

THE EFFECT OF OWNERSHIP STRUCTURE ON STOCK PRICES DURING CRISIS PERIODS: 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 during the crisis periods. A multiple regression model is conducted on the data of non-financial firms that are trading in ISE 100 index. Our findings show that, all explanatory variables such as inside ownership, largest ownership, concentrated ownership, foreign shareholders, family controlled and dispersed ownership are important to explain stock prices during the crisis periods. Largest ownership and concentrated ownership is negatively related to stock price, dispersed ownership has a negative interaction between stock prices, too, but family controlled firm's interaction between stock prices differs from period to period. In addition, the analysis show that, the shares of firms that have concentrated, largest and dispersed ownership structure are outperform comparing with the other firms. Furthermore, ownership concentrated firms outperform to dispersed owned firms.

Key Words: Ownership structure, stock price, stock market crises, ISE 100.

1. 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. Other situations that are often called economic crises include stock market crashes and the bursting of other financial bubbles, currency crises and sovereign defaults. In other words, 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. (www.canaktan.org) 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.

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Within the year 2008, significant drops eventuated in world stock markets. 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.

The objective of the study is to analysis the impact of ownership structure to stock prices during crisis periods. The study includes and implementatiton 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 Desender, Garcia-Cestona and Cladera (2008).

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. 41 firms have shareholdings by the board of directors, 36 are family controlled firms and 24 firms have foreign sharehodlers. The total number of firm investigated within the study is 62, 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. We analysis 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 during the crises periods. So, this study can be evaluate as a contribution to the said field by its demonstrative structure.

2. Methodology

2.1 Sample and Hypothesis

Sample is drawn from the Turkish non-financial firms listed on the Istanbul Stock Exchange during the period 2008-2009. 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 (Istanbul Stock Exchange-www.imkb.gov.tr). Financial firms are precluded because their financial statement structures differ from non-financial firms. Our sample contains 62 non-financial firm which take place in ISE index 100 under the time period considered by the study. We haven’t loose any observation due to missing data.

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.

2.2 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, we calculate the drops of stock prices by comparing with the considered time periods.

Dependent Variable

The dependent variable of the study is stock prices. It is investigated how the ownership structures of the firms effect 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 last crisis period (2008-2009) in Turkey which is still on the agenda is subjected to the study. To determine the crisis periods we examine the overall stock market shocks. We identify short term stock market drops of 14% or more.. Over the period January 2008 and March 2009, we identified four periods in which the stock market index dropped at least 14%. Table 1 shows the evolution of the Turkish stock market index from January 2008 to March 2009.

Table 1: Drops in Crisis Periods

Start Date	Final Date	Drop (%)
31.12.2007	31.01.2008	23,1
30.09.2008	31.10.2008	22,8
06.01.2009	23.01.2009	14,2
09.02.2009	09.03.2009	14,8

Explanatory Variables

Our explanatory variables are ownership structure variables. We calculate several measures to capture both inside and outside ownership. Within this study, we used inside ownership, largest ownership, concentrated ownership, foreign ownership, family controlled firms and dispersed ownership as explanatory variables. We measure inside ownership as the total shareholdings by the board of directors, similar to Desender, Garcia-Cestona and Cladera (2008). Besides, we investigate the largest ownership and we define the largest shareholder who has the largest amount of share. To measure concentrated ownership variable, we use total proportion of shareholdings held by all significant shareholders (more than 20 % share) in line with Desender, Garcia-Cestona and Cladera (2008). Foreign ownership variable includes the proportion of the shares which held by foreign shareholders. Then, we evaluate family controlled firms. We classify a firm as a family firm that warrants three conditions in line with Anderson and Reeb (2003); 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, we handled dispersed ownership as the residual shares from individual shareholder or group shareholders hold more than 20%.

3. Results

In table 2, 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 2, we observe high correlations between largest ownership and the other variables.

Table 2: Correlation Matrix

		Correlations					
		inside ownership	largest ownership	concentrated ownership	foreign shareholders	family controlled	dispersed ownership
inside ownership	Pearson Correlation	1	-,063	-,135	-,311	,149	-,202
	Sig. (2-tailed)		,697	,406	,224	,385	,212
	N	41	41	40	17	36	40
largest ownership	Pearson Correlation	-,063	1	,726**	,700**	,765**	-,618**
	Sig. (2-tailed)	,697		,000	,000	,000	,000
	N	41	61	59	24	36	60
concentrated ownership	Pearson Correlation	-,135	,726**	1	,622**	,475**	-,765**
	Sig. (2-tailed)	,406	,000		,002	,004	,000
	N	40	59	59	23	35	58
foreign shareholders	Pearson Correlation	-,311	,700**	,622**	1	-,083	-,477*
	Sig. (2-tailed)	,224	,000	,002		,778	,018
	N	17	24	23	24	14	24
family controlled	Pearson Correlation	,149	,765**	,475**	-,083	1	-,601**
	Sig. (2-tailed)	,385	,000	,004	,778		,000
	N	36	36	35	14	36	35
dispersed ownership	Pearson Correlation	-,202	-,618**	-,765**	-,477*	-,601**	1
	Sig. (2-tailed)	,212	,000	,000	,018	,000	
	N	40	60	58	24	35	61
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

The descriptive statistics of variables are shown in Table 3. 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.

Table 3: Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Stock Price January 2008	61	-51,37	45,77	-16,5243	15,81459
Stock Price October 2008	62	-65,58	5,22	-29,8534	13,81990
Stock Price 6 January-23 January 2009	62	-77,38	32,86	-10,2598	13,64370
Stock Price 9 February- 9 March 2009	62	-27,16	67,36	-4,5271	14,86174
inside ownership	41	9,09	80,00	30,4932	17,71634
largest ownership	61	12,00	92,92	50,2707	18,55034
concentrated ownership	59	20,00	92,92	58,9449	18,00283
foreign shareholders	24	2,07	92,92	36,0721	25,33554
family controlled	36	20,66	84,91	52,3622	16,73532
dispersed ownership	61	7,08	100,00	34,9752	17,39631
Valid N (listwise)	13				

It can be monitored from Table 3 that, the average drop during the first crisis period is -16,52%, during the second crises period -29,85%, during the third period -10,25% and during the defined last period -4,52. The high proportion of family controlled firms (52,36%) and ownership concentration (58,94%) reflects the stock prices in Turkish firms. Insider ownership shows a high mean of 30,49%, compared with Desender, Garcia-Cestona and Cladera (2008)'s 12,5%. On average, foreign shareholders hold a stake of 36,07%, largest ownership holds a stake of 50,27%. For the whole sample, it can be said that almost half of the firms is family controlled firms and furthermore, almost 36,07% of Turkish listed firms have foreign shareholders.

Table 4a: Regression Analysis

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,843 ^a	,710	,420	7,04209	1,292
a. Predictors: (Constant), dispersed ownership, inside ownership, largest ownership, foreign shareholders, family controlled, concentrated ownership					
b. Dependent Variable: Stock Price January 2008					

Table 4b: Regression Analysis

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,833 ^a	,694	,387	13,09566	1,376
a. Predictors: (Constant), dispersed ownership, inside ownership, largest ownership, foreign shareholders, family controlled, concentrated ownership					
b. Dependent Variable: Stock Price October 2008					

Table 4c: Regression Analysis

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,852 ^a	,726	,452	4,71370	2,327
a. Predictors: (Constant), dispersed ownership, inside ownership, largest ownership, foreign shareholders, family controlled, concentrated ownership					
b. Dependent Variable: Stock Price 6 January-23 January 2009					

Table 4d : Regression Analysis

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,763 ^a	,582	,164	6,12592	2,160
a. Predictors: (Constant), dispersed ownership, inside ownership, largest ownership, foreign shareholders, family controlled, concentrated ownership					
b. Dependent Variable: Stock Price 9 February- 9 March 2009					

Table 4, 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 4a, 4b, 4c ve 4d presents the effects of ownership structure on stock price during the drop periods of the stock market in considered time periods. According to the observed results, the calculated R-squared value for all firms by order of time periods; 0.710, 0.694, 0.726 and 0.582. In other words, the degree of linear relation (multiple correlation co-efficient) between the inside ownership, largest ownership, concentrated ownership, foreign ownership, family controlled and dispersed ownership and stock prices are, in turn, 71%, 69.4%, 72.6% and 58.2%. According to this, in the firms that are in the scope of the study, in the considered crisis periods, inside ownership, largest ownership, concentrated ownership, foreign ownership, family controlled and dispersed ownership are explaining 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 problem may occur. The calculated average DW values in our analysis are, in turn, 1.292, 1.376, 2.327 and 2.160 so it can be said that, there isn't a significant autocorrelation problem in our analysis.

Table 5a: Coefficients (January 2008 period)

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,152	33,804		-,005	,997
	inside ownership	,152	,182	,317	,835	,436
	largest ownership	,008	,431	,009	,019	,986
	concentrated ownership	-,022	,334	-,042	-,065	,950
	foreign shareholders	,329	,210	,540	1,564	,169
	family controlled	-,517	,382	-,663	-1,352	,225
	dispersed ownership	-,194	,433	-,247	-,450	,669
a. Dependent Variable: Stock Price 2008 January						

Table 5b: Coefficients (October 2008 period)

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	-67,947	62,863		-1,081	,321
	inside ownership	-,174	,339	-,200	-,513	,626
	largest ownership	-,806	,802	-,519	-1,005	,354
	concentrated ownership	-,223	,621	-,241	-,359	,732
	foreign shareholders	,741	,391	,673	1,894	,107
	family controlled	1,614	,711	1,144	2,269	,064
	dispersed ownership	-,015	,805	-,011	-,019	,986
a. Dependent Variable: Stock Price 2008 October						

Table 5c: Coefficients (January 2009 period)

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	,180	22,627		,008	,994
	inside ownership	-,240	,122	-,728	-1,969	,096
	largest ownership	-,477	,289	-,807	-1,653	,149
	concentrated ownership	,011	,223	,032	,050	,962
	foreign shareholders	-,125	,141	-,298	-,886	,410
	family controlled	,627	,256	1,169	2,451	,050
	dispersed ownership	-,396	,290	-,731	-1,369	,220
a. Dependent Variable: Stock Price 2009 6January-23 January						

Table 5d: Coefficients (February-March 2009 period)

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	22,013	29,406		,749	,482
	inside ownership	,177	,159	,510	1,118	,306
	largest ownership	,013	,375	,022	,036	,973
	concentrated ownership	-,134	,290	-,361	-,461	,661
	foreign shareholders	-,083	,183	-,188	-,453	,666
	family controlled	-,188	,333	-,333	-,565	,592
	dispersed ownership	-,437	,376	-,766	-1,161	,290
a. Dependent Variable: Stock Price 2009 9February-9March						

According to the results shown in tables 5a, 5b, 5c and 5d 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). Thus, H1 is accepted and H0 is rejected. Negative value of B shows a reverse relation between dependent and explanatory variable or vice versa. For instance, in all periods taken into consideration, a negative relationship is observed between stock prices and dispersed ownership structure. That is to say, when stock prices drop, dispersed ownership structured firms shares 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 from the Table 5c that, when the B value of family controlled firms is 0.627, the β value is 1,169, almost two times B value.

4. Conclusion and Limitations

Our results show that, the interaction of ownership structures and stock prices differ from period to period. When there is a positive relation between inside ownership structure and stock price in the periods of January 2008 and March 2009, a negative relationship is observed in the periods of October 2008 ve January 2009. A strong negative relation is monitored between largest ownership, concentrated ownership and stock prices. When foreign ownership structure is considered closely, a strong positive relation can be seen in both two periods of 2008, but a negative relation can be seen in both two periods of 2009. Family controlled firms present a negative interaction in January 2008 and March 2009, although there is a positive relation in October 2008 and January 2009.

In conclusion, the firms that have a concentrated and largest ownership structure also have higher stock price performance during stock market drops. But if the firm which have ownership concentration or large shareholders is also a family controlled firm, the stock prices can show alterability.

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 crisis periods taken into consideration are limited in two years, because it is aimed to show the most current data. As a result of the year 2009 hasn't finished yet, the data are limited in monthly base.

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