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The Effect of Company Fundamentals on Stock Values

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Abstract. The influencing factors of stock values change with respect to the changes on economic factors depended on the selected time interval. These factors can be considered under two main categories (microeconomic and macroeconomic). The aim of this study is to identify the effect of selected microeconomic factors (Total Asset Turnover Ratio, Debt Ratio, Current Ratio, Price to Earnings Ratio, Net Profit Margin, and Book Value) on stock values between the second quarter of 2000 and the third quarter of 2012. This study is among the few researches which consider sector level performances of the stock values. The selected sectors for the analyses are electric, food, communication, paper, chemistry, metal-product, metal-main, stone, textile, commerce and transportation. The results indicate that Book value is highly significant positive impact on the stock prices of all the sectors. The effects of remaining factors are found to be different for each sector.

Keywords: microeconomic factors; sector level analyses; stock values, ISE.

Introduction.

Both microeconomic and macroeconomic factors have impact on company stock movements. Microeconomic factors are determined by analyzing a firm's financial situation. In the analysis of the firm, besides the evaluation of the title of the company, its history, reputation, capital, reserves, competence and skill of managers, creditworthiness, new investment projects, production type, capacity, turnover, export opportunities, annual increases in sales and exports, the market condition compared to its competitors, profitability and profit distribution policy, etc. can be considered (Aksoy, 1988). This study aims to identify the influencing factors of stock movements by considering selected microeconomic factors (company fundamentals).

Company Fundamentals

The factors related to company fundamentals in terms of affecting stock prices may be company performance, top management changes, and creating new assets, dividends, earnings, etc. According to Molodovsky (1995), dividends are the hard core of stock value. Dividends' importance is emphasized by Williams (1938) as well. He states that an asset value equals the present value of all cash flows of the asset. Microeconomic factors are determined by some indicators. These indicators are financial ratios derived from company financial statements. Some of the ratios are provided below.

The Stocks' Market Turnover Ratio: Despite being highly open to the public, if the stocks stay fixed on the shareholders, company stocks cannot have higher liquidity (they cannot be easily converted to money).

Earnings per Share: The share of each stock is important, beside company revenues (Arslan, 2002).

Price/Earning Coefficient: Company revenues may differ annually. But the stock prices continuously change in the market. Monitoring the return per share according to changing stock values enables estimating their prices for a specific time interval and therefore it is determined to

be the most important comparison technique to establish real price. By using this coefficient, the stocks in the market can be compared. High coefficients mean valuable stocks (Arslan, 2001).

Current Ratio: This ratio which needs to be greater than one shows the ability of a company to pay its short term liabilities (Arslan, 2002).

Book Value or Liquidation Value: Book value or **liquidation value** of a stock can be determined by $(EquityValue)/(NumberofStocks)$. Since Book Value or liquidation value of the stock don't consider the expected cash flows, it is only important in case of bankruptcy or liquidation.

Book Value/Market Value Ratio is used in developed capital markets to estimate the value of a stock which is not bought or sold in the market.

The next section discusses the related literature review. The third section is about the obtained data and used methodology. In the fourth section, the results are presented. Finally, the study is concluded by discussion of the results.

Literature Review

It has been a subject to identify the relationships between stock prices and organisational performance for long years. The emerging factors in determining the relationships can be ordered as financial structure of the firm, company management, capital expenditure, dividend policy, insider trading, company share and value in the sector, government interventions, the information quality in financial statements, etc. On the other hand, since it is hard to quantify these relationships, studies prefer using some indicators instead of factors in their analyses.

The literature identifies that internal factors (company fundamentals) are some of the major influencing factors of stock prices. The other emerged factors are inflation, economic conditions, investor behavior, and the behavior of the market and liquidity. Additionally, some studies examine the influence of interrelated factors.

Financial Statement Analysis

Financial statements are the financial reports which are used to summarize the outcomes of company business (Reeve & Warren, 2008). Financial statements are necessary to assess the liquidity, solvency and financial flexibility of a company and to evaluate the past and future performances of the company (Kieso et al., 2007).

According to Gibson (2009), managers, stockholders, bondholders, security analysts, suppliers, lending institutions, employees, labor unions, regulatory authorities, Government and the general public evaluate financial statements to improve their decisions according to their area of interest. The principal company financial statements include income statement, the balance sheet, and the statement of cash flows. Income statement for a specific period summarizes revenues, expenses, gains and losses, and is concluded with the net income. But, balance sheet shows the financial condition of an accounting entity on a particular date.

The Importance of Financial Statements in the Evaluation of Stocks

Prediction of financial crises and failures takes the attention of consultants and researchers because of global economic situation. Therefore, the directors of corporate organizations are responsible to inform the owners and general public correctly about the organization in order to provide reliable information for them.

The decision of investment is made based on the published financial statement information. Managers need detailed financial analysis on each of the firm's financial statements in order to understand the patterns and to use the outcome of the analysis while communicating with other stakeholders. Financial institutions use financial statements to determine creditworthiness of potential loan seekers. Government and other agencies benefit from financial statements for resource charges and allocations. On the other hand, Cash flow statement reconciles items, usually cash that appeared in the Balance Sheet and the profit that generated as Cash.

Malhotra and Malhotra (2008) define financial statements as the summary of operating, financing, and investment activities of firms for a time interval. Managers should evaluate firm's strengths and weaknesses by the help of financial statement analysis in order to obtain advantage and prevent failure.

At the beginning, financial statement analysis generally considers financial ratios by evaluating income statement, balance sheet and statement of cash flows. Ratio analysis is used to compare a company with the other industry firms, leading firms and the previous results of the

same firm. Through benchmarking, the firm's financial results against its own competitors or industry averages, the company can determine the relative strengths and weaknesses of the firm and prepare future plans. Therefore, investors and creditors can understand better the relative position of a firm within the industry and make investment/lending decisions by considering the economic factors instead of depending on officer's intuition (Malhotra and Malhotra, 2008).

Ratio analysis is a common and easy analytical tool to evaluate the firm performance. On the other hand, their interpretation may cause problems particularly when some ratios provide contradictory signals. Hence, the subjective evaluation of ratio analysis is necessary, because an analyst must pick and choose ratios properly to judge the overall firm performance (Malhotra and Malhotra, 2008).

Internal Factors (Company Fundamentals)

The literature related with the internal factors is presented in this section. Demir (2001) evaluates financial leverage ratio, profitability ratio, return on assets, dividend payout ratio, price earnings ratio, market value book value ratio, turnover ratio, earnings per share, net profit growth rate, and the rate of increase in equity as the companies' internal (microeconomic) factors in his study. He considers the data between 1999 and 2000 for the analyses. The results show that financial leverage ratio, profitability ratio, dividend payout ratio, price earnings ratio, market value book value ratio, turnover ratio, earnings per share and net profit growth rate are effective on stock value. It is noted that the most influential factor is market value book value ratio. This is followed by earnings per share, price to earnings ratio and profitability ratio in orderly.

Since IFRS suggests providing the minimum information for scenario analysis and risk assessment, companies may provide management's financial review by describing and explaining **standard setting** of the company which includes financial performance, financial position and some company related uncertainties with financial statements (Oxelheim, 2003).

Hartono (2004) examines the influence of a sequence of positive and negative dividend and earning information on stock prices from 1979 to 1993. The data is collected from Center for Research in Security Prices (CRSP) tapes in US. He finds out that the positive recent earning information is significantly related with stock prices when it follows negative dividend information, and the negative recent earning information is significantly related with stock prices when it follows positive dividend information. According to his study, there is a short-term reaction of stock prices on the earnings and dividend information and no long-run dynamic relation.

Docking and Koch (2005) assesses investor reaction to dividend increase or decrease and finds out that dividend change announcements greatly influence the stock prices if the news are against the recent market direction during volatile times. First of all, with slight statistical significance, announcing to raise dividends brings a greater increase in stock price if market returns become normal or downward and more volatile. Secondly, announcing to lower dividends shows a significantly greater decrease in stock price when market returns are upward and more volatile.

Lee (2006) uses two types of index data: annual Dow Jones industrial average (DJIA) index data between 1920 and 1999 and annual Standard and Poor's (S&P) 400 industrial index data between 1946 and 1999. The findings reveal that investors overreact to nonfundamental information. On the other hand, at the beginning they seem to underreact to fundamental information (dividend, book value and earning) without significant impact of fundamental information in long term. It is also suggested by the findings that the residual income model gives a better valuation than the dividend discount model.

Canbaş et al. (2007) examine the relationship between the firm characteristics and stock returns between July 1992 and June 2005 including all nonfinancial ISE firms. They determine firm size, book-to-market ratio, book leverage, market leverage and earnings-to-price ratio as firm related characteristics. They observe that common stocks of small ISE firms have higher monthly returns than the common stocks of large firms. They also observe that high book-to-market firms seem to have a higher return than the low book-to-market firms. Moreover, high-leverage firms' stocks appear to have higher returns than low-leverage firms' stocks. Contrarily to the literature, the portfolio with the lowest earnings-to-price ratio provides the highest rate of return.

Savin et al. (2007) modify and use the pattern recognition algorithm of Lo, Mamaysky and Wang (2000) to investigate whether "head-and-shoulders" (HS) price patterns influence future stock returns on the data from the S&P 500 and the Russell 2000 between 1990 and 1999. They observe little or no support for the profitability of a stand-alone trading strategy. But, they strongly identify that the

pattern could explain excess returns. Through the combination of the strategy with the market portfolio, a significant increase in excess return for a fixed level of risk exposure can be obtained.

Wang and Di Iorio (2007) examine the relationship between stock returns and some firm-specific characteristics in Chinese A-share market by employing an extension of Fama and MacBeth cross-sectional regression model and find that firm factors, such as book-to-market ratio and firm size, are influential in explaining stock returns.

Malhotra and Malhotra (2008) consider days-sales-outstanding ratio, days cost of goods sold in inventory and total debt/equity ratio as input variables and cash flow per share, return on equity, return on assets, return on invested capital, inventory turnover, asset turnover, current ratio, quick ratio and interest-rate coverage as output variables by employing data envelopment analysis (DEA). They achieve the relative efficiency scores for selected 12 firms (six are efficient and the others are relatively inefficient).

Campbell et al. (2010) study the reasons of systematic risks for value and growth stocks. They firstly test systematic risk pattern by considering the findings of Campbell and Vuolteenaho (2004) that value stocks' returns are mainly sensitive to permanent movements of aggregate stock prices but growth stocks' returns are mostly sensitive to temporary movements of aggregate stock prices. They attempt to discover whether these patterns are influenced by the behavior of value and growth firms' cash flows, or the discount rates that investors apply to these cash flows. The results reveal that cash-flow fundamentals of growth and value companies establish high annual betas of growth stocks with the market's discount-rate shocks, and of value stocks with the market's cash-flow shocks. Thus, growth stocks' systematic risks are not totally determined by investor attitude.

Campbell et al. (2010) also aim to explore firm-level characteristics which determine firms' sensitivities to market cash-flow and discount-rate shocks. They identify that historical return betas and return volatilities strongly influence firms' sensitivities to market discount rates, but slightly estimates sensitivities to market cash flows. On the other hand, accounting variables principally the return on assets and the debt-asset ratio are found to be main predictors of firms' sensitivities to market cash flows. They state that accounting data should be more important to determine a firm's cost of capital in a two-beta model similar to Campbell and Vuolteenaho's approach (2004) which reports the importance of cash-flow sensitivity.

Campbell et al. (2010) conclude that firm-level cash flows influence firm characteristics on firm sensitivities to market cash flows and discount rates when compared to firm-level discount rates. They suggest that company fundamentals strongly influence cross-sectional patterns of systematic risk in the stock market.

Al-Tamimi (2011) considers some internal factors including earning per share, dividend per share, book values, and other company performance related factors. The most important internal factors are reported to be earning per share (EPS) and dividend per share (DPS).

By considering the literature review above, this research assesses the following ratios as the potential microeconomic factors: Total Asset Turnover Ratio, Debt Ratio, Current Ratio, Price to Earnings Ratio, Net Profit Margin, and Book Value.

Data and Methodology.

Data. Since Istanbul stock exchange market is a relatively young market compared to the other developed markets, large amount of data cannot be achieved about the companies. Istanbul Stock Exchange (ISE) market was founded on December 26, 1985 in order to ensure that the trade among the securities are performed in a secure and stable environment and furthermore commenced to operate on January 3, 1986.

This study selects 48 companies which are operating in 11 different sectors of Istanbul Stock Exchange including electric, food, communication, paper, chemistry, metal-main, metal-product, stone, textile, commerce and transportation sectors. While selecting the companies FORTUNE 500 list for Turkey is considered. Since the other classification channels such as Istanbul Sanayi Odası (ISO) do not include the list of all companies in the sectors, FORTUNE 500 list for Turkey is found to be proper in order to select the companies. The companies are selected from each sector by considering their data availability, profitability and performance in Istanbul Stock Exchange Market.

The data which is obtained from ISE's and company's websites is selected as proxy for that specific sector spans from the second quarter of 2000 to the third quarter of 2012 including 50

observations. The sectors selected for the analyses include electric, food, communication, paper, chemistry, metal-product, metal-main, stone, textile, commerce and transportation.

Finally, the financial ratios as the possible determinants of company fundamentals are calculated. The assessed ratios are Total Asset Turnover Ratio, Dept Ratio, Current Ratio, Price to Earnings Ratio, Net Profit Margin, and Book Value.

Methodology. SPSS 18 is used for Non-Linear and Multivariate regression. Non-linear Regression method is preferred in the first step of this study to investigate the role of company own specific factors on stock price movements. The data is first checked for the multi-collinearity. The general formula for a multi-factor model is appeared to be as follows:

$$Y_t = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \epsilon_t$$

We apply the natural log transformation. Logarithmic transformations are used to simplify mathematical expressions of large numbers, and can be applied in finance and business (Beginnersinvest, 2012).

The natural logarithmic transformation removes skewness to allow least squares models in obtaining unbiased results. Also, through natural log transformation heteroscedasticity problem can be corrected.

$$\text{Log}Y_t = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \epsilon_t$$

In the first step, the multi-factor model in equation (4.1) is used to identify the importance of each predetermined factors on sector level stock-price movements. In the second step, normality, heteroscedasticity, serial correlations, and diagnostics in multi-factor regression are checked. According to the diagnostic checking results, multi-factor regression model (4.1) is modified and optimum model for each sector is determined. In the last step, estimation results for each sector are recorded.

$$\text{Log}Y_t = \alpha + \beta_1 TA + \beta_2 DR + \beta_2 CR + \beta_2 NPM + \beta_2 PE + \beta_2 BV + \epsilon_t \quad (4.1)$$

Where $\text{Log}Y_t$ denotes the logarithm of stock values, TA, DR, CR, NPM, PE and BV denote; total assets turnover, dept ratio, current ratio, net profit margin, price to earnings and book value respectively.

Empirical Results.

Estimation results for each sector are summarized in Table 4.1.

Book value is identified to have highly significant positive impact on the stock prices of all the sectors. Total asset turnover ratio has significant and positive effects on Metal Products, Stone, Commerce and Transportation sectors but has significant negative effects on **Textile Sector**. Debt ratio is observed to have significant negative influence on Stone and Metal-Product. However, on Transportation, Paper and Food sectors, it has significant positive influence. The current ratio is found to have significant and negative effect on Transportation and Metal-Main sectors while it has significant and positive effect on Electric, Metal-Product and Textile sectors. Net profit margin is measured to have significant positive influence on **Electric sector** and negatively influential on **Transportation Sector**. The results for Price to Earnings Ratio have significantly brought out positive coefficients for Paper, Stone and Textile sectors and negative coefficient for **Communication Sector**.

Furthermore, when the estimation power of the factors is considered, the internal factors are appeared to strongly explain the change in stock prices for Electric, Commerce, Stone, Textile, Communication and Chemistry sectors. Paper, Metal-Product, Transportation and Food sectors are somehow explained by the considered factors. However, **Metal-Main Sector** is weakly estimated by the internal factors.

Overall results indicate that Book Value is the most extensive significant internal determinant of the stock prices in all eleven sectors.

Table 1. Multi-Factor Non-Linear Regression Analyses Results

Sector		Factors						Adjusted R2
		Total Asset Turnover	Debt Ratio	Current Ratio	Net Profit Margin	Price to Earning Ratio	Book Value	
Electric	Coefficient	-0.066		0.345*	0.223	-0.055	0.667*	0.817
	p-value	0.379		0.000	0.006	0.404	0.000	
Food	Coefficient	0.041	0.339*	-0.114	0.064	0.068	0.593*	0.315
	p-value	0.768	0.098	0.499	0.657	0.601	0.000	
Communication	Coefficient	-0.077	-0.251	-0.082	-0.128	(-0.593)*	0.532*	0.612
	p-value	0.431	0.165	0.539	0.289	0.000	0.000	
Paper	Coefficient	0.162	0.218*		0.172	0.452*	0.387*	0.495
	p-value	0.144	0.071		0.147	0.000	0.002	
Chemistry	Coefficient	0.147	-0.020	-0.112	0.185	0.119	0.783*	0.571
	p-value	0.137	0.898	0.368	0.119	0.297	0.000	
Metal-Main	Coefficient	0.064		(-0.443)*	0.094	-0.010	0.318*	0.187
	p-value	0.634		0.004	0.534	0.943	0.022	
Metal-Product	Coefficient	0.408*	(-0.58)*	0.28*	0.078	-0.066	0.623*	0.391
	p-value	0.001	0.008	0.049	0.542	0.580	0.003	
Stone	Coefficient	0.261*	(-0.366)*		0.125	0.558*	0.507*	0.666
	p-value	0.012	0.000		0.193	0.000	0.000	
Textile	Coefficient	(-0.36)*		0.333*	-0.122	0.395*	0.862*	0.623
	p-value	0.005		0.004	0.234	0.002	0.000	
Commerce	Coefficient	0.229*	-0.022	0.039	0.095	0.062	0.797*	0.772
	p-value	0.006	0.837	0.661	0.232	0.387	0.000	
Transportation	Coefficient	0.644*	0.538*	(-0.375)*	(-0.351)*	0.097	0.476*	0.348
	p-value	0.000	0.001	0.013	0.035	0.427	0.007	

Note: * indicates significantly different from zero at the given significance level

Discussion.

The results of the analyses in this research are generally confirming the findings of the previous research on the influencing factors of stock returns. However, it has also few surprising results which are discussed as follows.

This study investigates the relationship between financial ratios of the companies and their stock prices in order to clarify internal determinants of the stock price movements in different sectors. This study has a significant contribution to the literature since there is no study extensively focusing on the sectoral differentiation. Empirical results show that degree of impact is different in different sectors. Book value is found to be the most significant internal determinant of the stock price movements for all sectors as the previous literature has reported (Demir, 2001; Canbaş et al., 2007; Wang and Di Iorio, 2007). The impacts of other financial ratios vary for different sectors.

Furthermore, when the estimation power of the factors is considered, the estimation powers of the evaluated internal factors are appeared to be strong for the stock prices in Electric, Commerce, Stone, Textile, Communication and Chemistry sectors while they moderately explain Paper, Metal-Product, Transportation and Food sectors. Though, they weakly estimated the fluctuation of stock prices in Metal-Main sector.

Conclusion.

Firms and individuals are making considerable investments on the shares in stock exchange markets. But, stock movements can easily be influenced by many factors which are continuously changing over time. Therefore, it becomes very important to identify the factors which may have impacts on stock fluctuations.

Determination of these factors enhances portfolio investment decisions in order to maximize the profit allocating the capital into different stock options. Therefore, this research is motivated to

extensively evaluate the influencing factors of stock movements by employing some statistical and econometric methods. Firstly, it starts from the analyses of internal factors of the firms.

The most powerful internal determinant of the stocks is found to be Company Book Values.

Every research has some limitations. Despite being one of the most comprehensive studies performed on the companies operating in Istanbul Stock Exchange, one of the limitations of this study is the determination of the companies and sectors through the stock market. The companies are selected according to Fortune 500 list for Turkey, since it provides the most proper and complete categorization system of the companies which are listed in Istanbul Stock Exchange from different perspectives. The other ranking organisations consider different types of firms for some specific sectors.

Since Turkish stock market is a relatively young market when it is compared to the world's developed stock markets, even this research selects the leading successful companies in their sectors, it can not provide large amount of data. For larger sets of data, the validity of this study can give better results.

Another limitation is that many companies in ISE do not provide proper information in their income statements. They haven't properly adapted their reporting mechanism to International Financial Reporting Standards (IFRS). Therefore, they are not considered during the analyses of the study because some information required for analyses is missing. However, it is also observed that companies are satisfying the agreed basic standards more and more. Hence, this study can not cover long time intervals because of the availability of the necessary data for the analyses.

Some of the sectors such as banking sector are not selected because of their sector specific data. Since banks have different type of and very detailed financial reporting system, the literature generally prefers studying banking sector separate from the others.

Closed companies or powerful but young companies listed in Fortune 500 are also not included in the analyses. Since, they cannot provide data for the considered timeline.

However, it is observed that Turkish Stock Market as one of the developing markets is overcoming more and more this kind of difficulties in collecting the available data.

Chung (2006) reports that the literature mostly focuses on developed economies but not on less developed economies. Since, Turkish economy is one of the most developing markets in the world; the findings of this study have very important implications.

It is realized in the literature that very few studies consider sectoral behaviours of the stocks. Hence, this study can be distinguished from the others in that it evaluates the fluctuations of the stocks in sectoral basis.

Since the study has also sector specific findings, they may improve different strategies for the sectors in order to increase the financial performances of the companies in these sectors.

This study is valuable for the company managers in that it can help them by identifying their sector specific internal and external determinants. Therefore, they may take the necessary steps in order to enhance company performance.

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