



**A DYNAMIC PANEL DATA ANALYSIS APPLICATION
AIMED AT EXAMINING THE RELATIONSHIP BETWEEN
THE FREE FLOAT RATIO AND PERFORMANCE
CRITERIA: AN EXAMPLE OF THE BIST 30 INDEX**

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Abstract

The Free Float Ratio means that the shares of companies are very spread, which means that the shares are distributed to many different stakeholders. Changes in the Free Float Ratio of companies may affect the company's performance. Based on this point, the purpose of the study is to evaluate the effect of delayed values of the Free Float Ratio on the company's performance. For this purpose, an econometric model was created by using the data of the companies included in the BIST 30 Index, and the model was tested by dynamic panel data analysis. As a result of the study, it was understood that the model established with the delayed value of the Free Float Ratio was quite successful. As a result of the econometric model created in the study, a statistically significant relationship was found between the Free Float Ratio and all but one of the seven variables used in the model.

Keywords: Free Float Ratio, Dynamic Panel Data Analysis, BİST, Capital Ownership Structure

INTRODUCTION

In recent years, with the development of technology and the effects of globalization, a transition to the information society has been achieved, and as a result, important changes have been experienced in the field of economy, like in all areas of life. Especially as a result of technological advances in international financial markets, the decision-making structures of market actors about their savings are constantly developing. While individuals or organizations in the system such as company managers, investors, shareholders previously made optimal investment decisions according to the profitability of the companies, today they make investment decisions on the values created by the companies. In today's markets, the understanding that companies can increase the wealth of their shareholders/investors only to the extent that they create value is taken as the reference.

In general, for companies, performance is measured by whether activities are carried out in line with company objectives. Companies can self-provide effective management and control by measuring the status of their activities with various indicators. In addition, the questions such as “How would the productivity conditions will benefit the company?”, “What kind of problems can arise in the company under inefficiency conditions?” can be answered with the indicators that are supported by both past and future data. At this point, it becomes very important to evaluate the performances of companies realistically and consistently. Performance measures with many quantitative and qualitative features have been developed to evaluate the performance of companies. A new understanding today is forming to determine the relationship between these performance measures used in recent years and company value, where many researchers conduct studies.

In the last century, there have been significant changes in the structure of financial markets, especially with the transition to information technology. With the trading of the stocks of the companies in the international stock markets, there are significant changes in the decision-making of the investors. Relevant persons or organizations now focus more on the values created by companies and their capital ownership structures. Many accounting-based and value-based performance measures have been developed regarding the values created by companies. The Free Float Ratio criterion developed for the capital ownership structure is a basic indicator that shows at what rate the total nominal capital of a publicly-traded company can be bought and sold on the stock exchanges. In other words, the Free Float Ratio shows the ratio of the shares that are out of the control of the people or groups controlling the company and are priced according to the supply and demand conditions in the organized markets. The Free Float Ratio, which is a variable that affects the ownership structure, is a widely used criterion since it can be expressed mathematically.

The Free Float Ratio means that if the stocks of the companies are widely distributed (i.e., if the stocks are shared by many different stakeholders) the free float rate of that company will be high. On the other hand, if the company's shares are owned by a family or a certain institutional investor, then the Free Float Ratio of the company will be less. As mentioned in the study, because of the value-based company understanding that has emerged in recent years, the market value indicator of the companies' stocks is the most followed indicator in the markets. Shares of companies with high market value may cause more losses to their investors in adverse situations that may occur. For this reason, it has become essential for investors to examine the relationship between the Free Float Ratio, which is an indicator of the ownership structure of the companies, and the criteria that reflect the value and performance of the companies. In light of the aforementioned explanations, the aim of the study is to perform an analysis with the Free Float Ratio, company performance criteria, and company value criteria. Therefore, in this study we determine the relationship between the free float rates of the companies in question and the performance criteria in order to examine the ownership structure of the companies. We cover the 2003-2020 periods by using the data of the companies in the Borsa Istanbul (BIST) 30 BIST Index. We conducted our tests with the dynamic panel data analysis method.

LITERATURE SURVEY

When we look at the studies on the Free Float Ratio in the literature in which this ratio is the main (reference) variable, it is seen that the analysis results vary according to the country, different sample groups, and macroeconomic factors. Reasons for this difference are; differences in the company structures of the countries (whether it is a family business or not), attorney costs, legal and political laws and regulations of the countries, and characteristics of the investors can be given. Apart from these reasons, there are two basic views on the Free Float Ratio in the literature. The first opinion is that the low Free Float Ratio negatively affects the market value of the company and has a depressing effect on the company's performance. Another view is that an increase in the Free Float Ratio makes it difficult to efficiently decide on what increases the company's performance. Especially in the second opinion, it is well accepted that the restriction of the voice of the shareholders of the company by the company managers will have a negative effect on the financial performance. When the literature is examined, it is seen that performance criteria such as Free Float Ratio, return on assets, return on equity, TobinQ, market value, the board size, leverage ratios, and the share of the 3 partners with the highest share are used. In this study, in line with these views in the literature, how the Free

Float Ratio of companies is affected by other performance criteria is the main research goal. We now present some of the studies in the literature on the Free Float Ratio.

Reference studies examining the relationship between the ownership structure of companies and company performance, in general, are the following: Changati and Damanpour (1991), Hermalin and Weisbach (1991), Craswell et al. (1997), Mudambi et al. (1998), Short and Keasey (1999), Estrin and Rosevear (1999); Krivogorsky (2000), Chen et al. (2005), Kim (2006), Hu and Zhou (2008), Elyasiani and Jia (2008), Brockman and Yan (2009), Margaritis and Psillaki (2010). In most of these studies, the relationship between the criteria representing the ownership structure of companies and company performance has been determined. Apart from these studies, the following recent studies have also been carried out in similar fields.

In Srivastava (2011) study, the relationship between the Free Float Ratio and performance criteria was analyzed with the Panel OLS method, with the data of 98 companies registered in Bombay Stock Exchange for the years 2009-2010. As a result of the study, no significant relationship was found between the Free Float Ratio at the 5% significance level and performance criteria, such as return on assets and return on equity.

In the study of Kevser (2018), the relationship between the financial performances of 13 banks registered in the BIST and the ownership structures of the banks was investigated. In this study, the relationship between the quarterly data of banks between 2005-2017 and the Free Float Ratio and various performance criteria was investigated by multiple regression analysis method. As a result of the study, an inverse relationship was determined between the Free Float Ratio and the Return on Equity measure. Except for this, no statistical relationship was found between the Free Float Ratio and any other performance criteria.

In the study of Cavlak (2019), the relationship between the traditional and value-based performance measures was investigated by using the data of 26 companies registered in the BIST Corporate Governance index between the years 2013-2018. Furthermore, the Free Float Ratio was examined with the help of the OLS test. As a result of the study, it was found that there was no statistically significant relationship between the Free Float Ratio and traditional/alternative performance measures.

In the study of Konuk (2019), the relationship between the Free Float Ratio and various performance measures was investigated by multiple regression analysis with using the data of the companies included in the BIST 30 index for the period 2006-2010. In this study, the author examined the relationship between the ownership structure of companies and company value in general. As a result of the study, no significant relationship was found with the Free Float Ratio. It was also determined that the company value decreases as the share of the shareholders with high capital shares in the company increases.

In their study, Kesbiç and Taşdemir (2019) investigated the relationship between the Free Float Ratio and financial performance measures by using the panel data analysis method with the data of 89 companies registered in the BIST 100 Index between the years 2010-2018. As a result of their study, a statistically significant inverse relationship was only found between the Free Float Ratio and the TobinQ criterion. No statistically significant relationship was found between other performance measures used in their study and the Free Float Ratio.

Sari (2021) investigated the relationship between stock prices and performance measures, including the Free Float Ratio, by using multiple linear regression analysis with the data of companies registered in the LQ45 and IDX30 Indices in the Indonesian Stock Exchange, between the years 2015-2019. As a result of this study, the author determined a relationship between the Free Float Ratio and stock prices, as well as between variables such as the return on assets, return on equity, and earnings per share.

Mahboobi et al. (2022), using the data of 128 companies registered on the Tehran Stock Exchange, the effect of Free Float Ratio on company performance was investigated by panel data analysis method with the data between 2009 and 2017. As a result of this study, it was revealed that the Free Float Ratio has positive and significant effects on company performance.

Dayı (2022) investigated the relationship between the Free Float Ratio and various performance criteria with the help of the panel data analysis method with models created from data of 30 companies registered in BIST for the years 2010-2019. In this study, the author examined the relationship between the Free Float Ratio and company value. As a result of the study, no statistically significant relationship was found between the Free Float Ratio and the performance criteria representing the company value.

Yaroğlu and Kurt (2022) analyzed the data of companies operating in the manufacturing sector that are registered in the BIST 100 index, using the data of 2017 and the multivariate multiple regression analysis. In this study; return on assets, return on equity, and the TobinQ ratio were used as dependent variables, while the Free Float Ratio was used as an independent variable. This study showed that the Free Float Ratio does not have an effect on the financial performance of the companies.

Application: Evaluation of Dynamic Panel Data Analysis to Examine the Relationship Between Free Float and Performance Criteria

In recent years, the increasing importance of the concept of the value of companies and studies on the shareholders to determine the real company value have brought new insights to the literature. One such focal point in recent years is the studies to reveal the effect of the ownership structure of companies on performance and value. In line with the purpose of the

study, we created an econometric model by using the criteria representing the company value and performance, as well as the Free Float Ratio variable, which are the main indicators of the ownership structure of a company. We also made analysis using the dynamic panel data method. In this study, we start with the following hypotheses.

H0: Financial performance measures do not significantly affect the Free Float Ratio.

H1: Financial performance measures significantly affect the Free Float Ratio.

RESEARCH METHODOLOGY

For the analysis in this study, the data of the companies included in the Borsa Istanbul (BIST) 30 BIST Index were selected to cover the 2003 and 2020 periods, and the variables to be included in the analysis were created. Thus, the effects before and after the 2008 economic crisis that affected the world can also be evaluated in the study. The data used in the analysis of the study were obtained from the independently audited financial statements of the companies and the Finnet Expert database system. The literature was referenced to determine the models and the variables that form them that already developed in line with this study. One dependent and seven independent variables were created to be used in the analysis of the study. Table 1 presents the dependent and independent variables and their descriptive codes, which are used in the analysis in this study.

Table 1. Explanations and Descriptive Codes Related to Variables

Variables	Variable Type	Creation Process	Code
<i>Free Float Ratio</i>	Dependant	Created from Finnet Expert Database	HKO
<i>Asset Profitability</i>	Independent	Reached by Net Profit / Average Assets formula	AK
<i>Return on Equity</i>	Independent	Reached by Net Profit / Equity formula	ÖSK
<i>Net Profit Margin</i>	Independent	Reached with Net Profit/Average Sales formula	NKM
<i>Price/Earnings Ratio</i>	Independent	The F/K ratio values to be used in the analysis were obtained by dividing the market values of the companies by their annual profit amounts.	FKO
<i>Market Value/ Book Value</i>	Independent	The Market Value per Share / Book Value of the Firm per Share is calculated using the formula.	PDDD
<i>Earnings Per Share</i>	Independent	The HBK values of the companies to be used in the analysis were obtained by dividing the market values of the companies by the number of stocks belonging to the companies in the Finnet Share Export program.	HBK
<i>TobinQ Ratio</i>	Independent	Reached by the formula (Market Value + Total Debt) / Total Assets	TQ

As seen in Table 1, the Free Float Ratio is used as a dependent variable; while Return on Assets (AR), Return on Equity (OSK), Net Profit Margin (NPM), Price/Earnings Ratio (PCR),

Market Value/Book Value (PDDD), Earnings Per Share (HBK), and TobinQ(TQ) Ratio are used as independent variables. Descriptive statistics of the variables in the analysis period are presented in Table 2.

Table 2. Descriptive Statistics of Variables

Variables	Average	Maximum	Minimum	Standard deviation	Number of Observations
<i>Free Float Ratio</i>	29.7	86	5	14.51	570
<i>Asset Profitability</i>	.073	.736	-.023	.095	570
<i>Return on Equity</i>	.145	.882	-2.13	.179	570
<i>Net Profit Margin</i>	.439	35.2	-9.81	2,12	570
<i>Price/Earnings Ratio</i>	14.3	474	0	27,06	570
<i>Market Value/Book Value</i>	1.91	16.9	0	2,21	570
<i>Earnings Per Share</i>	1.20	36.5	0	2,51	570
<i>TobinQ Ratio</i>	1.36	6.64	0	.774	570

When Table 2 is examined, it is understood that the variable with the largest average is the Free Float Ratio, which is the dependent variable of the study. The variable with the largest standard deviation is the Price/Earnings Ratio variable. When Table 2 is further examined, it is also seen that the minimum values of some variables are zero. The reason for this is related to the data set of the study. Since the analysis of the study covers a long period of time (i.e., 18 years), there have been changes (data losses) in the companies in the index and their data between these years. Considering this situation (unbalanced panel structure) in the application phase of the study, the analyses were carried out with the help of dummy variables. The correlation between variables is presented in Table 3.

Table 3. Correlation Matrix

	HKO	AK	ÖSK	NKM	FKO	PDDD	HBK	TQ
HKO	1.0000							
AK	0.3621	1.0000						
ÖSK	0.1568	0.6974	1.0000					
NKM	0.0701	0.2301	-0.1243	1.0000				
FKO	0.0599	-0.1123	-0.0661	-0.0241	1.0000			
PDDD	0.2112	0.1833	0.2735	-0.0114	-0.0935	1.0000		
HBK	0.5755	0.3603	0.2437	0.0374	0.1262	0.0248	1.0000	
TQ	0.3152	0.3371	0.3320	-0.0249	0.1251	0,7442	0.0110	1.0000

When Table 3 is examined, it is observed that there is a positive correlation between the Free Float Ratio and all variables. On the other hand, it is seen that there is a high correlation

(0.7442) between market value and TobinQ. The correlation relationship with other variables is as shown in Table 3.

Dynamic panel data analysis, one of the panel data analysis methods, was used in this study. Panel data analysis is an econometric analysis and is a statistical approach used when it is necessary to analyze both time (time series analysis) and units (horizontal section analysis). In general, the methods that allow the combination and testing (with appropriate econometric models) of time series and cross-section analysis are called panel data analysis (Greene, 2003: 612).

The panel data analysis approach has been developed over the years, leading to the emergence of many new econometric models and methods. One of these methods and the method determined as the main analysis method of the study is dynamic panel data analysis. Dynamic panel data analysis is a method based on the use of the delayed values of the variables of economic relations as an explanatory factor, based on the understanding that an economic behavior in a certain period can be significantly influenced by its past. Therefore, unlike other panel data analysis models, dynamic panel data models can be modeled with delayed variables (Tatoğlu, 2018: 113).

Dynamic panel data can be modeled as follows (Baltagi, 2005: 135):

$$y_{it} = \delta y_{it-1} + x'_{it-1}\beta + u_{it} \quad i = 1, \dots, N; t = 1, \dots, T \quad \dots(1)$$

Here, the unit effect is μ_i , i . Both y_{it} and $y_{(it-1)}$ are functions of this unit effect since they are constant for the unit over the entire time. Therefore, the delayed dependent variable $y_{(it-1)}$ on the right side of Equation (2) is correlated with the error term.

While econometric models are created and model estimations are made with dynamic panel data models, which method should be chosen for dynamic panel data is basically determined by three factors: the autocorrelation status of the error term, the externality of the independent variables, and the time and unit dimensions (Tatoğlu, 2020:155). Considering all these factors, several basic dynamic panel data methods have been developed. The most popular of these are the Arellano-Bond (1991) and Arellano-Bover (1995) / Blundell-Bond (1998) dynamic panel estimators. In general, relevant estimators should be used in studies where $N > T$. Since the data used in the analysis of the study is in the structure of $N=30$, $T=18$, it is suitable to perform analysis with the relevant

Arellano and Bond estimator (1991) has influenced the Generalized Moments Estimator (GMM) method, in which all valid delayed variables are used as instrumental variables. In the application of the relevant estimator, first, the model is converted to the first difference model, and then the estimation is carried out with the generalized Least Squares approach. (, 2006: 76). In addition to this model, two-stage estimation methods belonging to the same class were also

developed (System GMM), and it was observed that the related methods give better and more consistent solutions (Arellano and Bover, 1995; Blundell and Bond, 1998).

In the analysis part of this study, we created an Autoregressive dynamic panel structure with the delayed value of the Free Float Ratio as the independent variable. This is because we want to test the effect of the delayed values of the Free Float Ratio, as well as we assume that the related criteria have a dynamic structure. We also used the two-stage system developed by Roodman (2006) and the GMM estimator. Since this estimator is considered as one of the most powerful that can solve the problems arising in dynamic panel data models, it was preferred in the study.

In the analysis of the study, we estimated the econometric model created with the variables in Table 1 with the dynamic panel data analysis method. In the model created with the dependent and independent variables shown below, the term α is a constant and the term e_{it} is called the error term.

$$HKO_{it} = \alpha + \beta_1(HKO_{it-1})_{it} + \beta_2(AK)_{it} + \beta_3(\ddot{O}SK)_{it} + \beta_4(NKM)_{it} + \beta_5(FKO)_{it} + \beta_6(PDDD)_{it} + \beta_7(HBK)_{it} + \beta_8(TQ)_{it} + e_{it} \quad \dots(2)$$

We analyzed the working model with the two-stage System GMM. We used the Stata 16.0 package program during the implementation phase. In the analysis phase, we performed the Wald Test, which tests the significance of the model, the Hansen Test, which tests the validity of the instrument variable set, and the AR(1) and AR(2) tests, which investigate the existence of first and second-order autocorrelation.

FINDINGS

In this study, the econometric relations between the Free Float Ratio and the criteria related to the performance of the companies were examined by using the data of the companies included in the BIST 30 index between 2003 and 2020. The dynamic panel data analysis results obtained within the scope of the aforementioned data are shown in Table 4.

Table 4. Results of Dynamic Panel Data Analysis

Period	2003-2020		
Number of Observations	525		
Estimator	Roodman (2006) Two-Stage System GMM		
Variable	Coefficient	Z Value	Significance Level (p)
L.HKO	.9426631	111.21	0.000*
AK	-6.063122	-2.94	0.003*
ÖSK	-1.391283	-0.69	0.488
NKM	.1240139	3.98	0.000*
FKO	.00279	3.37	0.001*

PDDD	-.2569389	-2.21	0.027**
HBK	.1469391	3.90	0.000**
TQ	1.630204	4.68	0.000*
Wald Testi		2165.57 (0.003)*	
Hansen Testi		21,54 (0.935)	
AR(1)		-2.91 (0.004)*	
AR(2)		-0,78 (0.434)	

Table 4...

Note: *, ** and *** denote 1%, 5% and 10% significance levels, respectively.

When the two-stage System GMM results are examined in Table 4, it can be observed that the Wald test, which tests the significance of the model, is significant, as well as the delayed variable in explaining the dependent variable. In the Hansen test made for the two-stage System GMM method, the null hypothesis assumes the instrument variables are valid (H0: Instrument variable set is valid.), which is accepted. The alternative hypothesis, which assumes that the instrument variables are not valid, (H1: Instrument variable set is not valid.) is rejected. On the other hand, when Table 4 is considered, there are findings obtained from AR(1) and AR(2) tests, which were made in order to test the existence of autocorrelation in the study model. The first-order autocorrelation problem is frequently encountered in dynamic panel data models. In the study, we determined that there is a first-order autocorrelation problem in the model and analyzed it according to the AR(1) test result. When we examined the AR(2) test result, it is observed that there is no second-order autocorrelation problem in the study. The absence of a second-order autocorrelation problem in the study indicates the consistency of GMM.

When Table 4 is examined, an inverse relationship at the 1% significance level was found between the Free Float Ratio and Return on Assets variables, which were used with one-year delayed values in the study. Based on this result, it can be concluded that reducing the Free Float Ratio of companies will have a positive effect on the company's return on assets. Likewise, a positive relationship was found between the Net Profit Margin, Price/Earnings Ratio, and TobinQ variables at the same significance level as the Free Float Ratio. In this case, the increase in the Free Float Ratio of companies will also positively affect the Price/Earnings Ratio and TobinQ variables, which are among the stock market performance criteria related to the market value. The increase in the Free Float Ratio positively affects the Net Profit Margin variable, unlike the Return on Assets variable. According to Table 4, the Free Float Ratio and Market Value/Book Value Ratio are at the 5% significance level inversely correlated; and the Free Float Ratio and the Earnings Per Share variable are correlated at the same significance level in the same direction. According to this result, the increase in the Free Float Ratio has the

effect of decreasing the Market Value/Book Value of the companies and increasing the Profit Per Share.

When Table 4 is examined, it is understood that the established dynamic panel model was successful and all variables except the Return on Equity were in a significant relationship with the delayed value of the dependent variable: the Free Float Ratio. According to the findings obtained in the study, it is understood that the H1 hypothesis was accepted. When related studies in the literature are examined, it is found that there are many in which the meaningful and meaningless relationship of the models are established with the ownership structure indicators, which are then used to determine the performance criteria. This study differs from most of the studies in the literature due to the analysis method used. The dynamic panel data model created in our study, in which the delayed value of the Free Float Ratio was used, is found to be quite successful. This is in line with the following studies: Craswell et al. (1997), Short and Keasey (1999), Estrin and Rosevear (1999), Krivogorsky (2000), Chen et al. (2005), and Margaritis and Psillaki (2010).

CONCLUSION

Ownership structure has become a curiosity and a widely researched subject in the literature with the study titled "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure", by Jensen and Meckling in 1976. This study is considered to be the pioneer of studies on ownership structure in companies. In line with this, many studies have been conducted to explain the relationship between the ownership structure of companies and company performance, and many theories have been developed on this subject. In general, the ownership structure of companies is formed by the company structure and number of shareholders. The concept of depth of ownership structure refers to shareholder diversity. Accordingly, the high number of shareholders of the company indicates that the ownership of the company is widespread. Spreading company ownership to the base is among the main objectives of financial markets. With the increasing financial liberalization movement and globalization, the ownership structure of companies has started to diversify, especially in developed economies.

In recent years, the most important criterion among the variables used in the studies conducted in this area regarding the capital ownership of companies is the Free Float Ratio variable. In this study, the relationship between the Free Float Ratio, which represents the ownership structure of the companies, and the performance and market value criteria were examined. In this context, we determined the relationship between the free float ratios of the companies in question and the performance criteria, in order to examine the effect of the

ownership structure of the companies on the company performance. We used the 18-year data covering the 2003 and 2020 periods of the companies in the Borsa Istanbul (BIST) 30 Index and made analysis with the dynamic panel data analysis method. In this study, the Free Float Ratio was used as a dependent variable; while Return on Assets, Return on Equity, Net Profit Margin, Price/Earnings Ratio, Market Value/Book Value, Earnings Per Share, and the TobinQ Ratio were used as independent variables. Results of this study show that the dynamic panel model we established is successful and there is a significant relationship between the dependent variable, Free Float Ratio, and a total of 7 variables related to performance and market value in the established model. In that econometric model, only no significant relationship could be found between the Return on Equity variable and the Free Float Ratio.

The actual numerical effect of IT usage on factor efficiency is not clearly supplied, but there is a general agreement in the scientific literature. This agreement shows that IT changed the way of business by altering the procedures of production and distribution of goods and services. Again, the usage of IT resulted in new markets, products, work areas, and organization types. It also resulted in an increase in workload quality, as well as enabled new lifelong learning, and professional education systems.

According to the findings of this study, the Net Profit Margin, Price/Earnings Ratio, Earnings Per Share and TobinQ criteria will increase as the Free Float Ratios of the companies increase. When the Free Float Ratio of a company decreases, that is, when its capital density decreases, the company will move away from being a family business since it would need to get professional help in management. This will also mean that large shareholders such as institutional investors and the public will not manage companies. These conditions mean that the company moves away from being managed by a certain group. As the Free Float Ratio increases, the market will evaluate this situation positively and the interest in the company's stocks will increase and the market value of the company will follow. The findings of this study support these propositions. In addition, the lack of a significant relationship between the Free Float Ratio and Return on Equity may indicate that company shareholders should focus on increasing the value of the company by focusing on hiring professional managers more than limiting attorney fees to increase their profits. In addition, as the Free Float Ratios of companies in developing countries such as Turkey increase, the impact may increase even further, which will significantly increase the efficiency and sales of the companies. When the findings of the study are evaluated in general, it is understood that the econometric model we established with the delayed value of the Free Float Ratio, which represents the ownership structure, is quite successful.

In further studies, the effect of company performance can be investigated by using multiple quantitative and qualitative variables that represent the ownership structure of companies, such as the Free Float Ratio. In addition, by creating multiple econometric models according to various scenarios, the effects of companies' capital structures on performance can be analyzed in depth, especially by including the delayed values of variables in the analysis.

AUTHORS' DECLARATIONS

Declarations of Research and Publication Ethics: This study has been prepared in accordance with scientific research and publication ethics.

Authors' Contributions: The authors contributed equally.

Conflict of Interest: There is no conflict of interest arising from the study for the author or third parties.

REFERENCES

- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58, 277–297.
- Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, 68, 29–51.
- Baltagi, B. (2005), *Econometrics Analysis of Panel Data*, John Wiley&Sons Inc, England.
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of econometrics*, 87(1), 115-143.
- Brockman, P., & Yan, X. S. (2009). Block ownership and firm-specific information. *Journal of Banking & Finance*, 33(2), 308-316.
- Cavlak, H. (2019). Relation of traditional, value-based and alternative performance measures to international financial reporting standards: an application to Borsa Istanbul. Published doctoral thesis, Marmara University, Institute of Social Sciences, Istanbul.
- Chaganti, R., & Damanpour, F. (1991). Institutional ownership, capital structure, and firm performance. *Strategic management journal*, 12(7), 479-491.
- Chen, V. Z., Li, J., Shapiro, D. M., & Zhang, X. (2014). Ownership structure and innovation: An emerging market perspective. *Asia pacific journal of management*, 31(1), 1-24.
- Craswell, A. T., Taylor, S. L., & Saywell, R. A. (1997). Ownership structure and corporate performance: Australian evidence. *Pacific-basin finance journal*, 5(3), 301-323.
- Dayı, F. (2022). Effect Of Free Float Rate On Firm Value: An Application In Borsa Istanbul *Finansal arařtırmalar ve alıřmalar dergisi*, 14(26), 102-117.
- Elyasiani, E., & Jia, J. J. (2008). Institutional ownership stability and BHC performance. *Journal of banking & finance*, 32(9), 1767-1781.
- Estrin, S., & Rosevear, A. (1999). Enterprise performance and ownership: The case of Ukraine. *European economic review*, 43(4-6), 1125-1136.
- Greene, W. H. (2003), *Econometric Analysis*, 3rd ed., Prentice Hall, New Jersey.
- Hermalin, B. E., & Weisbach, M. S. (1991). The effects of board composition and direct incentives on firm performance. *Financial management*, 101-112.
- Hu, Y., & Zhou, X. (2008). The performance effect of managerial ownership: Evidence from China. *Journal of banking & finance*, 32(10), 2099-2110.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of financial economics*, 3(4), 305-360.

- Kesbiç, C. Y., & Taşdemir, B. M. (2019). The Effect Of Free Float Rate On Financial Performance. Celal bayar üniversitesi iktisadi ve idari bilimler fakültesi dergisi, 26(2), 689-703.
- Kim, J. B., & Yi, C. H. (2006). Ownership structure, business group affiliation, listing status, and earnings management: Evidence from Korea. Contemporary accounting research, 23(2), 427-464.
- Konuk, S. (2019). The Effects of Ownership Structure Factors on Firm Value: An Application on BIST 30 Companies. Artibilim: Adana Alparslan Türkeş Science and Technology University Journal of Social Science, 2(1), 46-54.
- Krivogorsky, V. (2000). Corporate ownership and governance in Russia. The International journal of accounting, 35(3), 331-353.
- Mahboobi, Y., Khosravipour, N., & Lashgari, Z. (2022). Free Float Supercharging and its Impact on Company Performance. International Journal of Finance & Managerial Accounting, 7(26), 213-226.
- Margaritis, D., & Psillaki, M. (2010). Capital structure, equity ownership and firm performance. Journal of banking & finance, 34(3), 621-632.
- Mudambi, R., & Nicosia, C. (1998). Ownership structure and firm performance: evidence from the UK financial services industry. Applied Financial Economics, 8(2), 175-180.
- Roodman, D. (2006). How to do xtabond2: An introduction to "difference" and "system" GMM in Stata Working Paper no. 103. Center for Global Development.
- Sari, W. A. (2021). The effect of free float ratio and profitability on stock price. berkala akuntansi dan keuangan Indonesia, 6(2), 116-132.
- Short, H., & Keasey, K. (1999). Managerial ownership and the performance of firms: Evidence from the UK. Journal of corporate finance, 5(1), 79-101.
- Srivastava, A. (2011). Ownership structure and corporate performance: Evidence from India. International journal of humanities and social science, 1(1), 23-29.
- Tatoğlu, F., Y. (2016). Panel veri ekonometrisi, Beta Yayıncılık, İstanbul.
- Tatoğlu, F., Y. (2020). İleri panel veri analizi. Beta Yayıncılık, İstanbul.
- Yaroğlu, Z., & Kurt, G. (2022). The Relationship between Free Float Ratio and Financial Performance of Manufacturing Companies Listed in BIST 100. Journal of Auditing and Assurance Services (AUDAS), 2(1), 48-76.