

**Effect of Financial Crises on the Capital Structure Choice: Evidence From Istanbul
Stock Exchange (ISE)**

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ABSTRACT:

The purpose of this study is to make detailed analysis of financial crises effects on the capital structure choice of a firm. Empirical analysis are performed on the Turkish non-financial firms listed on Istanbul Stock Exchange (ISE). The sample period covers major financial crises in the Turkish economy from 1992 through 2003.

The effect of financial crises on debt and equity is investigated by analysing short-term, long-term, and financial debt and trade payables and right issues of equity seperately. The results of analyses on trade payables and financial debt revealed that, tax shield and market to book ratio has significant effect only on financial debt but not on trade payables. Furthermore, firms which have less tangible assets, less profit, less debt and lower market to book ratios, tend to raise their capitals through rights issues.

The findings on financial crises show that financial crises affect the capital structure choice of firms but the impact depends on how drastic and sudden the financial crises is.

Keywords: Capital structure, financial crises, financial debt, trade payables, ISE, right issues

Jel Classification: G32

I. INTRODUCTION

There is a substantial body of studies that investigate the determinants of capital structure. These studies focus on firm-specific and macroeconomic determinants of capital structure choice (Myers, 1984; Titman and Wessels, 1988; Wiwattanakantang, 1999; Booth et al., 2001; Huang and Song, 2005). Although short-term and long-term debt financing preference of firms has been widely analyzed, the determinants of sources of debt financing such as trade credits and financial credits have not explored in previous literature.

Debt financing may differ from firm to firm. The type and the length of debt depends on the cost and the availability of debt to a firm. In the absence of bonds, there are basically two types of debt financing; trade credits and financial credits. It is argued that trade credits come lower on the pecking order, suggesting that trade credits are more expensive than financial credits, particularly bank credits (Petersen and Rajan, 1997). However, firms substitute bank credits with trade credits during money tightening. Given the collapse of financial markets, it is expected that trade credits would compensate financial credits. This view was first proposed by Meltzer (1960) and further supported by Nilsen (2002) and Love et al. (2007) among others.

Equity financing rarely replace trade and financial credits. It is the case when the severe financial crises occur. The pecking order theory describes equity financing as a last resort. Firms can raise capital through rights issues. Equity rights issue financing is a crucial decision in terms of a firm value. The prior findings reveal the fact that firms are not eagerly finance through equity. The evidence on the stock price reaction to rights issue announcements has generally found to be negative (Dehnert, 1993; White et al., 1994.; Davidson and Mallin, 1994). Changes in a share price, therefore in the market value of a firm, result in changes in the level of leverage

This paper aims to explore the determinants of capital structure of ISE listed non-financial firms. This paper will contribute to the existing literature in three ways: First, it focuses on how corporate specific features affect the capital structure choices and changes in capital structure over time. Since the corporate bond market in Turkey is still underdeveloped, trade credits and financial credits are the main sources of firm leverage. The present study provides a comprehensive analysis of how a set of variables determines portion of trade credits and financial credits in debt financing. To the best of authors knowledge, there has yet

been no study focused particularly on the preference of debt resources for Turkish firms. Therefore, it is important to show whether Turkish firms finance themselves with trade credits from suppliers or financial credits from banks while setting of preferences towards debt. Second, this paper presents a good setting for analyzing the implications of the financial crises in funding decisions. It examines the effect of financial crisis on the capital structure choices of ISE-listed firms during 1991–2003 period in which the Turkish economy has gone through two major crises; the 1994 crisis and the 2000–2001 crisis. Third, this paper determines the factors affecting the decision of raising capital through rights issues.

The paper is organized as follows: Section two discusses the literature on capital structure. Section three presents a brief summary of Turkish economy and economic crises. Section four describes the data set, variables and estimation models. Section five shows the results of analyses. Section six concludes and provides further research suggestions.

II. LITERATURE REVIEW

There have been numerous attempts to explain the capital structure choice of the firms. Modigliani and Miller (1958) state that the market value of a firm is independent of its capital structure in the absence of taxes, transaction costs and bankruptcy costs. Following them, researchers advanced several theories including static trade-off model, pecking order theory agency theory, asymmetric information and signalling theory.

The static trade-off theory predicts an optimal level of debt by balancing the benefits of tax advantages and costs of financial distress (Myers, 1977), The tax deductibility of corporate interest payments supports the use of debt and it maximizes the value of the firm. The costs of financial distress mentioned are the bankruptcy costs and the agency costs.

Pecking order is a hierarchical financing and the theory suggests that firms have preference on financing choices according to the information asymmetries between the firm and potential financiers. According to the pecking order hypothesis, retained earning financing is preferred first, followed by debt, and lastly equity Myers (1984) states that, firms prefer internal financing to external financing and if external financing is necessary then they prefer debt over equity. Shyam-Sunder and Myers (1999) compare the static trade-off theory

with the pecking order theory. They report evidence that firms follow the pecking order in their financing decisions

The agency theory views debt as a control device in reducing the conflict between shareholders and debtors (Jensen and Meckling, 1976; Jensen, 1986). Debt financing reduces the agency costs by limiting free cash flow available to managers. Thereby, managers can concentrate clearly on debt payments. In case of riskier undertakings, debtors may charge higher prices and this threat avoid managers spend free cash flow for discretionary spendings.

Rajan and Zingales (1995) examined the capital structure in the G-7 countries. Their results point out that the firms of Anglo-Saxon countries and continental Europe use equity financing rather than debt financing. In contrast to this, debt financing is more common in Japan where the economy is bank centered.

Booth et al. (2001) analyzed capital structure decisions of 10 developing countries including India, Pakistan, Thailand, Malaysia, Turkey, Zimbabwe, Mexico, Brazil, Jordan from 1980 through 1990. Their findings show that Brazil, Mexico, Malaysia, and Zimbabwe are considered as low-leveraged countries while Jordan, Turkey and Thailand are grouped as highly indebted countries.

Kim et al. (2006) examined the effect of 1997 Asian Financial Crisis on the capital structure choices of non-financial Korean firms. They used the unbalanced panel data of 617 Korean listed firms between 1985 and 2002. Their findings suggest that there was a decline in the debt ratio of Korean firms after the financial crisis. The reason behind this fact can be attributed to structure of the firms. The Korean economy is centered with chaebol firms that are big corporations, are affiliated to each other. The Asian crisis hit particularly these big corporations. Highly leveraged Korean firms could not avoid bankruptcies. Hence, a chain of financial troubles emerged and the government initiated re-structuring program.

A number of papers provide capital structure choice of Turkish firms. Among them, Durukan (1997) investigated the effect of size, business risk, profitability, non-debt taxshield, tax rate and growth rate on 68 firms listed at ISE over 1990–1995 period. The findings suggest that, profitability and non-debt taxshield effects capital structure choice.

Guloglu and Bekcioglu (2001) analyzed the effect of developments in the capital market, namely ISE, money market and macro economic environment on the capital structure choice of 42 manufacturing firms from 1992 to 2000. Their findings show that leverage ratios are positively effected from development of capital market in Turkey.

Gonenc (2003) analyzed the capital structure choices of Turkish manufacturing companies listed on the ISE from 1990 to 1999. The findings show that Turkish firms chose short-term debt financing. A major reason behind this high leverage can be attributed to high political and economic uncertainty of 1990s, thereby resulting in the lack of long-term financing sources.

A study of Acaravci and Dogukanli (2004) examines the determinants of capital structure of 66 manufacturing firms listed on ISE from 1992 through 2002. In their analysis, they test the impacts of that firm specific variables and macro economic variables on the capital structure choice. They find that size of the firms, banking sector development, inflation, and corporate tax rate have positive effects on the debt financing. Firm specific variables affect the capital structures more than the financial sector and macro economic variables. The capital structure of the Turkish firms is characterized by high leverage, reflecting the fact that firms tend to use debt rather than equity.

Caglayan (2006) investigates the effect of size, profitability, tangibility and growth variables on capital structure choice by using quantile regression analysis on 46 non-financial firms listed at ISE and finds that the relationships are more significant at higher quantiles.

III. OVERVIEW OF TURKISH ECONOMY AND ECONOMIC CRISES

Turkey, as an emerging market, is shaped by economic crises and turbulences. Macro-economic environment and regulations seem especially important over recent years, resulting in a severe decline in earnings. The financial crises and their impact on the Turkish economy are well documented in the literature (Akyuz and Borotav,2002; Onis and Alper, 2002; Yeldan 2002).

The liberalization of financial markets has started in the 1980s and then economy turned to an outward oriented. Since then, Istanbul Stock Exchange (1985) was opened, capital movements were liberalized (1989) and the convertibility of Turkish Lira was

accepted (1990). The free market forces induced competition, therefore quality, technology, and investment have increased. However, risks also increased at the same time. In the 1990's with the effect of globalization, cooperation between the financial institutions escalated. This cooperation increased the effects of financial crises in other countries on Turkish economy.

Aktan and Sen (2001) define financial crises as the surfacing of unknown or underestimated destructive developments. In this view, a crisis is evaluated as an unexpected severe problem. During financial crises, exchange rates increase dramatically, foreign investment leaves the country, problems of short-term debt payment increase, and availability of internal credit decreases. The 1994 and the 2000-2001 financial crises can be categorized as considerably severe crises according to this view.

The 1994 Crisis:

The 1994 crisis has initially emerged from stock exchange and exchange markets. By end of February 1994, Istanbul Stock Exchange has lost 20% of its value followed by drastic increase of exchange rates and interest rates. Even though Central Reserve Bank tried to intervene to the markets by selling US dollar, it could not stop devaluation of Turkish Lira. As a result, inflation rate moved up to 120.7%, Turkish Lira devaluated more than 150%, and economic growth rate sharply declined to -6.1 as seen in Table 1. It is important to note that under a high chronic inflation, Turkish firms have been deprived of long-term funds, namely issuing bonds. Turkish government has been the only bond issuing body.

INSERT TABLE I

Short-term capital flows and increased public debt lead to a fragile financial system and an unstable economy. Manufacturing firms were damaged due to low demand, high cost of borrowings and devaluation. On 5th of April, an economic stability program was launched. However, this program was incapable of repairing the major problems. While the Turkish economy tried to recover during this time, the subsequent Asia Crisis in 1997 made the domestic economy, namely the manufacturing industry, valetudinarian (Muslumov and Karatas, 2001).

The 2000-2001 Crisis:

At the end of 1999, Turkey signed a stand-by agreement with IMF. The economic program was based on fixed exchange-rate and aimed to control inflation. This caused Turkish Lira to become overvalued. During this period, there was no effective auditing on banking industry. This led banks to carry very high open positions while financing the government (Eren and Suslu, 2001). The chain of consequent crises such as Asian crisis in 1997, Russian crisis in 1998, earthquake in 1999 and collapse of disinflation program in 2000 led to series of accumulated risk and liquidity problems in 2001. Insufficient capital base of banks, lack of financial discipline and regulations increased the vulnerability of the financial system.

During the period of 2000–2001, financial crisis emerged in the banking industry. Since the Turkish economy is bank-oriented; a crisis in the banking industry spread to other industries and resulted in losses. A severe liquidity and working capital problem emerged, reflecting low sales and profits. Additionally, firms became more vulnerable due to ongoing crises condition in the economy from 1997 to 2001.

Comparing the 1994 and the 2000-2001 financial crises, it is important to note that the 2001 financial crisis was an end point rather than a sudden crisis. However, the 1994 crisis was unexpected and characterized by excess government spendings due to rapid economic growth..

IV. DATA DESCRIPTION AND METHODOLOGY

A data set of Istanbul Stock Exchange (ISE) listed non-financial firms is gathered from ISE CD-Rom. Unbalanced panel data for the period of 1991-2003 is used in random effects generalized least square (GLS) estimation models. According to Hsiago (1991), “If the population is large, the characteristics of the population becomes more important than specific effect of each observation, then a random effects model is more appropriate”(pg.41). Hence, random effects model is found appropriate for this study. To ensure robustness of our results, outliers are removed from sample by examining the distribution of key variables.

The determinants of capital structure have been one of the subjects that attract most attention in the literature. Most widely used variables in determining the capital structure choice are given below:

Business risk (CVSales_i): is the coefficient variation of sales. Ferri and Jones (1979) used this variable to measure the impact of business risk on firm leverage. Sales mainly constitutes the operating income, therefore cash flow, and the variations in the sales indicate the future prospects of the business. When the sales are volatile, this will increase the probability of default on interest payment. Therefore, sales variability is expected to be negatively related to leverage.

Size (Log (TA_{it})): is the natural logarithm of total assets. Titman and Wessels (1988) argue that small firms are more prone to have credit defaults and big firms are able to find debt easier. This variable is used to show is a proxy for default risk and bankruptcy. For Turkish firms, Gonenc (2003) find that the large Turkish companies use more total debt. Therefore, a positive relationship between firm size and the leverage is anticipated

Tangibility (FA_{it}/ TA_{it}): is measured as the ratio of fixed assets to total assets. Tangible assets can easily be collateralized. If a firm has high tangibility, the lenders do not have agency costs of debt. Hence, leverage is expected to be higher in investing firms. Tangibility is expected to be positively correlated with the level of leverage. Rajan and Zingales (1995) find that there is a significant positive relationship between tangibility and the firms leverage. However, Huang and Song (2002) find negative relationship between tangibility and leverage in China.

Market to Book (MV_{it}/B V_{it}): is a ratio of market value over the book value of the equity. This ratio is used to measure the growth opportunity of a firm. The evidence provided by Acaravci and Dogukanli (2004) shows insignificant relationship between capital structure and market to book ratio for the ISE listed Turkish firms.

ROA (NI_{it}/ TA_{it}): is the ratio of net income over total assets. Kim et al (2006) find that profitability is negatively correlated with the debt ratio for the Korean listed firms. Booth et al.(2001) find that when the firms become more profitable, their debt ratios become lower in the emerging markets. They further argue that profitability in the emerging markets is related to the significant agency and informational asymmetry problems. For Turkish firms, Acaravci and Dogukanli (2004) find a negative relationship between profitability and debt to equity ratios. This is consistent with Gonenc (2003) findings.

Growth(($TA_{it} - TA_{it-1}$)/ TA_{it-1}): this variable is also used to show the growth opportunities of firms, High growth firms are expected to have higher financial requirements, thus expected to rely on debt for the excess capital needs (Titman and Wesels, 1988). Debt financing gives flexibility to growing firms which can not generate sufficient internal sources. In addition to this, lenders may tend to lend according to futures prospects. A positive relationship is expected between growth and leverage as measured by total asset growth.

Non-debt Tax Shield(DE_{it}/ TA_{it}): depreciation divided by total assets is used as tax shield variable. One of the reasons firms prefer to use debt financing is the tax advantage it provides. However, depreciation provides the same tax advantage. Empirical evidence shows that tax advantage gained by depreciation has a negative impact on leverage (Saa Requejo, 1996; De Angelo and Masulis, 1980).

Financial Crisis(*94D and 01D*): are the dummy variables and take the value of 1 if there is a financial crisis in that year. Since the crises eroded earnings and created serious liquidity problems for firms, we can expect a positive relationship between financial crises and the leverage ratios. On the other hand, during financial crises debtors can be less willing to provide financing to firms, thus the relationship between leverage ratios and financial crisis can be negative. During the sample period, there are 2 financial crises; the 1994 financial crisis and the 2001 financial crisis.

Model (1) as stated below includes the above variables as independent variable. The dependent variable L_i denotes capital structure variables. Since capital structure variable is measured by six different ratios which are; total debt to asset, short-term debt to asset, long term debt to asset, debt to equity, trade payables to assets, financial debt to assets; Model (1) yields 6 different equations.

$$(1) \quad L_i = \beta_0 + \beta_1 \text{Log}(TA_{it}) + \beta_2 (TA_{it} - TA_{it-1}) / TA_{it-1} + \beta_3 NI_{it} / TA_{it} + \beta_4 FA_{it} / TA_{it} + \beta_5 CV\text{Sales}_i + \beta_6 DE_{it} / TA_{it} + \beta_7 MV_{it} / B V_{it} + e_{it}$$

Model (2) includes crises variables in addition to Model (1) and test the effect of crises on capital structure variables. Model (2) yields 6 different equations like Model (1).

$$(2) \quad L_i = \beta_0 + \beta_1 \text{Log}(TA_{it}) + \beta_2 (TA_{it} - TA_{it-1}) / TA_{it-1} + \beta_3 NI_{it} / TA_{it} + \beta_4 FA_{it} / TA_{it} + \beta_5 CV\text{Sales}_i + \beta_6 DE_{it} / TA_{it} + \beta_7 MV_{it} / BV_{it} + \beta_8 94D + \beta_9 + 01D + e_{it}$$

Model (3) is a logistic regression model that predicts the effect of firm characteristics and financial crises on rights issue which is a dummy variable, that takes value 1 if the firm issued rights in year t and 0, otherwise.

$$(3) \quad p(ri) / 1 - p(ri) = e^{\beta_0 + \beta_1 \text{Log}(TA_{it}) + \beta_2 FA_{it} / TA_{it} + \beta_3 MV_{it} / BV_{it} + \beta_4 (TA_{it} - TA_{it-1}) / TA_{it-1} + \beta_5 NI_{it} / TA_{it} + \beta_6 Di / TA_{it} + \beta_7 94D + \beta_8 01D + e_{it}}$$

V. EMPIRICAL FINDINGS

Table 2 reports the findings of leverage ratios across industries. The findings show the results for long-term debts, short-term debts, financial and trade credits. For all leverage ratios, there is a significant difference among the industries.

INSERT TABLE II

Turkish firms have a high debt ratio (61%). In particular, short-term debt financing is dominant. Since Turkey experienced a high chronic inflation for ages, short term debts served as a source of emergency credits both in terms of low cost and availability. This is in line with the previous findings of Booth et al. (2001), short term debt level is higher than the long-term debt in Turkey. The further evidence presents that tendency for using financial debt is higher than that for using trade credits. Since Turkey is a bank-oriented market, the weight of banks in the financial markets is inevitable. As of year 2001, it is clearly seen from the findings that Turkish firms heavily depend on debt financing(83%). This supports how the Turkish economy was fragile during the financial crisis year.

INSERT TABEL III

Table 3 reports the effect of independent variables on four widely studied leverage ratios in Panel A and the findings in Panel B further show significant effect of two economic crises on leverage ratios. Results in Panel A suggest that in line with the expectations size,

growth and growth opportunities have positive significant effect, and taxshield and profitability have negative significant effect on leverage ratios.

The findings of this paper regarding the profitability is consistent with Titman and Wessels (1988). The equity structure of a firm is affected by the profitability. High earnings result in low debt levels due to internally generated funds. A negative relationship between profitability and leverage ratios strengthens the pecking order theory.

There is a significantly negative relationship between non-debt tax shield As predicted by the trade-off model, firms with more non-debt tax shield have less debt ratios. Contrary to the expectations tangibility has a negative significant effect on total debt and short term debt ratios but has a positive effect on long-term debt ratio. The proportion of tangible increases the long-term debt capacity.

Since it is shown that short-term debt ratio is higher for Turkish firms on average, the total effect on the debt ratio becomes negative. In contrast to the expectations, business risk has a positive significant impact on the leverage. This can be attributed to this result is consistent with Durukan's (1996) finding when sales variability is used as measure of business risk.

In Panel B two dummy variables are introduced to the basic model to investigate the effect of financial crises on leverage. There is a negative impact of 1994 crisis on the debt ratio. This finding supports the view that during 1994 crisis debtors reduced lending. However the relationship between 2000–2001 crisis is positive in general but negative for long-term debt but it is only significant for debt/equity ratio. We can interpret this result as, firms choose to increase short-term debt to solve their liquidity problems during the crises but both firms and the debtors avoided getting into long-term contracts during 2000–2001 crises. This result can also be due to the decrease in equity of firms by to high losses.

INSERT TABEL IV

Table 4 shows results of trade payables and financial debt regressions. As shown in the descriptive statistics (Table 2), Turkish firms use financial credits rather than trade credits. This is in line with the pecking order analyzed in Peterson and Rajan (1994) where firms use

first retained earnings or bank credits and then get trade credits. The reason behind this fact that trade credits are more expensive form of credits than financial credits.

Size has positive effect on trade payables. Bigger firms can have higher trade payables both because of better reputation in the market and higher dependibility and also because of higher bargaining power over their suppliers. The coefficient of size is also positive and significant for financial debt.

This finding confirms the expectations that big firms are able to find debt financing easier. The results for growth, tangibility and profitability are in line with other leverage ratios for trade payables and financial debt. Tax shield and market to book ratio has only significant effect on financial debt as expected but not on trade payables. Taxation is not influential on trade payables but very influential on financial debt. When the crises variables are introduced to the models, results show that 2000–2001 crisis has a negative significant impact on trade payables. This shows that during the crisis firms had difficulty in extending their credit lines with their suppliers. 1994 crisis did not have any significant impact directly on trade payables or financial debt.

INSERT TABEL V

Table 5 shows the logit regression results for rights issues including exercised pre-emptive rights and rights restricted to shareholder. The dependent variable is 1 if a firm has rights issues in the relevant year, 0 otherwise. The number of firm year observation is 1750 from 1991 through 2003.

In the first model only size, tangibility, market to book and growth are used as dependent variables. Results show that, market to book and growth have significant impact on the firm's choice of right issues. In the second model profitability is added to the model and found to have significant negative effect. Leverage is added in the third model and found to have significant negative effect on right issues.

Interpreted together these findings suggest that, there is an inverse and significant relationship between firm size, growth opportunities, profitability and the rights issues. The firms which have less tangible assets, less profit, less debt and lower market to book ratios,

tend to raise their capitals through rights issues. An interesting result is the significant positive relationship of growth and rights issues. Results can be interpreted as, small but growing firms with less fixed assets and low profits may be unable to get credits from banks, therefore choose to raise capital from their shareholders.

In the last model, crises variables are added. The signs of economic crises are significant. While there is a positive and significant relationship between the 1994 crisis and rights issues, the relationship between the 2000–2001 economic crisis and decision of rights issues is significant and negative. This difference can be attributed to the nature of these two economic crises. 1994 crisis was a more drastic and sudden economic crisis that particularly affected the non-financial firms which consisted our sample. During this crisis firms choose to finance themselves by issuing rights to their shareholders because cost of borrowing increased dramatically. On the other hand, 2000–2001 crises was the end point of an ongoing deterioration of the economy. So, by the time 2000–2001 crises surfaced firms might have already adjusted their capital structure according to the deteriorating economy.

VI. CONCLUSION

This paper investigates the firm specific determinants of capital structure by dividing capital structure choice into total debt, short term debt, long term debt, financial debt, trade payables, and equity issues. Additionally, it investigates the effect of economic crises on the capital structure choice.

In general terms, ISE non-financial firms appear to have high total debt, in particular short-term debts. Since Turkey is a bank-oriented market, debt financing, namely financial debts, is more common. Analysis on the firm specific determinants of capital structure show that results are similar to the previous literature on emerging markets. Size, profitability, growth and future growth opportunities, operating risk, asset tangibility, tax shield seem to have an effect on the level of both short and long term debt.

Results of analysis on trade payables and financial debt revealed that, tax shield and market to book ratio has only significant effect on financial debt as expected but not on trade payables. Taxation is not influential on trade payables but very influential on financial debt.

The empirical results are in line with trade-off and the pecking order theories. Companies prefer debt financing when they receive higher tax benefits from financial debt. This corroborates with trade-off theory. Further, as the corporate bond market in Turkey is still underdeveloped, when the financial markets are depressed by crises, firms are pressed to depend heavily on short-term debt. This finding provides support for the Pecking order theory.

The findings of the financial crises show that 1994 financial crisis is more influential in general than 2000–2001 crisis on capital structure choice of firms. This might be due to the fact that two crisis were quite different in terms of occurrence and effects. 1994 crisis was a drastic and sudden economic crisis that particularly affected manufacturing firms. During the 1994 crisis, firms tended to decrease their debt levels, The 2000–2001 crises was the end point of an ongoing deterioration of the economy so that the impact of it on the capital structure of firms was not as much as the 1994 crisis.

Results of logistic regression analysis revealed that firms which have less tangible assets, less profit, less debt and lower market to book ratios, tend to raise their capitals through rights issues. This shows that, small but growing firms with less fixed assets and low profits may be unable to get financing from banks, therefore choose to raise capital from their shareholders. When crisis variables are added to the model, both crises are found to have significant effect on issues choice. 1994 crisis has a positive effect on rights issues. This result interpreted with the leverage results together concludes that, firms decreased debt level during crisis and financed themselves through rights issues when a sudden and drastic financial economic crises occurs.

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Table 1: Major Economic Indicators over Years

Year	Average Inflation % *	Year-end Exchange Rate (\$) **	GNP Growth Rate % ***
1991	55.3	5,074.83	0.3
1992	62.1	8,555.85	6.4
1993	58.4	14,458.03	8.1
1994	120.7	38,418.00	-6.1
1995	86.0	59,501.00	8.0
1996	75.9	107,505.00	7.1
1997	81.8	204,860.00	8.3
1998	71.8	313,707.00	3.9
1999	53.1	540,089.00	-6.1
2000	51.4	671,765.00	6.3
2001	61.6	1,439,567.00	-9.5
2002	50.1	1,634,501.00	7.9
2003	25.6	1,395,835.00	5.9

* WPI (Wholesale Price Index), The data is taken from Central Bank the Republic of Turkey (CBRT) Statistics Data Set.

Table 2: Descriptive Statistics

Year	Debt / T.Asset			Short-term Debt			Long-term Debt			Trade Credits			Financial Credits			Debt / Equity		
	Mean	Median	St.Dev.	Mean	Median	St.Dev.	Mean	Median	St.Dev.	Mean	Median	St.Dev.	Mean	Median	St.Dev.	Mean	Median	St.Dev.
1992	0.55	0.54	0.22	0.43	0.38	0.22	0.12	0.10	0.11	0.14	0.11	0.12	0.20	0.17	0.19	0.99	1.11	9.73
1993	0.53	0.53	0.21	0.41	0.39	0.19	0.12	0.09	0.10	0.15	0.10	0.15	0.17	0.13	0.17	1.70	1.13	4.11
1994	0.52	0.49	0.22	0.42	0.38	0.20	0.10	0.07	0.11	0.16	0.10	0.18	0.18	0.11	0.18	2.37	0.93	11.81
1995	0.53	0.51	0.21	0.43	0.41	0.20	0.10	0.07	0.09	0.17	0.11	0.17	0.18	0.14	0.18	3.38	0.98	18.43
1996	0.54	0.54	0.20	0.41	0.37	0.20	0.12	0.09	0.11	0.15	0.12	0.14	0.20	0.16	0.19	1.90	1.16	3.53
1997	0.55	0.55	0.20	0.42	0.38	0.19	0.14	0.11	0.11	0.14	0.10	0.13	0.24	0.20	0.21	1.64	1.19	3.45
1998	0.57	0.56	0.21	0.43	0.41	0.21	0.13	0.10	0.12	0.14	0.09	0.12	0.27	0.25	0.21	2.26	1.25	3.64
1999	0.62	0.60	0.25	0.47	0.43	0.23	0.14	0.10	0.13	0.17	0.13	0.14	0.29	0.26	0.25	0.21	1.37	34.02
2000	0.64	0.58	0.46	0.50	0.44	0.41	0.14	0.10	0.16	0.17	0.13	0.14	0.30	0.24	0.39	1.45	1.22	35.08
2001	0.83	0.65	0.90	0.63	0.49	0.76	0.20	0.1	0.37	0.17	0.12	0.15	0.45	0.31	0.72	0.36	1.08	22.73
2002	0.72	0.57	0.76	0.51	0.41	0.48	0.22	0.10	0.46	0.16	0.12	0.14	0.39	0.24	0.65	3.79	0.81	38.64
2003	0.75	0.49	1.57	0.54	0.33	1.50	0.21	0.09	0.42	0.15	0.12	0.14	0.44	0.18	1.49	1.50	0.64	9.85
Overall	0.611	0.551		0.466	0.406		0.144	0.092		0.155	0.112		0.275	0.198		1.683	1.109	

Table 3: Random Effects GLS Regression Results**Panel A: Without Crises Effects:**

$$L_i = \beta_0 + \beta_1 \text{Log}(TA_{it}) + \beta_2 (TA_{it} - TA_{it-1}) / TA_{it-1} + \beta_3 NI_{it} / TA_{it} + \beta_4 FA_{it} / TA_{it} + \beta_5 CV\text{Sales}_i + \beta_6 DE_{it} / TA_{it} + \beta_7 MV_{it} / B V_{it} + e_{it}$$

	Debt _{it} / T. Assets _{it}	Debt _{it} /Equity _{it}	Long-term Debt _{it} / T. Assets _{it}	Short-term Debt _{it} / T. Assets _{it}
Independent Variables	Coefficient	Coefficient	Coefficient	Coefficient
Constant	0.628 ^{***}	-0.125	0.001	0.636 ^{***}
Size	0.002	0.233 ^{***}	0.007 ^{**}	-0.004
Growth	0.040 ^{***}	0.290 ^{***}	0.004	0.0366 ^{***}
ROA	-0.881 ^{***}	0.383 ^{**}	-0.155 ^{***}	-0.756 ^{***}
Tangibility	-0.306 ^{***}	-1.035 ^{***}	0.141 ^{***}	-0.476 ^{***}
Business risk	0.042 [*]	0.113	0.034 ^{**}	0.011
Taxshield	-0.135 ^{***}	-1.009 ^{***}	-0.038 ^{**}	-0.117 ^{***}
Market to Book	0.014 ^{**}	0.545 ^{***}	0.008 [*]	0.006
Model Specifications				
R-sq: Within	0.456	0.067	0.109	0.330
Between	0.632	0.174	0.155	0.709
Overall	0.565	0.122	0.109	0.587
Wald chi2(7)	1511.97 ^{***}	140.91 ^{***}	218.12 ^{***}	1183.61 ^{***}
# of observations	1689	1638	1689	1689

*** Significant at 0.01 level

** Significant at 0.05 level

* Significant at 0.10 level

Panel B: With Crisis Effect:

$$L_i = \beta_0 + \beta_1 \text{Log}(TA_{it}) + \beta_2 (TA_{it} - TA_{it-1}) / TA_{it-1} + \beta_3 NI_{it} / TA_{it} + \beta_4 FA_{it} / TA_{it} + \beta_5 CV\text{Sales}_i + \beta_6 DE_{it} / TA_{it} + \beta_7 MV_{it} / B V_{it} + \beta_8 94D + \beta_9 01D + e_{it}$$

	Debt _{it} /T. Assets _{it}	Debt _{it} /Equity _{it}	Long-term Debt _{it} / T. Assets _{it}	Short-term Debt _{it} / T. Assets _{it}
Independent Variables	Coefficient	Coefficient	Coefficient	Coefficient
Constant	0.644 ^{***}	0.001	0.007	0.643 ^{***}
Size	0.001	0.207 ^{***}	0.006 ^{**}	-0.006
Growth	0.041 ^{***}	0.294 ^{***}	0.006 [*]	0.037 ^{***}
ROA	-0.879 ^{***}	0.445 ^{**}	-0.158 ^{***}	-0.7526 ^{***}
Tangibility	-0.306 ^{***}	-1.019 ^{***}	0.141 ^{***}	-0.474 ^{***}
Business risk	0.042 ^{**}	0.139	0.033 ^{**}	0.012
Taxshield	-0.135 ^{***}	-1.018 ^{***}	-0.037 ^{**}	-0.116 ^{***}
Market to Book	0.014 ^{**}	0.542 ^{***}	0.009 ^{**}	0.006
1994 Crisis	-0.020 ^{**}	-0.084	-0.012	-0.006
2000-2001 Crisis	0.005	0.180 [*]	-0.004	0.006
Model Specifications				
R-sq: Within	0.458	0.071	0.112	0.331
Between	0.627	0.162	0.152	0.708
Overall	0.563	0.122	0.109	0.586
Wald chi2(9)	1522.93 ^{***}	146.18 ^{***}	221.65 ^{***}	1184.88 ^{***}
# of observations	1689	1638	1689	1689

*** Significant at 0.01 level

** Significant at 0.05 level

* Significant at 0.10 level

Table 4: Random Effects GLS Regression Results on Trade Payables and Financial Debt

$$(1) L_i = \beta_0 + \beta_1 \text{Log}(TA_{it}) + \beta_2 (TA_{it} - TA_{it-1}) / TA_{it-1} + \beta_3 NI_{it} / TA_{it} + \beta_4 FA_{it} / TA_{it} + \beta_5 CVSales_i + \beta_6 DE_{it} / TA_{it} + \beta_7 MV_{it} / B V_{it} + e_{it}$$

$$(2) L_i = \beta_0 + \beta_1 \text{Log}(TA_{it}) + \beta_2 (TA_{it} - TA_{it-1}) / TA_{it-1} + \beta_3 NI_{it} / TA_{it} + \beta_4 FA_{it} / TA_{it} + \beta_5 CVSales_i + \beta_6 DE_{it} / TA_{it} + \beta_7 MV_{it} / B V_{it} + \beta_8 94D + \beta_9 01D + e_{it}$$

	Trade Credits _{it} /T. Assets _{it}	Trade Credits _{it} /T. Assets _{it}	Financial Credits _{it} / T.Assets _{it}	Financial Credits _{it} / T. Assets _{it}
Independent Variables	Coefficient	Coefficient	Coefficient	Coefficient
Constant	0.163 ^{***}	0.162 ^{***}	0.017 ^{***}	0.151 ^{***}
Size	0.004 [*]	0.005 [*]	0.017 ^{***}	0.015 ^{***}
Growth	0.016 ^{***}	0.017 ^{***}	0.034 ^{***}	0.035 ^{***}
ROA	-0.166 ^{***}	-0.176 ^{***}	-0.711 ^{***}	-0.709 ^{***}
Tangibility	-0.100 ^{***}	-0.104 ^{***}	-0.003	-0.001
Business risk	-0.009	-0.011	0.006	0.006
Taxshield	-0.026	-0.026	-0.092 ^{***}	-0.091 ^{***}
Market to Book	-0.001	-0.001	0.015 ^{**}	.0152 ^{**}
1994 Crisis		-0.004		-0.012
2000-2001 Crisis		-0.014 ^{**}		0.004
Model Specifications				
R-sq: Within	0.045	0.049	0.377	0.378
Between	0.235	0.234	0.428	0.426
Overall	0.178	0.180	0.360	0.360
Wald chi	117.39 ^{***}	123.66 ^{***}	1017.77 ^{***}	1019.26 ^{***}
# of observations	1689	1689	1689	1689

*** Significant at 0.01 level

** Significant at 0.05 level

• Significant at 0.10 level

Table 5: Logit Regression Results on Equity Rights Issues

$$(3) p(\text{ri}) / 1 - p(\text{ri}) = e^{\beta_0 + \beta_1 \text{Log}(\text{TAit}) + \beta_2 \text{FAit} / \text{TAit} + \beta_3 \text{MVit} / \text{BVit} + \beta_4 (\text{TAit} - \text{TAit} - 1) / \text{TAit} - 1 + \beta_5 \text{NIit} / \text{TAit} + \beta_6 \text{Dit} / \text{TAit} + \beta_7 94\text{D} + \beta_8 10\text{D} + e_{it}}$$

Independent Variables	Coefficient	Coefficient	Coefficient	Coefficient
Constant	1.390***	1.468***	2.533***	2.057***
Size	-0.438	-0.447	-0.433**	-0.352**
Tangibility	0.189**	0.070**	-0.805*	-0.857*
Market to Book	-1.400***	-1.325***	-1.033***	-1.007***
Growth	0.743**	0.795**	0.966***	0.890***
ROA		-0.467**	-2.805***	-2.959***
Leverage			-1.572***	-1.582***
1994 Crisis				0.587***
2000-2001 Crisis				-0.452**
Model Specifications				
Observation	1750	1750	1750	1750
-2Log likelihood	1889.68***	1882.36***	1857.27***	1845.03***
Adjusted R ²	0.110	0.114	0.133	0.142

*** Significant at 0.01 level

** Significant at 0.05 level

* Significant at 0.10 level

