



## Factors Affecting Preference of Short-Term Financial Borrowing: ISE (Istanbul Stock Exchange) Application

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### Abstract

We tried to determine the relation between short-term financial borrowing levels and various financial parameters of the firms trading on Istanbul Stock Exchange. In our study covering the years of 1994-2007, we used such data for the firms which were traded on Istanbul Stock Exchange in this period uninterruptedly and had short-term financial debts in each of their financial statements for 3 months. We created three different models in the study we carried out by using panel data analysis method. It was seen based on the results we obtained that there is a significant negative relation between short-term financial debt level and earning before interest and taxes/total assets ratio. In addition, it was also found that there is a significant positive relation between short-term financial debt level and asset turnover, current assets/total assets ratio. It may be construed based on these results that firms use their preferences for borrowing term as a sign of expectation of the firm for its future.

**Keywords:** Short-term financial debt, Signal Models, Panel data analysis

### 1. Introduction

One of the study subjects which take an important place among the studies carried out regarding corporate finance but upon which no final agreement could be reached is capital structure decisions. Traditionally, there are two different approaches in such studies in which effect of the decisions for formation of capital structure on market value of the firm is dealt with. One of these approaches is the approach of “irrelevance” of Modigliani-Miller. Modigliani-Miller suggest that preferences of a firm on its capital structure would not affect market value of the said firm under efficient capital market conditions. However, it is emphasized in a significant part of the studies in which capital structure decisions are discussed that preferences on formation of capital structure would affect market value of the firm for certain reasons such as tax, bankruptcy costs, agency costs and asymmetric information.

In general, focus point in the studies on capital structure is the rate of debt and equities to finance the firm. However, it is not considered so much that nature of liabilities used by a firm may also affect capital structure and consequently market value of the said firm. It must be considered that possibility of variance in borrowing costs depending on the source indebted and term of debt must be considered for decisions on capital structure.

In our study, the aim is to determine the relation between financial debts used by firms and various financial parameters for the firm since liabilities used by the Turkish firms are mostly the loans granted by banking system. In this study, firstly the factors affecting term structure of liabilities used by firms will be discussed and details on the method used in the study and parameters used will be provided in the third part. In the fourth part, findings and results obtained will be presented.

### 2. Factors Effective on Term Structure of Liabilities

In the studies regarding capital structure, it may be suggested that the main reason of insufficient consideration of term structure of debt funds is unclearness of effect of preferences for borrowing term on firm value. Starting point of the studies included in the modern finance literature on this matter is mostly asymmetric information phenomenon. Where asymmetric information phenomenon is valid among market participants, preferences on borrowing term would affect market value of the firm. The point separating the studies conducted on this matter from each other is related to the question that whether the said effect is caused by term preference arising from the conditions specific to the firm or by the fact that the firm management uses borrowing term preference as the means to transfer information possessed by the firm regarding its future to the market. In the finance literature, approaches which associate debt term preference with the

conditions specific to the firm are called as contracting cost models; however, the approaches based on the fact that the management uses borrowing term preference as the means to transfer information possessed by the firm regarding its future to the market are called as signal models (Megginson, 1997).

According to the approach called as contracting cost models, it is suggested that firm assets, field of activity of the firm and ownership structure would be effective on preference of the firm to borrow money on debt term. In the study carried out by Myers (1977) on this matter, it is argued that preferences on debt term structure may solve the problem of undercapitalization. In the study of Myers (1977), the problem of undercapitalization is considered as reluctantly actions of shareholders in implementation of some profitable projects where the said projects do not promise a sufficient earning for the shareholders. The reason for this problem is presented as the fact that since term of the debts incurred become expires before acquisition of the profits to be derived from the project, the shareholders have to pay the lenders substantially full of their profits to be acquired from the project. Myers (1977), suggests that term structures of asset and liabilities should be matched (matching) in order to solve the problem (Barclay & Smith, 1995). In the study of Stohs & Mauer (1996), it was concluded that companies tend to match debt term structure and term of their assets and small companies get into debt for shorter terms relatively. It is also possible for firms to get into debt with high assurances for solution of the problem of undercapitalization. As stated in the study of Chen, Jen & Choi (1999), debts with high assurance is associated with high growing opportunities of the firms, high marketability of its assets and features such as business risk and finance of new investment projects with high assurances will limit asset transfers from shareholders to the current debt owners and reduce tendency of shareholders in withdrawing from these projects. On the other hand, in case of a borrowing term preference mostly involving short-term sources, firstly creditors and as a whole the market will follow the firm more closely. Many firm managers do not desire such a close monitoring. In the study of Jiraporn & Kitsabunnarat (2007), it was concluded that managers who avoid to be the focus point of the market have a tendency in long term borrowing in such firms with a weak shareholder efficiency.

Existence of asymmetric information is an acceptable phenomenon in financial markets. Reason of this the assumption to the effect that the most accurate information for the status of a firm attempting to find borrowed fund to financial markets is known by the firm's managers to use the loan, not the creditors. In such a case, it is possible for the information reflected by the firm's managers to out of the firm regarding status of the firm to include the information requested by creditors to grant loan to the firm, not actual status of the firm. Possibility of any application of such an information transfer method which is inconsistent with the real status of the firm causes some problems which are the following; the adverse selection problem and the moral hazard problem.

Adverse selection problem is related to the risk assumed by the creditors by granting debt fund to the firm which would not be granted any debt if its real status is known instead of the firms on the financial markets to use debt fund status of which is really eligible for using liabilities. Moral hazard problem, however, means use of provided sources by the debtor firm in excessive risky fields or in a manner to increase total risk.

Although it is possible to develop regulatory and restrictive measures both for the entire financial markets and for borrowing contracts respectively in order to be protected from each of the risks stated above, it is necessary to determine whether firm managements tend to use the asymmetric information phenomenon through the financial decisions they made. Thus, financial decisions are used as a means of information transfer, accuracy of the information on status of the said firm transferred to the market and manner of perception by the market may not be disregarded in such studies regarding operation of financial markets.

In the event of availability of asymmetric information, shares may be mispricing (Halov & Haider, 2005). There are different findings on significance of degree of asymmetric information for firm size. Tong & Green (2005), express that since large firms have a more complex structure, degree of asymmetric information is higher for these firms as well. In the study of Mitchell (1991), however, it was emphasized that such companies with high levels of asymmetric information would have a tendency to short term borrowing in order to minimize their adverse selection costs. However, Berger & Udell (1995), suggest that asymmetric information is more important for small firms. According to signal models, managers who have more information regarding future of the firm may use borrowing term structure as the means to transfer the information they possess to the external investors.

In the study of Flannery (1986) on this matter, it is argued that managers of strong firms prefer shorter term borrowing contrary to managers of weak firms. Managers of strong firms select short term borrowing and may encounter the risk of failure in financing debts again following delivery of more information on the firm to the market. Firm managers with lower level of expectations for the future, however, would not want to take this risk and prefer long term borrowing. Flannery (1986) explained that weak firms would prefer long term borrowing when security issue is costly and stronger firms would prefer short term borrowing.

In the study of Diamond (1991), an analysis similar to the study of Flannery (1986) is made. Diamond (1991) have dealt with selection of debt term structure as a relation between desire of the borrower on short term borrowing and liquidity risk which may occur on short term borrowing. It is suggested in the study that firms from which sufficient information on

their future earnings would prefer short term borrowing. However, short term borrowing would face the firms with a high level of liquidity risk. In the study, liquidity risk is considered as undesireness of lenders on extending debt if they receive any negative information. In such a case, firms with high credit rating would prefer short term borrowing. Because reborrowing risk would be low for these firms. Firms with lower credit rating prefer long term borrowing in order to reduce the risk of reborrowing. Firms with higher credit rating would prefer short term borrowing. According to Diamond (1991), short term borrowing would increase the liquidity risk for the firm management and sensitivity of financing costs to new information would increase due to increased liquidity risk. This case is the basis reason of preference by strong firms on short term borrowing. Diamond (1991), suggests that short term borrowing would a start for long term debt and long term borrowing would allow additional initial borrowing (short term borrowing). Also in the study of Berger, Espinosa-Vega, Frame & Miller (2005), it is stated that the low risky firms tend to use short term debt.

In the study of Guedes & Opler (1996), it is stated that the liquidity risk may be reduced by financing the assets yield of which takes a long time for long term debts. Thus, term structure of debts and term structure of assets would be matched.

It is also assumed that financing decisions are no associated with market value of a firm. Most of the studies carried out on this matter assume that those in the firm and market participants would share all information which may be obtained regarding distribution of the profits derived from real investment decisions. In such a case, those inside and outside agree on the value of financial changes and equilibrium price of the security makes the firm against alternative financing plans. However, if the information possessed by the market is not complete (in comparison with information of those inside), those outside would be unable to distinguish the firms with different real value.

### 3. Data and Method

In our study, data on the manufacturing firms traded on Istanbul Stock Exchange in the period of 1994-2007 was used. Data regarding the firms considered was compiles from financial statement data of the firms for 3 months. We considered two main criteria in selection of the firms included in the study. They include;

- firms continuously traded on Istanbul Stock Exchange in the period of 1994-2007 and
- firms each of which has short term financial debt in their financial statements for 3 months presented to Istanbul Stock Exchange in the period considered.

Number of firms which meet these two conditions and are included in the study is 24. This number represents 16% of number of manufacturing firms (150) traded on Istanbul Stock Exchange as of September 2009. In our study, we tried to analyze the relation between short term financial debt level and various financial variables on three different models. Data we used in the study was derived from Istanbul Stock Exchange files. Aim of Model 1 is to determine the relation between short term financial debt level considered as a percentage of total financial debts of firms and variables in the current situation (t period). In Model 2, the aim is to determine the relation between the expectations for the financial indicators discussed and short term financial debt level. In Model 3, we tried to find effect of previous period levels of the financial indicators discussed on the current short term financial debt level. It is possible to show the models that we created for the purposes stated as follows;

Model 1;

$$SFD_{it} = \beta_0 + \beta_1 CAL_{it} + \beta_2 EBITTA_{it} + \beta_3 AT_{it} + \beta_4 ROA_{it} + \varepsilon_t$$

Model 2;

$$SFD_{it} = \beta_0 + \beta_1 CAL_{it+1} + \beta_2 EBITTA_{it+1} + \beta_3 AT_{it+1} + \beta_4 ROA_{it+1} + \varepsilon_t$$

Model 3;

$$SFD_{it} = \beta_0 + \beta_1 CAL_{it-1} + \beta_2 EBITTA_{it-1} + \beta_3 AT_{it-1} + \beta_4 ROA_{it-1} + \varepsilon_t$$

The variables that are in all three models are as follows:

$SFD_{it}$  = Short Term Financial Debt Level for the period of t

$CAL_{it}$  = Current Assets Level for the period of t

$EBITTA_{it}$  = Earning Before Interest and Taxes Level as a Percentage of Total Assets for the period of t

$AT_{it}$  = Asset Turnover for the period of t

$ROA_{it}$  = Return on assets for the period of t

$CAL_{it+1}$  = Current Assets Level for the period of t+1

$EBITTA_{it+1}$  = Earning Before Interest and Taxes Level as a Percentage of Total Assets for the period of t+1

$AT_{it+1}$  = Asset Turnover for the period of t+1

$ROA_{it+1}$  = Return on assets for the period of t+1

$CAL_{it-1}$  = Current Assets Level for the period of t-1

$EBITTA_{it-1}$  = Earning Before Interest and Taxes Level as a Percentage of Total Assets for the period of t-1

$AT_{it-1}$  = Asset Turnover for the period of t-1

$ROA_{it-1}$  = Return on assets for the period of t-1

Calculation methods of the variables given are shown in Table 1.

An analysis was made by panel data estimation method by testing steadiness of the series of the variables used in both models given above. Testing steadiness of the series by Levin, Li and Chu unit root test, the series of the data used in model 1, model 2 and model 3 were found stable at a level significance of 5% and 10%.

In the models in which sectional data is used, the problem of varying variance may occur and this problem must not be disregarded (Gujarati, 1999). Therefore, in case of varying variance, White estimating correction technique may be applied. In Model 1, Model 2 and Model 3, white estimating correction technique was used against the risk of varying variance which may be encountered in the models involving sectional data and no autocorrelation problem is seen according to Durbin-Watson values obtained as a result of analyses. Hausman test was performed in order to determine whether fixed effects model or random effects model would be used in the analysis. According to the results obtained, it was found appropriate to use random effects model for all of three models. The values derived from the analysis are shown in Table 2.

#### 4. Findings and Conclusion

For model-1, model-2 and model-3 we used in the study, the relation between short term financial debt level and the variables discussed is shown in Tablo-2. Existence of a significant positive relation between current assets level (CAL) as a percentage of total assets and short term financial debt level in all of three models shows that short term financial debts were used in finance of current assets. This result reflects a tendency appropriate for the general approach regarding to term structures of asset and liabilities should be matched.

In the three models discussed, it was concluded that there is a significant positive relation between asset turnover (AT) and short term financial debt level. Accordingly, where asset turnover of firms increases or an increase is expected in asset turnover, it may be said that they tend to get short term financial borrowing. This result also supports the relation between current assets level and short term financial debt level. Requirement for current asset required by any increase or expectation of increase in sales volume also causes an increase in short term financial debts.

A significant negative relation was found between short term financial debts level and earning before interest and taxes level as a percentage of total assets (EBITTA). This result shows that where there is a decrease in the earning before interest and taxes as a percentage of total assets or any expectation for decrease, firms tend to get short term financial borrowing which may be acquired at a lower cost and more easily. Low earning before interest and taxes as a percentage of total assets lead firms to shorter term borrowing and this situation will increase financial risk of the firms.

#### 5. Conclusion

Term preferences for the bank loans to be used by firms are not a decision to be made considering only their own financial indicators. The sector they are connected and their expectations for general economic conditions will play a role in these preferences. However, the relation between various financial variables and borrowing term preferences relating to the firms must be explained at least in theoretical terms. In the study, a significant negative relation was found between level of earning before interest and taxes as a percentage of total assets and short term financial debt level. In addition, a significant positive relation was found between short term financial debt level with current asset/total asset ratio and asset turnover. These results may be assessed that firms use the short term financial borrowing preferences as an indicator to reflect future expectations of the firms.

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Table 1. Variables names and accounting of variables

Variables Symbol	Variables Names	Accounting of Variables
SFD	Short Term Financial Debt Level	Short Term Financial Debt/Total Financial Debt
CAL	Current Assets Level	Current Assets / Total Assets
EBITTA	Earning Before Interest and Taxes Level as a Percentage of Total Assets	(Term Profit+ Financing Expenses)/Total Assets
AT	Asset Turnover	Sales / Total Assets
ROA	Return on assets	Net Income/ Total Assets

Table 2.a. The Relationship between the short term financial debt level and variables

	Model 1 (for t period) (Random Effects Model)		
	Coefficient	t-value	p-value
$CAL_{it}$	0.535214	7.162113	0.0000*
$EBITTA_{it}$	-0.003369	-7.954278	0.0000*
$AT_{it}$	0.032026	2.273347	0.0232*
$ROA_{it}$	-0.044130	-0.600766	0.5481
c(constant)	0.356506	5.086018	0.0000
$R^2$	0.077381		
Adj. $R^2$	0.074625		
F-ist.	28.07597		0.000000
D.watson	1.5383999		
Hausman	3.198487		0.5252

Table 2.b.

	Model 2 ( for t+1 period) (Random Effects Model)		
	Coefficient	t-value	p-value
$CAL_{it+1}$	0.464688	6.408083	0.0000*
$EBITTA_{it+1}$	-0.002928	-6.799559	0.0000*
$AT_{it+1}$	0.029373	2.095363	0.0363*
$ROA_{it+1}$	-0.022424	-0.338616	0.7350
c(constant)	0.402208	5.582727	0.0000
$R^2$	0.059584		
Adj. $R^2$	0.056724		
F-ist.	20.82947		0.000000
D.watson	1.5401938		
Hausman	3.654553		0.4548

Table 2.c.

	Model 3 ( for t-1 period) (Random Effects Model)		
	Coefficient	t-value	p-value
$CAL_{it-1}$	0.511332	7.643697	0.0000*
$EBITTA_{it-1}$	-0.003427	-7.991682	0.0000*
$AT_{it-1}$	0.031030	2.173868	0.0299*
$ROA_{it-1}$	-0.085521	-1.127821	0.2596
c(constant)	0.372004	5.768832	0.0000
$R^2$	0.069514		
Adj. $R^2$	0.066734		
F-ist.	25.00812		0.000000
D.watson	1.6402874		
Hausman	3.163441		0.5309

Note 1. \* means 5% significance level