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Evaluating the Effects of Various Financial Ratios on Company Financial Performance: Application in Borsa İstanbul

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Abstract: *The purpose of this study was to determine the impact on the corporate financial performance to the several financial indicators. Companies that are traded continuously in Borsa İstanbul-30 (BIST-30) between 2002-2013 periods were analyzed in this study for this purpose. Current ratio, earnings per share, leverage ratio, firm size and market value to book value ratio were used as independent variables. Net profit margin was used as a dependent variables. The relationship between variables was analyzed by using panel data. According to the results of analysis, there is a positive and significant relation between corporate performance (t-period) and current ratio and corporate size (t-period) and there is a negative and significant relation between corporate performance (t-period) and leverage ratio (t-period).*

Keywords: Financial ratios, current ratio, leverage ratio, company performance, panel data analysis.

JEL Classification: G30, G32

1. Introduction

Companies need to make various forward-looking financial decisions in order to achieve their main goals. There is a direct relationship between decisions to be made by a company and its financial performance. Companies need to make decisions to achieve an optimum financial performance in order to maintain their activities, to establish a competitive advantage and to reach their goals. Various financial ratios that come to the forefront in decisions made by companies also have an impact on financial performance of the companies. Using different financial ratios, companies are able to determine the extent of successes or failures of their activities.

Companies' ability to continue their operations, growth, and compete with competitors is associated with business performance. And, identifying the properties in question in a healthy manner is only possible by measuring and analyzing the financial performances of companies. Various analyzes are performed to evaluate the company performance. Especially in the course of financial planning of companies, the values in the current period or expectations for the period are evaluated by taking the current period of the companies into consideration. Therefore, measuring and analyzing the financial performance is one of the important responsibilities of company managers in companies (Akgüç, 1995:163-201). At this point, the company managers do interest in the company's current situation and financial success in the previous periods, and seek to answer the question of what the future performance of the company would be (Acar, 2003:36).

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Financial performance reflects company profitability in the purest sense. In particular, evaluating the success of the business, and analyzing liquidity, leverage, operations and performance relationships are important to evaluate the current status and future success of companies (Green, 1978:39-45).

In the study to identify the impact of the several financial indicators on the company performance is intended. For this purpose, the study consists of five sections. The aim of the study is explained in the first section. The literatures that investigate the relationship between the company performance and several financial indicators are given in the second section. In the third section, the methodology and sample are described. In the fourth section the findings according to the analyzes are discussed. The results are explained in the last section.

2. Literature Review

It is observed that the competition among enterprises has been intensified together with globalization. Consequently, various indicators are taken into consideration when evaluating companies. After determining the financial performance of companies, identifying the parameters affecting the financial performance is also important for all financial actors in the market. Particularly the potential investors evaluate the financial performance of businesses and try to make successful investment decisions. Therefore, parameters affecting the financial performance of companies are particularly important (Aydeniz, 2009:264). These parameters can either be the indicators originated by the company itself, or can be the macro-economic indicators that affect the company.

Gardiner (1995:32) states that financial ratios are important guiding indicators for the actors in financial markets. The relationship between financial performance of companies and various indicators are discussed in numerous studies. Some of these studies address the variables that affect financial performance, whereas some others address the relationship between the causes of failure and financial indicators.

Hall and Weiss (1967:319-331) have found a significant positive relationship between the profitability --among the financial performance indicators-- and size of the business in a study conducted with 400 companies chosen from Fortune-500 companies between the years 1956 and 1962.

The study that investigates the financial performance of companies was conducted by Kosa, Lang and Netter (1992:891-917). In that study, financial performances of the companies operating in the 1980-1987 period were analyzed, and it was observed that the companies had policy changes in the periods of lower performances, and accordingly the numbers of employees were reduced, areas of activities were narrowed and various costs were minimized.

In a study carried out by Lakonishok, Schleifer and Vishny (1994:1541-1578) the relationships between various financial indicators and stock returns in NYSE and AMEX stock exchanges were analyzed. The stocks of companies that have a low book value market value ratio, price-earnings ratio and cash flow to price ratio provide lower return than the stocks of companies that have higher book value market value ratio, price-earnings ratio and cash flow to price ratio, in other words their companies’ performance was lower than the others as well.

Stekler (1964:1183-1193) classified the companies according to their sizes, and analyzed the variability of profitability ratios depending on the sizes of these companies between the years 1955 and 1958.

In a study, Fama and French (1995:143-146) have analyzed the relationships between the company size and book value to market value ratio, and stock returns and company profitability. In their study they have concluded that the factors of company size and book value to market value ratio were also associated with profitability, as well as the stock returns.

Hill and Perry (1996:60-72) have examined the relationship between the financial performance of companies traded on the New York Stock Exchange and American stock exchange with liquidity, profitability and debt ratios. According to the results of this study, the liquidity ratios are higher in the companies with higher financial performance compared to companies with lower financial performance. It is also seen that the debt ratio of those latter companies are also high.

İçerli and Akkaya (2006:414-421) have studied the relationship between company performance and financial ratios of the companies between 1990-2003 based on the companies traded on BIST. The financial ratios used in the study were the liquidity, debt turnover and profitability ratios. According to the results, it was observed that liquidity ratio is significant in evaluating the business performance.

A study carried out by Ege and Bayraktaroğlu (2007:66-86) addresses the relationship between various financial indicators and stock returns. These indicators were the liquidity ratios, operating ratios, profitability ratios and capital structure ratios. According to the results, it was observed that profitability and liquidity ratios are significant in evaluating the company performance.

In a study conducted by Korkmaz and Karaca (2013:169-179), the relationship between year-end stock closing price, stock return ratio, cash dividend payout ratio, return on assets, price-earnings ratio, earnings per share, net profit growth, market value to book value ratio, market value and return on equity was analyzed as a company performance indicator. Based on the results, it was observed that the company performance increases the cash dividend payout rate and the change in earnings per share, and decreases the change in return on assets. Accordingly, it is recommended that investors who will invest in companies should pay attention to cash dividend payout rate, earnings per share and return on assets in assessing company performance.

In this study, the relationship between various financial indicators and financial performances of companies traded on the BIST-30 will be analyzed by panel data analysis.

3. Methodology and Data

This study aims to investigate whether various financial indicators have an impact on financial performances of companies traded on BIST-30. For this purpose, impacts of various financial indicators of companies on financial performance measures are determined.

Variety of financial indicators of the companies included in the study was collected from the balance sheets and income statements of these companies. Indicators and

calculation methods used in this study are shown in Table 1. In the literature review, it is seen that the variables used in studies were net profit margin, current ratio, earnings per share, leverage ratio, company size and market value book value ratio mainly (Lakonishok, Schleifer and Vishny, 1994, Fama and French, 1995, Hill and Perry, 1996, İçerli and Akkaya, 2006, Ege and Bayraktaroğlu, 2007, Korkmaz and Karaca, 2013).

Table 1. Indicators and Calculations Used In the Study

Indicators	**Calculation**
Net Profit Margin (NPM)	Growth of Net Profit
Current Ratio (CR)	Current Assets/Short Term Debts
Earnings Per Share (EP)	Earnings Per Share Ratio
Leverage Ratio (LR)	Total Debt/Total Asset
Company Size (CS)	Growth of Net Sales
Market Value Book Value Ratio (MVBV)	Market Value/Book Value

For the purpose of the study, the model created to evaluate the performance of company is as follows:

Model:

$$(NPM)_{it} = B_1 + B_2(CR)_{i(t)} + B_3(\mathbf{ES})_{i(t)} + B_4(\mathbf{LR})_{i(t)} + B_5(\mathbf{CS})_{i(t)} + B_6(\mathbf{MVBV})_{i(t)} + e_{it} \quad (1)$$

The model expresses the direction of impact of various financial indicators of companies in the period t on the change in net profit margin, which was determined as an indicator of their financial performance in the period t. With this model, which financial indicators that affect company performance in the current period may be demonstrated.

9 companies traded on BIST-30 continuously in the 2002-2013 periods were included in the study. The selected companies in the study are shown in Table 2.

Table 2. Companies Involved in the Study

Companies Involved in the Study
Arçelik
Doğan Holding
Doğan Yayın Hol.
Ereğli Demir Celik
Koç Holding
Sabancı Holding
Şişe Cam
Turkcell
Tüpraş

The panel data analysis was used to reveal the effect of various financial ratios on the performance of companies. Panel data analysis utilizes both the cross-sectional data and the time-series data. In other words, the method of panel data combines both the cross-sectional and time-series data. The combined use of cross-sectional and time-series analysis increases the quantity and quality of data, and provides more flexibility to analysts, compared to separate use of the methods in question (Gujarati, 1999:638). Two basic methods are used

for estimations in the panel data analysis. The first of these is the "fixed effects" model, which allows obtaining different fixed coefficients for each cross-sectional unit. The fixed effects model assumes that the differences in each unit (e.g. the ones in the firms used in our study) in the model can be captured by differences in the constant terms. Therefore, different constant coefficients are calculated for each unit in the model.

Another method used for estimations in the panel data analysis is the "random effects" model. This method is used when the units are taken from the main body randomly. The random effects model assumes the constant coefficients between the units do not differ (Greene, 1997, 612).

4. Results and Findings

The descriptive statistics of the sample group in the study were evaluated before the panel data analysis. Before proceeding with the panel data analysis, the descriptive statistics of the companies included in the study are presented in Table 3. Descriptive statistics provide information about the overall appearance of the sample group. After that, in the study, unit root tests have been applied first for each of the panel series in the panel data analysis that takes into account both the cross-sectional and time-series data. Im-Pesaran-Shin unit root test was used to analyze unit root values. Unit root tests obtained are shown in Table 4.

Table 3. Descriptive Statistics

Indicators	Number of Observations	Average	Standard Deviation	Min.	Max
NPM	108	12.59	36.25	-48.31	325
CR	108	1.49	0.64	0.04	6.46
ES	108	0.94	1.30	-2.14	8.14
LR	108	54.38	17.98	3.79	106.92
CS	108	17.42	28.78	-61.03	310.41
MVBV	108	1.62	1.41	0	12.42

According to the Table 3, the average net profit margin growth of the companies traded on BIST-30 continuously between the years 2002-2013 is 12.59. However, the leverage ratio, which expresses the average debt levels of these companies, is 54.38, and the current ratio is approximately 1.49.

Table 4. The Results of Unit Root Test

Indicators	Unit Root Test	Statistic	P-Value
NPM	Im, Pesaran ve Shin W-Stat	-5.1257	0.000
CR	Im, Pesaran ve Shin W-Stat	-2.1335	0.0164
ES	Im, Pesaran ve Shin W-Stat	-3.3678	0.0004
LR	Im, Pesaran ve Shin W-Stat	-3.1487	0.0008
CS	Im, Pesaran ve Shin W-Stat	-3.1065	0.0009
MVBV	Im, Pesaran ve Shin W-stat	-3.6008	0.0002

Various statistical problems may occur after creating the models. In order to address these problems, several tests were performed against any heteroscedasticity and autocorrelation problem before proceeding with the model estimations. After observing that these problems were not present, a selection was made between fixed effects models and random effects model by using the Hausman test statistic. Based on the results, the use of

random effects model was found appropriate in interpretation of the analysis since Hausman test statistic was greater than 5%. The values in the Hausman test statistic in the panel data analysis are shown in Table 5.

The results of the analysis performed to determine the effect of various financial indicators on company performance were presented in Table 5. According to the Hausman test results, the random effects model was used for evaluation of the analysis:

Table 5. Results of Models

	Fixed Effects Model		Random Effects Model	
Variables	**t-Statistics**	**P-Value**	**t-Statistics**	**P-Value**
CR	-4.34408	0.558	9.704785	0.0126*
ES	1.77668	0.036	-1.11205	0.677
LR	-0.58904	0.643	-0.4038683	0.073**
CS	0.314295	0.025	0.3167882	0.013*
MVBV	-0.908572	0.775	-0.674897	0.791
Constant (c)	45.44833	0.042	45.67	0.027
R2	0.13		0.15	
F-statistics	2.84	0.0197		
Wald-statistics	28.92	0.0001	13.30	0.02
Wooldridge	1367.9	0		
Hausman Test	4.43	0.4892		
Observation Number	108	108	108	108

* means %5 significance level. ** means %10 significance level.
-STATA 10 econometrics software was used for analysis.

The net profit margin for the period t was determined as an indicator of company performance of the analyzed companies traded on BIST-30. As a result of the econometric model, it was found that there is a significant correlation between the current ratio, company size, leverage ratio and financial performance in the period (t). The relationship between company performance and the current rate was significant and positive at the 5% level. Similarly, the relationship between company performance and company size was significant and positive at the 5% level. This finding indicates that higher current ratio and company size indicators in the current year leads managers and investors of the company expect a higher profitability in the next period compared to the current period. In addition, higher current ratio of the company is considered a positive indicator of adequacy of working capital of the company. This positive indicator refers to the higher financial performance and ability to fulfill liabilities of a company to the lenders and investors in the short-term. In a globalized and competitive economy, a company with a higher company performance will become attractive for investors as well as lenders.

And, there are studies in the literature supporting the conclusion that there is a positive significant relationship between the current ratio, company size and financial performance. Hall and Weiss (1967:319-331) have found a significant positive relationship between the profitability --among the financial performance indicators-- and size of the business in a study conducted with 400 companies chosen from Fortune-500 companies between the years 1956 and 1962. It can be said that, market share increases as the company

grow, and they perform their activities in a more profitable way thanks to the competitive advantage provided by the market dominance. Stekler (1964:1183-1193) classified the companies according to their sizes, and analyzed the variability of profitability ratios depending on the sizes of these companies between the years 1955 and 1958. He had concluded that the profitability of larger companies was better than the smaller companies compared to the previous period.

And, another finding was the negative relationship found between company performance and the leverage ratio of the business. The leverage ratio allows drawing conclusions about the level of debt of a company, and determines the amount of company's assets that are financed by foreign sources. A higher leverage ratio can be considered as an indication of the higher risk in company financing policies. Accordingly, the various financial actors related to the company (lenders, suppliers, etc.) may judge that the company has a high risk of financial difficulty. This judgment may create an environment that could hinder business activities. Related to this, it is expected that a company performance is adversely affected by the higher levels of debt.

5. Conclusion

In an increasingly competitive market conditions, maintaining the activities of companies is closely related to their financial performances. The financial decisions made for the future by companies directly affect this performance. Therefore, the selection of indicators to be used in this type of decision is important.

Using panel data analysis, it is seen in this study that the current ratio and company size have a positive effect on company performance, and the level of debt has a negative effect on company performance. Therefore, increases in the current ratio and size of the business create an expectation of increased profitability in the current period. Similarly, decreases in the current ratio and size of the business affect the business performance negatively in the current period.

The study is instructive for the financial actors who want to evaluate the company performance. Especially the study considering both time and cross-sectional is guiding for evaluation of existing businesses.

Companies need to make decisions to further improve their financial performance in the next period by evaluating the current status and determining their positive and negative aspects. In making these decisions, they should take into account the obligations and liabilities to investors and lenders and make plans by interpreting the financial indicators correctly, as well as aiming a competitive advantage. Companies that assess their financial performance within a certain period in a planned manner are likely to be prepared against possible financial risks and have a competitive advantage compared to other companies that haven't performed such assessments.

Therefore to interpret the financial indicators that enable evaluating current financial situation is proposed when creating basic decisions reflected to company performance.

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