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CORPORATE GOVERNANCE, FOREIGN OWNERSHIP AND STOCK PRICE SYNCHRONICITY: EVIDENCE FROM BORSA ISTANBUL

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ABSTRACT

This study investigates the impact of corporate governance and foreign ownership on the flow of firm-specific information to stock prices in Turkey. This study contributes to the existing literature by examining the relation between governance, ownership and stock price synchronicity that describes firm level information asymmetry and transparency in Turkey. We examine the effects of CEO duality, board independence, board size and foreign ownership on the amount of firm-specific information incorporated into share prices, as measured by stock price synchronicity, for listed firms in Borsa Istanbul 100 Index over 2009–2014 period. We support the view that the R square value in one of the emerging stock markets, Turkey is relatively high. We find that firms with better corporate governance, more independent directors in the board and higher foreign ownership have more firm-specific information incorporated into stock prices and less stock price synchronicity.

Keywords: Stock price synchronicity, corporate governance, foreign ownership
JEL Classification: G10, G30, G32

1. INTRODUCTION

Corporate governance is important for developing countries where investor protection is generally poor since corporate governance enhances incorporated information and decreases information asymmetry. (Jin and Myers, 2006) Less informative prices also direct informed traders to earn abnormal returns. As Demirag and Serter, (2003) stated ownership of Turkish companies is highly concentrated and family ownership structure is dominant. This may increase the risk of information asymmetry for outside investors and this situation can be balanced with better corporate governance mechanisms.

Many studies focus on the corporate governance improvements that tend to reduce that some parties will be more informed about firms' fundamental values and reduce information asymmetry. Jin and Myers (2006) support that R squared values are higher in countries with less developed financial systems and poorer corporate governance. Transparency and disclosure of information is important for Turkey that have high capital flows for high growth rate and one of the most important agency problem stems from asymmetric information. (Aksu and Kosedag, 2006)

Foreign shareholders have been described as an important group of investors in emergent financial markets. Foreign direct investment flows to emergent markets have significantly increased in recent years and Turkey has 12.6-billion-dollar foreign net direct investments in 2014.[1] Ownership structure has become an important issue in analyzing the efficiency of alternative corporate governance mechanisms in recent years. Corporate governance principles have been become important as of firm level information reflection is acquired by better

[1] International Investment Position Report, December 2014, Central Bank of the Republic of Turkey

corporate governance are important for all countries. However, there are few studies that focus in emerging countries even there are many studies in relation between information incorporation and better corporate governance standards in most of the developed countries. This study investigates whether important corporate governance variables, CEO duality, board independence, board size and ratio of foreign owners affect that the stock prices incorporate specific information about a firm's fundamental value.

Many studies in the literature focuses on ownership structure, corporate governance and performance. However, few studies examine the synchronicity which shows how much firm-specific information that is reflected to stock prices. This paper aims to combine these two areas by examining the impact of corporate governance and foreign ownership in explaining the synchronicity of stock price movements.

Our paper contributes to the literature on the role of corporate governance and foreign ownerships in three ways. First, we document an important relation between stock price synchronicity, firm level corporate governance characteristics and foreign ownership structure in Turkey. Better corporate governance structure and higher foreign ownership leads to decrease information asymmetry and increase transparency with incorporation of firm-specific information. Second, our results support the idea one of the emerging markets, Turkey has relatively high R square value comparatively other developed market R square values in recent studies. Third, our results depict the relation between firm level financial ratios such as leverage, profitability, market to book ratio and stock price synchronicity as control variables.

The paper is organized as follows. Section 2 gives the literature review and hypothesis development. Section 3 describes data and the methodology with construction of key variables. Section 4, we report findings and discussions and document the empirical results. And the final section gives conclusions.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Roll (1988) states that a large proportion of stock return variation is not explained by market characteristics and finds adjusted R square is 0.20 with daily data. Built on his view, Morck et al. (2000) examine synchronicity in the world for the countries, and find that stock price movements are more synchronous in emerging markets than developed markets. Other important result shows that greater public investor legal protection leads to higher firm-specific returns variation and lower synchronicity. This study supports the view that Turkey has high synchronicity close to the value in the literature and consistent with the study of Morck et al. (2000) which shows Turkey is one of the five highest synchronicity across other countries.

Bushman et al. (2004), defines corporate transparency as the availability of firm-specific information to outside publicly traded firms. Jin and Myers (2006) argue that stock return synchronicity is a measure of corporate transparency since it represents how much market index explains firm-specific returns. Gul and Leung (2004) analyze the relation between board structure as CEO duality, the proportion of expert outside directors in the board and voluntary corporate disclosures. Their results show CEO duality is related to voluntary corporate disclosures negatively.

Doriye (2012) develops the empirical analyses from the existing theoretical and empirical literatures that build from the agency theory and investigates the effect of corporate governance in a cross-country setting using stock price synchronicity as a measure of firm's information environment. The main result of this study is that better governance reduces information asymmetry that arises from managerial behaviors. Other result is higher proportion of outsiders in the board increases incorporation of firm-specific information. And also, increasing board size have negative impact in incorporating firm-specific information since larger boards have communication and coordination problem and free ride issue affects disclosure.

Ntow et al. (2015) investigates whether corporate governance influences the release of firm-specific information. This study uses the determination of synchronicity as an inverse measure of transparency and shows that larger board sizes are associated with high synchronicity and less transparency. Other result depicts that an increase in non-executive directors on corporate boards makes synchronicity lower and increase transparency. This study also analyzes the relation between firm size, type and level of synchronicity. Financial firms exhibit higher levels of synchronicity due to because they make the entire market return in their direction. Larger firms are more synchronous than smaller firms since their market return is highly

concentrated with these returns.

In line with our study, few recent studies focus on the relation between corporate governance and stock price synchronicity or asymmetric information. Khander (2011) examines eight emerging countries including Turkey and three developed countries and finds that low level of corporate governance mechanism, higher inflation, country geographical size lead to more synchronous stock price behavior in emerging economies. This study analyzes the effects of two corporate governance mechanisms, "voice and accountability" which are significantly associated with the R-square values. Jamalinesari and Soheili (2015) analyze 2008-2013 period for companies listed in Tehran's Stock Exchange and use bid-ask spread to measure information asymmetry. They show that there is a negative and significant association between the percentage of institutional investments and the independence of board members and bid-ask spread. Kim and Cheong (2015) investigate the effect of foreign and domestic institutional investors on firm-specific information is incorporated into stock prices, measured by stock price synchronicity in Korea Stock Exchange over 1998-2007 period. Their result finds out that there is a significant and negative relation between the intensity of trading by foreign investors and the incorporation of firm-specific information into stock prices. And also foreign investors accelerate the incorporation of firm's information more than trading by aggregate domestic institutions.

Two recent studies are closely associated with our study. Gul et al. (2010) examines the effects of largest shareholder ownership concentration, foreign ownership, and audit quality on stock price synchronicity for Chinese listed firms. Synchronicity is a concave function of ownership by the largest shareholder and foreign ownership is inversely related to synchronicity. According to this study, higher stock price synchronicity or lower firm-specific return variation in emerging markets is a result of corporate ownership structure in emerging markets. He et al. (2013) shows large foreign ownership around the world is positively related to probability of informed trading and price non synchronicity that shows firm-specific variations in stock returns. They also find out strong relation between stock returns and future earnings innovations for firms with higher foreign ownerships. He and Li emphasizes that stock prices incorporate all information and reflect a firm-specific information and value in an efficient market and limits the arbitrage. Thus, stock price synchronicity or price informativeness is important for both financial market actors in corporate decisions. He et al. (2013) conclude that foreign shareholders may closely monitor managers and limit agency problems leading to less stock price synchronicity. This study also strengthens the aim of this study with large foreign owners will be less engaged with other domestic holders which leads to enhance the monitoring role of foreign owners. Kho et al. (2009) supports this idea, foreign shareholders could be more effective in monitoring when foreign shareholders come from "good governance" countries and investing in "poor governance" countries.

According to Chan and Hameed (2006), emerging markets show poor information disclosure and lack of corporate transparency discourages informed trading and decreases the incorporation of firm-specific information into stock prices, which means more stock price synchronicity. And Jin and Myers (2006) demonstrate poor investor protection and opaque financial disclosure increases stock price synchronicity.

Few studies focus on ownership structure and performance, firm-specific information or transparency in Turkey. Gursoy and Aydogan (2002) investigate the impact of ownership structure on performance and risk-taking behavior of listed Turkish firms. This study is important to show the impact of ownership concentration and ownership mix on both performance and risk-taking behavior of listed firms in Turkey. The results reveal that concentration is positively related to market performance and firms with foreign ownership perform better. Aksu and Kosedag (2006) score transparency and disclosure scores of 52 large and liquid ISE firms. The study investigates the firm-specific determinants of the transparency and disclosure score and finds out agency conflicts, size, accounting profitability and market-to-book ratio explain the differences in the transparency scores.

2.1. Hypothesis Development

H1: Firms with higher foreign ownership have less stock price synchronicity.

Empirical studies show that foreign ownership is related to higher corporate transparency and lower information asymmetries (Kang and Stulz, 1997; Gul et al., 2010). We expect higher foreign ownership ratio will lead to less stock price synchronicity.

H2: Firms with larger boards are associated with higher stock price synchronicity.

According to Jensen (1993) and Ntow et al. (2015), a larger board size can lead to less transparency and poor monitoring. We expect stock price synchronicity is positively related to board size.

H3: Firms with CEO duality have higher stock price synchronicity.

When CEO is the chair the board, agency problems can raise because ability to check on management may be violated (Gul and Leung, 2004). Many studies focus that CEO duality leads to less transparency empirically. So we expect CEO duality to influence stock price synchronicity positively.

H4: Firms with board independence have lower stock price synchronicity.

According to Ntow et al. (2015) and Doriye (2012) board independence or increase in percentage of outsiders in the board improves firm's information environment. Firms with a higher proportion of independent directors on the board are related to higher voluntary disclosure which means board independence increases when the number or proportion of independent directors increases (Cheng and Courtenay, 2006). Doriye (2012) supports that more independent boards are more effective in monitoring the corporate financial accounting process. So we expect percentage of board independence is negatively related to stock price synchronicity.

3. DATA AND METHODOLOGY

This study contains listed firms in Borsa Istanbul 100 Index between years 2009-2014. 86 firms were analyzed in our sample due to lack of data since 14 firms were listed in Borsa Istanbul after 2009. The firms are included in BIST100 Index as of 30.09.2015. The constituent firms of BIST100 Index are collected from Borsa Istanbul database. Our sample covers daily firm and market level returns and balance sheet data from Reuters and Bloomberg database. We manually collect ownership data from firms' annual reports from Public Disclosure Platform.

We use the stock price synchronicity initially generated by Roll (1988) and developed by Morck et al. (2000) as a proxy for firm-specific information incorporated into share prices. In the literature, synchronicity is generated by the regression's R-squared value of individual stock returns on market and industry indexes. High R-squared level means the firms' stock prices are synchronous with market and/or industry returns which mean firm-specific information is not included in share prices. Generally, this synchronous behavior is defined as the firms are less transparent since the synchronicity is higher in the literature.

Roll (1988) analyzes stock price synchronicity by adding industry returns to explain stock returns in the regression model. However, Chan and Hameed (2006) support the idea adding industry returns to regression is problematic in emerging markets because in the economy may be dominated by a few industries, thus it is difficult to separate the industry effect from the market effect. In our sample, manufacturing (43.02%) and financial (32.56%) sectors have relatively high weights in total, so industry returns are not included in stock price synchronicity model as explanatory variable.

We define stock price synchronicity consistent with the literature as Morck et al. (2000) and Gul et al. (2010):

$$RET_{i,t} = \beta_0 + \beta_1 MRKT_{i,t} + \beta_2 MRKT_{i,t-1} + \epsilon_{i,t} \qquad (1)$$

where $RET_{i,t}$ is firm i's return on day t, $MRKT_{i,t}$ is the value weighted market return (BIST100 index) on day t, $\epsilon_{i,t}$ represents unspecified random factors. Synchronicity is estimated with split regressions by using individual daily stock returns as a dependent variable, the daily market return and lag of daily market return. Industry returns may be added to the regression up to significance of the regression. Some authors in the literature review expresses that adding industry return to the synchronicity regression may cause spurious results. The R squared result of regression is bounded within unit interval. Then logarithmic transformation of all $R^2/(1-R^2)$ of the models is computed as Morck et al. (2000) defined. The dependent variable is defined as

$$SYNCH_{i,t} = \log(\,(R^2/(1-R^2)) \qquad (2)$$

where $SYNCH_{i,t}$ is firm i's stock price synchronicity on year t, R^2 is the regression result of the stock price synchronicity model for firm i and year t.

Table 1: Descriptive Statistics for Stock Price Synchronicity and Foreign Ownership

Year	Average Stock Price Synchronicity	Average Foreign Ownership
2009	-0,4153	0,1386
2010	-0,5208	0,1442
2011	-0,4655	0,1284
2012	-0,4694	0,1259
2013	-0,3902	0,1128
2014	-0,4478	0,1209

Ownership structure variable in this study is defined as the ratio of foreign ownership. Only 10 observations are less than 5%, thus we can support the idea this study investigates the effect of large foreign shareholders as He et al. (2013) defines large foreign shareholder as ultimate owners who own more than 5%. Table 1 demonstrates that average foreign ownership ratio is highest in 2010 and lowest in 2013. This is an important result considering the opposite results shown in the table, highest level of stock price synchronicity is in 2013 and the lowest level is in 2010.

We define our control variables as trading volume, age (natural logarithm of years after initial public offering of the firm), firm size (natural logarithm of total assets), leverage (total liabilities divided by total assets), the standard deviation of ROA-return on assets (volatility of firm's earnings over the preceding five-year period including the current year) and market to book ratio (the total market value of equity divided by the total net assets).

Table 2: Model Variable Definitions

Variables	Definitions
SYNCH	Stock price synchronicity, Logarithmic transformation of R^2 for the market model in computed as log (R^2/(1- R^2))
FOR	Foreign ownership ratio
CEO	Dummy variable, value of "1" if the CEO is the same as the chairman and "0" Otherwise
IND	The percentage of independent or outsider directors in the board
BS	The natural logarithm of total number of board members (board size)
AGE	The natural logarithm of years after IPO of the firm
LEV	Leverage (total liabilities divided by total assets)
MBRAT	Market to book ratio (the total market value of equity divided by the total net assets)
SIZE	Firm size (natural logarithm of total assets)
STDROA	Standard deviation of ROA-return on assets (volatility of firm's earnings over the preceding five-year period including the current year)
VOL	Trading volume

The level of AGE shows number of years that have passed after firm initial public offered. AGE increases while firm becomes older, and the market learns more about time-invariant firm characteristics or firm-specific

information as Dasgupta et al. (2010) emphasized. Thus stock return synchronicity should be higher for older firms. The logarithm of age is taken as a consistent with literature and avoids unit root data problems. The leverage ratio, LEV, shows total liabilities divided by total assets in a firm level. Hasan and Song (2014) supports that leverage and stock price synchronicity have positive association since the cost of collecting private information will be higher with greater risk of financial difficulties or leverage. The market to book ratio, MBRAT, shows the total market value of equity divided by the total net assets. As Hasan et al. (2014) stated, market to book ratio is negatively related to stock price synchronicity, expected to be negative because higher growth potential firms are likely to incorporate more firm-specific information which means less stock price synchronicity. The SIZE, the logarithm of total assets and shows the size of the firm. BIST 100 index is used as a market return indicator in stock price synchronicity regression model. As BIST 100 index is generated by value weighted and large firms, large companies may dominate market movements. So we expect a positive relation between stock return synchronicity and the size of a company. Earning volatility, STDROA, shows the standard deviation of ROA-return on assets (volatility of firm's earnings over the preceding five-year period including the current year). STDROA is included in the model to measure the volatility of firm fundamentals. The relation between earning volatility and stock price synchronicity is expected negative because higher earning uncertainty will lead more firm-specific variation as Gul et al. (2010) stated in their study. The level of VOL, trading volume of stocks influences the speed of price adjustments, thus stocks that have more volume react to market information immediately. This leads to these stocks prices will be more synchronous with market prices. (Chan and Hameed, 2006)

Table 3: Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.
R	0,305	0,2854	0,853	0,0024	0,1927
SYNCH	-0,4515	-0,3984	0,7637	-2,6177	0,5052
FORGNY	0,1285	0	0,955	0	0,2383
MBRAT	1,7455	1,2367	18,1301	-19,3651	2,4993
VOL	1490	386	21000	957871	2680
STDROA	0,0517	0,0338	0,4974	0,0005	0,0648
SIZE	9,3748	9,3013	11,4405	7,6766	0,8011
AGE	16,1046	16	40	0	7,8143
LEV	0,5479	0,5192	4,4789	0,0018	0,4083
BS	9	9	15	4	2,2473

Descriptive statistics shows that the reported mean R^2 of 0.393 for Turkey and Morck et al. (2000), Turkey is one of the five highest R squared countries in this study. Standard deviation of synchronicity is 0.505 that shows the flow of firm-specific information to the market changes across firms in a wide range. Descriptive statistics, table 3, also shows the mean of foreign ownership ratio is 0.12.

This study covers six-year data of 86 listed firms and has panel data feature. In this study, time series linear regression is used to compute R squared values of all individual firms and panel least square regression model is used to combine all variables. The model is used to examine the effect of corporate governance variables, foreign ownership and control variables on stock price synchronicity:

$$SYNCH_{i,t} = \beta_0 + \beta_1 FOR_{i,t} + \beta_2 CEO_{i,t} + \beta_3 IND_{i,t} + \beta_4 BS_{i,t} + \beta_5 Control_{i,t} + \epsilon_{i,t} \qquad (3)$$

where $SYNCH_{i,t}$ is firm i's stock price synchronicity on year t, $FOR_{i,t}$ is firm i's foreign ownership ratio on year t, $CEO_{i,t}$ is firm i's dummy variable, value of "1" if the CEO is the same as the chairman and "0" otherwise on year t. $IND_{i,t}$ is firm i's board independence, the percentage of independent or outsider directors on the board on year t. $BS_{i,t}$ is firm i's board size, the logarithm of total number of board members on year t. $Control_{i,t}$ is firm i's control variables on year t .

4. FINDINGS AND DISCUSSIONS

Panel data analysis may cause spurious regression problems if data has unit root. To prevent misleading model solutions, unit root tests should be done for all variables before panel least square regression. PP Fisher Chi square and LLC-Levin, Lin and Chu unit root tests results demonstrate that all variables are stationary. The null hypothesis which states there is a unit root is rejected in 1% level of significance for all variables. Hausman test is performed to decide fixed or random cross section model will be used. Hausman test results show that fixed models for all models are used.

One of the main assumptions of regression analysis is that no relationship between error term, autocorrelation. For panel data, residual cross section dependence tests are performed. Autocorrelation test results indicate that we reject the hypothesis no cross section dependence or correlation in residuals. To solve the autocorrelation and heteroscedasticity problems, White period standard errors and covariance method is used and the final model results are obtained.

Table 4: Model Panel Regression Results

	H1	H2	H3	H4	Full model regression
FOR	-0,384				-0,376
	(-2.58)*				(-2.58)*
BS		-0,008			0.015
		(-0.3)			(0.38)
CEO			0.173		0.175
			(1.34)		(1.47)
IND				-0,002	-0,002
				(-2.10)**	(-1.92)**
LEV	0.33	0.344	0.343	0.349	0.336
	(3.4)*	(3.62)*	(3.6)*	(3.55)*	(3.43)*
VOL	0.003	0.003	0.004	0.003	0.003
	(3.25)*	(3.01)*	(3.12)*	(2.84)*	(2.81)*
SIZE	-0,057	-0,066	-0,067	-0,072	-0,06
	(-0.57)	(-0.67)	(-0.69)	(-0.70)	(-0.66)
AGE	0.478	0.467	0.474	0.465	0.482
	(1.83)***	(1.87)***	(1.88)***	(1.75)***	(1.79)***
MBRAT	-0,037	-0,037	-0,038	-0,037	-0,037
	(-3.34)*	(-3.27)*	(-3,32)*	(-3.30)*	(-3,34)*
STDROA	-1,249	-1,321	-1,341	-1.333	-1,29
	(-1.63)	(-1.78)***	(-1.75)***	(-1.8)***	(-1.71)***
Constant	-0,514	-0,466	-0,467	-0,399	-0,43
	(-0.66)	(-0.58)	(-0.60)	(-0.49)	(-0.54)
N	514	514	514	514	514
Adj. R square	47.86%	47.60%	47.68%	47.78%	47.80%

The dependent variable is SYNCH, and is estimated using Equation (1). The table shows the coefficients from regression model. Numbers in parentheses represent t-values * %1, ** 5%, and *** 10% levels of significance. Cross section fixed, period fixed. White cross section standard errors&covariance is used.

Table 4 reports regression results for the model to examine corporate governance, foreign ownership and stock price synchronicity. As seen in model results column, the coefficient of FOR which shows foreign ownership ratio is significantly negative (-0.38) for full model and the model uses only FOR as an independent variable within all corporate governance variables. This suggests that higher foreign ownership in the firm ownership structure will decrease stock price synchronicity and make the firm-specific information more incorporated into share prices. This result supports the discussion in the literature; large foreign ownership is positively related to nonstock price synchronicity or price informativeness. Foreign shareholders improve price informativeness through their informed trading; improve corporate governance and disclosure quality of the invested firms which leads to decrease stock price synchronicity (He et al., 2013). IND, the percentage of independent or outsider directors in the board is significantly negative in all two models. That supports the view firms with a higher proportion of independent directors in the board are related to higher voluntary disclosure which means board independence increases when the number or proportion of independent directors increase (Cheng and Courtenay, 2006). The table additionally reports the significant results of control variables. LOGAGE coefficient is significantly positive supporting that older firms tend to learn about time invariant information and synchronicity is significantly higher for firms that have been listed before other firms (Dasgupta et al., 2010). The MBRAT coefficient is significantly negative for the model. This suggests that firms with high growth potential tend to have less stock price synchronicity and more firm-specific information incorporated into their stock prices. The LEV coefficient is significantly positive. This shows that stock prices of more leveraged firms listed in Borsa Istanbul 100 index tend to have more synchronous behavior than other firms supporting that the cost of collecting private information will be higher with greater leverage. VOL coefficients are significantly positive and supports the result of large firms that have more trading volume will be more synchronous as having more weight in the market index. STDROA coefficient is negatively significant at 10% level of significance, supporting that higher earning uncertainty will lead more firm-specific variation. The other coefficient estimates of control variables are insignificant in all regressions.

5. CONCLUSION

We investigate the impact of corporate governance variables; CEO duality, board independence, board size and foreign ownership ratio on stock price synchronicity in Borsa Istanbul, Turkey. We support the view that the R square values in Turkey is relatively high and changes in stock prices in the market do not reflect firm-specific information not as much as in developed markets. We show there is a negative relation between synchronicity and foreign ownership. That supports more firm-specific information is incorporated into stock prices as the ratio of foreign ownership increases. We document percentage of independent directors in the board or board independence is negatively associated to stock price synchronicity. That supports outsiders or independent directors in the boards provide mechanisms that improves firm's information environment. The CEO duality and board size do not have significant effects in any model. We also find market to book ratio is negatively related to stock price synchronicity, supporting firms with high growth potential tend to have less stock price synchronicity. Number of years passed after initial public offering has significantly positive coefficient, synchronicity is higher for firms that have been listed before. Older firms tend to reflect firm-specific information less. Volume and leverage are also positively related to stock price synchronicity which leads to firms that have more leverage and trade volume have more synchronous behavior than other firms as having more weight in the market index. Our finding suggests that foreign owners and board independence have an important role on greater incorporation of firm-specific information into stock prices. The results of this study lead to encourage foreign ownership and more independent directors in the board in firm level corporate governance that improves the information environment of firms in Turkey. Our research contributes to the literature both investors and regulators providing further evidence on the relationship between corporate governance structure and firm-specific information disclosure, stock price synchronicity. Firms with better corporate governance structure tend to have more firm-specific information incorporated into their stocks. As a future work, other emerging countries could be investigated to show whether the pattern and results support the view that strong firm-level corporate governance and high level foreign ownership ratio enhance the information environment of firms in emerging markets. Future studies could also extend the analysis by examining the effect of ownership concentration and family ownership on the firm's information environment.

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