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EFFECT OF INVESTMENT AND FINANCING DECISIONS ON FIRM VALUE; EXAMPLE OF BIST INDUSTRIAL INDEX

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Abstract

The purpose of this study is to investigate the effect of investment and financing decisions on firm value. Productivity and profitability ratios representing investment decisions, leverage ratio and current ratio representing financial decisions, firms representing firm value were chosen as the last trading day share values. Investment and financing decisions and the impact of the 2008 global crisis on the firm value were tested for 100 firms operating in the Borsa Istanbul Industrial Index, using the annual data for the period 2003-2018 and the fixed effects panel data method. According to empirical findings, asset turnover rate, return on assets, intangible assets, current ratio, stock turnover rate and profit per share variables positively and significantly affect firm value. Leverage ratio, debt turnover rate and crisis variable affect the firm value negatively and significantly. In addition, it was concluded that the effects of the receivable turnover rate and firm size variables on the firm value are meaningless.

Keywords: Firm value, investment decisions, financing decisions, panel data

YATIRIM VE FİNANSMAN KARARLARININ FİRMA DEĞERİ ÜZERİNE ETKİSİ; BIST SINAİ ENDEKSİ ÖRNEĞİ

Öz

Bu çalışmanın amacı yatırım ve finansman kararlarının firma değeri üzerindeki etkisini araştırmaktır. Yatırım kararlarını temsilen verimlilik ve karlılık oranları, finansman kararlarını temsilen kaldıraç oranı ve cari oran, firma değerini temsilen firmaların yıl sonu son işlem günü pay senedi değerleri tercih edilmiştir. Yatırım ve finansman kararları ile 2008 küresel krizinin firma değeri üzerindeki etkisi, Borsa İstanbul Sınai endeksinde faaliyet gösteren 100 firma için, 2003-2018 dönemi yıllık verileri kullanılarak sabit etkiler panel very yöntemi kullanılarak test edilmiştir. Ampirik bulgulara göre, aktif devir hızı, aktif karlılık oranı, maddi olmayan duran varlıklar, cari oran, stok devir hızı ve hisse başına kar değişkenleri firma değerini pozitif yönde ve anlamlı olarak etkilemektedir. Kaldıraç oranı, borç devir hızı ve kriz değişkeni ise firma değerini negatif yönde ve anlamlı olarak etkilemektedir. Ayrıca alacak devir hızı ve firma büyüklüğü değişkenlerinin firma değeri üzerine etkilerinin anlamsız olduğu sonucuna ulaşılmıştır.

AnahtarKelimeler: Firmadeğeri, yatırımkararları, finansmankararları, panel very

1. Introduction

The main purpose of a firm is to increase the fortunes of the firm's existing shareholders. In other words, the value of the company is maximized. With the concept of firm value gaining importance, investors, financial institutions associated with the firm, other people and institutions want to have information about the value of the firm. In addition, they want to learn

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both the factors that companies cannot control, such as general economic and political conditions, and the factors that companies can control, such as investment and financing decisions.

Although there is no generally accepted definition for firm value, firm value is related to liquidity, profitability, capital structure and operating rates. Many methods are used in the literature to determine the firm value. While some of these methods take into account the price coefficients of the companies, some of them take into account the information about the activities of the companies (Ercan and Ureten, 2000: 123). Although it was seen that the Market Value / Book Value (MV/BV) ratio was used in the previous studies, in this study, the stock end values of the firms representing the firm value were used by considering the financial statement disclosure dates. The reason why MV/BV ratio is not used as dependent variable is mostly because it expresses stock market performance. December stocks last transaction day prices were used both in terms of separation from previous studies and reflecting the current status of firms and revealing the effects of changes in the economy (Meder, 2000: 41).

In order to achieve the purpose of value maximization of companies, if the value of the stock increases, the value of the company will increase. Considering that the investment decisions they will make are important while providing value maximization, firms demonstrate the importance of financing decisions where, how and which way these investments are financed. It is also very important to finance these investments with the least cost (Schularick& Steger, 2010). Firm value and the decisions to be made will affect the profitability and risk of firms, and this effect will cause the firm value to increase or decrease (Arkan, 2010: 25).

Investment is the fund usage decisions that companies use to reach their goals by performing their activities. Investment decisions are one of the most important factors that determine the profitability, efficiency and risk levels in order for companies to survive (Usta, 2012: 28). These decisions also benefit the company to act according to its financial strength and competitive position in the future. While making financial decisions, mechanisms affecting firm value should not be ignored (Akgüç, 2011: 3).

Financing decisions are decisions about how companies will grow and how investments will be financed. It is very important to correctly determine the financial resources required for investments. When making financial decisions, the tools used must be analyzed and the conditions of the firm and the financial analysis must be taken into account. Firms can apply for debt only, equity only or both debt and equity when making their financing decisions. In order for growth to occur and investments to be efficient, a financing approach that is suitable for competitive conditions must be adopted (Betz, 2011). In order to make investment and financing decisions effectively, minimum cost and maximum firm value are required. For this reason, it was decided to investigate the effect of investment and financing decisions of the companies on the firm value.

In this study, as a result of the results obtained from the previous studies, it has been investigated how these variables have an impact on the firm value by classifying the variables as investment decisions and financing decisions instead of just calling them financial ratios. For this purpose, analysis was carried out using panel data method by using efficiency and profitability ratios to explain investment decisions, leverage ratio and current ratio to explain financing decisions, and final share closing price in December to determine firm value. In the study, variables that affect the firm's value were investigated by using the annual data of 2003-2018 of the variables belonging to 100 firms trading in Borsa İstanbul (BIST) Industrial index. When we look at the studies carried out so far, the relationship between capital structure and firm value in general has been examined. This study differs from other studies in terms of both addressing the crisis period and also investigating investments in intangible assets.The reason for adding intangible assets to variables; It is due to the fact that it is a long-term investment specific to the company and reflects the value of the firm.By adding the crisis dummy variable,

it is aimed to investigate what effect the crisis has on firm value.In addition, this study differs from previous studies in terms of the dependent variable used and the time period examined is longer. Firstly, empirical findings were included in the study, and then regression analysis results were explained by including the data set and method used in the study and the analysis. In the last section, the findings were evaluated.

1. Literature Search

When the studies on firm value are examined, it is seen that there are a lot of studies investigating the relationship between financial rates and firm value. The findings obtained as a result of the analysis of these studies are presented in Table 1.

Table 1.*Studies on the literature*

Author Date	**Term**	**Method**	**Sector/ Country**	**Result**
Chowdhury and Chowdhury (2010)	1994-2003	Panel Data Analysis	Bangladesh 77 firms	Concluded that the current rate andprofit per share has a significant and positive effect on firm value, while asset turnover rate, leverage and growth rate have a significant and negative effect on firm value.
Büyükşalvarcı (2010)	2009	Panel Data Analysis	ISE manufacturing sector	Analysis between liquidity, financial structure, activity and profitability rates and share value, it reached the conclusion that nonlinear relations also exist.
Birgili andDüzer (2011)	2001-2006	Panel Data Analysis	İSE-100	While there is a positive relationship between Liquidity and financial structure ratios and firm value, there is a negative relationship between firm value and profitability ratios. They did not find a significant relationship with activity rates.
Gill and Mathur (2011)	2008-2010	Panel Data Analysis	Toronto Stock Exchange	Concluded that there is a positive relationship between growth and profitability and firm value.
Lin and Chang (2011)	1993-2005	Regresion Analysis	Taiwan 196 firms	Identified a negative relationship between the leverage ratio and firm value.
Savsar (2012)	2002-2009	Panel Data Analysis	ISE -100	Determined a significant and positive relationship between the credit turnover rate and firm value, and a negative relationship between the stock turnover rate, return on equity and the firm value
Küçükkaplan (2013)	2000-2010	Panel Data Analysis	111 production firms in the ISE	Determined that there is a negative relationship between the leverage ratio, account receivable turnover, current ratio and equity profitability, and a positive relationship between profit margin and firm value.
Ayrıçay andTürk (2014)	2004-2011	Panel Data Analysis	56 firms in BIST	Concluded that there is no significant relationship between borrowing rate and return on assets, while Acid test rate, assets turnover rate affect firm value significantly. They concluded that there was a negative relationship between the crisis and firm value.
Aras, KutluFurtuna andMutluYıldırım (2017)	2010-2014	Panel Data Analysis	274 firms in BIST	They determined a positive correlation between re-investment rate, asset turnover rate and return on assets and firm value, and a negative relationship between debt turnover rate and asset turnover rate.

Gümüşvd. (2017)	2011-2015	Panel Data Analysis	5 cement companies in BIST	They determined that current ratio, leverage ratio and asset turnover rate affect firm value positively, while cash rate and receivable turnover rate affect it negatively.
Biçen andSezgin(2017)	2005-2015	Panel Data Analysis	BIST- IT sector	They concluded that the net sales growth rate, market value / book value ratio and profit per share positively affected the firm value.
Korkmaz andDilmaç (2018)	2008-2015	Panel Data Analysis	Bank and insurance companies according to the transaction in BIST	Leverage ratio and return on equity affect firm value negatively, while intangible assets affect it positively.
Akyüz andYıldırım (2019)	2012-2018	Panel Data Analysis	7 companies in the paper industry in BIST	While equity ratio, account receivable turnover, net profit, gross sales profit positively affect the firm value, leverage ratio, equity profitability and asset profitability affect the firm value negatively.

2. Data Set and Method

The aim of the study is to test the effect of investment and financing decisions on firm value with the help of some ratios used in financial analysis. In this research, panel data method and annual data of 2003-2018 period of 100 firms operating in BIST Industry index were used. The data used in the analysis are Financial Informataion News Network. It was built on 100 companies whose data in BIST Industry index were obtained from the company. The data related to the companies discussed in the study are presented in the annex.

The variables used in the study were determined by considering the theoretical expectations and the literature. The value of the firm, which is the dependent variable used in the study, was calculated based on the last share closing price of December. The explanations about the dependent variable and independent variables used in the analysis are shown in Table 2. Debt turnover rate (DTR), stock turnover rate (STR), account receivable turnover (ART), assets turnover rate (ATR), intangible assets (MODV), return on assets (AKO), firm size (FB) leverage ratio (LR), current ratio (CR), crisis (Crisis 2008) variables were investigated on the independent firm value. Detailed explanation of how all variables used in the model are calculated is presented in Table 2.

Table 2. *Variables used in the study*

Variable	**Used Rate**	
Dependentvariable Firm Value	December last share closing price	FV
Independent variables **Investment Decisions**		
Debt Transfer Rate	With Credit Buy / Avg. T. B.	DTR
Stock Turnover Rate	Cost of Commercial Goods Sold / Av. Commercial Goods Stock	STR
Account Receivable Turnover	Net Sales / Trade Receivables	ART
Asset Turnover Rate	Net Sales / Total Assets	ATR
Intangible Assets	Intangible Assets	IA
Firm Size	Growth in Assets	FS
Return on Assets	Net Profit / Total Assets	ROA
Profit Per Share	Total Profit / Number of Shares	PPS
Financing Decisions Leverage Ratio	Total Debt / Total Asset	LR
Current Rate	Current Assets / Short-Term Debt	CR

Dummy Variable Crisis	2008 Global Crisis (0 is given for Crisis2008 years before 2008 and 1 for subsequent years)	Crisis 2008

This research was created by using panel data method with annual data of 2005-2018 period of 100 firms operating in BIST Industry index. Descriptive statistics related to the series consisting of a total of 1,400 observation values for 9 variables are presented in Table 3.

Table 3.*Descriptive statistics*

Data	Average	Standard Deviation	Minimum	Maximum
FV	.6012232	.1749623	.0291738	2.931484
DTR	4.110267	2.244511	.2340789	16.56455
STR	29.21312	12.23231	3.765429	62.67531
ART	5.123090	4.578315	.1280453	12.66739
ATR	2.246234	14.23235	12.5679	121.0265
IA	1.426342	8.4182	0.64917	1.46276
ROA	.2056435	.140978	-.54381	1.52043
FS	4.78610	.032168	4.8920	18.2901
PPS	.509.028	.40531	21.052	18.44836
LR	.0564798	.0211564	.0002176	.305311
CR	213.5642	201.278	1.1417	1.5434
Crisis 2008	10.92669	1.342902	15.44287	12.23344

In order to measure the effect of investment and financing decisions on firm value with the help of ratios used in financial analysis, panel data analysis was performed and the model described below was tested in this context.

Model: Effect of Investment and Financing Decisions on Firm Value

$$FV = \beta 0_{it} + \beta 1DTR_{it} + \beta 2ST_{it} + \beta 3ART_{it} + \beta 4ATR_{it} + \beta 5IA_{it} + \beta 6FS_{it} + \beta 7ROA_{it} + \beta 8PPS_{it} + \beta 9LR_{it} + \beta 10CR_{it} + Crisis\ 2008 + \varepsilon i$$

Within the scope of the model used in the study, both horizontal and time section dimensions were used together. The firm data of the BIST Industrial index are used as the time dimension and the bed cross-section dimension. Predicting the relationships between the variables with the help of panel data models created using panel data containing time dimension is called panel data analysis (Tatoğlu, 2013: 4). A general panel data model with dependent variable Y and independent variable X is expressed as follows.

$$Y_{it} = a_{it} + \beta_{it} + e_{it}$$

Here, α represents constant parameter, β_it slope parameter, e_itthe error term andi represents the sub-indices for units and t sub-indices for time periods (Baltagi, 2005: 11). In panel data analysis, F test, LM test and Hausman tests are used to determine the existence of unit and time and which model is suitable (Güriş, 2015: 35). In this study, Hausman test was used to determine the model. In the Hausman test, the rejection of the null hypothesis, which showed that both the coincidence effects model and the coefficients obtained from the desabit effects model were the same, indicates that the results of the random effects model are more effective (Tarı, 2011).

In panel data analysis method, it should first be determined whether the variables are stationary or not. Also, horizontal dependency must be tested to test for the existence of the unit root. In the case of mutual interactions between companies, namely, the cross-sectional dependency, the shock that may occur in any of the units affects other units. In the literature,

Breusch and Pagan (1980) test and Pesaran (2004) and Frees (1995) test are widely used to test the cross-sectional dependency. The results of the Breusch and Pagan (1980) test and Pesaran (2004) and Frees (1995) tests performed to investigate the presence of horizontal cross-section dependence of the model to be investigated are shown in table 4,

Table 4. *Cross Sectional Dependency Test Results*

Test	**Statistics**	**Probability**
Breush- Pagan (1980)	10.239	0.0000***
Frees (1995)	1.072	alpha = 0.01 : 0.2928
Pesaran (2004)	3.340	0.0000***
*,** and *** express statistical significance at the level of 0.10, 0.05 and 0.01, respectively.		

When the results of Table 4 are evaluated, the hypothesis "H0: There is no cross-sectional dependence between error terms" is rejected. If there is no horizontal cross-section dependency in the literature, the application of the 2nd generation unit root tests is recommended for consistent results. Pesaran Unit Root (CADF) test, which is one of the 2nd generation unit root tests, was performed and the unit root test results obtained for the level values and the first differences of the variables are shown in Table 5.

Table 5. *Unit root test results*

	Constant Term		**Constant Term and Trend**	
Variables	**CADF**	**Probability**	**CADF**	**Probability**
FV	-0.764 (2)	0.000*	-3.644 (2)	0.110*
DTR	-2.102 (0)	0.301	-1.981 (0)	0.000***
STR	-1.226 (0)	0.810	-2.099 (2)	0.501**
ART	-1.678 (0)	0.213	-5.213 (0)	0.000***
ATR	-1.319 (0)	0.000***	-1.465	0.000***
IA	0.051903	0.018**	2.801093	0.000**
ROA	-2.554 (0)	0.047**	-2.237	0.48**
FS	0.71403	0.0634*	6.097222	0.000***
PPS	2.601	0.0528*	-2.895	0.000***
LO	-1.245 (0)	0.824	-1.300	0.997
CR	1.224 (1)	0.614	-2.108	0.321
Delay lengths were determined according to the Akaiki information criteria. Max. delay length is 2. Optimal delay lengths are shown in parentheses. *,**and *** express significance at the level of 0.10, 0.05 and 0.01, respectively.				

According to the test results, it is stationary at the level of PPS at 10% significance level. According to the test results, IA and ROA variables are stationary in level values at 5% significance level. According to the test results, FV, ATR, variables are stationary at 1% significance level. The non-stationary DTR, ST, ART, LR, CR, series are seen to be stationary after taking the difference. In the study, after the series is stationary in the level value, the LM test was performed to determine the estimation method, and Hausman Test was performed due to the presence of unit effect in the model. The results of the LM and Hausman test are shown in table 6.

Table 6.*LM and Hausman test results*

Test	**Test Value**	**Probability Value**	**Decision**
LM	482.91	0.000***	It has unit effect
Test	**Test Value**	**Probability Value**	**Decision**
HAUSMAN	28.11	0.000***	There is a systematic difference between parameters.

Based on the table above, it is seen that the model of fixed effect panel data analysis is suitable. The diagnostic test results of the model to be estimated in the study are as follows.

Table 7. *Diagnostic test results for the model*

Autocorrelation Test	**Test Value**	
Bhargava, Franzını& Narendranathan'sDurbın Watson Test	1.7563	
Variance Test	X^2**Value**	**Probability Value**
Wald Test	100.21	0.000***

When the table above is examined, it is understood that there is a problem of autocorrelation and variance. In order for estimators to provide reliable results, the model will continue to be predicted with resistant standard errors. In this context, standard errors were corrected with the help of Arellano-Froot-Rogers estimator. The fixed effects model results estimated by the Arellano-Froot-Rogers estimator are reported in the table below.

Table 8.*Fixed effects test results*

Independent Variables	**Coefficient**	**Standard Error**	**Probability Value**
DTR	-0.18021	0.0471	0.000***
STR	0.0179	0.0024	0.000***
ART	0.04611	0.0018	0.1602
ATR	0.0295	1.0349	0.000***
IA	0.92512	1.0166	0.000***
ROA	1.2850	0.1243	0.012**
FS	-0.2045	0.1595	0.081**
PPS	0.0162	0.0012	0.010**
D1LO	-0.32310	0.0208	0.000***
D1CR	0.43428	0.1500	0.0110**
Crisis2008	-0.4011	0.0248	0.0010 **
Constant TermC	0.213671	0.0190	0.0000
R^2	0.4309		
Wald Statistics	2.93 (0.000)***		
"D1" in front of the variable shows that the first cyclical difference of the series is taken.*,** and *** express significance at the level of 0.10, 0.05 and 0.01, respectively.			

Table 8 shows that the R^2 coefficient, which shows the effect of independent variables on the dependent variable, is 0.4309. The closer the R^2 value is to 1, the stronger it is to explain the independent variables of the dependent variable (Gujarati, 2001: 247). It can be said that 43% of the changes in the firm value are caused by the changes in the independent variables.

When the table is analyzed, the variables that affect the firm value significantly are debt turnover rate (DTR), stock turnover rate (ST), asset turnover rate (ATR), intangible assets (IA), return on assets (ROA), profit per share (PPS), leverage ratio (LR), current ratio(CR) and crisis 2008. If the variables showing investment decisions are examined; The debt turnover rate (DTR) appears to affect the firm value negatively, while the increase in the debt turnover rate decreases the firm value by 0.18021. This result is compatible with Aras, Kutlu Furtuna and Mutlu Yıldırım (2017) and Büyükşalvarcı (2010). While the inventory turnover rate (STR) positively affects the firm value, it is seen that the increase in this rate increases the firm value by 0.0179. This result is in line with the works of Çakır and Küçükkaplan (2012). It is observed that the increase in asset turnover rate increased the firm value by 0.295. This result is in line with the works of Aras, Kutlu Furtuna and Mutlu Yıldırım (2017) and Akyüz and Yıldırım (2019). It is observed that the increase in intangible assets increased the firm value by 0.92512. This result is in parallel with the work of Korkmaz and Dilmaç (2018). Although they do not

have any physical assets, they are an important variable since they are assets that give privileges to companies as long as they continue to exist. While the return on assets (ROA) positively affects the firm value, the increase in the return on assets increases the firm value by 1.2850. This result is in line with Aras, Kutlu Furtuna and Mutlu Yıldırım (2017). It is observed that the increase in profit per share increased the firm value by 0.0162. This result is in parallel with the works of Biçen and Sezgin (2017) and Birgili and Düzer (2011). It is determined that the account receivable turnover (ART) and firm size (FS) have no significant effect on the firm value.

If the variables showing the financing decisions are examined; leverage ratio (LR) is seen to affect firm value negatively and significantly, and the increase in leverage ratio decreases firm value by 0.3231. This result is compatible with the work of Lin and Chang (2011), Küçükkaplan (2013) and Korkmaz and Dilmaç (2018).

The increase in the current ratio increased the firm value by 0.43428, and thisshows parallelism with the studies of Chowdhury and Chowdhury (2010), Birgili and Düzer (2011) and Gümüş et al. (2017). While the 2008 crisis negatively and significantly affected the firm value, it appears to decrease the firm value by 0.4011 and is in line with the studies of Ayrıçay and Türk (2014).

Table 9.*Theoretical expectations and findings*

Theoretical Expectation		**Result Obtained**	
Debt Transfer Rate	-	Debt Transfer Rate	-
Stock Turnover Rate	+	Stock Turnover Rate	+
Credit Turnover Rate	+	Credit Turnover Rate	Nonsignificant
Assets Turnover Rate	+	Assets Turnover Rate	+
Intangible Asset	+	Intangible Asset	+
Return on Assets	-/+	Return on Assets	+
Firm Size	+	Firm Size	Nonsignificant
Profit Per Share	+	Profit Per Share	+
Leverage Ratio	-/+	Leverage Ratio	-
Current Rate	+	Current Rate	+
Crisis	-	Crisis	-

According to the findings obtained from the analysis results, while the debt turnover rate, stock turnover rate, return on assets, profit per share variables affect the firm value positively and significantly, the increases in these rates will affect the firm value positively and cause an increase in the firm value. Leverage ratio, current ratio and crisis variables will affect the firm value negatively and significantly, and the increase in these rates will have a negative effect on the firm value.

3. Result

Maximizing the firm value, which is the main goal of financial management, is influenced by many factors. Some of these are factors that companies cannot control, such as general economic and political conditions, while others are factors that companies can control. In this study, the relationship between investment and financing decisions and firm value with the help of some ratios used in financial analysis has been tested with panel data method for BIST Industrial index firms. In particular, the main reason for choosing this index is that firms, which are the important building blocks of the economic structure, are included in this index and are suitable for accurately reflecting the general economic situation.

Debt turnover rate, which shows investment decisions, affects firm value significantly and negatively. This is an indication that the firm value increases as the debt payment period decreases. In other words, it is understood that firms do not delay in paying their debts in the period examined. Inventory turnover rate affects firm value significantly and positively impact on firm value. Assets turnover rate affects firm value significantly and positively, and it can be understood that the increase in sales will increase the firm value. Intangible assets affect the

firm value significantly and positively, which may indicate that the investments made for the growth of the firm increase the firm value. Intangible assets, which are generally ignored in previous studies, are important in terms of providing advantages to companies, even though they do not have any physical assets. It is observed that the rate of active profitability affects firm value significantly and positively. it can prove that the market value of the companies is high as the return on assets increases. Profit per share appears to affect firm value significantly and positively, which may be an indication that the firm has maximized value. According to the findings obtained as a result of the study, it is seen that the increases in investment decisions (asset turnover rate, intangible assets, asset profitability rate, profit per share) increase the firm value.

We can say that the leverage ratio, which shows the financing decisions, affects firm value significantly and negatively, which is an indicator that the firm value will increase as debts decrease. The current ratio affects firm value significantly and positively, and it is an indicator that the increase in current assets or decrease in short-term debts will increase firm value. According to the findings obtained as a result of the study, it is seen that the increase in leverage ratio decreases the firm value, while the increase in the current rate increases the firm value. The 2008 crisis appears to affect firm value significantly and negatively, and this is very important on firm value. Unlike previous studies, the 2008 crisis was added to the study as a dummy variable and it was concluded that the crisis negatively affected the firm's value.

The study includes conclusions that can support stock investors and financial managers in decision making. In addition, it is thought that the findings will contribute to the literature, and the studies to be conducted with different indexes, methods, periods, countries and sectors are important in terms of obtaining new findings in testing the relationship between the series. Firms can find solutions to their financing policies by turning to alternative sources of financing during times of financial crisis. Finance managers can increase firm value through more effective and efficient investment and financing preferences. It is very important to carefully examine the rates that show positive and negative relations with the firm value and to implement the measures that can be taken financially for the firm value. Investors can reach their investment targets by considering the general situation of the economy, if they know from which variables and in which way the firm's value is affected.

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No	Company	Company Code	No	Company	Company Code	No	Company	Company Code	No	Company	Company Code
1	Adana Çimento (A)	ADANA	26	Bossa	BOSSA	51	Good-Year	GOODY	76	Otokar	OTKAR
2	Adana Çimento (B)	ADBGR	27	Brisa	BRISA	52	GöltaşÇimento	GOLTS	77	Park Elek.Madencilik	PRKME
3	Adana Çimento (C)	ADNAC	28	Burçelik	BURCE	53	Gübre Fabrik.	GUBRF	78	Parsan	PARSN
4	Adel Kalemcilik	ADEL	29	Componenta Dökümcülük	COMDO	54	Hektaş	HEKTS	79	PenguenGıda	PENGD
5	AfyonÇimento	AFYON	30	ÇelikHalat	CELHA	55	HürriyetGzt.	HURGZ	80	Petkim	PETKM
6	Akçansa	AKCNS	31	Çemtaş	CEMTS	56	İhlasEvAletleri	IHEVA	81	Pınar Et Ve Un	PETUN
7	AkınTekstil	ATEKS	32	Çimbeton	CMBTN	57	İzmir Demir Çelik	IZMDC	82	PınarSu	PINSU
8	Aksa	AKSA	33	Çimentaş	CMENT	58	İzocam	IZOCM	83	PınarSüt	PNSUT
9	AlarkoCarrıer	ALCAR	34	Çimsa	CIMSA	59	Kaplamin	KAPLM	84	Sarkuysan	SARKY
10	AlkimKağıt	ALKA	35	DemısaşDökümü	DMSAS	60	KarsanOtomotiv	KARSN	85	Sasa Polyester	SASA
11	Anadolu Cam	ANACM	36	Denizli Cam	DENCM	61	KarsuTekstil	KRTEK	86	Soda Sanayii	SODA
12	Anadolu Efes	AEFES	37	Derimod	DERIM	62	Kartonsan	KARTN	87	Söktaş	SKTAS
13	Anadolu Isuzu	ASUZU	38	Deva Holding	DEVA	63	Kent Gıda	KENT	88	Sönmez Pamuklu	SNPAM
14	Arçelik	ARCLK	39	DitaşDoğan	DITAS	64	Klimasan Klima	KLMSN	89	T.Tuborg	TBORG
15	Arsan Tekstil	ARSAN	40	Doğusan	DOGUB	65	KonfrutGıda	KNFRT	90	Tat Gıda	TATGD
16	Aslan Çimento	ASLAN	41	Duran DoğanBasım	DURDO	66	Konya Çimento	KONYA	91	Tofaş Oto. Fab.	TOASO
17	Aygaz	AYGAZ	42	Dyo Boya	DYOBY	67	Kordsa Global	KORDS	92	Trakya Cam	TRKCM
18	Bagfaş	BAGFS	43	EgeEndüstri	EGEEN	68	Kristal Kola	KRSTL	93	Tukaş	TUKAS
19	BakAmbalaj	BAKAB	44	EgeGübre	EGGUB	69	KütahyaPorselen	KUTPO	94	Tüpraş	TUPRS
20	Banvit	BANVT	45	EgeProfil	EGPRO	70	MardinÇimento	MRDIN	95	UşakSeramik	USAK
21	BatıÇimento	BTCIM	46	EgeSeramik	EGSER	71	Marshall	MRSHL	96	ÜlkerBisküvi	ULKER
22	BatısökeÇimento	BSOKE	47	Ereğli Demir Celik	EREGL	72	Menderes Tekstil	MNDRS	97	ÜnyeÇimento	UNYEC
23	BirlikMensucat	BRMEN	48	Ford Otosan	FROTO	73	MerkoGıda	MERKO	98	Vestel	VESTL
24	Borusan Mannesmann	BRSAN	49	Gentaş	GENTS	74	Mondi Tire Kutsan	TIRE	99	Yataş	YATAS
25	Bosch FrenSistemleri	BFREN	50	GersanElektrik	GEREL	75	Olmuksan-IP	OLMIP	100	Yünsa	YUNSA

Ad. Data on the companies discussed in the study