PREDICTION OF CORPORATE GOVERNANCE-PERFORMANCE RELATIONSHIP WITH A DYNAMIC MODEL*

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Ampirik İnceleme
(Empirical Research)

Muhasebe ve Vergi Uygulamaları Dergisi
Şubat 2017; 10 (6): 91-106

ABSTRACT

The objective of this study is to examine whether there is a relationship between the performances and corporate governance levels of companies traded in corporate governance index between 2007 and 2015 in Turkey, which is an emerging market. Different from the previous studies conducted in Turkey, the analysis is conducted with a dynamic method, the System Generalized Moments Method (system GMM). Furthermore, the analysis covered a long sampling period from the date when corporate governance is started to be calculated until today (2007 – 2015). Analysis results demonstrated that there is a positive and statistically significant relationship between corporate governance scores and accounting-based ROA and market-based Tobin's Q ratios.

Keywords: Corporate Governance, Firm Performance, Dynamic Panel Data Analysis, System GMM

JEL Codes: C23, G30, G34

KURUMSAL YÖNETİM - FİRMA PERFORMANSI İLİŞKİSİNİN DİNAMİK BİR MODELLE TAHMİNİ

ÖZ

Bu çalışmanın amacı gelişmekte olan bir ülke olan Türkiye'de, 2007-2015 yılları arasında kurumsal yönetim endeksinde işlem gören firmaların performansları ile kurumsal yönetim düzeyleri arasında ilişki olup

* *Makalenin gönderim tarihi: 26.07.2016; Kabul tarihi: 13.12.2016*

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olmadığının incelenmesidir. Analiz Türkiye'de yapılan diğer çalışmalardan farklı olarak dinamik bir method olan Sistem Genelleştirilmiş Momentler Metodu (sistem GMM) kullanılarak yapılmıştır. Ayrıca analiz kurumsal yönetimin hesaplanmaya başladığı yıldan günümüze kadar (2007-2015) geniş bir örneklem dönemini kapsamaktadır. Analiz sonucunda, kurumsal yönetim notları ile muhasebe temelli ROA ve piyasa temelli Tobin's Q performans oranları arasında istatistiksel olarak pozitif ve anlamlı bir ilişki olduğu sonucuna ulaşılmıştır.

Anahtar Sözcükler: Kurumsal Yönetim, Firma Performansı, Dinamik Panel Veri Analizi, Sistem GMM

JEL Kodları: C23, G30, G34

1. INTRODUCTION

The concept of corporate governance occupies the agenda of businesses, academic circles and politicians for twenty years globally. Corporate governance and auditing problems in businesses and financial institutions are one of the issues behind the crises and financial scandals experienced during recent years. In this context, recent crises demonstrated that existing structural corporate governance and auditing troubles in a country, and even in a corporation could have an impact on international economies in the short or long term. In 1990's, liberalization of financial and real markets, increase in international trade and investments complicated allocation of the capital and increased the financial competition among corporations. It is determined that the main factor behind the Asian economic crisis, which started due to macroeconomic imbalances, is the micro-behavior of economic units in the country (Singh, 2003: 42). As a result, corporate governance concept that could reassure all stakeholders including investors became more significant to establish a dependable global investment environment and financial stability (Eminoğlu, 2014: 25).

Corporate governance means the corporations adopting a transparent, fair, accountable and responsible management. By implementing these principles, businesses commit to fair protection of all shareholder rights including the minority shareholders, providing information for the public on basic issues such as financial standing and performance, accountability and justification of all activities, and finally protection of all parties that are affected by the corporate activities (Eminoğlu, 2014: 14-24).

Globalization increased the possibility of businesses to obtain foreign capital. However, companies that are successful in achieving the confidence

of foreign investors benefit more from this opportunity and gain the advantage of international competition. Development of this confidence is possible through implementation of corporate governance principles. While corporate governance enables active capital use and activities that benefit the whole society, on the other hand, preserves the confidence of local and international investors, attracting the long-term capital. Investors become aware of the high revenue opportunities provided by well-managed corporations and invest more in these companies (Deloitte and TKYD, 2006: 6; OECD, 1999: 5). As a result, corporate capital costs decrease, market values increase and corporations could realize sustainable growth in the long run. With corporate level corporate governance that affects the productivity, national level efficiency of corporate governance increases as well and thus, nationwide economic performance improves. Furthermore, development of nationwide corporate governance system would result in prevention of systemic banking crises, growth of larger and liquid capital markets and increase in competitiveness, active distribution of resources, acquiring and sustaining a high level of welfare, and prevention of capital exodus (Caprio and Levine, 2002: 1; CIPE, 2008: 5; SPK, 2003: 2).

On the other hand, firms that apply corporate governance successfully could obtain external and internal resources more easily, lower their capital costs and improve shareholder and business value, realize a more efficient risk management, and finally could increase the corporate performance. Thus, different studies in various countries that investigated the relationship between corporate governance and company performance are conducted, and different findings are obtained. As measurement of performance, conducted studies generally utilized accounting based factors such as return on assets (ROA), return on equity (ROE), and market based criteria such as Tobin's Q ratio.

The objective of this study is to examine whether there is a relationship between the performances and corporate governance levels of companies traded in corporate governance index between 2007 and 2015 in Turkey, which is an emerging market. Different from the previous studies conducted in Turkey, the analysis is conducted with a dynamic method, the System Generalized Moments Method (system GMM). Furthermore, the analysis covered a long sampling period from the date when corporate governance is started to be calculated until today (2007 – 2015). ROA and Tobin's Q ratios are used as company performance indicators.

The remainder of the paper is organized as follows. The second section corporate governance – performance relationship is analyzed and related studies in the literature are discussed. In the third section examines the development of the corporate governance concept in Turkey. In the fourth

section data and methodology are described and results are given. And the final section includes the conclusion of the paper.

2. LITERATURE REVIEW

Although several problems experienced fueled the increasing importance of corporate governance during recent years, empirical studies conducted in several markets proved that its implementation achieved improvements in both corporate and nation levels.

Black (2001, p.1) analyzed the relationship between corporate governance and market value using 21 Russian firms. In this study, Black determined that corporate governance had a significant impact on market value in countries where legal and cultural restrictions on corporate governance are weak.

Gompers et al. (2003, p.4) designed a corporate governance index using 24 different corporate governance rules that represented the balance of power between the managers and shareholders in 1500 firms, and analyzed the relationship between corporate performance and the index they designed. According to the findings of this study, it is found that corporations with higher shareholder rights had higher corporate value, profits, sales and lower capital expenditures.

As a result of the analysis conducted by Morey et al. (2009, p.261) on 21 developing nations for a 5-year period, a statistically significant and positive relationship between corporate governance and evaluation is reported. Furthermore, they claimed that investors took the management issue seriously and well-managed firms had higher values.

Çarıkçı, Kalaycı and Gök (2009, pp.55-70) compared IMKB corporate governance index and IMKB 100 index returns and return volatilities and measured whether the performances of the businesses in corporate governance index are superior. Study findings demonstrated that there is no difference between the performances of the businesses that implemented corporate governance principles in Turkey and others.

Gürbüz, Aybars and Kutlu (2010, pp.21-27) analyzed the effect of corporate governance on financial performance (ROA) with an emphasis on corporate ownership and using panel data methodology. At the end of the study they conducted using 164 real sector firms traded in Istanbul Stock Exchange between 2005 and 2008, they reported that corporate governance and corporate ownership positively affected financial performance.

Sakarya (2011, p.158) examined the relationship between corporate governance rating scores and stock exchange values of companies traded

in IMKB XKURY index with case study method. Results showed that there is a general increase in stock exchange values of companies that stick to corporate governance principles and corporate governance ensured the attractiveness of companies for investors.

Coşkun and Sayılır (2012, p.62), in the study they analyzed the relationship between corporate value (Tobin's Q) and performance (ROA and ROE) and corporate governance score, found that there is no statistically significant relationship between corporate governance scores and Tobin's Q, ROA and ROE. Authors argued that high corporate value and better performance are not related to better corporate governance.

Munisi and Randoy (2013, p.106) investigated the effect of corporate governance index they designed for African countries on market value (Tobin's Q) and accounting performance (ROA) using system GMM dynamic panel data method. Study findings demonstrated a positive relationship between ROA and corporate governance index and a negative relationship between Tobin's Q and corporate governance index.

In a study by Yenice and Dölen (2013, p.211), it is reported that there is a positive relationship between corporate governance scores of IMKB corporate governance index companies and their stock exchange values after these scores are published.

Ege, Topaloğlu and Özyamanoğlu (2013, p.114) analyzed the effect of corporate governance on financial performance using the data for 18 companies traded in Istanbul Stock Exchange XKURY index for 2009-2011 period with TOPSIS method. Aa a result of their analysis, they argued that there is no positive relationship between corporate governance scores of the businesses and their financial performances.

Nguyen et al. (2014, p.9), using system GMM dynamic panel data method, examined the relationship between corporate management structures and corporate performances (Tobin's Q) of 257 Singapore firms. They found that the diversity and size of the board of directors and ownership structure had a statistically significant effect on corporate performance and corporate governance played a significant role on disciplining the management and determination of the performance.

Zagorchev and Gao (2015, p.18), as a result of the study, in which they analyzed how corporate governance affected financial institutions in 2002-2009 USA, determined that active corporate governance applications is negatively correlated with taking excessive risks and positively correlated with performance.

Kara, Erdur and Karabıyık (2015, pp.271-272) analyzed the relationship between corporate governance levels and financial performances of companies in XKURY index for 2006-2012 period using panel data analysis. In this study, they argued that there is a positive and significant relationship between corporate governance scores of the companies and market value book value ratio (MV/BV), but there are no significant relationships between corporate governance scores and return on assets, return on equity, profit on sales and net profit.

Its expected that the study would contribute to the literature since it utilizes a dynamic model, different from previous studies conducted in Turkey and it covers a long period of analysis from the date corporate governance scores are started to be calculated until the present day (2007 – 2015).

3. DEVELOPMENT OF CORPORATE GOVERNANCE WORLDWIDE AND IN TURKEY

Although it has been argued that the modern corporate governance reform process started with the formation of Cadbury Committee in England in 1991 (Keasey et al., 2005: 5), its transformation from a national scope to international dimensions occurred after the call by OECD Council to national governments, other related international organizations and private industries to develop a series of corporate governance standards and regulations at the meeting held among the ministers of member countries on April 27 – 28, 1998 (OECD, 1999: 3). Following this meeting, to support member and non-member governments in development of legal, regulatory and corporate framework, OECD published "Corporate Governance Principles" in 1999[1] (Bai et al., 2004: 600), which was initially reviewed in 2004 and finally reviewed again as a result of experienced crises, etc.[2] at G20/OECD Corporate Governance Forum organized in Istanbul on April 10, 2015. "*The principles aim to assist policy makers in assessment and development of legal, regulatory and corporate framework in order to promote economic activity, sustainable growth and financial stability*" (G20/OECD KYİ, 2015: 9). It is not possible to talk about a single corporate governance model suitable for all nations. Good corporate governance practices differ between countries due to the nations' specific legal,

1 *Furthermore, private corporations such as Standard & Poor, California Public Employees' Retirement Pension System (CaLPERS), Credit Lyonnais Securities Asia (CLSA) and McKinsey called for implementation of widespread management reforms in developing countries (Bai et al., 2004: 600)*

2 *Structural and functional developments in stock exchanges and developments in corporations and partnership structures, business models, structures of corporate investors, investment strategies and buying and selling techniques, changes in investment chain and the use of service providers are other factors having an impact on the update of abovementioned principles. http://www.haber1.com/mobil/yazi/1252/g20-oecd-kurumsal-yonetim-ilkeleri-uzerine)*

economic, political, historical and cultural conditions (Munisi and Randoy, 2013: 95). Principles are in the form of references that could be adapted to the specific conditions of each region and country. After the principles are published, motions are enacted and institutions are formed by several countries including the USA, South Korea and Brazil to develop corporate governance. For instance, in the US, to improve corporate governance, a new act named Sarbanes-Oxley was passed in the legislative, Germany legalized corporate governance proposals, Japan improved corporate law and Russia announced corporate governance regulations (SPK, 2003: 3; Morey et al., 2009: 254).

Parallel to these developments, in 2002, TUSIAD Corporate Governance Workgroup published a report titled "Corporate Governance Best Practices Code: The Structure and Operation of the Board of Directors" in Turkey. Then in 2003, SPK published Corporate Governance Principles, which are updated in 2005 and republished. While working on these principles, regulations of several countries and primarily these of the OECD, including the individual conditions in Turkey are examined. Furthermore, to promote the application of corporate governance principles, Stock Exchange Board of Directors commenced to calculate IMKB Corporate Governance Index (XKURY). Corporate Governance Index included the companies whose shares are traded in Istanbul Stock Exchange and corporate governance adaptation scores are at least 7/10 and scores in each main topic are at least 6.5/10. Initially XKURY was calculated with 5 companies, but now it includes 50 corporations. Increasing number of companies show that an increasing importance is attributed to corporate governance in Turkey every passing day. Corporate governance scoring is a significant tool for economies that desire to attract more investments. Because today, investors started to value the corporate governance qualities of the companies in their investment decisions, as well as the financial performance. Thus, improving corporate governance activity is an important issue for growth in Turkish economy (SPK, 2003: 1; Toraman and Abdioğlu, 2008: 108).

Another development in Turkey that promoted corporate governance is the fact that dozens of articles in the new Turkish Commercial Code (TCC) legislated in 2011 are directly or indirectly related to corporate governance principles. The new TCC based corporate governance principles to transparency, fairness, accountability and responsibility, forming the legal infrastructure for corporate governance practices (Eminoğlu, 2014: 3; Yenice and Dölen, 2013: 202). National factors such as quality of the laws, depth and liquidity of securities markets, quality of the banking system, level of enforcement, the power of illuminating the public and culture

are quite important in creating a suitable environment for corporate level corporate governance quality (Ararat and Orbay, 2006: 1). Strong legal enforcement decrease the information quality difference between in and out of the company, which in turn reduces the external financing costs of the corporation. Since it would be difficult to attract foreign investors and raising capital in developing countries with a weak corporate governance structure, good corporate governance practices are more important for these nations (Munisi and Randoy, 2013: 94). Building reliable markets on healthy corporate foundations in emerging markets and introduction of corporate governance principles for all kind of businesses would promote commercial, investment and entrepreneurship activities (CIPE, 2008: 10). Thus, abovementioned issues are also significant for Turkey, which is an emerging market.

4. METHODOLOGY

The objective of the present study is to examine whether there is a relationship between the performances and corporate governance levels of corporations traded in corporate governance index. It is argued that the most significant problem in empirical corporate governance studies is the endogeneity of corporate governance variables (Nguyen et al., 2014). Endogeneity makes it almost impossible to obtain reliable results by causing biased and inconsistent parameter estimations. Basic factors that cause endogeneity are the possibility of current values of heterogeneity, simultaneity and governance variables to be a function of past company performance, and this situation originates from the dynamic relationship between corporate governance and company performance.[3] (Roberts and Whited, 2011: 6; Wintoki et al., 2012: 582). Nguyen et al. (2014, p.1) claimed that when this dynamic structure is not kept under total control, it would be impossible to conduct a causal interpretation of the estimates. Munisi and Randoy (2013, p.103) argued that OLS and fixed effects models cause biased and inconsistent estimates due to endogeneity and dynamic GMM model would reduce the endogeneity problem. Furthermore, Wintoki et al. (2012, p.582) stated that the analysis of corporate governance and company performance relationship with the least squares or fixed effects methods would cause false results, and thus, dynamic models that utilize past performance as an explanatory variable are more suitable for the analysis of corporate governance - performance relationship.

For testing the endogeneity of corporate governance and performance

3 *Endogeneity results from the correlation between explanatory variables and the error term (Roberts and Whited, 2011: 6).*

relationship, Durbin Score and Wu-Hausman tests are conducted[4]. In accordance with tests results (p=0.0031, p=0.0032 respectively) the null hypothesis cannot be accepted. In other words, the endogeneity in the corporate governance-performance relationship is significant and applying system GMM is required.

Dynamic panel estimation methods are designed for conditions where 1) time period is short and units are several (T<N), 2) dependent variable is dynamic and affected by past conditions, 3) a linear functional relationship exists, 4) the independent variables are not completely external (Roodman, 2009: p.86). In dynamic methods, dependent variable lagged value is included in the model as independent variable.

General expression of dynamic models is as follows (Baltagi, 2005: p.135):

$$Y_{it} = \delta Y_{i,t-1} + X'_{it}\beta + u_{it} \qquad i = 1, \ldots . N \quad t = 1, \ldots \ldots T$$

where i depicts units and t depicts the time and it is the times series dimension of the panel data. Y_{it} is the dependent variable vector, X_{it} is the explanatory variables vector, is the parameter vector, μ_i is unobserved unit specific effect, and u_{it} is the error term. Error term is expressed as follows:

$$u_{it} = \mu_i + \varepsilon_t + \nu_{it}$$

One of the problems caused by the lagged dependent variable in the model is the emerging correlation between $Y_{i,t-1}$ and the error term. This fact causes ordinary least squares (OLS) and generalized least squares (GLS) methods generate inconsistent and biased results in dynamic panel data models. Alternative to OLS and GLS, Anderson and Hsiao (1982) proposed an approach that produce consistent estimators. But according to Arrelano and Bond (1991), the estimators may not be efficient due to serial correlation problem is not considered in this approach (Baltagi, 2005: p.136).

Difference GMM developed by Arellano and Bond (1991) and System GMM developed by Arellano and Bover (1995) and then Blundell and Bond (1998) based on generalized moments method are commonly used for the analysis of panel data models. Blundell and Bond (1998), Blundell, Bond and Windmeijer (2000) reported that system GMM estimator is superior in bias and effectiveness when compared to other widely used estimators including difference GMM (Tatoğlu, 2013: p.119; Soto, 2009: p.10).

4 *To test for exogeneity, X^2 scattered Durbin's Score and F scattered Wu-Hausman tests are recommended. The null hypothesis "variables are exogenous".(Tatoğlu, 2013:98)*

For all abovementioned reasons, the analysis is conducted with the system model of the Generalized Moments Method, a dynamic panel estimate method in the present study. Wintoki et al. (2012, p.588) stated that the dynamic relationship between the current value of time-invariant heterogeneity, simultaneity and explanatory variables and past value of the dependent variable could be controlled with system GMM method.

5. MODEL AND VARIABLES

Dependent, independent and control variables used in the econometric analysis are discussed below.

Dependent variable in the study is the company performance and as company performance indicator accounting-based ROA and market-based Tobin's Q ratios are utilized, following the existing studies in the literature. This selection is due to the fact that these ratios measure company performance in different ways. While ROA indicates the past corporate revenues, Tobin's Q indicates the future value of the company for current and future investors (Munisi and Randoy, 2013: 98). ROA is the proportion of net profits to assets. Although Tobin's Q is calculated by the proportion of the market value of liabilities and equity to the substitution cost of the assets, conducted studies showed that MV/BV could also be used for a close estimate. In their study, Bai et al. (2004, p.607) reported that there is a quite high correlation of .996 between Tobin's Q and MV/BV ratios. Therefore, the MV/BV ratios of companies used as the ratio of Tobin's Q.

As the independent variable, corporate governance scores of 38 companies quoted in Istanbul Stock Exchange XKURY index between 2007 and 2015 are used. Since there are only a few companies quoted in the index during the initial years, unbalanced panel data analysis is used to increase the sample size. Control variables, consistent with the studies found in the literature are determined as company size and financial leverage.

Furthermore, a crisis dummy variable is used to control the impact of the global financial crisis. Dummy variable that takes a value of 1 if the year is 2009 and 0 otherwise[5]. Company size, calculated by taking the natural logarithm of total assets. Financial leverage is calculated by the proportion of total debt to assets.

Financial data of companies listed on XKURY obtained from annual reports published on Istanbul Stock Exchange's web site (www.borsaistanbul.com) and (www.kap.org.tr) Public Disclosure Platform's web site. Corporate

5 *Although the beginning of the global financial crisis is 2008, the impact on Turkey is considered to be in the first and second quarters of 2009.*

governance scores of companies are obtained from Turkish Corporate Governance Association's web site (www.tkyd.org).

The models that would be estimated in the study are formulated as follows:

$$ROA_{it} = \alpha_0 + \beta_1 ROA_{it-1} + \beta_2 CGS_{it} + \beta_3 S_{it} + \beta_4 L_{it} + C + \varepsilon_{it} \quad (1)$$

$$Tobin's\ Q_{it} = \alpha_0 + \beta_1 Tobin's\ Q_{it-1} + \beta_2 CGS_{it} + \beta_3 S_{it} + \beta_4 L_{it} + C + \varepsilon_{it} \quad (2)$$

ROA_{it} :ROA for company *i* in period *t*

ROA_{it-1} : ROA for company *i* in period *t-1*

$Tobin's\ Q_{it}$: Tobin's Q ratio for company *i* in period *t*

$Tobin's\ Q_{it-1}$: Tobin's Q ratio for company *i* in period *t-1*

CGS_{it} : Corporate governance index score in period *t*

S_{it} : Company size

L_{it} : Financial leverage rate

C : Crisis variable

Where *i* represents the companies quoted in corporate governance index and *t* depicts the time period. ROA_{it-1} and $Tobin's\ Q_{it-1}$ are the lagged values of models.[6]

6. EMPIRICAL FINDINGS

Descriptive statistics for research variables in 2007 – 2015 sampling period are presented in Table 1.

Table-1 : Descriptive Statistics

	Obs	Mean	Median	Max.	Min.	Std. Dev.	Jarque-Bera	p-value
ROA_{it}	342	0.057	0.059	0.268	-0.196	0.071	15.05756	0.000
$Tobin's\ Q_{it}$	341	1.781	1.252	11.51	0.242	1.500	1121.074	0.000
CGS_{it}	213	87.2	88.32	95.49	71.2	5.183	14.24924	0.000
L_{it}	342	0.441	0.467	0.91	0.002	0.230	14.38905	0.000
S_{it}	342	18.95	19.48	23.64	13.73	2.578	23.14982	0.000

On Tobin's Q ratio, a value greater than 1 is preferred. Based on the descriptive statistics, mean Tobin's Q ratio of 1.78 demonstrated that average market value of businesses is higher than the book value and the businesses created value for the shareholders. Furthermore, mean and median values for ROA, which are calculated as 5.7% and 5.9%,

6 *Wintoki et al. (2012), emprically check the necessary number of lags of dependent variables by estimating an OLS regression of current performance on two-lags of past performance. Because two-lags is not statically significant, by following Wintoki et al. (2012) and Nguyen et al. (2014), the number of lags of dependent variables determined as one-year.*

respectively, showed that the potential of business assets to create profit is low and the profitability of the businesses are not at a desired level. Mean corporate governance score is found as 87.2. And this score demonstrated that on average XKURY index companies should pay more attention to the field of corporate governance.

Correlation matrix between the variables is presented in Table 2 below.

Table-2 : Correlation Matrix

	ROA_{it}	*Tobin's* Q_{it}	CGS_{it}	L_{it}	S_{it}
ROA_{it}	1.000				
Tobin's Q_{it}	0.396	1.000			
CGS_{it}	0.063	0.207	1.000		
L_{it}	-0.153	0.333	0.098	1.000	
S_{it}	-0.011	-0.020	0.077	-0.099	1.000

Between-variables correlation matrix showed that there is a higher positive correlation between corporate governance score and Tobin's Q ratio when compared to ROA. Analysis results for the models given in Equations (1) and (2) are presented in Tables 3 and

Table-3: Dynamic Panel System GMM Estimation Result with ROA

Dependent variable:	*Coefficient*	*p-values*
Constant	-0.0008	0.975
ROA_{it}	0.2479	0.000
CGS_{it}	0.0008	0.004
L_{it}	-0.0614	0.000
S_{it}	-0.0004	0.017
Crisis	0.0026	0.244
Observations	207	
Wald test	2057.11	(*p-value*=0.00)
Hansen test	33.49	(*p-value*=0.49)
Fark- Hansen test	1.80	(*p-value*=0.77)
AR(1)serial corelation test	-2.68	(*p-value*=0.00)
AR(2)serial corelation test	0.92	(*p-value*=0.35)

Estimation results depicted in Table 3 demonstrated that there is a positive and significant relationship between corporate governance scores of the companies and ROA ratios, parallel to expectations. Moreover, it is found that previous year's return on assets of the companies positively and significantly affected current year's return on assets as well. In addition, it is observed that return of assets of the companies are positively but insignificantly affected during the crisis period.

Table - 4 : Dynamic Panel System GMM Estimation Result with Tobin's Q

Dependent variable:	*Coefficient*	*p-values*
Constant	-0.7143	0.000
Tobin's Q_{it-1}	1.0819	0.000
CGS_{it}	0.0036	0.000
L_{it}	0.3525	0.000
S_{it}	0.0115	0.000
C	-0.7143	0.000
Observations	207	
Wald test	1.79e+06	(*p-value*=0.00)
Hansen test	33.59	(*p-value*=0.48)
Fark- Hansen test	1.66	(*p-value*=0.97)
AR(1)serial corelation test	-2.16	(*p-value*=0.03)
AR(2)serial corelation test	0.74	(*p-value*=0.45)

Estimates presented in Table 4 showed that there is a positive and statistically significant relationship between Tobin's Q ratio and corporate governance scores of the companies in 5% levels of significance. Moreover, there is a positive and statistically significant relationship between previous year's Tobin's Q ratio and current year Tobin's Q ratio of the companies. Based on the dummy variable, it could be argued that Tobin's Q ratios of the corporations traded in XKURY index are negatively affected during the year of crisis.

When the test conducted to determine the consistency of the estimates presented in Tables 3 and 4 are considered, it could be observed that Wald test results that tests whether the model is significant as a whole rejected H0 hypothesis at 5% level of significance. In other words, both models are significant as a whole. Roodman (2009) noted that Sargan and Hansen tests are identical in measurement of the validity of instrumental variables. Conducted Hansen test results demonstrated that the null hypothesis "instrumental variables are valid" is not rejected at 5% level of significance. In other words, the instrumental variables used for system GMM dynamic model estimates are valid in both models. Autocorrelation in the models is tested with AR(1) and AR(2) proposed by Arrelano and Bond (1991) and tests the autocorrelation at the first and second degrees. Results demonstrated that there is a negative autocorrelation in the first degree, while there is no autocorrelation in the second degree. Tatoğlu (2013, p.101) indicated that non-existence of a 2nd degree autocorrelation is important for the generalized moments estimator to be active. Thus, both models seemed suitable. Finally, it is not possible to reject the null

hypothesis "instrumental variables are exogenous" of the difference Hansen test.

7. CONCLUSION

This study is conducted to determine whether there is a relationship between corporate governance scores and financial performances of companies that are traded in corporate governance index in Turkey, which is a developing country. The analysis is conducted with system GMM panel data method, which is a dynamic method, different from the previous studies conducted in Turkey. Furthermore, it included a broad time period starting from the date corporate governance is started to be calculated until today (2007 – 2015).

Analysis results demonstrated that there is a positive and statistically significant relationship between corporate governance scores and accounting-based ROA and market-based Tobin's Q ratios. This positive relationship determined between ROA, Tobin's Q and corporate governance is consistent with the view that market values and performances of the companies that adopt corporate governance principles increased and these corporations realized sustainable growth. In other words, companies that apply corporate governance principles have higher accounting performance, gain the confidence of their investors and attract the capital. Furthermore, analysis results showed that there is a negative and significant relationship between financial leverage, one of the control variables used in the study and ROA, and a positive and significant relationship between financial leverage and Tobin's Q. It could be deducted from these findings that creditors considered companies with high market value as more trustworthy and these companies have the capacity to receive more external resources.

The present study stressed the significance if corporate governance practices in the improvement of company performance and market value in a developing country, Turkey. As it is known, corporate governance practices that increase performance at company level, guard all stakeholder interests and maximize shareholder value, furthermore, they increase the efficiency of the system, improving the economic performance at national level as well. Due to all abovementioned reasons, by ensuring that corporate governance practices, which are gaining importance in Turkey during recent years, are implemented by more companies, added value would be created for all economic actors. As a result of the increase in the number of companies traded in corporate governance index, more productive analyses could be conducted in the future.

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