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AGENCY COSTS OF PUBLICLY TRADED FIRMS OWNERS IN TURKEY*

Türkiye'de Halka Açık Firma Yatırımcılarının Yaşadığı Vekalet Maliyetleri

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Keywords:
Corporate Governance, Agency Theory, Publicly Held Equities, Equities

JEL Kodları:
G11, G23, G34

Abstract

Stock markets play a significant role in terms of collecting the savings of individual investors and providing equity financing options for the companies. In most cases, individual investors cannot have a chance to represent themselves on the boards of the companies which they invest in. This situation causes investors to suffer from agency costs which are well defined in the corporate governance literature. This paper aims to define the agency costs of publicly traded equities owners in the Turkish stock market. All publicly traded companies in Borsa İstanbul included in the research, which covers the period between 2010 and 2018 which is after the global financial crisis in 2008. Findings of the study show that there is an adverse relationship between financial performance of the companies and the free float ratio. The companies with the higher free float ratios have the lowest profitability. On the other hand, the main shareholders tend to sell their stocks when the stock pricing and the company's periodic profitability is relatively high. The market perceived this as a negative signal and a negative relationship was observed between the free float change and the stock price performance.

Anahtar Kelimeler:
Kurumsal Yönetim, Vekalet Kuramı, Halka Açık Hisse Senetleri, Pay Senedi

JEL Codes:
G11, G23, G34

Özet

Borsalar, bireysel yatırımcıların tasarruflarının değerlendirilmesi ve şirketler için öz kaynak finansman seçenekleri sağlanması açısından önemli bir rol oynamaktadır. Çoğu durumda, bireysel yatırımcılar, yatırım yaptıkları şirketlerin yönetim kurullarında temsil edilme şansına sahip olamazlar. Bu durum, küçük yatırımcıların kurumsal yönetim literatüründe iyi tanımlanmış vekalet maliyetlerini yaşamalarına neden olmaktadır. Bu çalışma, Türkiye borsasında halka açık firma sahiplerinin yaşadığı vekalet maliyetlerini tespit etmeyi amaçlamaktadır. Borsa İstanbul'da halka açık tüm şirketler, 2008 yılında yaşanan küresel mali krizden sonraki 2010-2018 dönemini kapsayan araştırmaya dahil edilmiştir. Çalışma bulguları, şirketlerin finansal performansı ile halka açıklık oranı arasında ters bir ilişki olduğunu göstermektedir. Halka açıklık oranı daha yüksek olan şirketlerin karlılıkları daha düşüktür. Öte yandan, ana hissedarlar, pay fiyatları ve şirketin dönemsel karlılığının nispeten yüksek olduğu zamanlarda paylarının belli bir bölümünü satarak halka açıklık oranını artırma eğilimindedir. Piyasa ise bu durumu olumsuz bir sinyal olarak algılamakta ve halka açıklık değişimi ile pay fiyat performansı arasında negatif bir ilişki bulunmaktadır.

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1. Introduction

The majority of minority shareholders invest at low budgets. Although the rights of these investors are protected by law, most of them have proportionally high transaction costs and may not have the required knowledge and competencies to be able to effectively represent themselves. For these reasons, it becomes difficult for the individual shareholders to be represented in the general meetings and to participate in the decisions regarding the management of the company. This cause individual investors to suffer from agency costs. One of the main targets of corporate governance studies all around the world is minimizing these agency costs.

Weimer and Pape (1999) classified four different corporate governance systems: Anglo-Saxon system (Anglo-US application), German system (Continental European application), Latin system and Japanese systems. Hansmann and Kraakman (2001) stated that the shareholder-oriented Anglo-US model and stakeholder-oriented Continental European models are dominant and studies on corporate governance clearly show that these two models compete. In the countries with Anglo-Saxon corporate governance structure, there are limited dominant shareholders in the companies traded in the stock exchanges. Therefore, studies on the agency theory in the United States, are focused on the relationship between shareholders and executives of the companies. In continental Europe, the corporate governance system places importance not only on its shareholders but also on the interests of other stakeholders. For example, in Germany and some other European countries, the legal order is not designed to allow companies to act only under shareholder rights (Allen, 2005). In continental Europe, two-tiered boards of directors are also frequently used (Enriques and Volpin, 2007). In most companies, the management function is under the control of centrally located banks which are also holding companies (Ngwu, Osuji and Stephen, 2016). Turkey has been classified among countries with a French legal infrastructure system by La Porta (1997). However, we see continental European and Anglo-Saxon features together in Turkey which is explained in detail in section three. Therefore, we believe that agency costs in each country need to be evaluated separately according to its conditions. Turkish stock market is growing very fast and number of local individual investors has been increased by 50% in first five months of 2020 (Merkezi Kayit Istanbul, 2020). Therefore, Turkey is specifically selected in this study.

In many studies in the literature, the relation between shareholder structure and firm performance has been analyzed. Therefore, in most of them, "free float rates" was used as an independent variable (Acaravcı, Kandır and Zelka, 2015; Avcı, 2018; Çam, 2016; Li, 2012; Onem and Demir, 2015; Ozer and Ozen, 2018; Srivastava, 2011; Topaloğlu, 2017). In this study, unlike other studies in the literature, the aim is the determination of agency costs encountered by minority shareholders. So, in addition to the other studies in the literature, different perspectives have been used to efficiently measure the agency costs. To do this, two additional independent variables have been used. These are (1) the existence of preferred stock which has the privilege of assigning board member or additional voting rights and (2) change in free float ratio. Apart from the dependent variables commonly used in similar studies, which measure company valuation and profitability; dependent variables that measure share price performance, growth rates and financial risks of the companies have been also used to determine agency costs in a comprehensive manner. In the study, random effects, fixed effects and robust estimators' models have been implemented.

The following contributions were made to the literature with this study.

(1) As different from other studies in the literature, the change in free float ratio and presence of preferred share independent variables have been used in this study. Comprehensive set of dependent variables have been used to address the effects of independent variables on companies' performance with different dimensions.

(2) As different from similar studies in the literature, control variables of sector averages of each of the dependent variables were included in the study, and the results of the study were tried to be eliminated from the sector-related effects.

(3) All companies in Borsa Istanbul are included in the study so that the real situation can be determined effectively.

(4) Increasing the effectiveness of the activist hedge funds was discussed in order to find a solution to the proxy problem experienced by minority shareholders, whose influence is increasing with the increase in free float rates.

To make the study quite comprehensive, all the companies traded on Borsa Istanbul are included, in contrast to similar studies dealing with certain indices or sectors. The current situation in Turkey is presented by covering the period between 2010-2018 after the 2008 financial crisis. A data set of 3607 "company x year" was used, including the data of 402 companies.

The rest of the paper is structured as follows: In section 2, we give information about corporate governance and the market conditions in Turkey. In section 3, we describe our data and methodology. In section 4, we show and discuss our research findings. We conclude in section 5.

2. Agency Costs, Capital Markets and Shareholder Structure in Turkey

2.1. Agency Costs

One of the most important articles related to agency theory was written by Jensen and Meckling (1976). Jensen and Meckling have defined the agency relationship as an agreement between the principal and the agent to perform a service. Principal delegate the authority to decide on their behalf to an agent in accordance with that agreement. If it is believed that the principal and the agent have the motive to maximize their own interests, the agents will not always act in the interests of the principals. According to Jensen and Meckling, agency costs consist of (1) the cost the agent undertakes to follow up the work, (2) the cost incurred due to the limited authority of the agent, and (3) the cost (residual loss) incurred by the agent for subordinating the principal interests because of his own interests.

Several studies have tried to identify agency costs of shareholders. According to that studies in some companies following cases related to agency costs occur. (1) Even if it is known that it will lead to an unhealthy situation, the company executives aim to grow the company in order to have a higher prestige and get more salaries (Murphy and Jensen, 1990; Rose and Shepard, 1997). (2) The executives try to avoid downsizing operations which are particularly expensive and costly to not risk their future in the company (Chen, Lu and Sougiannis, 2011). (3) the executives who are going to leave the company in a short period of time reduce the share

of R & D expenditures and their desire to grow the company decreased (Chen et al. 2011). (4) The executives' decisions related to accounting preferences are made in a way that they could declare higher profits rather than minimizing taxes (Warfield, Wild and Wild, 1995). (5) Salaries of executives have been increased much faster than regular workers (Efendi, Srivastava and Swanson, 2007).

Studies in the literature shows that there is a significant relationship between agency problem and firm performance indicators such as Tobin's Q and profitability ratios (Demsetz and Villalonga, 2001).

2.2. Capital Markets in Turkey

Although Turkey is one of the fastest-growing economies among Organisation for Economic Co-operation and Development (OECD) members, the Turkish economy is still in the development stage. The ratio of companies' market values to Gross Domesic Product (GDP) is quite low compared to OECD averages. According to the Global Financial Centers Index (GFCI), the Istanbul Finance Center ranks 47th out of 83 financial centers (Ararat, Suel and Yurtoğlu, 2014).

Turkish Capital Markets Association (TSPB) was founded in 2001. The organization, which is under the supervision of the Capital Markets Board of Turkey (CMB), is a public legal entity and has a self-regulatory structure (Turkish Capital Markets Association [TSPB], 2018). Today, there are 77 brokerage houses (4 of which are foreign), 44 banks, 7 venture capital partnerships, 33 real estate investment trusts, 9 investment trusts and 54 portfolio management companies that are registered to the CMB (TSPB, 2019). Turkish capital market organization structure is shown in Figure 1.

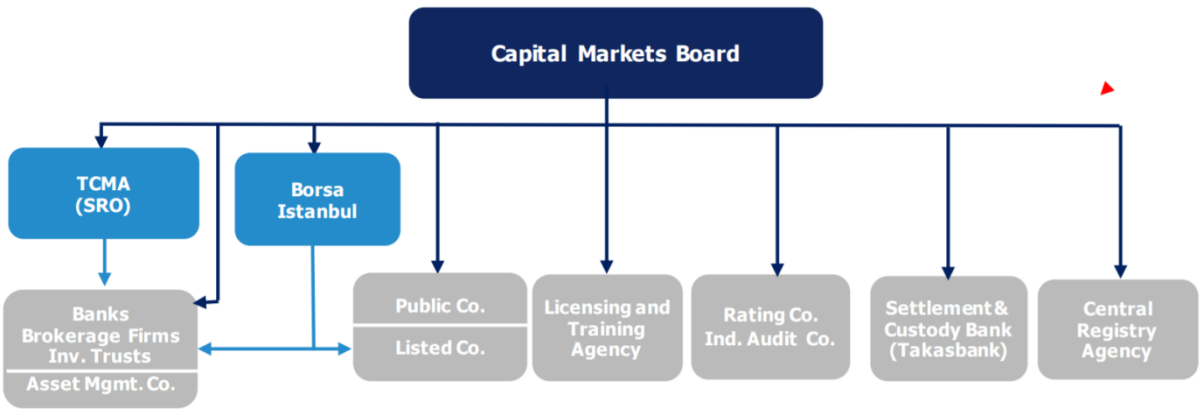

Figure 1. Turkish Capital Market Organization Structure
Resource: TSPB, 2018

The free float rate of Borsa Istanbul is 40.4% and the ratio of the shares in actual circulation is 28.8% (Merkezi Kayit Istanbul, 2020). As of the end of 2018, Borsa Istanbul ranked 33rd in terms of market value and 26th in the number of listed companies. The market value / GDP ratio of the total number of companies in Borsa Istanbul is 0.195, and Borsa Istanbul ranks last among 50 countries (TSPB, 2019).

2.3. Shareholder and Capital Structure in Turkey

La Porta, Lopez-de-Salines, Shleifer and Vishny (1997) classified Turkey among the countries having French legal infrastructure however Turkey also has some Anglo-Saxon features. Some of the features of Turkish corporate governance structure similar to Anglo-Saxon structure instead of continental Europe are that (1) employees are not represented on the board of directors, (2) there are a single-level structure of the boards, (3) the primary objective of the boards is representing shareholders instead of other stakeholders and (4) banks and other financial institutions are not shareholders of the most of the companies. On the other hand, capital markets in Turkey are not large enough and the market value of the companies is low compared to the Anglo-Saxon countries.

In Turkey, 68 of the 100 largest publicly traded companies are owned by controlling families and 53% of these families have higher than 50% voting rights. Besides, it is observed that in some cases families can manage many companies with minority shares by owning the main big company through joint companies (Çiftçi, Tatoğlu, Wood, Demribağ and Zaim, 2019). In another study, which included 151 companies registered in Borsa Istanbul, the distribution of the dominant shareholders in the firms was 43.2% for families, 31.2% for holdings, 16.2% for real persons, 2% for government and 7.4% for others (Özsoy, 2011).

The 13 largest holding companies and eight banks owned by these holding companies constitute 40% of the market value of Borsa Istanbul. 11 of these 13 large holding companies are managed by Turkey's leading 11 families. The mutual shareholding structures between these companies are made in the form of group companies. The list of companies controlled by the same shareholder or the same group is not fully transparent (Ararat, Suel and Yurtoğlu, 2014).

The structure of the management of family companies in Turkey is very similar to each other. They are usually grouped around a bank and formed under group companies' structure which is organized professionally. Although these companies have professional management, family members may interfere with strategic decisions, and in some cases even daily work. The cash flow and voting rights of the families in Turkish companies are more dominant than other countries where family ownership is intense (Gürarda, Özsöz, and Ateş, 2016).

2.4. Shareholder Rights in Turkey

In Borsa Istanbul, 1,165,155 domestic and 9,744 foreign investors make transactions. As for the market value, foreign investors manage TL 284 billion and domestic investors manage TL 137 billion (Merkezi Kayıt Kuruluşu [MKK], 2019).

According to La Porta, Lopez-de-Silanes, Shleifer and Vishny's (1998) evaluation, shareholder rights in Turkey received 2 out of 4 points, which is below the average of the other countries in the study. In another evaluation of the World Bank, IFC and Lex Mundi (2006) in terms of protection of shareholder rights among the 155 countries included in the study, Turkey was ranked 73. In this evaluation, Turkey has received 8 out of 10 points in public disclosures by the board, 3 out of 10 points in responsibility by board members, 3 out of 10 points in shareholder litigation rights and 3 out of 10 points in the reliability of protection of shareholders.

Although certain regulatory issues regarding shareholders' rights at the beginning of the 2000s, significant improvements have been achieved by the issue of the corporate governance principles by the CMB in 2003 and the issue of the new Turkish Commercial Law in 2011. According to a recent evaluation by the European Bank for Reconstruction and Development [EBRD], (2017), the corporate governance infrastructure in Turkey supports good corporate governance and it is improved.

When we evaluate the capital markets in Turkey, despite the significant gains achieved in recent years regarding legislation, the effectiveness of the current capital structure of the companies and the activity of the existing institutional investors are not sufficient for preventing agency costs of public shareholders.

3. Data and Methodology

3.1. Similar Studies

In Turkey, several studies examined the effects of shareholding structure and free float rate of the companies, on key performance indicators including operational performance, profitability, the investors' perception of the market value and the stock price performances. Similar studies have been summarized in Table 1.

Table 1. Similar Studies' Test Methods, Content and Period

Study	Stability - Unit Root Tests	Regression Model Selection	Regression Models	Auto-correlation Problem	Content	Period
Özer and Özen, (2018)	LLC, IPS, ADF	Hausman	Random Effects	Durbin Watson	BIST Manufacturing	2006-2014
Avcı, (2018)	-	-	Random & Fix Effects	-	BIST100	2006-2010
Ege and Topaloğlu, (2017)	LLC	F test, Hausman, Breusch Pagan LM	(Feasible Generalized Least Squares), FGLS	Levene Brown & Forsythe	BIST30	2009-2015
Doğan and Topal, (2016)	LLC, PP Fisher	Hausman	ROB; Robust Estimators BeckKatz	Durbin Watson	BIST Manufacturing	2002-2012
Çam and Alper, (2016)	Peseran	Hausman	Random Effects	Durbin Watson	BIST Textile	2010-2014
Önem and Demir, (2015)	ADF	Hausman	Random & Fix Effects	-	BIST Manufacturing	2009-2012
Acaravcı, Kandır and Zelka, (2015)	-	F test, Hausman	Random & Fix Effects	-	BIST Manufacturing	2005-2011
Aytekin and İbiş, (2014)	-	-	Panel Regression	-	BIST Manufacturing	2009-2012
Sayman, (2012)	LLC, PP Fisher	Hausman	Random Variables & Fix Effects	Durbin Watson, LBI & Wald	BIST Manufacturing	1998-2009
Çıtak, (2007)	-	Hausman	Random & Fix Effects	Durbin Watson	BIST100	2000-2004
Bayrakdaroğlu, (2010)	-	Hausman	Panel Regression	-	BIST100	2005-2009
Önder, (2003)	-	-	Panel Regression	-	BIST	1992-1997

3.2. Data

Between 2010 and 2018, a data set of 3607 "Company x Year" was used, which included the data of 402 companies which consists of all the companies listed in Borsa Istanbul. Global financial markets have been significantly affected by 2008 world financial crisis. The period of the study covers current conditions of capital markets after the 2008 world financial crisis. The most up-to-date data published in the period in which the research was carried out belongs to 2018.

While creating the data set used in the research, stock prices are from yahoo finance (finance.yahoo.com), financial statements from Is Investment (isyatirim.com.tr), free-float rates are from Seker Investment and Is Investment bulletins, existence of privilege shares information is from forms published in public disclosure platform (www.kap.gov.tr) for 330 companies and they are taken from company's articles of incorporation for other 72 companies.

3.3. Variables

There are three independent and nine dependent variables that have been used in the research. The definitions of variables are shown in Table 2.

Table 2. Definitions of the Variables

Variables		Descriptions
Tobin's q	:	Estimated as ("book value of total debt" + "market value of company") / "book value of assets", winsorized at 1% and 99%
ROA	:	Return on Assets, winsorized at 1% and 99%
ROE	:	Return on Equity, winsorized at 1% and 99%
Profit Margin	:	Net Income / Sales, winsorized at 1% and 99%
Stock Return	:	Stock price performance during the year, winsorized at 1% and 99%
Growth of Equity	:	Growth rate of equity during the year, winsorized at 1% and 99%
Growth of Sales	:	Growth rate of sales during the year, winsorized at 1% and 99%
Capex / Assets	:	Ratio of capital expenditures to assets, winsorized at 1% and 99%
Total Debt / Assets	:	Ratio of total debt to assets, winsorized at 1% and 99%
Free Float Ratio	:	Free Float Ratio
Change in Free Float	:	Change in Free Float (%)
Preferred Stock	:	Dummy variable showing the existence of preferred stock which has the privilege of assigning board member or additional voting rights
Industry's Tobin's q	:	Average of Tobin's q across all other firms in the same industry
Industry's Return on Assets	:	Average of ROA across all other firms in the same industry
Industry's Return on Equity	:	Average of ROE across all other firms in the same industry
Industry's Profit Margin	:	Average of Profit Margin across all other firms in the same industry
Industry's Stock Return	:	Average of Stock Return across all other firms in the same industry
Industry's Growth of Equity	:	Average of Growth of Equity across all other firms in the same industry
Industry's Growth of Sales	:	Average of Growth of Sales across all other firms in the same industry
Industry's Capex / Assets	:	Average of Capex / Assets across all other firms in the same industry
Industry's Total Debt / Assets	:	Average of Total Debt / Assets across all other firms in the same industry
Years Listed	:	No of years the company has been listed on Borsa Istanbul
Log of Market Value	:	The logarithm of the market value

Independent variables are the main determinants of the agency cost of publicly traded shares in the stock market. The first independent variable is the free float ratio which shows the share of the minority shareholders. Looking at this variable with the framework defined in agency theory, the return of controlling shareholders to prioritize their interests rather than the general interests of the company will increase as their share in the company decreases. For this reason, by looking at the change of performances proxied by dependent variables in companies where the free float ratios are higher, the agency costs experienced by minority shareholders have been measured.

Over the years, there has been an upward trend in the free float rate of the companies. From the perspective of agency theory, if the main shareholders do not trust the future of their company and if there is an unsustainable increase in stock pricing above their expectations, or if they intend to gain interest by controlling the management of the company rather than as a

shareholder, they may consider reducing the amount of stock they have. On the contrary, it can be thought that the controlling shareholders who believe in the future of the company and who strive to move the company to a higher level will be motivated to buy more shares. Therefore, within the scope of the research, the change in the free float ratio was determined as the second independent variable and it was tried to determine whether there is a relationship between this variable and the dependent variables that indicate the performance of the company.

The third independent variable is the presence of preferred stocks that have the privilege of assigning board members or additional voting rights. 55% of the companies in the Turkish stock market have the privilege of voting in the general meeting or nominating candidates for the board of directors. So, the shareholders, holding only a small number of preferred shares, can control the management of the company. Therefore, the presence of preferred shares has been defined as an independent variable in this study.

In the literature most of the studies used Tobin's q and profitability ratios in their models. In this study in addition to these variables several other variables have been used. Dependent variables represent five different performance indicators of the companies. The general structure of the variables of the study has been summarized in Figure 2. These performance indicators are (1) the market perception of the valuation of the companies which is proxied by Tobin's q (2) profitability of the companies which is proxied by ROA, ROE and profit margin ; (3) the return of investors which is proxied by stock return, (4) the growth of companies which is proxied by growth of equity, growth of sales and Capex/assets and (5) the risk appetite of the companies which is proxied by total debt/assets. The variables defined in the first three performance indicators have been widely used in the literature (Doğan and Topal, 2015; Al-Matari, Al-Swidi and Fadzil, 2013). Buchanan, Chai and Deakin (2018) used the fourth and fifth ones in their research.

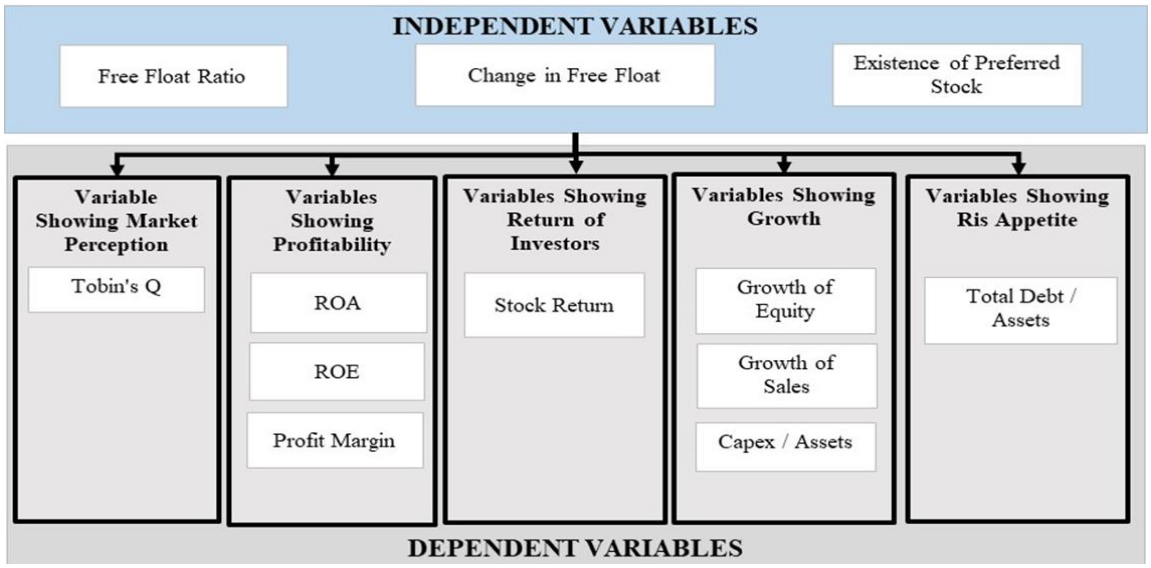

Figure 2. Variables of the Research

Table 3. The Variables Used in Each Model

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Dependent Variables									
Tobin's q	X								
Return on Assets		X							
Return on Equity			X						
Profit Margin				X					
Stock Return					X				
Growth of Equity						X			
Growth of Sales							X		
Capex / Assets								X	
Total Debt / Assets									X
Independent Variables									
Free Float Ratio	X	X	X	X	X	X	X	X	X
Change in Free Float	X	X	X	X	X	X	X	X	X
Preferred Stock	X	X	X	X	X	X	X	X	X
Instrumental Variables									
Industry's Tobin's q	X								
Industry's Return on Assets		X							
Industry's Return on Equity			X						
Industry's Profit Margin				X					
Industry's Stock Return					X				
Industry's Growth of Equity						X			
Industry's Growth of Sales							X		
Industry's Capex / Assets								X	
Industry's Total Debt / Assets									X
Years Listed	X	X	X	X	X	X	X	X	X
Total Debt / Assets	X	X	X	X	X	X	X	X	
Log of Market Value	X	X	X	X	X	X	X	X	X

3.4. Test Procedure

During the test procedure, methods similar to previous studies in the literature have been used. Firstly, the correlation between the variables was checked. Since the panel data set is used in the study, it is necessary to check whether the variables used are stable over time. Failure to do so will result in errors. LLC test (Levin, Lin, and the Chu [LLC], 2002) has been applied to test if the unit root exists. In the study very large N which includes 402 companies and limited t with 10-year time frame used. LLC suggest use of standard panel data analysis in the samples which have very large N and small T so cross-sectional independence test has not been applied.

Regression results were obtained by using the Least Squares method which is widely used in the literature with the Random Effect method. Then, the Hausman test (Hausman, 1978) was conducted to determine which of the random effects and fixed effects models were valid. Based on the Durbin-Watson statistic in our regression results, a significant portion of the regression models was found to be at risk for autocorrelation problems. Doğan and Topal (2016) used robust estimators due to the presence of autocorrelation in their studies. Several other studies

used robust estimators in the literature (Beck and Katz, 1995; Driscoll and Kraay, 1998; Huber, 1967; Newey-West, 1994; Parks-Kmenta, 1967, 1986; Wooldridge, 2002). Robust estimators developed by Beck-Katz (1995) have a significant advantage by being resistant to the presence of varying variance, autocorrelation or cross-sectional dependence and can be applied in case of the number of years is less than the number of observations (Doğan and Topal, 2016). Although almost all studies in the literature have used the Hausman test to determine whether random or fixed-effects models are used in panel data analysis, Avcı (2018) reported that this test can give misleading results and applied both models without applying Hausman test in his study. In this study, random effects, fixed effects and robust estimators' results are given together to provide inclusiveness.

3.5. Limitations

This study only covers period after 2009. The results only include Turkey and may differ from the rest of the World. The data restricted with the companies traded in Borsa Istanbul.

4. Results and Discussion

Descriptive statistics has been shown in Table 4.

Table 4. Descriptive Statistics

	Obs.	Mean	Median	Max	Min	Std. Dev.
Tobin's q	2339	1,39	1,07	12,49	0,34	1,32
Return on Assets	2339	0,04	0,03	0,41	-0,37	0,10
Return on Equity	2339	0,04	0,07	1,86	-2,07	0,27
Profit Margin	2339	0,08	0,04	4,58	-5,02	0,84
Stock Return	2339	0,12	0,03	3,21	-0,92	0,45
Growth of Equity	2339	0,15	0,08	3,78	-1,27	0,48
Growth of Sales	2339	0,29	0,14	9,89	-1,00	1,05
Capex / Assets	2339	0,06	0,01	0,83	-0,82	0,14
Total Debt / Assets	2339	0,46	0,47	1,01	0,00	0,25
Free Float Ratio	2339	0,34	0,30	1,00	0,01	0,21
Change in Free Float	2339	0,06	0,00	24,00	-0,90	0,65
Preferred Stock	2339	0,55	1,00	1,00	0,00	0,50
Years Listed	2339	1,04	1,20	1,51	0,00	0,41
Log of Market Value	2339	8,30	8,23	10,67	6,10	0,81

4.1. Correlation Analysis

Correlation coefficients were examined and there was no correlation with coefficients greater than 0.32, therefore there is no correlation problem between variables (Özer and Özen, 2018). Correlations between different variables are shown in Table 5.

Table 5. Correlations between the Different Variables

	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	**Tobin's q**	1.00													
2	**Return on Assets**	0.04	1.00												
3	**Return on Equity**	0.02	0.80	1.00											
4	**Profit Margin**	-0.07	0.49	0.36	1.00										
5	**Stock Return**	0.16	0.19	0.20	0.05	1.00									
6	**Growth of Equity**	-0.03	0.22	0.26	0.09	0.15	1.00								
7	**Growth of Sales**	0.06	0.06	0.05	0.11	0.03	0.10	1.00							
8	**Capex / Assets**	-0.07	-0.04	0.01	-0.05	-0.10	0.20	-0.01	1.00						
9	**Total Debt / Assets**	-0.06	-0.33	-0.27	-0.18	-0.02	-0.07	0.03	0.14	1.00					
10	**Free Float Ratio**	-0.08	-0.18	-0.10	-0.10	-0.05	0.01	0.03	0.01	-0.06	1.00				
11	**Change in Free Float**	0.00	0.04	0.01	0.01	-0.03	0.00	-0.01	-0.01	-0.01	0.05	1.00			
12	**Preferred Stock**	-0.06	0.03	0.05	0.05	0.00	0.01	0.02	-0.07	-0.12	0.19	0.01	1.00		
13	**Years Listed**	0.03	0.06	0.05	-0.01	0.06	-0.01	0.00	0.10	0.03	-0.05	-0.09	-0.32	1.00	
14	**Log of Market Value**	0.15	0.31	0.27	0.11	0.16	0.06	-0.01	0.09	0.09	-0.32	-0.01	-0.16	0.28	1.00

4.2. Unit Root Analysis

LLC rejects the null hypothesis that a unit root exists at the 1% level. The result of the LLC tests is shown in Table 6.

Table 6. LLC Test (Levin, Lin and Chu, 2002)

Variables	Statistics	Prob.
Tobin's q	-27.73	0.000
Return on Assets	-37.70	0.000
Return on Equity	-19.95	0.000
Profit Margin	-22.99	0.000
Stock Return	-15.84	0.000
Growth of Equity	-39.59	0.000
Growth of Sales	-39.87	0.000
Capex / Assets	-119.65	0.000
Total Debt / Assets	-14.02	0.000
Free Float Ratio	-115.49	0.000
Change in Free Float	-354.96	0.000
Years Listed	-108.01	0.000
Log of Market Value	-9.34	0.000

4.3. Panel Data Results

The results of the panel data analyses, including random effect, fixed effect and robust estimators' regressions, have been summarized in Table 6. According to the Hausman test results, the superiority of the random effect model over the fixed-effect model has been confirmed because p values are higher than 0.05 in all models. Durbin-Watson statistic is used to test the H_0 hypothesis that there is no autocorrelation in residuals. We used the Durbin-Watson significance table prepared by Savin and White (1977). When we match the number of observations and the number of independent variables in this table, the low dL value is 1.603 and the high dL value is 1.746. Durbin-Watson stats in Model 1, 2, 3, 4 and 9 are lower than

low dL value so there is a positive correlation between dependent variables and the error term. So, in these models, a robust estimator regression model needs to be used rather than the Random-effects model. In the Model 8, Durbin-Watson stat is 1.72 which is between low dL and high dL values, so the test is inconclusive. To be on the conservatism side we do not reject the H0 hypothesis and use the results of Robust estimators in this model too. In Model 5, 6 and 7 the Durbin-Watson stats are higher than 1.746 and lower than 2.254 (4- high dL value) so there is no correlation between dependent variables and error terms. In those models' random effects results are favorable according to test results.

Table 7. The Results of Panel Data Analyses

	Model 1. Tobin's q						Model 2. ROA					
Variable	**Random**		**Fixed**		**Robust**		**Random**		**Fixed**		**Robust**	
	Beta	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**
Preferred Stock	-0.08	0.06	-0.08	0.06	-0.01	0.02	0.01**	0.00	0.01**	0.00	0.01**	0.00
Free Float Ratio	-0.04	0.13	-0.03	0.13	-0.17***	0.04	-0.05***	0.01	-0.05***	0.01	-0.03***	0.01
Change in Free Float	0.01	0.04	0.01	0.04	0.03*	0.01	0.01*	0.00	0.01*	0.00	0.01**	0.00
Industry's Average	0.96***	0.05	0.95***	0.05	0.29***	0.01	0.79***	0.04	0.78***	0.04	0.63***	0.03
Years Listed	0.08	0.07	0.09	0.07	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Total Debt / Assets	0.31***	0.07	0.32***	0.07	0.41***	0.02	-0.06***	0.00	-0.07***	0.00	-0.10***	0.00
Log of Market Value	0.19***	0.04	0.19***	0.04	0.06***	0.01	0.03***	0.00	0.03***	0.00	0.03***	0.00
Adjusted R^2	0.17		0.16		0.11		0.33		0.33		0.25	
Durbin-Watson	0.37		0.37				1.21		1.21			
Hausman Test	1.00						0.95					
Observations	2588		2588		2588		2589		2589		2589	

	Model 3. ROE						Model 4. Profit Margin					
Variable	**Random**		**Fixed**		**Robust**		**Random**		**Fixed**		**Robust**	
	Beta	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**
Preferred Stock	0.03*	0.01	0.02*	0.01	0.02**	0.01	0.05	0.04	0.05	0.04	0.01	0.00
Free Float Ratio	-0.07**	0.02	-0.07**	0.02	-0.05***	0.01	-0.35***	0.08	-0.35***	0.08	-0.07***	0.01
Change in Free Float	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.03	0.00	0.03	0.02***	0.00
Industry's Average	0.87***	0.04	0.86***	0.04	0.44***	0.02	0.96***	0.06	0.96***	0.06	0.04***	0.01
Years Listed	-0.02	0.01	-0.02	0.01	-0.01	0.01	-0.04	0.05	-0.04	0.05	0.00	0.01
Total Debt / Assets	-0.25***	0.02	-0.26***	0.02	-0.09***	0.01	-0.20***	0.04	-0.20***	0.04	-0.19***	0.01
Log of Market Value	0.07***	0.01	0.07***	0.01	0.06***	0.00	0.10***	0.02	0.10***	0.02	0.04***	0.00
Adjusted R^2	0.28		0.28		0.13		0.14		0.14		0.08	
Durbin-Watson	1.19		1.19				1.34		1.34			
Hausman Test	0.68						0.99					
Observations	2516		2516		2516		2455		2455		2455	

Table 7…

	Model 5. Stock Return						Model 6. Growth of Equity					
Variable	**Random**		**Fixed**		**Robust**		**Random**		**Fixed**		**Robust**	
	Beta	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**
Preferred Stock	0.02	0.02	0.02	0.02	0.01	0.01	-0.01	0.02	-0.01	0.02	0.01	0.01
Free Float Ratio	-0.06	0.04	-0.06	0.04	-0.05	0.03	0.04	0.05	0.03	0.05	-0.02	0.02
Change in Free Float	-0.03*	0.01	-0.03*	0.01	-0.02	0.01	0.00	0.02	-0.01	0.02	0.00	0.01
Industry's Average	0.99***	0.03	0.98***	0.04	0.95***	0.02	0.80***	0.05	0.83***	0.05	0.14***	0.02
Years Listed	0.03	0.02	0.03	0.02	0.08***	0.02	-0.03	0.03	-0.03	0.03	-0.02*	0.01
Total Debt / Assets	-0.04*	0.02	-0.04*	0.02	-0.03	0.01	-0.07**	0.02	-0.07**	0.02	-0.03**	0.01
Log of Market Value	0.06***	0.01	0.06***	0.01	0.06***	0.01	0.04**	0.01	0.04**	0.01	0.06***	0.01
Adjusted R^2	0.33		0.33		0.28		0.11		0.11		0.03	
Durbin-Watson	1.93		1.93				2.02		2.02			
Hausman Test	1.00						0.06					
Observations	2592		2592		2592		2585		2585		2585	

	Model 7. Growth of Sales						Model 8. Capex / Assets					
Variable	**Random**		**Fixed**		**Robust**		**Random**		**Fixed**		**Robust**	
	Beta	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**
Preferred Stock	-0.02	0.04	-0.03	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Free Float Ratio	0.03	0.10	0.02	0.10	-0.07**	0.03	0.01	0.01	0.01	0.01	0.008*	0.00
Change in Free Float	-0.03	0.03	-0.03	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Industry's Average	0.89***	0.05	0.90***	0.05	0.11***	0.01	0.99***	0.02	0.94***	0.03	0.28***	0.01
Years Listed	0.07	0.05	0.07	0.05	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.00
Total Debt / Assets	0.07	0.05	0.07	0.05	0.06***	0.01	0.00	0.01	0.00	0.01	0.00	0.00
Log of Market Value	-0.03	0.03	-0.03	0.03	0.03***	0.01	0.01***	0.00	0.01***	0.00	0.01***	0.00
Adjusted R^2	0.11		0.11		0.02		0.44		0.45		0.04	
Durbin-Watson	1.96		1.96				1.72		1.72			
Hausman Test	0.65						0.14					
Observations	2435		2435		2435		2565		2565		2565	

	Model 9. Total Debt / Assets					
Variable	**Random**		**Fixed**		**Robust**	
	Beta	**S.E.**	**Beta**	**S.E.**	**Beta**	**S.E.**
Preferred Stock	-0.04**	0.01	-0.04**	0.01	-0.03**	0.01
Free Float Ratio	0.11**	0.03	0.11**	0.03	0.07**	0.02
Change in Free Float	0.00	0.01	0.00	0.01	0.00	0.01
Industry's Average	1.02***	0.03	1.02***	0.03	0.87***	0.02
Years Listed	0.02	0.02	0.02	0.02	-0.01	0.01
Log of Market Value	0.01	0.01	0.01	0.01	0.03***	0.01
Adjusted R^2	0.30		0.30		0.29	
Durbin-Watson	0.23		0.23			
Hausman Test	0.99					
Observations	2594		2594		2594	

4.4. Discussion of Results

4.4.1. Agency Costs Related to Free Float Ratio

In Model 1, it is seen that Tobin's q ratio decreases significantly as the free float rate increases. This shows that, based on the book value and the financial debt ratio of the companies, the shareholder's valuation is lower in the companies where the free float ratio is higher. This is the reflection of the agency cost experienced by the minority shareholders as stock pricing. Our results are consistent with similar studies (Aytekin and İbiş, 2014; Bayrakdaroğlu, 2010). When the results of model 2 (profit on assets), Model 3 (profit on equity) and Model 4 (net profit/sales) are taken into consideration, it is observed that there is a negative relationship between the profitability ratios of the companies and the free float ratios. Özer and Özen (2018), Çam (2016) and Aytekin and İbiş (2014) found an inverse relationship between free float ratio and profitability ratios, like the results obtained in this study. Bayrakdaroğlu (2010) and Önder (2003) found no statistically significant relationship between return on assets and free float ratio. Profitability ratios are one of the most important financial indicators of the companies. The results obtained in the established models show that as the free float rate increases, the management quality of the companies decreases so the profitability decreases.

When Model 5 (stock return) is analyzed, it is seen that there is no relationship between stock price performance and free float ratio. Since the free float ratio is fixed, the low profitability of the company caused by a high free float rate has been reflected in the stock price beforehand. Avcı (2018) also found no statistically significant relationship between the free-float rate and stock returns in his study which includes the data of BIST 100 companies over the period 2006-2010.

When the growth rates are analyzed, it is seen that the free float ratio's relationship with the growth in equity examined in model 6 and with the growth in sales examined in Model 7 are not statistically significant. On the other hand, according to the Model 8 results, there is a positive relationship between the free-float rate and the capex/assets. When the model 9 is examined, it is seen that the leverage ratio increases as the free float ratio increases. The increase in total debt/assets is mostly seen in financially challenging companies, and it can be concluded that the free float ratio is higher in the companies whose financial stability is deteriorated.

4.4.2. Agency Costs Related to Change in Free Float Ratio

Related to a relationship with the change in free float ratio, statistically significant results were obtained in model 1 (Tobin's q), Model 2 (profit on assets), Model 4 (net profit/sales) and Model 5 (stock return). No statistically significant results were found in other models. In Model 1, it is seen that there is a positive relationship between Tobin's q ratio and change in free float ratio. This shows that the main shareholders consider the situation as a sales opportunity in periods when the stock pricing is relatively high considering the book value and financial debt criteria. Similar to Tobin's q ratio, the relationship between the profitability related variables stated in Model 2 and Model 4 and the free float ratio appears to be positive. According to the results of these models, the main shareholders consider the period when the profitability of the company increases cyclically as a sales opportunity. Benninga, Helmantel and Sarig (2005) also showed that companies prefer to be offered to the public in the years when cash flow is positive.

Another important result related to the study was obtained in Model 5. Although the main shareholders have chosen the times when the stock pricing and the company's periodic profitability is high, the market perceived this as a negative development and a negative relationship was observed between the free float change and the stock price performance.

The results show that the shareholders who have higher knowledge about the financial situation of the company prefer the periods in which the company pricing and profitability are good for selling shares. On the other hand, minority shareholders buy relatively expensive companies during periods when these companies' financials are temporarily in good shape. As a result, they suffer losses due to the decrease in stock pricing. When we evaluate this situation within the framework of the concept of information asymmetry in agency theory; the main shareholders, who have direct information about the company's financial and operational status and future expectations, have turned this information into an advantage and sold their shares to investors who have relatively less information about them. As a result, publicly held shareholders also bear the agency costs when investing in companies that have an increase in the free float ratio.

4.4.3. Agency Costs Related to the Presence of Preferred Shares

When we look at the results in model 1, it is seen that there is no relationship between the preferred stock and Tobin's q ratio. The high rate of Tobin's q indicates that the stock pricing is high in comparison with the financial debt and assets of a company. The lack of a relationship between Tobin's q ratio and the presence of the preferred stock indicates that investors are not paying attention to whether there are preferred stocks or not during the decision of the investment in the company. According to the results of the research, companies with preferred stock are priced at the same level with other companies.

When the relationship between profitability-related dependent variables and the presence of the preferred stock is examined, it is seen that preferred stocks have a statistically significant and positive effect on the return on assets and return on equity, albeit at a low level. Leverage ratio is another dependent variable which has a significant relationship with preferred stock. The existence of preferred stock in a company has a negative effect on leverage. There is no significant relationship between the ratio of net profit to sales and the presence of preferred stock. This shows that the high return on equity and return on assets in companies with preferred stock result from the use of low leverage in these companies. In companies with preferred stock, it is observed that the controlling shareholders do not want to share the management of the company and act conservatively when using the financial debts.

In most of the companies with preferred stocks, due to the lower number of public shares, large shareholders have the right to select all members of the board of directors in the general meetings without requiring concession rights. Stocks that have the privilege of over-voting or appointing a member of the board of directors are only functional when the free float rate is high. There is a negative relationship between the free float ratio and the profitability and stock returns of the companies. Briefly, the existence of preferred stocks only leads to the agency costs of the publicly held shareholders in cases where the free float rate is high.

Although no significant relationship was found between the existence of the preferred stocks and the company performance, the preferred stocks prevented the effective representation

of the public shares in the general meetings. As a result, preferred shareholders may have full control of the company with only a small number of shares and this constitutes a negative environment (moral hazard) for publicly held shareholders from the perspective of agency theory. Therefore, in order to reduce the agency costs experienced by public shareholders, it is thought to be beneficial to have discussions and evaluations of the preferred stocks that directly or indirectly affect the election of the members of the board of directors, by the authorized institutions.

Can the activity hedge funds be a solution to the agency problem?

The aim of many academic studies on corporate governance and the measures taken by public authorities is to protect the rights of minority shareholders. In the 2000s, corporate governance gained worldwide importance especially after the 2008 financial crisis and policymakers have taken several measures relating to corporate governance. However, according to the results of this research, minority shareholders are still suffering the agency costs in Turkey. These agency costs are expected to increase further as new public offerings are made and the free float rates of companies listed on the stock exchange increase. We believe that there are two options we have, to limit agency costs that include (1) improving existing legal infrastructure and related practices, and (2) enabling activist hedge funds as a new actor in the system.

When we consider the current legal infrastructure as the first option, the new Turkish commercial code published in the official newspaper in 2011 and the CMB's corporate governance statement, which was last updated in 2014, constitute the main framework. Both documents have been created by using best practices of corporate governance around the world and have received positive feedbacks that have been shared by various international assessments. Corporate governance studies and improvements are advancing on an international scale, Turkey is updating its legislation in accordance with global development. On the other hand, due to the rights of existing shareholders from the articles of association signed before the new regulations, the required steps cannot be taken in certain matters. However, improvements to be made in the structure of the board of directors, raising the standards of the board of directors' audit and nomination committees, revising voting criteria in favor of the public shareholders at the general meetings, limiting the privileges of preferred shares, raising public disclosure and transparency criteria may be kept in the agenda.

As a second option, the capacities of the actors operating in the capital market and the roles they can take in terms of preventing agency costs can be evaluated. Actors who may play a role in this regard include independent board members, CMB, large-scale funds and hedge funds.

The roles and responsibilities of the independent members of the board of directors are one of the most frequently discussed issues in the field of corporate governance. The minimum criteria that independent board members must meet in terms of number and competence are defined in the current legislation. In the corporate governance principles, certain criteria have been set in terms of increasing the efficiency of the independent board members and ensuring their independence. Independent board members have made significant contributions to the improvement of corporate governance standards. However, (1) their presence as an external player on the board; (2) the risk that their motivation for effective performance may be low compared to other board members due to the lack of a direct relationship between the protection

of shareholder rights and their earnings; (3) the fact that they need the support of the dominant shareholder to be able to enter the board, and (4) they are in the minority status in many important decisions taken by the board, limit the independent board members' active role in preventing the agency cost alone. Besides, many improvements are already in place regarding the legislation.

The role of the CMB is critical for the efficient functioning of capital markets. With the new Turkish commercial code published in 2011, the CMB has been given the authority to regulate corporate governance. In line with the OECD corporate governance principles, the CMB publishes its corporate governance principles and performs the audit and regulation functions. While the duties and responsibilities of the CMB have a significant impact on reducing the agency costs of publicly held shares, the CMB cannot take part in general meetings and board of directors of the companies by a proxy from minority shareholders and cannot be in a decision-making role as an active player.

The funds can directly represent investors due to their structure. Asset management companies can reach significant fund sizes with the resources they collect from many different investors. Although the funds can attend general meetings of the companies, some constraints prevent them from actively representing shareholders. These constraints include the fact that mutual funds such as pension funds cannot invest more than a certain percentage of their resources in a single company, and that they cannot be a shareholder of a company above a certain percentage due to the risk management criteria. Furthermore, the management fees of pension funds and mutual funds are kept at a limited level, which prevents fund managers from actively taking on the role of representation in the management of the company on behalf of the shareholders which is very costly. Hedge funds differentiate from other funds with several characteristics. These are, (1) their flexibility in taking risks; (2) being only open to qualified investors; (3) having a wide working area in which they can operate by exemptions defined in CMB rules; and (4) performance-based management fees which constitute an important motivation.

When the US case is examined, many studies in the literature have shown the role of hedge funds in preventing the agency costs of publicly traded shares (Brav, Jiang, and Kim, 2015). According to these studies, activist hedge funds identify companies that are managed under their potential. They buy stocks that are large enough to make decisions to select the board members. So, they can intervene directly in the management of the company to obtain positive results in both the short and long term in terms of stock pricing and other financial and operational indicators.

When an upward trend in the share of publicly traded stocks in Turkey considered, the increase in agency costs of minority shareholders is unavoidable. Therefore, the need for activist hedge funds operations is increasing as time progresses. For hedge funds to implement the activist strategy, their current ownership structure and management may need to be improved. On the other hand, limiting the characteristics of preferred stocks, the improvements in the election process of independent board members, and the increase in authorities of independent board members may provide activist hedge funds a better working environment.

5. Conclusion

During recent years, important steps have been achieved in Turkey related to the legislation of capital markets. On the other hand, there are controlling shareholders in a significant portion of the companies in the country. Most of these controlling shareholders are represented dominantly in the general meetings and the board of directors by the preferred shares they hold. Research findings indicate that as the free float increases, the financial performance of companies decreases. On the other hand, publicly traded shares increase in periods when share prices are relatively high. For this reason, the shareholders, who invest in publicly traded companies, suffer agency costs.

To minimize agency costs, in most of the companies, having independent board members has become widespread in recent years due to the necessity of the CMB corporate governance principles. Despite this, these members are elected by the board of directors, the majority of whom are appointed by the main shareholders. This leads to the questioning of independence. Also, when compared with developed countries, investment funds in Turkey remains weak in terms of both the volume and the activity. Therefore, it is not possible to say that, the investment funds and institutional investors in Turkey are effectively represented in the companies' management which they invest. A significant part of the portfolio management companies and brokerage houses in Turkey is still under the umbrella of the banks or conglomerates. Therefore, these institutions cannot work objectively and independently while investing in other group companies. Furthermore, there will be a conflict of interest, if a portfolio management company take a management role in the companies which have some other business relations with the group companies of the same portfolio management company. So, for further research topics, the academic studies which analyze possible contributions of activist hedge funds in Turkish capital market can be done.

The results of the study show the importance of change in free float ratios on stock price performance and other firm performance indicators. Therefore, investors may benefit from these results during their investment decision process. On the other hand, public authorities may pay special attention to control the change in float rates in specific conditions. For example, restricting the change in free float ratio in the firms which cannot satisfy specific performance measures may be evaluated.

To summarize, this research indicates that there is an adverse relationship between financial performance of the companies and the free float ratio. On the other hand, the stock returns of the companies have been negatively affected by the increase in the free float ratio.

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