BANK GOVERNANCE AND BANK PERFORMANCE IN TURKISH BANKING INDUSTRY: THE ANALYSIS OF STATIC, SELECTION AND DYNAMIC OWNERSHIP EFFECTS

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Abstract

Turkish banking has undergone a rapid consolidation process in the forms of domestic mergers and acquisitions and foreign acquisitions. This paper analyzes the effects of corporate governance on the performance of the Turkish commercial banks, using the data from 1995 to 2008. The paper considers the static, selection and dynamic effects of domestic, foreign and state-ownership on bank performance. The results show that state-owned banks have strong long-term performance, whereas the foreign banks have poor long-term performance. The selected banks for domestic M&As and for foreign acquisitions tend to perform better. The dynamic indicators show that the merged banks show inferior performance than their counterparts.

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Introduction

Banks play a crucial role in the economy since they act as intermediaries to channel the idle funds to the demanders of these funds. Thus, banks are an important source of economic growth (Levine, 1997, 2004). To ensure the efficiency of the banking system and efficiency of the capital allocation, governance of the banks has become a vital concept. Banking is a unique sector and the interests of other stake holders are more important to it than in the case of non-banking and non-finance institutions. The contagion risk in the banking sector makes depositors vulnerable to downside risks and also all the participants in the economy.

The corporate governance of banks has different definitions in different models. The Anglo-American model is mostly concerned with the principal-agent problems, namely the problems that arise due to the separation of ownership and management. Franco-German model of corporate governance has a much broader definition which adds the interests of both shareholders and stakeholders like employees. The bank regulators perceive corporate governance as a means of corporate fairness, transparency and accountability (Shleifer and Vishny, 1997). The paper adopts the OECD's definition of governance which states that "Corporate governance involves a set of relationships between a company's management, its board, its shareholders, and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set, and the means of

attaining those objectives and monitoring performance are determined." (OECD, 2004 *as cited in Gup, 2007*).

Although these definitions differ somehow, they point to the same goals of protecting shareholders' interests, protecting stakeholders' interests, protecting the publics' interest in the banking system and satisfying bank and government regulators. Since there are different goals and different interested parties, the success and failure measures of bank governance also differs. This paper will consider the interests of stakeholders and the public mostly, thus the success and failure measure in this paper is the profit and cost efficiency, the return on investments and credit risk of the banks.

The Turkish banking system was a heavily regulated system until 1980s. The aim of the liberalization program was to increase the efficiency of the banking sector. With the introduction of the liberalization policies, the restrictions on the market entry, exchange rates and the interest rates were released (Kasman, 2002). The launch of liberalization program before the achievement of sound macroeconomic policies and stability has ended up with two severe crisis in 1994 and 2001. Subsequently, regulations and market structure changed and to survive in a new regulatory and competitive environment, banks became much more concerned about their performance levels.

Unprecedented changes in technology combined with the deregulation policies, gave rise to a wave of consolidation in the financial industry all around the world and also in Turkey. With the economic recovery and stabilization of the finance sector in Turkey, the consolidation process started and the number of the banks started to fall as shown in Table 1. Domestic banks become targets and lots of mergers and acquisitions

(M&As) took place in the Turkish banking industry. Many of the banks' ownerships changed from private to foreign.

Table 1. Number of Banks in Turkish Banking Sector

	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total Banks	66	68	69	72	75	81	79	61	54	50	48	47	46	46	45
Deposit B.	56	55	56	59	60	62	61	46	40	36	35	33	33	33	32
B. transferred to SDIF	-	-	-	1	1	6	3	8	1	1	-	-	-	-	-

Source: Banks Association of Turkey, (BAT).

The consolidation process has accelerated since 2001 and it is thought that further consolidation will occur in the near future. The process taking place in the Turkish banking system raises some important questions. How did the changes in the corporate governance of banks affect bank performance of the banks and to what extent do the dynamic changes following governance changes correspond to predicted effects?

The purpose of this paper is to test the effects of governance on bank performance using the data of Turkish banks from 1995 to 2008. The approach of Berger et. al. (2005) is followed and static, selection and dynamic effects of corporate governance is used in the model. The reason to add all the effects in the same model is explained in Berger et. al. (2005). If the banking system is affected from both static, selection and dynamic effects of governance, excluding some of the governance effects will result in a mis-specified model and may give biased results.

To the best of author's knowledge this is the first paper analyzing the effect of corporate governance on the performance of the all commercial banks in Turkey. The static, selection and dynamic effects takes the domestic M&As, foreign acquisitions and the ownership of the banks into consideration. The paper is important in the way that, the Turkish banking has faced both domestic M&As and foreign acquisitions. Section 2 will present the methodological framework, Section 3 will give the empirical results section 4 will conclude.

Methodology

In order to test the effects of corporate governance on bank performance the following methodology by Berger et. al. (2005) is applied:

Bank Performance Measure = α + β₁ * Static Governance Indicators + β₂ * Selection Governance Indicators + β₃ * Dynamic Governance Indicators + β₄ * Control Variables for Bank Size and Market Share + β₅ * Year Fixed Effects + ε (1)

$$Bank\ Performance\ Measure = \alpha + \beta_1 * Static\ Governance\ Indicators + \beta_2 * Selection\ Governance\ Indicators + \beta_3 * Dynamic\ Governance\ Indicators + \beta_4 * Control\ Variables\ for\ Bank\ Size\ and\ Market\ Share + \beta_5 * Year\ Fixed\ Effects + \varepsilon \quad (1)$$

The inclusion of static, selection and dynamic governance indicators to the model is to evaluate the static effects of maintaining different types of governance over the long term, being chosen to have different types of governance change and dynamic effects of governance changes. The Equation (1) adopts five different dependent variables as bank performance measures: profit efficiency rank, return on equity (ROE), cost efficiency rank, costs to total assets ratio and non-performing loans (NPL) to total loans ratio. Table 2 lists the variables used in the model and their descriptive statistics.

Table 2. Variables Employed in the Governance - Performance Model

Variables	Definition	Mean	Standard Dev
Bank Performance Measures (Dependent Variables)			
cost eff rank*	Based on the residuals from the cost function for each year, transformed to a uniform scale over [0,1]	0.500	0.298
profit eff rank*	Based on the residuals from the profit function for each year, transformed to a uniform scale over [0,1]	0.500	0.298
ROE	Return on Equity	0.374	2.212
Costs/Assets	Total interest expense + operating expenses over total assets	1.225	5.466
NPL/TL	Non-performing loans over total loans	0.076	0.183
Governance Indicators			
Static Governance Indicators			
dstatic domestic	dummy indicating a domestically owned bank that underwent no changes during the analyzed period (Excluded as the base case when all the other static and selection governance indicators are included)	0.679	0.467
dstatic state	dummy indicating a state-owned bank that underwent no changes during the analyzed period	0.097	0.296
dstatic foreign	dummy indicating a foreign owned bank that underwent no changes during the analyzed period	0.223	0.417
Selection Governance Indicators			
selection domestic	Dummy indicating a bank that underwent a domestic M&A over the analyzed period	0.102	0.302
selection foreign	Dummy indicating a bank that underwent a foreign acquisition over the analyzed period	0.122	0.327
Dynamic Governance Indicators			
dynamic foreign	Dummy indicating the years following a bank's domestic M&A and 1 starting in the second year following the M&A.	0.018	0.132
dynamic domestic	Dummy indicating the years following a bank's foreign acquisition and 1 starting in the second year following the acquisition	0.007	0.081
Control Variables			
log of lagged assets	Natural logarithm of a bank's total assets in the preceding year	3.130	0.813
log of market share	Natural logarithm of a banks market share in the loan market	0.031	0.065

* Sample mean and sample variance is constant by construction

Cost efficiency provides a measure of the closeness of a bank to the cost of the best practice bank that is operating under the same conditions. A bank is said to minimize its costs when it produces the same amount of outputs using less inputs. Profit efficiency measure, on the other hand, measures the closeness of a bank to the profits of the best practice bank that realizes the maximum level of profit given its level of outputs. A profit maximizing bank produces greater quantity of outputs given the amount of inputs.

To generate cost and profit efficiencies, this paper applies stochastic frontier approach (SFA) introduced by Aigner et. al. (1977) and Mausen and Van den Broeck (1977).

$$y_{it} = \exp(x_{it}\beta + v_{it} \pm u_{it}) \qquad (1)$$

where y_{it} denotes total costs if $u_{it} \geq 0$ and it denotes profits if $u_{it} \leq 0$; x_{it} is a vector of unknown inputs and outputs, β is a vector of unknown parameters to be estimated; v_{it} are independently and identically distributed $N(0, \sigma_v^2)$ random errors that are independently distributed of the u_{it}, u_{it} are independently distributed inefficiency effected, such that u_{it} is obtained by the truncation (at zero) of the normal distribution with the mean, $z_{it}\delta$, and variance σ^2, and δ is a vector of unknown coefficients of the environmental variables.

The inefficiency effects, u_{it}, in Equation 1 can be specified as

$$u_{it} = z_{it}\delta + w_{it} \qquad (2)$$

where w_{it} is defined by the truncation of the normal distribution with zero mean and variance, σ^2, such that the point of truncation is $z_{it}\delta$.

The Fourier flexible cost (or profit) function specification:

$$\ln tc_{st}(\pi + \theta) = \alpha_0 + \sum_{i=1}^{3} a_i \, lny_{ist} + \frac{1}{2}\sum_{i=1}^{3}\sum_{k=1}^{3} \alpha_{ik} \ln \, y_{ist} \, ln \, y_{kst} + \sum_{j=1}^{3} \beta_j \ln w_{jst} + \frac{1}{2}\sum_{j=1}^{3}\sum_{m=1}^{3} \beta_{jm} \ln w_{jst} \, ln w_{mst} + \sum_{i=1}^{3}\sum \square$$

(2)

where tc (π) is total costs (total profit) of the banking firm in a given year. y_i=outputs (total loans, total deposits and other earning assets); w_i= input prices (borrowed funds, labor and capital); E=equity; A=total assets; t=time trend; x_i= adjusted values of the log output.

The alternative profit function uses the same specification as the profit function. The profit function adopts net income as the variable to be explained. Since, some banks come up with negative profits, θ, of a size sufficient to eliminate negative values, is added to the profits of all banks in the sample.

The profit efficiency rank and the cost efficiency rank is based on the residuals from the profit and cost functions that is defined with the Equation (2). When the residuals are ranked in ascending order for a year and converted to a uniform scale over [0,1] using the following formula:

$$\text{Profit (Cost)Efficiency Rank} = \frac{(\text{order}-1)}{(n-1)}$$

(3)

where *order* is the place of the bank's residual and *n* is the number of banks in that year. Since the measures of cost and profit efficiency rank ranges between 0 and 1, a censored regression model is used, when these measures are taken as the dependent variables.

ROE is the ratio of net income to total equity. Costs to total assets ratio covers the sum of interest and non-interest expenses to total assets. Even if the paper uses ROE and Costs/Assets, the efficiency ranks have superiority over the ratios. ROE and Costs/ Assets do not consider the outputs of the bank and are not adjusted for changes over time. Non-performing loans (NPL) to total loans is considered as a measure of asset quality of banks. A bank is said to be better performing if the ratio of NPL to total loans is better than the industry average. The control variables in the model are *size* and *share of the bank in the loan market.* The size is captured by the lagged value of logged assets. Year dummies are included excluding year 1995 as the base case.

The static indicators of governance are domestic-no change in governance, state-no change in governance and foreign-no change in governance. Dummy takes a value of 1, if the mentioned types of banks did not undergo changes in governance. The domestic- no governance change indicator is excluded from the regression as a base case.

Selection governance indicators, selected for domestic M&As and selected for foreign acquisitions dummies indicate banks that has undergone changes in governance in the analyzed period.

Dynamic governance indicator variables, underwent domestic M&A, underwent foreign acquisition, indicate the years following a governance change and the type of the change. The dummy equals 0 prior to the bank's governance change and 1 starting in the next year following the change.

Data and Empirical Results

The data for this paper is obtained from the Banking Association of Turkey's annual publication, *Banks in Turkey.* This publication presents the financial statements of the banks operating in the Turkish banking industry.

The sample covers the period from 1995 to 2008 and in the cross-section there are 53 banks. Inputs and outputs in the cost and profit functions are defined using the value-added approach (Berger and Humphrey, 1992). Total loans, total deposits and other earning assets are defined as the outputs and price of labor, price of physical capital and price of purchased funds are calculated as the inputs for the model. The price of labor is the ratio of personnel expenses to number of employees. The price of physical capital is the ratio of the non interest expenses net of personnel expenses to fixed assets. The price of funds is the ratio of total interest expenses to the sum of total deposits and borrowed funds. Table 3 presents the summary statistics for bank level variables used in the cost and profit functions.

Table 3. Descriptive statistics of bank level variables used in cost and profit functions for 1995-2008

Variable	Mean	Standard Deviation	Coefficient of Variation
y_1= total loans	2389.466	5102.730	2.136
y_2= other earning assets	953.235	2780.686	2.917
y_3= total deposits	3975.211	8034.211	2.021
w_1= price of labor and capital	0.025	0.018	0.717
w_2= price of loanable funds	0.159	0.112	703
w_3= price of fixed assets	1.575	1.671	1.061
tc = total costs (interest expenses + noninterest expenses)	866.249	1517.542	1.752
ta = total assets	5914.713	11636.046	1.967
tc/ta	0.147	0.130	0.890
Equity/ta	0.109	0.072	0.660
Total profits/ta	0.037	0.113	3.083

Note: Assets, costs, earnings, deposits and loans are in millions of U.S. dollars

Table 4 presents the results of the regressions. Since profit efficiency rank and cost efficiency rank is between [0,1] a censored regression is applied when taking these variables as the dependent variable. When using ROE, Costs to total assets and non-performing loans to total loans are considered as the dependent variables, OLS regressions are run. For the standard errors White's heteroscedasticity consistent t-statistics were used.

Table 4. Bank Performance Regressions

	Profit Eff. Rank	ROE	Cost Eff. Rank	Costs/Assets	NPL
Constant Term	0.383	-0.131	0.651	-1.435	0.094
	(0.076)***	(0.311)	(0.055)***	(1.338)	(0.031)***
Static Governance Indicators					
Foreign- No Governance Change	0.029	0.161	0.013	2.534	0.044
	(0.044)	(0.249)	(0.033)	(1.030)**	(0.028)
State-No Governance Change	0.087	-0.391	-0.042	-1.115	0.120
	(0.043)**	(0.265)	(0.047)	(0.436)**	(0.034)***
Selection Governance Indicators					
Selected for Domestic M&A	-0.073	-0.176	-0.013	-0.561	0.028
	(0.055)	(0.236)	(0.045)	(0.197)***	(0.030)
Selected for Foreign Acquisition	0.129	-0.214	-0.048	0.612	0.007
	(0.051)**	(0.227)	(0.044)	(0.487)	(0.018)
Dynamic Governance Indicators					
Underwent Domestic M&A	-0.301	-0.409	-0.049	-1.138	0.010
	(0.068)***	(0.193)**	(0.169)	(0.825)	(0.031)
Underwent Foreign Acquisition	-0.498	-0.046	-0.076	-1.333	-0.024
	(0.086)***	(0.082)	(0.104)	(0.464)***	(0.017)
Control Variables					
Log of Lagged Assets	0.030	0.172	0.006	0.706	-0.013
	(0.022)	(0.098)*	(0.017)	(0.435)	(0.009)
Market Share	0.255	0.580	-0.450	0.315	-0.091
	(0.204)	(0.808)	(0.202)**	(2.519)	(0.080)

Note: The first presented numbers denote the coefficients and the numbers in parenthesis are the standard errors. To correct for standard errors, the White's (1980) heteroscedasticity consistent *t*-statistics were used.
*, ** and *** represent statistical significance at 10%, 5% and 1%, respectively.

The static governance indicators determine the long-term effects of foreign and state ownership with no change in governance relative to domestic ownership with no change. The results of foreign ownership show that costs to total assets ratio have a positive and statistically significant coefficient, meaning that the foreign owned banks spend more per dollar of assets relative to domestic ownership. Most of the foreign banks that did not face a change in governance in Turkey were one-branch banks, thus it is not very unexpected that they do not have a better performance than the domestic banks.

The static findings of the state-owned banks show that state owned banks have superior performance in profit efficiency ranking with respect to domestic banks. This result is actually is not surprising that state-owned

banks in Turkey do not have problems in generating revenues and funds due to their customer base and their support from the government. Costs to total assets measure confirm that state-owned banks spend less per dollar of assets than the domestic ownership. The coefficient implies that state ownership is associated with a statistically significant lower costs, but significantly higher non-performing loans, approximately 12% higher than domestic banks.

The coefficients of selection governance indicators measure the pre- governance changes between the selected banks for change compared to the domestic ownership banks with no change. The negative coefficient of the selected for domestic M&A suggest that banks selected for domestic M&As spend less, meaning that M&As result with greater costs savings which is also mentioned in the literature. But this saving is not associated with cost efficiency since coefficients associated with cost efficiency rank are statistically insignificant.

The banks selected for foreign acquisition are only statistically different from the domestic ownership banks in the way they have higher profit efficiency. This shows that despite the literature better performing banks are selected for acquisition.

The dynamic governance indicators specify the changes in the performance of the banks in the post merger and acquisition period. All the coefficients in the dynamic governance indicators point to a deterioration in the performance of the banks that went through M&As in comparison to the domestic ownership banks. This finding is very commonly noted in the literature that M&As cause no cost and profit efficiency improvement (Berger and Humphrey, 1992). Both the banks underwent domestic M&As and banks underwent foreign acquisitions has an inferior performance in profit efficiency than the domestic banks without governance changes at about 40% on average. The banks underwent domestic M&As have lower ROE on average. But banks underwent higher foreign acquisition have lower costs to assets than their counterparts, which is also unsurprising that foreign banks have better access to international markets and thus can achieve funds at lower rates but this advantage is not transformed to improvements in cost efficiency

The control variables in the regressions show that larger banks tend to have higher ROEs and banks with higher market shares in the loan market have lower costs.

Conclusions

This paper analyzes the effects of corporate governance on the performance of Turkish banks using the data for the period 1995 to 2008. Analyzing the Turkish banking industry is crucial since it has undergone lots of changes in the analyzed period and a considerable number of domestic and foreign M&As have taken place. The regressions use both static, selection and dynamic governance indicators as determinants of bank performance.

The static governance measures show that foreign banks with no governance change spend more per their dollar of assets than domestic banks with no change in governance. State- owned banks on the other hand, show a better picture. They have superior profit efficiency ranks since they have a large customer base. The negative coefficient on the costs to assets ratio shows that they have significantly lower costs than the domestically owned banks.

Selection governance indicators indicate that banks with lower spending per dollar of assets are selected for domestic acquisitions. The banks that are selected for foreign acquisition show a feature of higher profit efficiency than the domestic banks.

Dynamic governance indicators determine the changes in the performance of the banks after the change in the governance. The results of dynamic governance do not show very good results. Although better performing banks are selected for domestic M&As or foreign acquisitions, they tend to perform poorly in the post M&A period. The banks underwent domestic acquisitions showed a statistically significant lower ROE and banks underwent foreign acquisitions have a lower profit efficiency rank at about approximately 50% than the domestic banks, which is a great deal.

The results of dynamic governance regressions show that Banking Regulation and Supervision Agency of Turkey should better monitor the performance of the banks that face a merger or acquisition. The difference in the performance of banks that are selected banks for M&As and the banks that have undergone M&As is strikingly different. This finding shows that it is essential to observe the reasons of the decline in the performance of the merging banks for the society and the economy.

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