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Impact of Ownership Concentration on Capital Structures: A Case of Turkish Banking Sector

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ABSTRACT

This study aims to determine the effects of the listed deposit banks' ownership concentration on capital structures. In this context; ten deposit banks listed on Borsa Istanbul have been evaluated for the period of 2005-2015 and panel data analysis has been used. As the ownership structure variables; major shareholders and free float rate have been used and the ratios particular to banking sector have been analysed as capital structure variables. In conclusion, the findings have shown that major shareholder, free float rate, return on assets and bank size variables have a statistically significant impact on the banks' capital structures.

Keywords: Ownership Concentration, Capital Structure, Deposit Banks, Panel Data Analysis.

JEL Classification: G32, G21, C23.

Mülkiyet Yoğunlaşmasının Sermaye Yapısı Üzerindeki Etkisi: Türk Bankacılık Sektörü Örneği

ÖZ

Bu çalışmada Borsa İstanbul'da işlem gören bankalardaki mülkiyet yoğunlaşması ile bankaların sermaye yapısı arasındaki ilişkinin belirlenmesi amaçlanmıştır. Bu kapsamda, Borsa İstanbul'a kayıtlı on mevduat bankası 2005-2015 yılları arasında değerlendirmeye alınmış olup, panel veri analizi tekniğinden yararlanılmıştır. Mülkiyet yoğunluğunun belirlenmesinde; en büyük ortağın sermaye payı ve halka açıklık oranları dikkate alınırken, sermaye yapısı değişkenleri olarak ise bankaya özgü oranlar değerlendirmeye alınmıştır. Çalışmanın sonucunda elde edilen bulgular en büyük hissedarın sermaye payı, halka açıklık oranı, aktif karlılığı ve banka büyüklüğünün bankaların sermaye yapısı kararları üzerinde istatistikî olarak anlamlı bir etkiye sahip olduğunu göstermiştir.

Anahtar Kelimeler: Mülkiyet Yoğunlaşması, Sermaye Yapısı, Mevduat Bankaları, Panel Veri Analizi

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1. INTRODUCTION

A vast scale of financial failure and corruption experienced in firms' management and financial crises occurred in the developing economies and markets have increased the importance of corporate governance practices in terms of both countries and firms (Dogan, 2007: 40-41). Banks play a significant role in showing an industrial development and providing an efficient corporate governance system or an appropriate capital allocation in connection with removing the so-called negative effects. At this point; it is possible to say that the importance of corporate governance practices for banks differs from real sector firms with regard to two aspects. First aspect stems from the fact that banks have a less opaque structure as compared to real sector firms and that there is much more asymmetric information in the banking sector. Additionally; banks have to comply with several regulations because of their important role in economies, asymmetric information as to the assets and operations and their finance function (Levine, 2004: 3).

Referring to Turkey's history, the period leading up to the proclamation of the Republic, especially the foreign origin of the money-changers and bankers carried out banking operations on the primitive level. In the period after the proclamation of the Republic, the sovereignty of the national banking concept, the first privately-owned bank primarily Isbank, followed by Central Bank of the Republic of Turkey was established. In the first years of the Republic, naturally foreign banks were active in the sector, but with the policies followed and the reforms realized, the national banking system developed in the following years and local banks became active in the sector. But after 2001 crisis, foreign banks were either partners in Turkish banks, or they preferred to buy the whole thing, therefore the share of foreign banks operating in the Turkish banking sector started to increase again (Sen & Suer, 2016: 461).

There are many possible impacts of ownership structure which is an important determinant in corporate governance practices on firms' capital structures. At this point; one of the so-called impacts is external ownership concentration. Ownership concentration provides a decrease on conflicting interests between the managers and shareholders by precluding the fact that managers make capital of their authorization. If external shareholders are at an active observer position; managers may not have a right to determine the capital structure in accordance with their own benefits. So; it is possible to say that debt ratio will increase no matter how much external ownership concentration is. As the second impact of ownership structure; the individual benefits of managers are considered as an efficient factor in decreasing the debt ratio, because high debt ratio is an important factor increasing the firms' bankruptcy risk (Driffield, 2005:3). As the third impact of ownership structure; firms' debt policy is evaluated as an internal control mechanism decreasing the conflicting interests between managers and shareholders especially when the free cash flows are high (Jensen, 1986: 324). Jensen & Meckling (1976) have stated that managerial ownership precludes the situations which are expropriation of shareholders' rights, using perquisites in non-mandatory conditions and other undesirable situations and that the conflicting interests between managers and shareholders decrease in this way (Jensen & Meckling, 1976: 318).

This study consists of five sections. After the introduction part, the studies dealing with the relationship between ownership concentration and capital structure have been evaluated, and then the data set, hypotheses and the method have been introduced. At the fourth section, the obtained findings have been analysed and lastly several suggestions have been made by making a general evaluation as to the study.

2. LITERATURE REVIEW

Ownership concentration may have an impact on both profitability and capital structure. There are several studies regarding the impact of ownership concentration on banks' performance or capital structure. Some of these studies are chronologically shown in Table 1:

Table 1: Literature Review for Banks

Author	Period	Sample	Method	Results
Sarkar et al. (1998)	1993-1994 & 1994-1995	73 public and private Indian banks	Ordinary Least Squares (OLS) Technique	Private banks have a better financial performance (return on assets) than public banks
Altunbas et al. (2001)	1989-1996	Private commercial banks, public savings banks, and mutual cooperative banks operating in Germany	Stochastic Frontier Method Distribution-Free Method	Private banks are less efficient than public and mutual cooperative banks. Additionally, public and mutual cooperative banks have slight cost and profit advantages over private commercial banks
De (2003)	1997-2001	58 Indian banks	Panel Data Analysis	There is no relationship between ownership structure and banks' profitability
Beck et al. (2005)	1990-2001	9 Nigerian banks	Panel Data Analysis	There is positive relationship between privatization and banks' profitability
Iannotta et al. (2007)	1999-2004	181 large-scale banks from 15 European countries	Multivariate Regression Analysis	There is no relationship between ownership concentration and banks' profitability
Micco et al. (2007)	1995-2002	5464 (in 1995) and 6677 (in 2002)	Panel Data Analysis	There is no relationship between ownership concentration and banks' profitability
Lin & Zhang (2009)	1997-2004	60 Chinese Banks	Panel Data Analysis	There is a negative relationship between ownership concentration and banks' profitability
Agustin (2014)	1995-2006	15 regional development banks, 56 private banks, and 3 central government banks	Panel Data Analysis	Government-owned banks have a negative effect on leverage and regional development banks has a positive effect on leverage
Chalermchatvichien et al. (2014)	2005-2009	68 banks from 11 East Asian countries	Ordinary Least Squares Regression Analysis	There is a positive relationship between concentrated ownership and capital stability, capital adequacy and liquidity
Stančić et al. (2014)	2005-2010	74 commercial banks from four transition economies of South East Europe	Ordinary Least Squares Regression Analysis	There is negative, but weak relationship between the ownership concentration and bank profitability
Zouari & Taktak	2005-2009	53 Islamic Banks	Panel Data	There is no relationship between the

(2014)		in 15 countries	Analysis	ownership concentration and bank profitability
Boussaada & Karmani (2015)	2004-2011	38 commercial banks operating in ten countries of the MENA region	Dynamic Panel Data Analysis	Ownership concentration has a significant effect on the performance of the MENA banks
Son et al. (2015)	2010-2012	44 Vietnamese Banks	Ordinary Least Squares Regression Analysis	There is positive relationship between the ownership concentration and bank profitability
Ozili & Uadiale (2017)	2006-2015	27 Nigerian banks	Static and Dynamic Panel Data Analysis	There is positive relationship between the ownership concentration and bank profitability
Migliardo & Forgione (2018)	2011-2015	1459 banks operating in EU-15 countries	Panel Data Analysis - Panel Data Stochastic Frontier Analysis	There is positive relationship between the ownership concentration and bank profitability

As is seen from Table 1; there are several studies analysing the relationship between the ownership concentration and capital structure or the performance of banks operating in various countries. In this context; this study aims to determine the relationship between the ownership concentration and capital structure of the banks listed on Borsa Istanbul. Additionally, a number of studies dealing with the relationship between the ownership concentration and capital structure in non-financial sectors may be seen, when examined the related literature. Similar results have been obtained in non-financial sectors as well:

Table 2: Literature Review for Non-Financial Firms

Brailsford et al. (2002)	1989-1995	500 non-financial firms listed on Australian Stock Exchange	Regression Analysis	There is a positive relationship between foreign ownership and leverage There is no relationship between managerial ownership and leverage
Driffield et al. (2005)	1994-1998	Non-financial firms operating in Korea and Indonesia	Regression Analysis	Linear relationship between vote rights and leverage in both two countries, but the direction of the relationship depends on the ownership concentration
Omet (2006)	1995-2003	39 Jordanian industrial companies	Panel Data Analysis	Ownership structure has a negative effect on capital structure
King & Santor (2008)	1998-2005	613 Canadian firms	Ordinary Least Squares Regression Analysis	There is a positive relationship between ownership concentration and leverage ratio
Hasan & Butt (2009)	2002-2005	58 non-financial firms listed on Pakistan Karachi Stock Exchange	Panel Data Analysis	There is no negative relationship between managerial ownership

				and leverage ratio
Céspedes et al. (2010)	1996-2005	1168 non-financial firms operating in 7 Latin American countries	Panel Data Analysis	When the level of ownership concentration is low, there is a negative relationship between ownership structure and leverage
Liu et al. (2011)	1997-2007	Non-financial firms listed on China Stock Exchange	Panel Data Analysis	There is non-linear relationship between ownership concentration and debt ratios
Santos et al. (2014)	2002-2006	694 non-financial firms from 12 European countries	Panel Data Analysis	There is negative relationship between the ownership concentration and leverage ratio
Sun et al. (2015)	1998-2012	Non-financial firms operating in England	Panel Data Analysis	Leverage ratio has a non-linear relation with managerial ownership has a positive relation with institutional ownership
Dogan (2016)	2005-2012	136 manufacturing firms listed on BIST	Panel Data Analysis	There is a positive relationship between ownership concentration and leverage ratio
Ege & Topaloglu (2017)	2009-2015	BIST 30 Index	Panel Data Analysis	There is no statistically significant relationship between ownership concentration and capital structure

As we see in the related literature; the results of the studies examining the impact of ownership structure on profitability or capital structure are mixed in both financial and non-financial sectors. When this is the case, this study aims to determine how concentrated ownership affects capital structure of Turkish listed deposit banks.

3. DATA SET AND METHOD

The aim of this study is to determine the possible impact of ownership concentration on capital structures of 10 deposit banks listed on Borsa Istanbul for the period of 2005-2015 by using panel data analysis method. The hypotheses that are used for analysing the annual data of the so-called banks are as follows:

H_1: Major shareholder has an impact on capital structures.

H_2: Free float rate has an impact on capital structures.

H_3: Return on assets has an impact on capital structures.

H_4: Bank size has an impact on capital structures.

The models employed as part of the above-mentioned hypotheses are as follows:

$$(TD/TL)_{it} = \beta_0 + \beta_1 MS_{it} + \beta_2 FFR_{it} + \beta_3 ROA_{it} + \beta_4 \log (TA)_{it} + \varepsilon_t \quad (1)$$

$$(CO/TL)_{it} = \beta_0 + \beta_1 MS_{it} + \beta_2 FFR_{it} + \beta_3 ROA_{it} + \beta_4 \log (TA)_{it} + \varepsilon_t \quad (2)$$

$$(SE/TL)_{it} = \beta_0 + \beta_1 MS_{it} + \beta_2 FFR_{it} + \beta_3 ROA_{it} + \beta_4 \log (TA)_{it} + \varepsilon_t \quad (3)$$

Where, majority shareholder (MS) and free float rate (FFR) have been used as ownership structure variables. At the point of determining the variables as to capital structures; the differences between the capital structures of banks and real sector firms have been

considered and three dependent variables such as Total Deposits/Total Liability (TD/TL), Credits Obtained/Total Liabilities (CO/TL) and Shareholder's Equity/Total Liabilities (SE/TL) have been used and ε is an error term (Demirhan, 2010: 162). Return on assets (ROA) and natural logarithm of total assets (log (TA)) have been incorporated in the model as control variables. Table 3 provides a description of all the variables employed in our models:

Table 3: Variables

Variables	Codes
Independent Variables	
Major Shareholders	MS
Free Float Rate	FFR
Dependent Variables	
Total Deposits/Total Liabilities	TD/TL
Credits Obtained/Total Liabilities	CO/TL
Shareholder's Equity/Total Liabilities	SE/TL
Control Variables	
Return on Assets	ROA
Size	log (TA)

At the point of determining the ownership concentration and capital structure variables related to the banks included in the study; financial statements of the related banks in the Public Disclosure Platform and annual reports have been utilized. Panel data analysis method has been used to solve the regression models.

In panel data models; there are two dimensions. The first one is a cross-sectional dimension N, and the second one is a time-series dimension T. The analysis of cross-section data alone (where T=1) or time series data alone (where N=1) is expected to be simpler than the computation of panel data estimators. However, in certain cases the use of panel data can actually enable the computation and inference (Hsiao, 2003: 7) Since the variables in the model show a change according to both the units and the time, different indices for both must be included in the model. The panel regression model with two sub index-dependent variables Y, independent variables X, for units i, t for time period is shown as follows:

$$Y_{it} = \alpha_{it} + \beta it\, X_{it} + \varepsilon_{it} \qquad (4)$$

Unit number is N, time is T. ε_{it} is the error term, α_{it} is the constant parameter, and βit is the slope parameter (Greene, 2010: 345). Models are based on the 14.0 version of the Stata program.

4. EMPIRICAL RESULTS

Findings obtained from the study have been introduced in two chapters for the period 2005-2015. First, descriptive statistics as to the variables used in the study have been presented, and then the results obtained from the generated models have been evaluated.

4.1. Descriptive Statistics

Descriptive statistics of dependent, independent and control variables included in regression models are shown in Table 4:

Table 4: Descriptive Statistics

	Obs.	Mean	Median	Std. Dev.	Min.	Max.
Major Shareholders	110	0.59271	0.51106	0.23397	0.2501	0.9999
Free Float Rate	110	0.27906	0.25182	0.11642	0.0323	0.511
Total Deposits/Total Liabilities	110	0.62897	0.61915	0.07648	0.33833	0.82333
Credits Obtained/Total Liabilities	110	0.12028	0.1051	0.08345	0.01018	0.6792
Shareholder's Equity/Total Liabilities	110	0.1147	0.11322	0.02438	0.05359	0.21944
Return on Assets	110	0.01712	0.01555	0.01232	0.00255	0.12554
Size	110	7.62607	7.7784	0.56994	6.29201	8.44046

Referring to Table 4, it is seen that the average share of the largest shareholder is 59.27%. Ehsan and Javid (2015) found 56.990% of the largest shareholder's capital share in the study taking into account the period 1996-2014 in the banking sector in Pakistan. Similarly, Al-Amarneh (2014) found that the largest shareholder's capital share was 56.76% in the study conducted on 13 publicly-traded banks operating in Jordan during 2000-2012 period. Stančić et al. (2014) found that the largest shareholder's share of capital in the North East European banking sector was 79.19% for Bosnia and Herzegovina, 82.54% for Croatia, 77.67% for Macedonia and 72.39% for Serbia. As can be seen, in most of the studies on the banking sector, the share of the largest shareholder seems to be quite high. At this point, it is possible to say that the capital is concentrated in a particular segment (family or board of directors). When the free float ratio is examined; it is seen that there is a large difference between the minimum value (0.03%) and the maximum value (0.51%), so it is possible to say that the free float ratios of the banks in question show a certain fluctuation in itself.

4.2. Panel Regression Test Results

Panel data analysis consists of Pooled Model, Fixed Effects Model and Random Effects Model depending on the assumptions about intercept, slope coefficients and error term (Greene, 2010). Table 5 shows the results of various test statistics to determine the appropriate panel data model.

Table 5: Test Statistics for Appropriate Panel Regression Models

	Model 1	Model 2	Model 3
F-test for Fixed Effects	11.97 (0.000)	3.29 (-0.0016)	5.35 (0.000)
Breusch Pagan LM Test	94.18 (0.000)	8.77 (-0.0015)	21.03 (0.000)
ALM Test	59.59 (0.0000)	5.98 (-0.0144)	3.56 (-0.0504)
	7.72 (0.000)	2.45 (-0.0072)	1.89 (-0.0297)
Hausman Test	4.22 (-0.377)	3.13 (-0.5366)	5.14 (-0.2729)

Note: Values in parentheses indicate probability values.

In the framework of three models considered in the study, F test has been applied to determine whether there is a relationship between the units. The F test is based on the hypothesis that there is no relationship between the units. If the hypothesis is accepted, the pooled model which assumes homogeneity among the units is more suitable if not accepted; the fixed effect model is valid. According to the results obtained, null hypothesis is rejected for the three models in the study. Therefore, the pooled model that assumes homogeneity between units is not suitable.

For the selection of the appropriate panel regression model, Breusch Pagan test has been applied as another test in the study. According to the Breusch Pagan test approach, the hypothesis is based on the fact that the unit effect variance is zero. When the variance of unit effects is zero, the fixed coefficient model is more appropriate, whereas if the null hypothesis is not accepted, the random effects model is valid. (Breusch & Pagan, 1980). In the study considered for the three models, the null hypothesis that the variance of unit effects is zero is invalid and not the pooled model. The Lagrange multiplier test applied to test for the presence of unit effects may not be reliable in the presence of autocorrelation in the model. For this reason, an Adjusted Lagrange Multiplier test has been applied to test the presence of unit effect. According to the test results, for three models the null hypothesis that the variance of unit effect is equal to zero is rejected. Therefore, even in the presence of autocorrelation for each model, the classic model is not suitable.

In each models used in the study, it has been determined that the pooled model is not suitable against both fixed effects and random effects models. At this stage, the Hausman test has been applied to test the random effects model against the fixed effect model. In the Table 4 for each model, the null hypothesis that the random effect model is suitable has been accepted.

The estimation results of the variable coefficients for selecting the appropriate panel data model have been evaluated according to the random effects model in all three models. However, in these models, it has been tried to determine whether there is a problem of variance and autocorrelation. In this context, Levene, Brown and Forsythe Test for the variance in the models, Bhargava, Franzini and Narendranathan Durbin-Watson Test, Baltagi-Wu Test, LM Test and ALM Tests have been applied for the autocorrelation problem. Table 6 shows the results of the so-called tests:

Table 6: **Diagnostic Tests**

	Model 1	**Model 2**	**Model 3**
Heteroscedasticity Tests			
Levene, Brown and Forsythe Test	W0 =14.501 (0.000)	W0 =7.956 (0.000)	W0 =2.888 (0.004)
	W50 =6.342 (0.000)	W50 =4.194 (0.000)	W50 =2.314 (0.020)
	W10 =12.949 (0.000)	W10 =6.387 (0.000)	W10 =2.891 (0.004)
Autocorrelation Tests			
Bhargava, Franzini and Narendranathan Durbin-Watson Test	1.271388	1.7581354	1.127357
Baltagi-Wu Test	1.5593997	1.9933072	1.4057135
LM Test	40.74 (0.0000)	3.09 (0.0788)	45.64 (0.0000)
ALM Test	6.16 (0.0131)	0.30 (0.5844)	28.16 (0.0000)

Note: Values in parentheses indicate probability values.

As is shown in Table 6, null hypothesis that autocorrelation is absent is rejected in the first and third models and is accepted in the second model. According to the results of Table 6, while the variance and autocorrelation problems have been encountered in the first and third models, only the variance problem has been encountered in the second model. For this reason, Arellano, Froot and Rogers' estimators have been used in the first and third models to obtain a standard error that is resistant to changing variance and autocorrelation problems. In the second model, Huber, Eicker and White estimator has been used to obtain standard errors that are resistant to the changing variance (Hoechle, 2007: 283-285).

Table 7: **Random Effects GLS Regression Estimation Results for the First Model**

Dependent Variable	TD/TL			
Independent Variables	**Coefficient**	**Robust Std. Err.**	**z**	**p>z**
MS	-0.0000989	0.0000222	-4.45	0.000***
FFR	-0.0192366	0.0634598	-0.3	0.762
ROA	0.7301798	0.3855745	1.89	0.058*
log (TA)	-0.0854533	0.0182553	-4.68	0.000***
C	1.279343	0.14326	8.93	0.000***
R^2	0.2949			
Wald chi^2	459.06 (0.000)***			

Note: ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

According to the results of the regression equation generated by random effects method; (R^2 statistic) of the independent variables has a high value of 30%, and the Wald Chi Square statistical significance level shows that the model has sufficient power of explanation. On the dependent variable TD/TL, it has been found that the return on assets is positive at the 10% significance level and the bank size is negative at the 1% significance level. There is statistically significant negative relationship between major shareholders and dependent variable.

Table 8: **Random Effects GLS Regression Estimation Results for the Second Model**

Dependent Variable	CO/TL			
Independent Variables	**Coefficient**	**Robust Std. Err.**	**z**	**p>z**
MS	-0.0001617	0.0000225	7.19	0.000***
FFR	0.0179114	0.0742298	0.24	0.809
ROA	-0.6059137	0.4671148	-1.3	0.195
log (TA)	0.0008848	0.017422	-0.05	0.959
C	0.1095734	0.1356018	0.8	0.423
R^2	0.5085			
Wald chi^2	178.11 (0.000)***			

Note: ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

Referring to Table 8, it is seen that MS from the ownership structure variables are negative at the statistically 1% significance level and the control variables has not a statistically significant effect on the dependent variable CO/TL.

Table 9: **Random Effects GLS Regression Estimation Results for the Third Model**

Dependent Variable	SE/TL			
Independent Variables	**Coefficient**	**Robust Std. Err**	**z**	**p>z**
MS	-0.0210177	0.0094789	-2.22	0.027**
FFR	0.0310242	0.0142781	2.17	0.434
ROA	-0.2490083	0.1917994	-1.3	0.194
log (TA)	-0.0124885	0.0069367	-1.8	0.072*
C	0.2180025	0.0505302	4.31	0.000***
R^2	0.1864			
Wald chi^2	57.51 (0.0000)***			

Note: ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

Finally, in the third model, MS is negative at the statistically 5% significance level and log (TA) has a negative effect on the dependent variable SE/TL at the 10% significance level.

5. CONCLUSION AND EVALUATION

The aim of this study is to determine whether the ownership concentration of the ten deposit banks listed on Borsa Istanbul affect the capital structures. Panel data analysis method has been used in the study covering the period 2005-2015; the major shareholders ratio and free float ratio are taken as the ownership structure variables, and the total deposits/total liabilities ratio, the credits obtained/total liabilities ratio and the shareholder's equity/total liabilities ratio are taken into consideration as the capital structure variables.

The empirical results in this paper are consistent with the prior studies *(Lin & Zhang, 2009; Stancic et al., 2014; Boussaada et al., 2015)* that found a negative relationship between concentrated ownership and capital structure or profitability of banks. This result may be due to the fact that major shareholders leave banks no choice but get into long-term debt and that make difficult to determine optimal capital structure. On the other hand, while several studies *(Ozili & Uadiale, 2017; Migliardo & Forgione, 2018)* found a positive relationship between these two variables, some of them provided evidence that there is no relationship between the so-called variables *(Chalermchatvichien et al., 2014; Son et al., 2015; Iannotta et al., 2007; Micco et al., 2007; Zouari & Taktak, 2014; Musah, 2017).* Besides, the empirical findings for the first model have shown a positive relationship between bank size and the share of total deposits. It may be due to the fact that financing method for banks depends on the total deposits to a great extent.

When considered the evaluated period and the sample; it has been seen that as the share of the largest shareholder in the banks increases, there is a way of financing based on foreign resources and that a certain increase in the ratio of the free float banks prefer a financing route based on shareholders equity. Additionally the results have shown that free float rate has a positive impact on the share of shareholder's equity. Since the increase in the free float rate will bring with it the problem of manager-ownership; it is possible to say that a financing method based on equity is the right choice in terms of reducing the financial risk that is likely to be confronted.

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