changes in the management environment in

recent years has had an impact on discussions on the appropriate size of Shinkin bank board.

Table1. Descriptive statistics for estimation variables

Variables	1999		2006	
	Mean	Std Dev	Mean	Std Dev
$TC$	5,131	6,342	5,490	6,573
$Y_1$	5,161	6,617	5,301	6,709
$Y_2$	1,691	2,175	1,933	2,308
$Y_3$	478	598	736	950
$P_l$	6.7781	0.7881	7.0191	0.8700
$P_u$	0.2947	0.0738	0.1237	0.0417
$P_k$	0.3932	0.1710	0.3793	0.1581
Observaions	378		287	

Table2. Descriptive statistics on efficiency scores

1999				2006			
Mean	Std Dev	Minimum	Maximum	Mean	Std Dev	Minimum	Maximum
0.9099	0.0454	0.5293	0.9756	0.9164	0.0386	0.6809	0.9764

Table3. Determinants of Shinkin bank efficiency

Variable	1999					2006				
	Efficiency Level		Efficiency Rank			Efficiency Level		Efficiency Rank		
	Coefficient	Std. dev.	Coefficient	Std. dev.	Coefficient	t-statistic	Coefficient	t-statistic		
Constant	0.7072 ***	0.0466	-322.4830 ***	124.7430	0.7025 ***	0.0548	-162.4700	118.0290		
NS	-0.0001	0.0011	-1.1878	2.0878	-0.0035 ***	0.0013	-5.4133 **	2.3840		
ODR	0.0005 ***	0.0001	1.4292 ***	0.3619	0.0004 **	0.0002	0.7188 *	0.3967		
RCM	-0.0002 ***	0.0001	-0.4973 **	0.1971	-0.0002 **	0.0001	-0.2785 *	0.1620		
CAR	0.0012	0.0011	2.6307	2.6526	0.0016 ***	0.0005	3.6308 ***	1.0546		
BLR	-0.0010 *	0.0006	-2.6628 **	1.2261	-0.0011 *	0.0006	-2.9415 **	1.3960		
LDR	0.0019 ***	0.0003	4.6781 ***	0.6303	0.0012 ***	0.0003	2.6917 ***	0.6074		
LAS	0.0076 **	0.0034	18.6699 **	9.3972	0.0156 ***	0.0045	17.4182 *	9.3292		
MGDM	-0.1409 **	0.0659	-88.1985	60.8045	-0.0763 *	0.0391	-67.7249	50.0032		
Adj-R <sup>2</sup>	0.3417		0.2030			0.2443		0.1471		
Observations	376					288				

Note: White heteroskedasticity adjusted standard error. \*\*\* and \*\* stand for significance at the 1% and 5% levels.

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