Relation between Executive Compensation and Performance: Evidence from Japanese Shinkin Banks

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Abstract

This paper presents new insights on the executive incentive structure of the Japanese banking industry. Using data of Shinkin banks over 2003–2006, we investigate the incentive structure of executives at Shinkin banks post financial deregulation when they face competition with other banks in their region and need to earn higher profits. Our empirical results reveal that executive compensation packages at Shinkin banks are designed to provide positive incentives for executives to increase their banks' higher ordinary profit and higher than their belonging region's average profit. This finding implies that executive compensation at Shinkin banks can incentivize executives to make their banks compete more effectively with other Shinkin banks in their region.

1. Introduction

Japan is known as a large bank-centered economy, in which the banking industry has contributed to the economy in important ways (Aoki and Patrick, 1994). After the lost decade of the 1990s, the Japanese banking industry experienced a large volume of non-performing loans and the rescue of the Japanese financial system through government bailouts (Hoshi and Kashyap, 2010). Owing to government initiatives and regulatory reforms, many commercial banks aimed to reduce their non-performing loans. However, the Japanese banking industry performed weakly possibly because of the lack of corporate governance or internal control (Assaf et al., 2011). With regard to corporate governance, alignment of ownership and management interests is important for preventing agency problems (Jensen and Meckling, 1976). The introduction of incentive compensation helps align ownership and management interests and provide incentives for executives to undertake greater efforts to improve performance (Murphy, 1999). These alignment effects also exist in the banking industry (Becher et al., 2005).

Our aim in this study is to provide empirical evidence related to incentive compensation in the Japanese banking industry and contribute to the literatures of banking studies. Japanese regional banks and *Shinkin banks* have a specific and important position in regional financial markets (Satake and Tsutsui, 2003, Hosono et al., 2006). *Shinkin banks* are classified as commercial banks specialized for small- and medium-sized firms because they are prohibited by Japanese law from lending to firms with more than 300 employees. While regional banks are stock companies, *Shinkin banks* are cooperative institutions. This implies that informational asymmetries exist more for *Shinkin banks* than for regional banks (Shimizu, 2009). There are several empirical studies related to *Shinkin banks.* Assaf et al. (2011) find that *Shinkin bank* productivity and efficiency did not improve during the financial deregulation era. Shimizu (2009) find that depositors of *Shinkin banks* use stock price information of other regional banks in the same prefecture when they decide to withdraw from their deposits. However, previous studies do not specifically examine executive incentives at *Shinkin banks*, and thus, there remains the important question of whether or not incentives for executives of credit associations are inadequate.

Credit associations are known as the main financial intermediaries for small- and medium-sized enterprises and households, and the size of credit unions differ among countries. According to the National Credit Union Administration (2011), the United States has more than 700 federally insured credit unions. The average credit union assets are 135.6 million dollars. According to Inoue (2002), *Shinkin banks*, or Japanese credit associations, are larger than US credit associations. The average deposits of *Shinkin banks* are 30 billion yen or 250 million dollars[1], and 20 *Shinkin banks* have more than 1 trillion yen (or 8.3 billion dollars) in deposits.

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[1] We compare with the size of *Shinkin banks* and US credit unions to convert the size of *Shinkin*

We first investigate the incentive structure of *Shinkin bank* managers. During the 1990s, Japanese financial institutions were obligated to earn minimum profits under government protection and supervision. However, since the Japanese financial deregulation, the banking industry has been required to earn higher profits. Therefore, we focus on the roles of executive incentive compensation packages after the financial deregulation era. Using data for *Shinkin banks* during 2003–2006, we find that bonuses tend to be given to executives who achieve higher performance, measured as Return on Assets (ROA). This result implies that executive bonus packages at *Shinkin banks* provide positive incentives. Additionally, we find that executive bonus packages at *Shinkin banks* encourage managers to make greater efforts to ensure their banks achieve higher profit than the regional average. This result implies that the performance targets of *Shinkin bank* executives might include their banks' higher-than-average profits in their region because each *Shinkin bank* faces intra-regional competition.

2. Data and Methodology

We obtain data from the Nikkei Needs *Shinkin bank* database, which includes financial statement information of *Shinkin banks*. The executive bonus amounts are only publicly provided during 2007 because precise executive bonus amounts that are disclosed in the profit and loss statement were prohibited thereafter[2]. There were 1,194 observations of *Shinkin banks* during 2003–2006. From these observations, we omit 283 banks that do not report ROA, ordinary profits, dividends, non-performing loan amounts, or number of employees[3]. Therefore, our final sample comprised 911 observations during 2003–2006.

We estimated Equation (1) as

$$\text{Bonus}_{it} = \alpha + \beta_1 * performanc\,e_{it} + \beta_2 * Control_{it} + \varepsilon_{it}, \qquad (1)$$

where *i* refers to *Shinkin bank i*. The dependent variable *Bonus* represents a cash bonus. An executive bonus is the most important component of executive incentives in Japan. Stock options and stock-based compensation are rarely provided at large Japanese listed firms. Furthermore, cash bonuses are prominent in incentive packages (Sakawa et al., 2012). Therefore, we measured incentive compensation as *Bonus*, following a method used by Xu (1997). We also apply as dependent variables the level of *Bonus* and the dummy variable for *Bonus*, which equals 1 if executive bonuses are provided and is 0 otherwise.

The key independent variables are the performance variables, such as ROA. Firm performance provides positive incentives for Japanese executives (Kaplan, 1994). Since the financial deregulation era, intra-regional competition among *Shinkin banks* has occurred, and

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banks into dollar value. We adopt the exchange rate of 1 US dollar to 120 yen.

[2] Since 2007, only provisions for bonuses of *Shinkin bank* executives have been disclosed.

[3] The criteria for omitting banks from the sample are reported in Appendix 1.

executives of *Shinkin banks* are possibly motivated to make greater efforts to help their banks post higher profits than the regional average. This study therefore adopts ROA and Adjusted ROA as variables indicating performance criteria[4].

The other independent variables we use as control variables are as follows. The dividend payout is the opportunity cost for high-quality managers who can find higher net present value projects (Bhattacharyya et al., 2008). Therefore, a negative association between dividend payout and executive bonuses is predicted. The size of *Shinkin banks* is controlled as the logarithm of total assets. We also control capital ratio (Capital), which is measured as total deposits. We adopt year dummy and regional dummy variables to control time and regional effects, respectively[5].

We also apply two-stage least squares estimation to consider that both ROA and Adjusted ROA might be endogenous in Equation (1). We adopt as instrumental variables financial risk, financial health, and regional economic size. Financial risk is measured as the Z score, following Anderson and Fraser (2000), while financial health is controlled as the ratio of non-performing loans and loan-deposit. In addition, *Shinkin banks* are mutual financial institutions and specifically support local business activities. The loan markets of *Shinkin banks* are segmented by prefecture (Kano and Tsutsui, 2003; Uchida and Tsutsui, 2005), and therefore, the regional economic size for each *Shinkin bank* is controlled as the logarithm of gross prefectural product. We also control the number of employees of *Shinkin banks*.

The descriptive statistics of our variables are summarized in Table 1. The average executive *Bonus* is about 6.8 million yen, which is less than that at Japanese exchange-listed firms (Kaplan, 1994).

3. Results

Table 2 reports the estimated results for the 911 observations of *Shinkin banks* over 2003–2006 using four models. The dependent variable of Models (1)–(6) is *Bonus* and that of Models (7) and (8) is the *Bonus* dummy. To overcome potential endogeneity problems, we include 2SLS models to consider that both ROA and Adjusted ROA would be endogenous in Equation (1)[6].

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[4] Adjusted ROA is calculated as the ROA of a *Shinkin bank* minus the average ROA of the region.
[5] We define seven regions: Hokkaido–Tohoku, Kanto, Chubu, Kansai, Chugoku, Shikoku, and Kyushu.
[6] We adopt as instrumental variables the Z score, amount of non-performing loans, prefectural GDP, loan-deposit ratio, and logarithm of number of employees. The economic intuition of instrumental variables are explained as follows. The health of a bank, measured as the Z score, and non-performing loans directly affect ROA. The economic situation in a business area, measured as prefectural GDP, is also linked to ROA, and loan-deposit ratio, measured as bank efficiency, contribute to ROA. Finally, bank size, measured as the logarithm of number employees, is related to ROA.

Table I: Descriptive Statistics

Variable	N	Mean	Median	SD	Minimum	Maximum
Bonus (Level, Million Yen)	911	6.800	0.000	13.404	0.000	190.0
Bonus (Dummy)	911	0.490	0.000	0.500	0.000	1.000
ROA (%)	911	0.162	0.228	0.406	-3.129	1.136
Adjusted ROA (%)	911	-0.001	0.000	0.004	-0.034	0.008
Dividend	911	11.421	6.000	11.077	0.060	87.000
Ln (Asset)	911	12.298	12.194	0.954	10.036	15.081
Capital (%)	911	11.781	11.220	3.932	5.070	37.570
Z score	911	131.682	90.418	145.784	1.077	1114.2
Non-performing Loans	911	0.129	0.120	0.083	0.000	0.900
Loan-Deposit Ratio	911	0.569	0.573	0.093	0.200	0.824
Ln (Prefecture GDP)	911	16.070	15.867	0.867	14.536	18.419
Ln (# Employees)	911	5.547	5.468	0.825	3.497	7.883

Notes: This table presents the descriptive statistics of the variables for the 911 observations during 2003–2006. We measure incentive compensation as the level of *Bonus* and the dummy variable for *Bonus*, which equals 1 if executive bonuses are provided and is 0 otherwise. We adopt as performance variables Return on Assets (ROA) and Adjusted ROA. Adjusted ROA is calculated as the ROA of a *Shinkin bank* minus the average ROA of the region. Dividend is the dividend payout. Ln(Asset) means the size of *Shinkin banks*, which is measured as the logarithm of the total assets. Capital is the capital ratio of *Shinkin banks*, which is measured as total deposits. The Z score is adopted as an indicator of financial risk (Anderson and Fraser 2000). Financial health is controlled as the ratio of Non-performing Loans and Loan-Deposit Ratio. Ln (Prefecture GDP) means the regional economic size for each *Shinkin bank*, which is controlled as the logarithm of the gross prefectural product. Ln(# Employees) means the logarithm of number of employees.

Using all models, we find that ROA and Adjusted ROA have significantly positive relationships with the dependent variables, and this result implies that *Shinkin bank* executives are provided positive incentives through their compensation. In addition, dividends have a significantly negative relationship with *Bonus* in Models (1) and (2), which is consistent with the results obtained by Bhattacharyya et al. (2008). No significant results are found with the other models.

Model	1	2	3	4	5	6	7	8
Method	OLS		Fixed-effects		Fixed-effects-2SLS		Probit	
Dependent Variable	Bonus (Level)		Bonus (Level)		Bonus (Level)		Bonus (Dummy)	
ROA	3.678 ***		2.203 ***		4.739 **		2.894 ***	
	(5.06)		(3.73)		(2.42)		(9.27)	
Adjusted ROA		3.604 ***		2.085 ***		4.557 **		2.838 ***
		(4.87)		(3.59)		(2.37)		(9.21)
Dividend	-0.108 **	-0.108 **	0.040	0.042	0.008	0.013	0.013 **	0.012 **
	(-2.20)	(-2.20)	(0.51)	(0.54)	(0.10)	(0.15)	(2.41)	(2.38)
Ln(Asset)	6.168 ***	6.172 ***	2.949	3.086	2.116	2.390	0.222 ***	0.222 ***
	(5.24)	(5.24)	(1.37)	(1.44)	(0.85)	(0.99)	(3.52)	(3.54)
Capital	0.474 ***	0.476 ***	0.498 *	0.518 *	0.019	0.048	0.080 ***	0.080 ***
	(4.33)	(4.34)	(1.82)	(1.90)	(0.05)	(0.12)	(4.66)	(4.67)
Constant	-70.090 ***	-68.930 ***	-35.430	-36.690	-19.720	-22.000	-4.200 ***	-3.234 ***
	(-5.06)	(-4.94)	(-1.27)	(-1.32)	(-0.58)	(-0.66)	(-5.40)	(-4.16)
Regional Dummies	Yes	Yes	No	No	No	No	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	911	911	911	911	911	911	911	911
Adjusted R^2	0.237	0.236	0.088	0.085	0.175	0.062		
F	26.02 ***	26.25 ***	6.72 ***	6.77 ***				
Wald Chi Square					27.32 ***	27.59 ***		
Sargan-Hansen Statistic					5.00	5.19		
Pseudo R^2							0.307	0.304
Log Likelihood							-437.3 ***	-439.3 ***

Notes: The table presents the ordinary least squares regression estimates (Models (1) and (2)), fixed effect estimates (Models (3) and (4)), two-stage regression of fixed effect estimates (Models (5) and (6)), and probit regression estimates (Models (7) and (8)) for the 911 observations during 2003–2006. Test statistics and significance levels are calculated based on the standard errors adjusted for clustering at each *Shinkin bank*. All equations include year dummy variables. t values are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

4. Conclusions

This paper presents an investigation of whether or not executive compensation at *Shinkin banks* provide positive incentives for executives to make greater efforts to help improve their banks' performance. Using data for 2003–2006, we find that executive bonuses tend to be provided at *Shinkin banks* with higher ROA and higher regional Adjusted ROA. Most especially, they are provided incentives to make greater efforts to help their banks achieve higher profits than the regional average, and this result implies that *Shinkin bank* competition with other financial intermediaries in their region might have become stronger since the financial deregulation era.

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Appendix 1. Sample Selection Criteria

Sample Selection Criterion	# of Deleted Firms	# of Retained Firms
Available on Nikkei Needs *Shinkin* database	0	1,194
No Data on ROA	25	1,169
No Data on Dividend Payment	197	972
Negative Value of Non-performing Loans	34	938
No Data on # of Employees	27	911

Notes: The final sample consists of four-year panel data. The number of banks in the sample in years 2003, 2004, 2005, and 2006 are 210, 232, 236, and 233 respectively.

Appendix 2. First-stage Regression

	ROA		Adjusted ROA	
Z score	-0.008	**	-0.008	**
Non-performing Loans	0.317		0.319	
Loan-Deposit Ratio	0.501		0.419	
Ln (Prefecture GDP)	1.483	**	1.388	**
Ln (# Employees)	-0.664		-0.576	
Dividend	0.008	*	0.008	*
Ln(Asset)	0.519		0.389	
Capital (%)	0.241	***	0.242	***
Year Dummies	Yes		Yes	
N	911		911	
Uncentered R^2	0.286		0.237	
F	11.66	***	5.21	***
Kleibergen-Paap LM Statistic	23.25	***	23.08	***
Kleibergen-Paap Wald Statistic	13.25	**	12.62	**

Notes: The table presents the first-stage regression results of Models (5) and (6) for 911 observations during 2003–2006. All equations include year dummy variables. t values are in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.