An Analysis of the Effects of Capital Structure and the Beta Coefficient on Stock Returns: A Case Study of the Istanbul Stock Exchange (ISE) - Manufacturing Industry

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Abstract

An identification of the factors that affect stock returns is one of the frequently investigated topics in financial circles and many different models are evident. Based on scientific studies, the factors that affect stock returns can be listed as macro-economic variables, returns on alternative investment instruments, political and social events, developments in other countries, foreign investors' risk-taking preferences, information on companies, and manipulation.

The aim of this study is to identify whether the beta coefficient (β) representing the systematic risk according to the Capital Asset Pricing Model (CAPM) and the capital structure among firm-specific factors influence stock returns, and to detect the direction of this influence. The study discusses three different periods from 1992 to 2010 in which 65 industrial companies were traded without interruption in the Istanbul Stock Exchange (ISE) manufacturing industry: the whole period from 1994 to 2010, the sub-period from 1994 to 2002 and the sub-period from 2003 to 2010.

According to the results of the panel regression analysis, among the explanatory variables used in the analysis, beta (β) and total debt/market value (TD/MV) ratio were found to be statistically significant with a positive effect on both nominal and real stock returns in all three periods. The TD/MV ratio is found to be statistically significant with a negative effect on both nominal and real stock returns in the 1994-2002 sub-period, but only on the real stock returns in the 1994-2010 period.

Among the control variables used in the study, only the earnings per share (EPS) variable was found to be statistically significant with a positive effect on stock returns in the 1994-2002 sub-period, whereas the other control variables were not found to have a statistically significant effect on stock returns either in the base period or in the sub-periods.

Key Words: Capital Structure, Beta Coefficient, Stock Return, Panel Regression Analysis

1. Introduction

One of the important issues investors take into consideration when making decisions about investing in the right stocks at the right time is stock returns.

Unsurprisngly, the existing literature contains many studies on stock returns and the factors that affect them. Various methods proposed in the literature supersede each other at different points and many factors are known to affect stock returns. However, the factors that affect stock returns, in general, can be classified as macro-economic and firm-specific. The aim of this study is to identify whether the beta coefficient (β) representing the systematic risk according to the Capital Asset Pricing Model (CAPM) and the capital structure among firm-specific factors influence stock returns, and to detect the direction of this influence. In this context, the beta coefficient together with the variables in the capital structure is evaluated in the panel regression model. The capital structure variables in the model are total debt/total assets, total debt/market value, return on equity, earnings per share and the degree of financial leverage. The explanatory power of these variables and the beta coefficient and their direction of influence are studied, and the results are evaluated for both the CAPM and capital structure.

The analysis discusses three different periods from 1992 to 2010 in which 65 industrial companies were traded without interruption on the Istanbul Stock Exchange (ISE) manufacturing industry: the base period from 1994 to 2010, the sub-period from 1994 to 2002 and the sub-period from 2003 to 2010. The purpose of distinguishing between periods is the fact that the economy between 2003 and 2010 was relatively more stable than was the case between 1994-2002. Significant changes were observed in major macro-economic factors such as economic growth and a steady decline in interest rates in the 2003-2010 period when compared to the 1994-2002 period. The study tries to identify whether these changes affected the capital structures of firms and the stock returns in a different way.

2. Literature Review

2.1. Studies on the Relationship between the Beta Coefficient and Stock Returns

In his study analysing the relationship between conditional beta (risk) and returns in international stock markets using monthly stock returns from January 1970 to July 1998, Fletcher (2000) applied the same method used by Pettengill et al (1995). The study used the monthly returns in the Morgan Stanley Capital International (MSCI) stock indices from 18 developed countries and the MSCI world index returns which represented the market portfolio in the beta calculations for each country. In this analysis, the whole sample period of 1970-1998 together with the sub-periods of 1970-1998 and 1984-1998 were analysed separately. An overall evaluation of empirical findings supported the existence of a relationship between conditional beta (risk) and returns for the whole sample period, and indicated that this relationship was symmetrical.

In his study, Lam (2001) analysed the data set made up of daily returns from 132 stocks in the Hong Kong Stock Exchange during the 1980-1995 period, and the relationship between the conditional beta (risk) and returns under CAPM. The results showed a strong conditional positive and negative relationship between risk and returns in the Hong Kong exchange. Lam suggested that these results, in general showed that conditional CAPM is a practical equilibrium pricing model for the Hong Kong stock market. In their study on non-financial firms registered in the Malaysian and Singaporean stock exchanges from 1988 to 1996, Lau et al (2002) examined the relationship between the stock returns and firm-specific variables of beta, firm size, P/E ratio, cash flow/price ratio, market to book value ratio and growth rate of sales ratio with a cross-section analysis. In this study, they identified a conditional relationship between beta and stock returns, both in the Malaysian stock exchange and in the Singaporean stock exchange.

In his 2003 study, Drew (2003) stated that beta alone is not sufficient in explaining stock returns and applied a multi-factor model that included factors such as market to book value ratio and firm size. He used cross-section analysis to compare the explanatory powers of his multi-factor asset pricing model and the single-index model (CAPM). The study covered the 1993-1999 period in the Hong Kong, Korea, Malaysia and the Philippines stock markets. According to the author, the study results show that beta alone is not sufficient to explain the returns whereas firm size and market to book value ratio are significantly effective in explaining average stock returns. The author stated that markets were rational and that the multi-factor asset pricing model is better at explaining average stock returns than the traditional single-index model. In their study covering the period between January 1994-December 2002, Wang and Iorio (2007) examined the betas with stock returns, firm size, P/E ratio, liquidity ratio, dividend yield and market-to-book value ratio with cross-section analysis. In the study covering the whole 1994-2002 period, no beta were found statistically significant in explaining stock returns; and therefore, no significant relationship between beta and stock returns were detected.

The only statistically significant negative relationship that was identified between the local beta and stock returns was observable in the 2000-2002 sub-periods. In their study, Gürsoy and Rejepova (2007) employed the approach used by Fama and McBeth (1973) and Pettengill et al (1995) in order to test the validity of CAPM in Turkey, and the findings suggested a strong relationship between beta and risk premium. According to the authors, who stated that the systematic risk of a portfolio calculated with beta is an important determinant of portfolio returns in Turkey, the results of the study indicated that a portfolio made up of stocks with a high beta shows a better performance in up-market periods when the market risk premium (R_m-R_f) is positive and that a portfolio made up of stocks with a low beta is a better investment option in down-market periods when the market risk premium (R_m-R_f) is negative.

2.2. Studies on the relationship between Capital Structure and Stock Return

Bhandari (1998) studied the relationship between stock returns and the expected leverage ratio in the NYSE during the period between1949-1979. The independent variable in the study was stock returns while the dependent variables were the leverage ratio (Total Assets Book Value - Equity Book Value / Equity Market Value), firm beta and firm size. Results of the analysis showed a significant positive relationship between the leverage ratio and the stock returns of the companies and this relationship is higher in manufacturing firms and in January. Based on these results, Bhandari, noted that the leverage ratio, compared to beta, is a much stronger variable in explaining stock returns.

Muradoğlu and Whittington (2001) analysed the power of the leverage ratios of 170 non-financial companies in the FTSE-350 index between 1990-1999 for the prediction of long-term performances and stock returns. The results showed that portfolios made up of companies with a moderate leverage gained a 20% Cumulative Abnormal Return (CAR) in 3 years. In addition, the portfolios of decimal slices consisting of firms with a low leverage ratio had much higher stock returns than the returns on the market. According to the authors, who found a relationship between stock returns and leverage ratios, a low leverage ratio should be considered an attractive feature for firms and investors.

Muradoğlu et al (2005) analysed 52 non-financial companies in the UK's FTSE-100 index during the May 1991-April 2002 period and examined the relationship between the leverage ratio (total debt/total liabilities) and long-term stock returns. The results of this study showed that with an investment strategy based on a 3-year retention period, the portfolio consisting of companies with a low leverage ratio, obtained abnormal returns (9.9%) when compared to market returns, whereas the portfolio of firms with a high leverage ratio obtained lower returns than the market during the 3-year retention period. According to the authors, a low leverage ratio is perceived as an attractive feature by investors as it reduces financial risk and provides an opportunity to create higher debt financing in the future. The authors state that when determining the optimal leverage ratio, firms have to consider the advantages of a low leverage ratio.

Baturevich and Muradoğlu (2010) examined non-financial companies in the S&P 500 index during the May 1, 1985 - April 30, 2004 period and analysed the relationship between stock returns and leverage ratios, firm sizes, earnings per share/stock price ratio (E/P), book-to-market value ratio and betas. In this study, the portfolio consisting of companies with the lowest leverage ratio were found to have a cumulative excess gain of 17.1% in the 3-year retention period (statistically significant at the 1% level). In addition, the higher the leverage ratio, the lower the abnormal returns. According to the results of this study, the leverage ratio is quite an important variable in explaining stock returns in the 3-year retention period, and also, firms with low leverage ratios have cumulative abnormal returns in the 3-year retention period.

Yang et al (2010) studied the period of 2003-2005 in the Taiwan stock exchange in order to identify the factors that affect capital structure and stock returns. They used two different ratios as a leverage ratio in the context of capital structure: long-term debt/total book value of assets (LT/BVA) and long- term debt/total market value of assets (LT/MVA). The main purpose of their analysis was to determine the way leverage ratio and stock returns affected each other mutually. The results of the study showed that the leverage ratio significantly and positively affects stock returns, and although stock returns have a similarly significant effect on determining leverage ratio, their effect is negative. Therefore, according to the authors, the results showed that both variables significantly influence each other, but the direction of the effect differs.

3. Empirical Analysis

3.1. Purpose and Scope

This study attempts to show whether beta (β), which represents the market price risk arising from macro-economic factors, and the capital structure variable of the firm-specific factors influence stock returns, and determine in which direction this effect is seen. The analysis consists of the quarterly data from 65 firms traded continuously in the Istanbul Stock Exchange (ISE) manufacturing industry during 1992-2010 with a main period of 1994 Q1-2010 Q4 and sub-periods of 1994 Q1-2002 Q4 and 2003 Q1-2010 Q4.The main reason why the analysis starts with 1994 Q1 is that firms use minimum 2-year old retrospective data in calculating beta (β). Care was taken during the analysis to ensure that, as in previous studies, non-financial companies were examined in order to identify the relationship between capital structure and stock returns. Therefore, in order to create a set of homogeneous data from non-financial firms, 65 companies operating in the ISE manufacturing industry and traded continuously between the years of 1992-2010 were selected as samples.

3.2. Data and Methodology

The data from the 65 companies was calculated using the balance sheet and income statements that they had announced quarterly. Each firm's stock return was determined by calculating the 3 months of nominal returns for each quarter and the real returns adjusted for the Consumer Price Index (CPI). The stock beta (β) in the analysis was calculated using the stock's retrospective returns of 5 years (if available) or 2 years for each quarter. The variables and calculation methods used in the study are shown in Table 1.

After determining the data set to be used in the analysis, the years of 1994-2010 were determined as the base period and the years of 2003-2010 and 1994-2002 as two sub-periods. The four different panel regression models below were constructed for the application.

Model1: $HGET_{i,t+1} = \beta_0 + \beta_1 Beta_{it}$

Model2: $HGET_{i,t+1} = \beta_0 + \beta_1 TD/TA_{it} + \beta_2 TD/MV_{it}$

Model3: $HGET_{i,t+1} = \beta_0 + \beta_1 TD/TA_{it} + \beta_2 TD/MV_{it} + \beta_3 ROE_{it} + \beta_4 EPS_{it} + \beta_5 DFL_{it}$

Model4: $HGET_{i,t+1} = \beta_0 + \beta_1 Beta_{it} + \beta_2 TD/TA_{it} + \beta_3 TD/MV_{it} + \beta_4 ROE_{it} + \beta_5 EPS_{it} + \beta_6 DFL_{it}$

In these models $HGET_{i,t+1}$ represents the three-month nominal (real) stock returns in the t+1 period; beta represents the systematic risk (market risk arising from macro-economic variables); TD/TA represents the ratio of total debt to total assets; TD/MV represents the ratio of total debt to market value; ROE represents return on equity; EPS represents earnings per share; and DFL represents the degree of financial leverage. In order to ensure that the firm-specific independent variables used in the analysis are known, data of the independent variables in the (t) period were matched with data of stock returns in the (t+1) period. In other words, a three month period between stock returns was adopted between the independent variables and the dependent stock-returns variable. To determine what type of panel regression analysis was suitable for the model, Chow and Breush Pagan tests were applied in the first stage. For the four models of nominal and real returns created for each sub-period, the H_0 hypothesis which resulted in the Pooled model was accepted. Therefore, all the models were analysed according to the pooled regression method.

While the models were estimated in the Eviews 7.1 program, the Generalized Least Squares (GLS) option was selected and the heteroscedasticity problem was avoided. This estimation method is one of the methods most effective in eliminating the auto-correlation and heteroscedasticity (changing variance) problems. However, for each model Wooldrige and Green heteroscedasticity tests were run, and no assumption deviation was found.

3.3. Empirical Findings

As in all time series analyses, the panel data methodology conducting both time and cross sectional analyses requires that variables should be stationary in order to show the real relationships between the variables. This study investigates common unit root processes with panel unit root tests according to Levin, Lin and Chu (2002) and the unit root process for each unit (firm) individually in parallel with Im, Pesaran and Shin (2003).

The stationarity in individual invariant series is analysed through the Augmented Dickey Fuller (ADF) (1979) test. The results of the stationarity analyses of the data used in the panel regression are given in Table 2. In line with the results in Table 2, as (p) is smaller than the critical value of 0.05 in all series with the exception of beta series, H_0 hypothesis is rejected and the series are to be regarded as stationary. Only in beta series (p) is larger than the critical value and the H_0 hypothesis is not rejected and observed to be unit root. For this reason, the difference was included in the beta series, which was identified to be stationary following unit root tests applied to the new series. Therefore, in this study, only the beta-series beta (FBETA) is defined as cases with the level of other studies that have been analyzed.

Stating that the beta series should be tested for stationarity, Tunçel (2009) mentions that the beta is a measure of sensitivity to fluctuations in the stock market and that economic phenomena which affect the market return on all stocks can show the different features at different periods. For example, interest rates, an increase in the GDP and declining exchange rates can increase stock returns in one period; however, reverse movements in the same factors can reduce stock returns in another period. According to the author, the changes in stock returns caused by economic factors result in a non-stationary beta over time, and therefore, beta should be tested for stationarity. In our study, the stationarity test results of the beta series appear to support this view.

3.3.1. The Basic (Descriptive) Statistics and Correlation Analysis Results Covering the 1994-2010 base Period

The basic statistics regarding the variables used in the analysis covering the 1994-2010 period are given in Table 3, and the correlation analysis values are shown in Table 4.

3.3.2. Comparison of the Results of the Panel Data Analysis for the 1994-2010 Period

Table 5 shows the analysis results of the equations for the 1994-2010 periods. All the models used in the 1994-2010 period are, in general, statistically significant (F-prob. value<0.05). The results of the 1994-2010 period shown in Table 5, indicate that beta is statistically significant both on *nominal* and on *real* stock returns ($p<0.05$), and appears to have a positive effect. In other words, the increase in the beta of stocks also increases its return whereas a reduction results in a reduced return. The TD/TA ratio between 1994 and 2010 is found to be statistically insignificant ($p>0.05$) on the *nominal* stock returns, but statistically significant ($p <0.05$) with a negative effect on the *real* stock returns. In other words, an increase in the TD/TA ratio reduces *real* stock returns, whereas a decrease in the ratio increases *real* stock returns. The TD/MV ratio in the 1994-2010 period appears to be statistically significant ($p<0.05$) with a positive effect on both *nominal* and *real* stock returns. In other words, an increase in the TD/MV ratio raises both *nominal* and *real* stock returns, and a decrease in the ratio reduces both *nominal* and *real* stock returns.

Among the control variables used in the analysis ROE, EPS and DFL are not found to have a statistically significant effect ($p>0.05$) either on the *nominal* or the *real* stock returns. An overall evaluation of the results from the 1994-2010 period shows that beta and TD/MV ratio are statistically significant ($p<0.05$) with a positive effect on both *nominal* and *real* stock returns. In other words, as beta and TD/MV ratio increase, stock returns also increase; however, as beta and TD/MV ratio decreases, stock returns also decrease. The TD/TA ratio in the 1994-2010 period appears not to have a statistically significant effect ($p>0.05$) on *nominal* stock returns, but it appears to be a statistically significant ($p<0.05$) with a negative effect on *real* stock returns. The reason why the TD/TA ratio has different effects on nominal and real stock returns may result from the fact that firms prepared their financial statements according to historical cost before 2003 but adjusted for inflation after 2003. This is because the TA (total assets) item in balance sheets adjusted for inflation showed very important differences from its counterpart in historical cost balance sheets. This difference is especially a result of the equity item.The TD/TA ratio variable used in the whole 1994-2010 period was created using both historical cost data and inflation adjusted data from balance sheets. For this reason, in the analysis of the entire period, the TD/TA ratio appears not to have a statistically significant effect ($p>0.05$) on *nominal* stock returns. However, it appears to be statistically significant ($p<0.05$) in the analysis done with *real* stock returns after the elimination of inflation. This result is thought to be supportive of the above-mentioned idea about the differences in balance sheet arrangements. In order to confirm the accuracy of this view, the two sub-periods of 1994-2002 and 2003-20120 should be analysed separately.

The results from the separate analyses of historical cost balance sheets between 1994 and 2002 and balance sheets adjusted for inflation between 2003 and 2010 are expected to be statistically significant for both *real* and *nominal* returns, or insignificant for both *nominal* and *real* returns. The analyses for the two sub-periods are presented below.

3.3.3. Analysis Results for the 1994-2002 Sub-period

The table 6 consists of the results of the analyses which use the historical cost balance sheet data from the 1994-2002 periods. All the models used in the 1994-2010 period are, in general, statistically significant (F-prob. value <0.05). The analysis results in table 6 show that beta is statistically significant p <0.05) with a positive effect on both *nominal* and *real* stock returns in the 1994-2002 period. In other words, the increase in the beta of stocks also increases their return whereas a reduction results in a reduced return.The TD/TA ratio is statistically insignificant (p<0.05) with a negative effect on both *nominal* and *real* stock returns during the 1994-2002 period. In other words, an increase in the TD/TA ratio causes a reduction in both *nominal* and *real* stock returns, and a decrease in the ratio reduces both *nominal* and *real* stock returns. The TD/MV ratio in the 1994-2010 period appears to be statistically significant (p<0.05) with a positive effect on both *nominal* and *real* stock returns. In other words, an increase in the TD/MV ratio raises both *nominal* and *real* stock returns, and a decrease in the ratio reduces both *nominal* and *real* stock returns. The EPS used as a control variable in the models found to be statistically significant (p<0.05) during the period of 1994-2002 with a positive effect on both *nominal* and *real* stock returns. In other words, an increase in the EPS raises both nominal and real stock returns, and a decrease in the EPS reduces both nominal and real stock returns. The other control variables of ROE and DFL used in the analysis do not appear to have a statistically significant effect on either *nominal* or *real* stock returns.

3.3.4. Analysis Results for the 2003-2010 Sub-period

The table 7 consists of the results of the analyses which use the balance sheet data adjusted for inflation from the 2003-2010 period. All the models used in the 1994-2010 period are, in general, statistically significant (F-prob. value<0.05). The analysis results for the 2003-2010 period given in Table 7 show that beta is statistically significant (p<0.05) with a positive effect on *real* stock returns. In other words, an increase in the beta of stocks also increases their real returns whereas a reduction results in a reduced real return. However, beta in model 1, where it is used as the only independent variable for *nominal* stock returns, has a statistically significant positive effect (p<0.05), but in model 4, where beta is used as an independent variable together with capital structure variables (TD/TA and TD/MV) and control variables, this effect is found to disappear (p>0.05).The TD/TA ratio in the 2003-2010 period does not appear to be statistically significant (p<0.05) either for *nominal* or for *real* stock returns. The TD/MV ratio in the 2003-2010 period is found to be statistically significant (p<0.05) with a positive effect on both *nominal* and *real* stock returns. In other words, an increase in the TD/MV ratio raises both *nominal* and *real* stock returns, and a decrease in the ratio reduces both *nominal* and *real* stock returns.The other control variables of ROE and DFL used in the analysis do not appear to have a statistically significant effect on either *nominal* or *real* stock returns.

3.3.5. A Comparison of the Results of the Panel Data Analysis According to Periods and Benefits

The empirical findings obtained in this analysis are summarized both as periodic returns (1994-2010, 1994-2002 and 2003-2010) and as nominal and real returns in the table 8.

4. Conclusion

The empirical findings from this study show that beta (β) was statistically significant and had a positive effect on both *nominal* and *real* stock returns during the whole 1994-2010 period and the 1994-2002 and 2003-2010 sub-periods. This result supports the CAPM which suggests that there is a positive relationship between the financial asset beta and the expected return. The Total Debt/Total Assets (TD/TA) ratio had a statistically insignificant effect on *nominal* stock returns during the whole 1994-2010 period, while its effect was statistically significant on *real* stock returns. When the analysis was repeated for the historical-cost balance sheets of 1994-2002 and the adjusted-for-inflation balance sheets of 2003-2010, the TD/TA ratio appeared to have a statistically significant negative effect on both *nominal* and *real* returns during the 1994-2002 period. It has been concluded that the reason why the analysis gave the same results with both *nominal* and *real* returns for the two sub-periods but different results for the 1994-2010 period is due to the changes in balance sheet writing methods.

For analyses that are conducted over long periods like this, it is advised that this condition not be overlooked. The Total Debt/Market Value (TD/MV) ratio is found to be statistically significant with a positive effect on both *nominal* and *real* stock returns during the whole 1994-2010 period, as well as the sub-periods of 1994-2002 and 2003-2010. This result supports the theories which suggest that as the weight of debt increases in capital structure, company value could also increase.

When the TD/TA and TD/MV ratios are considered together within the scope of capital structure,an increasing total debt in the TD/TA ratio appears to have a negative effect, and an increasing total debt in the TD/MV ratio appears to have a positive effect on stock returns. Although the TD/TA ratio had a statistically insignificant effect on real stock returns during the 2003-2010 sub-period, the fact that it had a significant negative effect on real returns during the 1994-2002 sub-period and the whole 1994-2010 period shows that stock returns decrease as the TD/TA ratio increases. An increase in the share of total debt within total assets is considered to be a risk factor by investors.

Table 1: List of the Variables Used in the Analysis

Variables Used in the Analysis	**Calculation Definition**
Nominal Stock Return (HGET(N))	The quarterly nominal percentage changes for each stock are calculated using prices adjusted for capital increases and dividend payments.
Real Stock Return (HGET(R))	Calculated using the quarterly nominal percentage changes for each stock adjusted for the Consumer Price Index (CPI) (100 + Nominal Return) / (100 + CPI) * 100-100
Beta (β)	ISE-100 index is used to represent the market portfolio. Calculated using monthly data of 5 years (if available) or 2 years.
TD/TA	Total Debt/Total Assets
TD/MV	Total Debt/Market Value
Return on Equity (ROE)	Net Profit/Equity
Earnings Per Share (EPS)	Net Profit/Number of Current Shares
Degree of Financial Leverage (DFL)	Calculated as the ratio of the percentage change in the company's profit per share to percentage change in profit before interest and tax. (%Δ EPS / %Δ PBT)

Table 2: Panel Unit Root Test Results

	HGET(Nominal)		**HGET(Real)**		**FBETA**		**TD/TA**	
Method	**Statistic**	**Prob.**	**Statistic**	**Prob.**	**Statistic**	**Prob.**	**Statistic**	**Prob.**
Levin, Lin & Chu t*	-35.823	0.0000	-47.711	0.0000	-27.910	0.0000	-3.630	0.0001
Im, Pesaran and Shin W-stat	49.217	0.0000	-49.506	0.0000	-48.344	0.0000	-3.916	0.0000
ADF - Fisher Chi-square	3068.10	0.0000	5254.67	0.0000	4953.64	0.0000	191.471	0.0004
	TD/MV		**ROE**		**EPS**		**DFL**	
Method	**Statistic**	**Prob.**	**Statistic**	**Prob.**	**Statistic**	**Prob.**	**Statistic**	**Prob.**
Levin, Lin & Chu t*	-4.595	0.0000	-8.004	0.0000	-11.960	0.0000	-21.709	0.0000
Im, Pesaran and Shin W-stat	-9.719	0.0000	-15.930	0.0000	-15.750	0.0000	-58.808	0.0000
ADF - Fisher Chi-square	221.311	0.0000	841.021	0.0000	808.349	0.0000	4825.73	0.0000

Table 3: Basic Statistics for the Variables in the Analysis (1994-2010)

	HGET(N)	*HGET(R)*	*BETA*	*TD/TA*	*TD/MV*	*ROE*	*EPS*	*DFL*
Mean	16.80	7.55	0.87	0.49	0.95	-52,28	0.92	2.51
Median	6.66	0.28	0.87	0.48	0.54	6.50	0.24	0.93
Maximum	735.71	729.22	1.88	3.42	22.31	87.48	105.99	2318.31
Minimum	-78,1	-80,37	-0,13	0.00	0.00	-24563,5	-21,43	-1004,1
StandardDeviation	48.33	42.51	0.25	0.23	1.42	3693.94	4.37	60.91
Skewness	3.75	4.02	-0,12	1.54	5.73	-66,44	13.53	22.30
Kurtosis	35.39	45.20	3.64	16.13	53.73	4416.72	252.67	777.58

Table 4 : Correlation Values of the Variables in the Analysis (1994-2010)

	HGET(N)	**HGET(R)**	**BETA**	**TD/TA**	**TD/MV**	**ROE**	**EPS**	**DFL**
HGET(N)	1							
HGET(R)		1						
BETA	0,0363	-0,011	1					
TD/TA	0,0411	0,0084	0,0039	1				
TD/MV	0,082	0,1045	-0,0216	0,4727	1			
ROE	-0,003	-0,0013	0,0245	-0,036	0,0049	1		
EPS	-0,004	-0,0011	-0,0705	-0,1683	-0,1188	0,0095	1	
DFL	-0,0066	-0,0062	-0,0255	0,0049	0,0187	0,0007	0,0025	1

Table 5: Comparison of the Results of the Panel Data Analysis for the 1994-2010 Period

NOMINAL Return			**Variables**						
			Constant Term	**FBeta**	**TD/TA**	**TD/MV**	**ROE**	**EPS**	**DFL**
NOMINAL Stock Return	**Model 1**	Coefficient	15.363	34.869					
		t value	24.690	3.558					
		p value	0	0,0004					
	Model 2	Coefficient	12.652		2.787	2.292			
		t value	8.394		0.845	3.864			
		p value	0		0,398	0,0001			
	Model 3	Coefficient	12.199		3.260	2.348	-4.00E-05	0.226	-0.009
		t value	7.754		0.977	3.945	-0.218	1.045	-0.696
		p value	0		0,3283	0,0001	0,8268	0,2957	0,4862
	Model 4	Coefficient	11.552	34.382	3.629	2.329	-4.28E-05	0.251	-0.008
		t value	7.505	3.520	1.100	3.961	-0.229	1.179	-0.688
		p value	0	0,0004	0,2711	0,0001	0,8189	0,2384	0,491
REAL Return									
REAL Stock Return	**Model 1**	Coefficient	6.626	31.393					
		t value	12.197	3.663					
		p value	0	0,0003					
	Model 2	Coefficient	7.711		-9.135	3.787			
		t value	5.951		-3.205	7.315			
		p value	0		0,0014	0			
	Model 3	Coefficient	7.370		-8.791	3.832	-4.53E-05	0.171	-0.007
		t value	5.437		-3.049	7.374	-0.271	0.891	-0.616
		p value	0		0,0023	0	0,7858	0,3725	0,5376
	Model 4	Coefficient	6.883	30.100	-7.610	3.722	-4.43E-05	0.182	-0.006
		t value	5.101	3.535	-2.638	7.204	-0.260	0.948	-0.604
		p value	0	0,0004	0,0084	0	0,7947	0,3428	0,5455

Table 6: Analysis Results for the 1994-2002 Sub-period

NOMINAL Return			Variables						
			Constant Term	**FBeta**	**TD/TA**	**TD/MV**	**ROE**	**EPS**	**DFL**
NOMINAL Stock Return	**Model 1**	Coefficient	20.473	61.110					
		t value	20.026	3.751					
		p value	0	0,0002					
	Model 2	Coefficient	23.164		-17.093	9.393			
		t value	7.653		-2.793	7.214			
		p value	0		0,0053	0			
	Model 3	Coefficient	20.309		-14.739	9.973	-8.00E-05	1.493	-0.009
		t value	6.352		-2.376	7.592	-0.419	3.043	-0.512
		p value	0		0,0176	0	0,6751	0,0024	0,6083
	Model 4	Coefficient	18.428	58.979	-12.312	9.836	-8.02E-05	1.447	-0.007
		t value	5.865	3.658	-1.997	7.536	-0.413	3.003	-0.410
		p value	0	0,0003	0,0459	0	0,6794	0,0027	0,6818
REAL Return									
REAL Stock Return	**Model 1**	Coefficient	5.784	51.319					
		t value	6.639	3.692					
		p value	0	0,0002					
	Model 2	Coefficient	7.684		-16.335	8.989			
		t value	3.038		-3.175	8.106			
		p value	0,0024		0,0015	0			
	Model 3	Coefficient	5.178		-14.249	9.498	-7.59E-05	1.285	-0.008
		t value	1.934		-2.730	8.492	-0.464	3.120	-0.505
		p value	0,0532		0,0064	0	0,6427	0,0018	0,613
	Model 4	Coefficient	3.823	49.557	-11.298	9.296	-7.15E-05	1.223	-0.006
		t value	1.427	3.614	-2.154	8.319	-0.431	2.989	-0.414
		p value	0,1535	0,0003	0,0313	0	0,666	0,0028	0,6787

Table 7: Analysis Results for the 2003-2010 Sub-period

NOMINAL Return			Variables						
			Constant Term	**FBeta**	**TD/TA**	**TD/MV**	**ROE**	**EPS**	**DFL**
NOMINAL Stock Return	**Model 1**	Coefficient	8.753	16.199					
		t value	16.065	2.003					
		p value	0	0,0452					
	Model 2	Coefficient	9.251		-4.492	1.443			
		t value	7.996		-1.577	3.043			
		p value	0		0,1149	0,0024			
	Model 3	Coefficient	9.071		-3.958	1.438	0.014	-0.075	-0.004
		t value	7.441		-1.360	3.018	1.273	-0.342	-0.432
		p value	0		0,1737	0,0026	0,203	0,7321	0,6656
	Model 4	Coefficient	9.090	15.077	-3.853	1.409	0.014	-0.057	-0.006
		t value	7.463	1.864	-1.325	2.961	1.282	-0.262	0.574
		p value	0	0,0624	0,1851	0,0031	0,1999	0,7928	0,5658
REAL Return									
REAL Stock Return	**Model 1**	Coefficient	6.675	16.865					
		t value	12.450	2.119					
		p value	0	0,0342					
	Model 2	Coefficient	7.079		-4.320	1.464			
		t value	6.219		-1.536	3.129			
		p value	0		0,1245	0,0018			
	Model 3	Coefficient	6.964		-3.879	1.455	0.013	-0.102	-0.004
		t value	5.801		-1.351	3.094	1.188	-0.478	-0.426
		p value	0		0,1768	0,002	0,2349	0,6322	0,6694
	Model 4	Coefficient	6.981	15.713	-3.761	1.422	0.013	-0.084	-0.006
		t value	5.823	1.974	-1.311	3.032	1.198	-0.393	-0.579
		p value	0	0,0485	0,19	0,0025	0,2309	0,6939	0,5621

Table 8: Comparison of All Panel Data Analysis Results

	Variables					
	FBeta	**TD/TA**	**TD/MV**	**ROE**	**EPS**	**DFL**
1994-2010 Base Period						
Nominal Return	Positive and significant effect(*)	Statistically insignificant effect	Positive and significant effect(*)	Statistically insignificant effect	Statistically insignificant effect	Statistically insignificant effect
Real Return	Positive and significant effect(*)	Negative and significant effect(*)	Positive and significant effect(*)	Statistically insignificant effect	Statistically insignificant effect	Statistically insignificant effect
1994-2002 Sub-period						
Nominal Return	Positive and significant effect(*)	Negative and significant	Positive and significant effect(*)	Statistically insignificant effect	Positive and significant effect(*)	Statistically insignificant effect
Real Return	Positive and significant effect(*)	Negative and significant	Positive and significant effect(*)	Statistically insignificant effect	Positive and significant effect(*)	Statistically insignificant effect
2003-2010 Sub-period						
Nominal Return	Positive and significant effect(*)	Statistically insignificant effect	Positive and significant effect(*)	Statistically insignificant effect	Statistically insignificant effect	Statistically insignificant effect
Real Return	Positive and significant effect(**)	Statistically insignificant effect	Positive and significant effect(*)	Statistically insignificant effect	Statistically insignificant effect	Statistically insignificant effect

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