

# The Effect of Ownership Structure on Stock Prices after Crisis: A Study on ISE 100 Index

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**Abstract**—Using Turkish data, in this study it is investigated that whether a firm's ownership structure has an impact on its stock prices after the crisis. A linear regression model is conducted on the data of non-financial firms that are trading in Istanbul Stock Exchange 100 Index (ISE 100) index. The findings show that, all explanatory variables such as inside ownership, largest ownership, concentrated ownership, foreign shareholders, family controlled and dispersed ownership are not very important to explain stock prices after the crisis. Family controlled firms and concentrated ownership is positively related to stock price, dispersed ownership, largest ownership, foreign shareholders, and inside ownership structures have negative interaction between stock prices, but because of the p value is not under the value of 0.05 this relation is not significant. In addition, the analysis shows that, the shares of firms that have inside, largest and dispersed ownership structure are outperform comparing with the other firms. Furthermore, ownership concentrated firms outperform to family controlled firms.

**Keywords**—Financial crisis, ISE 100 Index, Ownership structure, Stock price.

## I. INTRODUCTION

THE term economic crisis is applied broadly to a variety of situations in which some financial institutions or assets suddenly lose a large part of their value; in the 19th and early 20th centuries, many financial crises were associated with banking panics, and many recessions coincided with these panics, and other situations that are often called economic crises include stock market crashes and the bursting of other financial, bubbles, currency crises and sovereign defaults [5]. Moreover, economic crises can occur in many different ways such as a rapid constriction in production, a sudden drop in prices, bankruptcies, a sudden increase in unemployment, a deterioration in wages, stock market shocks, bank crisis etc. [7].

The subprime mortgage crisis is an ongoing economic crisis triggered by a dramatic rise in mortgage delinquencies and foreclosures in the United States, with major adverse consequences for banks and financial markets around the globe. The crisis, which has its roots in the closing years of the 20th century, became apparent in 2007 and has exposed pervasive weaknesses in financial industry regulation and the

global financial system. Within the year 2008, significant drops eventuated in world stock markets [5].

The global economic crisis also affected Turkish economic system. And parallel to the drops in world's stock markets, drops happened in ISE. In 31.12.2007, the index was 55.538 point and it dropped 51.62% in 31.12.2008 and became 26.864 point. This decrease that occurred in ISE have continued in 2009 and index decreased to the point of 23.055 in 09.03.2009. This is the minimum point of the index after crisis. After that index become to increase day by day and reached the maximum point at the date of 03.11.2012 with 72.649 point.

The disclosure of "true and fair" financial earnings is crucial to corporate governance because it provides outsiders with a basis to monitor their claims and exercise their rights, and with the wave of accounting scandals, involving several leading companies admitting to have misstated their financial statements and promoted a false impression of their economic status, increased investor's skepticism of the quality of the financial reporting [3].

Another widespread issue is "financial statement fraud". The reliability, transparency and uniformity of the financial reporting process allow investors to make intelligent decisions; published audited financial statements that reflect a true and honest financial performance instead of a rosy picture and inflated and fraudulent earnings are useful to market participants, including investors and creditor [6]. At this point, ownership structure can be effected by and also can affect the financial statement quality of the firm.

Large publicly traded firms are frequently characterized as having highly diffuse ownership structures that effectively separate ownership of residual claims from control of corporate decisions [2].

Analyses suggest that, the firm's ownership structure is a primary determinant of the extent of agency problems between controlling insiders and outside investors, which has important implications for the valuation of the firm [4].

According to the basis of the study, which is conducted by [3], ownership structure of Spanish companies under 2000-2002 crisis conditions is one of the most essential factor investor takes into consideration after adjusting for the sector and size. Their findings show that, family controlled firms perform 5.6% better than non-family controlled firms and that firms with dispersed ownership outperform non-family controlled firms with 7.8%. It can also be seen that, family

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controlled firms have on average 11.6% better stock performance compared to non-family controlled firms [3].

This study investigates whether ownership structure significantly affects the performance of publicly listed companies in Turkey. The objective of the study is to analysis the impact of ownership structure to stock prices after crisis. The study includes and implementation from Turkish firms listed on the ISE 100 index. We define ownership structure by its six different dimensions, such as; inside ownership, largest ownership, concentrated ownership, foreign shareholders, family controlled and dispersed ownership in line with the study of [3].

The investigated firms generally have a concentrated ownership structure, defined as the total proportion of shareholdings held by all significant shareholders (more than 20 % share), in Turkey. 24 firms have shareholdings by the board of directors, 52 are family controlled firms and 25 firms have foreign shareholders. The total number of firm investigated within the study is 60, but we see, Turkish firms have a complex ownership structure. A firm can be both a family controlled firm and a concentrated firm. A number of firms in this study are included in one or more different ownership structure group. It is analysed that all firm's ownership structures by considering the proportions of the each ownership structure percentage.

A few studies have focused on the relationship between ownership structure and firm and stock price performance in literature. Many of the studies focused on firm performance and stock price performance and ownership structure interaction. However, less attention has paid to impact of ownership structure on stock prices after the crises. So, this study can be evaluated as a contribution to the said field by its demonstrative structure.

## II. METHODOLOGY

### A. Sample and Hypothesis

Sample is drawn from the Turkish non-financial firms listed on the Istanbul Stock Exchange during the period 2009-2012. In this study, we consider all non-financial listed firms for the four crises periods. Data used within this study, are acquired from the formal website of ISE [8]. Financial firms are precluded because their financial statement structures differ from non-financial firms. Sample contains 60 non-financial firms which take place in ISE index 100 under the time period considered by the study. There is no missing data in this study.

- H0. There is no linear relation between stock price and inside ownership, largest ownership, concentrated ownership, foreign ownership, family controlled firms and dispersed ownership structures.
- H1. There is a linear relation between stock price and inside ownership, largest ownership, concentrated ownership, foreign ownership, family controlled firms and dispersed ownership structures.

### B. Model and Variable Specification

The aim of the study is to determine the relationship between ownership structure and stock prices of the firms. In order to evaluate the effect of ownership structure on stock prices, it is calculated that the increases of stock prices by comparing with the considered time periods.

### C. Dependent Variable

The dependent variable of the study is stock prices. It is investigated how the ownership structures of the firms affect the stock prices in the time periods that are in the scope of the study. It is aimed to access the most current data so the periods of 2009 and 2012 which is after the last crisis is subjected to the study. There are only two firms that their stock prices decreased after crisis. Rest of the other firms (n=58) stock prices are increased up to date 03.11.2012 which is the maximum point that index reached.

### D. Explanatory Variables

Explanatory variables are ownership structure variables. It is calculated several measures to capture both inside and outside ownership. Within this study, it is used that inside ownership, largest ownership, concentrated ownership, foreign ownership, family controlled firms and dispersed ownership as explanatory variables. It is measured that inside ownership as the total shareholdings by the board of directors, similar to [3]. Besides, it is investigated that the largest ownership and it is defined that the largest shareholder who has the largest amount of share. To measure concentrated ownership variable, it is used the total proportion of shareholdings held by all significant shareholders (more than 20 % share) in line with [3]. Foreign ownership variable includes the proportion of the shares which held by foreign shareholders. Then, family controlled firms are evaluated.

It is classified that a firm as a family firm that warrants three conditions in line with [1]; first, the family must be the largest shareholder, second the family must have at least 20% of the shares and the last condition is the family must hold a position on the board. Finally, dispersed ownership is handled as the residual shares from individual shareholder or group shareholders hold more than 20%.

## III. RESULTS

In Table II, the correlation matrix of variables is given. The correlation between two variables reflects the degree to which the variables are related. The most common measure of correlation is the Pearson Product Moment Correlation (can be shortly called Pearson's correlation). Pearson's correlation reflects the degree of linear relationship between two variables. It ranges from +1 to -1. A correlation of +1 means that there is a perfect positive linear relationship between variables. As it can be seen from Table II, we observe high and positive correlations between family controlled firms, largest ownership and concentrated ownership structure.

The descriptive statistics of variables are shown in Table III. Descriptive statistics are used to describe the basic

features of the data in the study. They provide simple summaries about the sample and the measures.

It can be monitored from Table III that, the average increase after the crisis is 368%. The high proportion of family controlled firms (58.33%) and ownership concentration (62.01%) reflects the stock prices in Turkish firms. Insider ownership shows a high mean of 25.08%, compared with [3], 12.5%. On average, foreign shareholders hold a stake of 34.50%, largest ownership holds a stake of 50.79%. For the whole sample, it can be said that half of the firms is family controlled firms and furthermore, almost 34.5% of Turkish listed firms have foreign shareholders.

Table IV includes the regression model to test the hypothesis of the study. The R-squared value is the fraction of the variance (not 'variation') in the data that is explained by a regression and it is expected to become close to 1. If R-squared is close to 1, the model can be defined by the handled explanatory variables strongly

Table IV presents the effects of ownership structure on stock price after crisis period. According to the observed results, the calculated R-squared value is 0.52. In other words, the degree of linear relation (multiple correlation coefficient) between the inside ownership, largest ownership, concentrated ownership, foreign ownership, family controlled and dispersed ownership and stock prices is 52.3%. According to this, in the firms that are in the scope of the study, after crisis period, inside ownership, largest ownership, concentrated ownership, foreign ownership, family controlled and dispersed ownership are not strongly but explains the effects to the stock prices.

Durbin-Watson statistic measures the power of the variable's interaction. The value of this statistic ranges from 0 to 4 but it is expected to be between the values 1.5 and 2.5. Otherwise an autocorrelation may be stated between the variables that used for explaining the model and multiple correlation problems may occur. The calculated average DW values in our analysis are 2.355 so it can be said that, there isn't a significant autocorrelation problem in our analysis.

According to the results shown in Table V, it can be seen that there is a linear relationship between dependent variable (stock price) and explanatory variables (inside ownership, largest ownership, concentrated ownership, foreign ownership, family controlled, and dispersed ownership). But because of the p value is not under the value of 0.05 this relation is not significant Thus, H0 is accepted and H1 is rejected. Negative value of B shows a reverse relation between dependent and explanatory variable or vice versa. For instance, a positive relationship is observed between concentrated ownership structure, family controlled firm and stock prices. That is to say, when stock prices increase, concentrated ownership structured and family controlled firms shares also increase. Beta shows the correlation between dependent variable and selected explanatory variable while the rest of the explanatory variables are constant, forasmuch as, it can be monitored form the Table V that, when the B value of family controlled firms is 0.170, the  $\beta$  value is 0.458, almost three times B value.

#### IV. CONCLUSION AND LIMITATIONS

Our results show that, the firms that have a concentrated ownership structure and family controlled firms have higher stock price performance after crisis periods. But if the firm which has ownership concentration or large shareholders is also a family controlled firm, the stock prices can show alterability. Another finding of this study is there is no linear relation between stock price and inside ownership, largest ownership, concentrated ownership, foreign ownership, family controlled firms and dispersed ownership structures. It can be explained as after crisis periods all stocks are increasing consistently after a big collapse at crisis periods

This paper contributes to the current literature by focusing on actual data and the study is a contribution to the field by empirical evidence, not only theoretical compilation. If it is needed to grant the limitations of the study, the study focuses on a single country. The period after crisis is taken into consideration is limited in three years, because it is aimed to show the most current data. As a result of the year 2012 hasn't finished yet, the data are limited in monthly base.

##### A. Tables

TABLE I  
AFTER CRISIS

DATE	09.03.2012 (Min)	08.11.2012 (Max)	Increase
Price of ISE100	22.035	72.649	%330

TABLE II  
CORRELATION MATRIX

	Inside ownership	Largest ownership	Concentrated ownership	foreign ownership	Dispersed ownership	Family controlled
Inside ownership	1	,459	,163	,413	-,250	,430
(N)	24	24	22	14	24	24
i largest ownership	,459	1	,631	,369	-,579	,769
	,024		,000	,070	,000	,000
Concentrated ownership	24	60	55	25	60	52
	,163	,631	1	,420	-,646	,686
	,468	,000		,046	,000	,000
	22	55	55	23	55	50
foreign ownership	,413	,369	,420	1	-,209	,341
	,124	,070	,046		,315	,103
	14	25	23	25	25	24
dispersed ownership	-,250	-,579	-,646	-,209	1	-,618
	,238	,000	,000	,315		,000
	24	60	55	25	60	52
family controlled	,430	,769	,686	341	-,618	1
	,036	,000	,000	,103	,000	
	24	52	50	24	52	52

TABLE III  
DESCRIPTIVE STATISTICS

	N	Minimum	Maximum	Mean	Std. Deviation
inside_ownership	24	,04	74,81	25,0796	22,11269
largest_ownership	60	14,70	85,00	50,7905	18,27596
concantrated_ownershi p	55	24,76	87,26	62,0144	14,38078
foreign_ownership	25	,06	81,88	34,5016	23,60999
(dispersed_ownership	60	12,74	85,30	34,3387	14,85637
family_controlled	52	21,83	85,00	58,3313	15,90252
stock_prices	60	-1,40	14,20	3,6878	3,61558
Valid N (listwise)	13				

TABLE IV  
REGRESSION ANALYSIS

Model	R	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,723 <sup>a</sup>	,523	,046	4,21960

TABLE V  
COEFFICIENTS

Model	Unstandardized Coefficients		Standardized Coefficients		t	sig
	B	Std. Error	Beta			
(Constant)	-2,027	14,258			-,142	,892
inside_ownership	-,095	,077	-,553		-1,233	,264
largest_ownership	-,067	,163	-,188		-,409	,697
concantrated_ownershi p	,065	,166	,162		,389	,710
foreign_ownership	-,039	,071	-,195		-,558	,597
dispersed_ownership	-,040	,273	-,051		-,145	,889
family_controlled	,170	,149	,458		1,142	,297

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