CAPITAL STRUCTURE DECISION IN MULTINATIONAL CORPORATIONS: A STUDY ON COMPANIES TRADING ON BORSA ISTANBUL

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ABSTRACT

The objective of this study is to analyze capital structure of multinational corporations, determine the factors that affect the capital structure decisions of multinational corporations and whether capital structure of multinational corporations differ from domestics companies. Within this framework, variables that affect the capital structures of 20 multinational corporations and 30 domestic companies trading on Borsa Istanbul were analyzed using comparative analysis and panel data methods for data from 2004 to 2012. In our analysis we used share of total debts in total assets as the representative of dependent variable along with 10 other independent variables. According to the results, in both multinational corporations and domestic companies, the variable that most affects the debt ratio is non-debt tax shield. In addition, while asset structure, profit, liquidity, number of years since initial public offering and cost of debt variables affect the capital structure of multinational corporations, the variables of growth possibilities (opportunities), corporate age, risk and firm size do not.

Keywords: Capital Structure, Multinational Corporations, Domestic Companies, Leverage, Turkey

JEL Codes: G32, F23

1. INTRODUCTION

Since the 1980s and the onset of globalization, economic relations becoming increasingly widespread, the increase in importance of knowledge based economies, liberalization, and the transformation of cultures and beliefs to resemble each other have all increased the importance of

multinational companies (MNCs). Companies with strong financial structures and technological infrastructures have tended towards operating in different countries to reduce costs, diversify risks and channel their accumulated capital to profitable investments. Thus, MNCs that can procure needed inputs from different parts of the world, operate in different countries and carry out worldwide marketing and sales activities, have begun to have a stronger position in the world economy.

As in all other businesses, the ultimate objective of MNCs managements is to maximize their firm's value. However, due to complex structures of these companies, the financial managers of MNCs have to deal with many factors, and the sustainability and growth opportunities of these companies are of critical importance. Thus, the debt and equity composition these companies use in financing—in other words, their capital structure decisions—have great importance.

The capital structure of MNCs is more complex due to the risks they face and agency problems they have. More than other businesses targeting the optimal capital structure MNCs' attainment of the optimal capital structure is a tough process. This in turn increases the importance of determining the factors that affect capital structure-related decision making.

In this study, first, the variables that affect the capital structure and factors that affect capital structure of MNCs will be briefly explained. A sample was drawn from corporations that traded in Borsa Istanbul between 2004 and 2012. After the debt structures and debt maturities of these corporations were analyzed, a comparative analysis of the variables that affect on capital structure was done. To determine the variables that affect the capital structures of these MNCs and domestic corporations (DCs), the panel data method was used, and two different regression models were constructed. Finally, the results were compared and assessed.

2. THE FACTORS THAT AFFECT CAPITAL STRUCTURE

One of the most important financing decisions of a finance manager is to create a capital structure that will maximize the firm's value. The finance manager's decisions are vitally important for the financial structure of the firm because firms' having a capital structure appropriate for their activities as well as their having adequate capital to carry on with their activities are of great importance. An error can drag a company into financial troubles and even into bankruptcy. Since there is no formula for optimal capital structure, companies try to attain the optimal capital structure by taking into account the methods used in reaching the optimal capital structure as well as factors that affect the firm's capital structure. The financial policies in resource procurement and resource use of companies wishing to attain optimal capital structure determine a firm's characteristics. The financial structures of firms in the same sectors may differ from one another, and these distinguishing features play a role in shaping their capital structures. This simply means that, even when they operate in the same branch of industry, firms' capital structure decisions may differ.

2.1. THE FACTORS THAT AFFECT CAPITAL STRUCTURE IN MULTINATIONAL CORPORATIONS

The topic of capital structure draws a great deal of attention in the field of international finance. Analyzing MNC's capital structure involves a more complex process. Since they operate in different countries, these corporations need to consider their idiosyncratic features as well as the characteristics of other countries where they operate. Depending on the economic conditions of the country where the affiliate company operates, their capital structures may differ, too.

For MNCs, international diversification can create both an advantage and a disadvantage. While MNCs can secure stability in their cash flows, they are also exposed to country-specific risks where affiliate companies operate, such as political risk, currency risk and agency problems.

Whether there are differences between the debt ratios of MNCs and DCs is a frequently debated issue. Many authors (Burgman, 1996; Chkir and Cosset, 2001; Mitto and Zhang, 2008; Park et al., 2012) claim that MNCs can use more debt in their capital structures than domestic firms. According to them, MNCs carry out their operations in various countries, and this leads to more stable cash flows. In turn, stable cash flows reduce the likelihood of bankruptcy for MNCs and allow them to have higher levels of leverage (Burgman, 1996: 553). However, there are many empirical studies showing that MNCs have lower debt ratios and higher agency costs than domestic firms (Lee and Kwok, 1988; Akhtar and Oliver, 2009; Doukas and Pantzalis, 1997). This shows that a variety of factors affect the capital structure of MNCs.

The deficiencies in international capital and labour markets, the complexities of international operations and the effect of high agency costs exceed the probable benefits of international diversification for MNCs and cause them to have lower debt ratios in their capital structures (Chkir and Cosset, 2001). Another important factor that affects the capital structures of MNCs is the capital structure of its affiliated companies. Affiliates that operate in different political, social and economic conditions determine their capital structures with respect to local conditions in their countries. However, geographical distance between MNCs and their affiliates, differences in corporate culture, differences arising from language and national cultures and economic development levels all give rise to various agency costs (Wright et al., 2002). The differences in interests of MNCs and affiliated companies lead to an increase in monitoring costs, residual loss and agency costs.

The conflict of interests between bond holders and shareholders can cause underinvestment problem that can harm bond holders' interests. This means that bond holders must allocate more resources for auditing the firm. Therefore, to provide funds to geographically dispersed firms, debt providers require higher returns. This causes an increase in the cost of debt financing for these firms and reduces leverage rates (Chkir and Cosset, 2001).

Compared to DCs, there are two reasons for MNCs to have higher agency costs and lower leverage ratio. First, the geographic variety (diversity) of MNCs' activities makes it difficult for the bond holders to obtain information and audit these commercial activities. Second, because they can reach international markets more easily, MNCs have more growth opportunities. Myers (1977) claims that companies with more growth opportunities tend to have higher agency costs and lower leverage rates ratio (Mittoo and Zhang, 2008).

In Figure 1. Lee and Kwok (1987), summarizes the capital structures of multinational corporations which have monopolistic advantage in imperfect markets, and which enjoy the potential to be superior to domestic companies in the countries where they make investments.

Figure 1. The Factors That Affect MNCs' Capital Structure
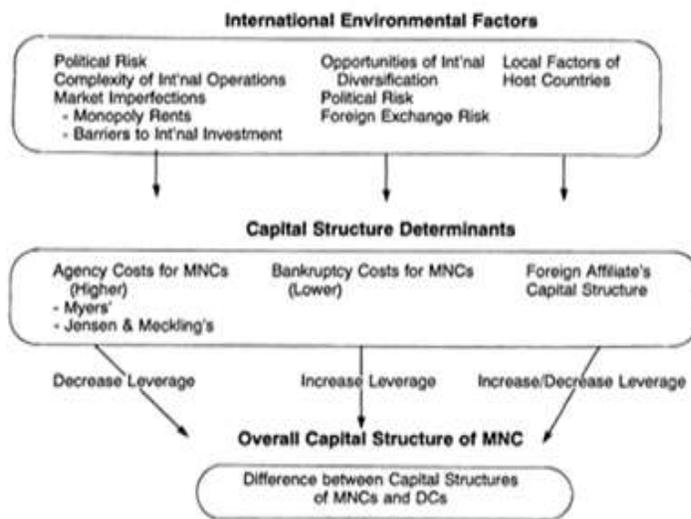
Source: Lee and Kwok, (1988).

According to Figure 1, there are a few reasons for MNCs and DCs to have different leverage ratios. First, since MNCs operate in international fields, they can procure their capital needs from more resources. Second, because their operations are diversified with respect to sectors and geographies, the financial risks of MNCs are expected to be lower. Third, their borrowings in foreign currencies protect them against foreign exchange rate risk (Doukas and Pantzalis, 2003). If MNCs that are more sensitive to foreign currency exchange rate fluctuations treat their incomes from affiliated companies as foreign currency, they can increase the foreign currency share in their capital structure and maintain the foreign exchange rate risk with this income (Burgman, 1996).

The economic and political conditions of countries are in constant flux. MNCs are more adept at changing their capital structures with respect to changing conditions. For example, when the interest

rates increase in Europe, a US-based MNC may continue its European operations by borrowing in dollars (Madura, 2008), showing that MNCs consider many factors when making their capital structure decisions. In determining leverage ratio, company-specific variables have as much of an effect as environmental factors. While past studies have usually concentrated on the environmental factors of MNCs, new studies show that company-specific variables are important factors for the debt ratio of MNCs.

3. LITERATURE REVIEW

There are many studies in finance literature of the capital structure of firm and the company-specific variables that affect capital structures. In this section, we present the studies that were used as references for determining MNC criteria and constructing our model.

Doukas and Pantzalis (2003), researchedwhethertheagency cost of debt explained the debt usage behaviors of MNCs operating in the US from 1988 to 1994. They conducted their analysis with 2,266 MNCs that had foreignsales ratios and foreign asset ratios greater than 10% and 3,855 domestic companies. They found that the agency costs of debt had a strong negative effect on long term debt ratios, and this negative effect increased as the international operations of the company increased. In comparison to domestic companies, the MNCs had lower levels of leverage.

Akhtar (2005), conducted research on the factors that determine the capital structures of 4,251 Australia-based MNCs and DCs. The researcher constructed a Tobit regression with 12 variables. The results showed that MNCs' and domestic companies' leverage ratios were not very different. He concluded from the control variables that firm size and profitability were the most important determinants of leverage ratios for both types of enterprises. He also noted that the variable of tangible fixed assets was an important determinant of the capital structures of domestic companies, while bankruptcy costs had the same effect for MNCs.

Mittoo and Zhang (2008), studied the capital structures of MNCs in the US and Canada and used a sample of 1,821 companies from 1998 to 2002. They defined companies whose foreign asset ratios and foreign sales ratios were 10% or higher as multinational companies. Their research concluded that Canadian MNCs had quite higher leverage ratio than domestic companies based on total and long-term debt ratios. In addition, they emphasized that, as Canadian MNCs expanded their operations into other countries other than the US, both agency costs of debt and business risk increased, but the agency cost of debt had a greater effect on leverage.

Akhtar and Oliver (2009), studied the factors that determine the debt ratios of 209 Japanese multinational and 147 domestic companies from 1994 to 2003 and used a time series regression model. According to their results, Japanese MNCs have lower leverage ratios than domestic companies. In addition, firm age, business risk, free cash flows, growth, non-debt tax shield,

political risk and profitability are the most important variables for the leverage ratio differences between Japanese MNCs and domestic companies.

Avarmaa et al. (2011), used a fixed effect regression model to see whether there were systematic differences in the capital structure formation of MNCs and DCs in the Baltic countries from 2000 to 2008. Using regression analysis, they determined there was a negative relationship between the firm age and profitability, whereas they found a positive relationship between firm size and tangibility. The researchers concluded that MNCs operating in Baltic countries were more flexible than domestic companies in internal financing as well as external financing.

Park et al. (2012), used data from1981 to 2010 to determine whether MNCs and DCs leverage policies differed. In their regression model, they used company features such as profitability, market to book value, firm size, asset tangibility, R&D intensity and earnings volatility as the control variables. The researchers claimed that when these company features are controlled, MNCs did not have lower levels of leverage than DCs.

4. RESEARCH DESIGN

4.1. SAMPLE

The sample includes real sector firms and holding companies that are traded on Borsa Istanbul (BIST) from 2004 to 2012. Annual consolidated balance sheets, income statements, flow of funds statements, independent audit reports and annual reports were used to form the data set. The most critical point for the sample was determining the criteria for MNC classification. In general, the term MNC is defined based on features such as foreign sales or foreignassets ratio, number of affiliates, number of countries where operations are underway, number of foreign employees and ratio of taxes paid to foreign countries to total taxes.

In the literature, the most frequently used MNC criterion is the foreign sales ratio (Park et al., 2012). However, the studies of Lee and Kwok (1988), Sullivan (1994) and Burgman (1996) argue that using foreign sales as a single criterion for being a MNC is misleading. Using foreign sales as a criterion fails to distinguish between the enterprises with only foreign sales and enterprises with international investments. In other words, using foreign sales as a criterion on its own confuses international trade with international investments. Thus, the criteria used to evaluate a company as a multinational corporation are important. The criteria that have been used in national and international studies to identify MNCs are presented in Table 1.

Table 1. MNC Classifications Used in National and International Studies

Study Year	Reference	Title of the Study	MNC Classification Criterion
1986	A. Michel and I. Shaked	MNCs vs. domestic corporations: Financial performance and characteristics.	Firms with at least 20% foreign sales and direct capital investments in at least 6 countries other than the US
2000	C.C.Y.Kwok and D.M. Reeb	Internationalization and Firm Risk	Firms with more than 1% foreign assets ratio
2004	Mihir A. Desai, C. Fritz Foley and James R. Hines Jr.	A Multinational Perspective on Capital Structure Choice and Internal Capital Markets	Sales, assets or affiliated companies whose net incomes exceed three million dollars
2003	John A. Doukas and Christos Pantzalis	Geographic Diversification and Agency Costs of Debt of Multinational Firms	Firms whose foreign assets ratio and foreign sales ratio are higher than 10%
2007	Muge Buyuktortop	Capital Structure in MNCs and An Application in Istanbul Stock Exchange	Firms whose exports share in net sales is higher than 20%
2008	Usha R. Mittoo and Zhou Zhang	Capital Structure of Multinational Corporations: Canadian versus US evidence	Firms whose foreign assets ratio and foreign sales ratio are more than 10%
2009	S. Akhtar and B.Oliver	Determinants of Capital Structure for Japanese Multinational and Domestic Corporations	Firms with at least one affiliate company in an overseas country in 2003 and with foreign sales in any year.

| 2011 | Z. Wang and I. Mathur | Return on Capital Analysis: U.S.-based Multinational Corporations versus U.S. Domestic Corporations | They used the criteria of sales and number of regions where firms operate |
| 2012 | Soon H. Park, Jungwon Suh and Bernard Yeung | Do multinational corporations and domestic corporations differ in the leverage policies? | Two different samples of firms with foreign sales of at least 20% and at least 50% |

In this study, the definitions and reference table were taken into consideration, and, of the enterprises trading on BIST, those whose foreign assets to total assets ratio and foreign sales to total sales ratio were greater than 10% were accepted as MNCs. Industrial enterprises that did not meet these criteria were considered domestic companies. Thus we classified 20 enterprises on BIST as MNCs and 30 enterprises from the BIST 100 as domestic companies. Since we do two sample comparisons in the analysis and similar size samples give better results, we used the one-to-one and half scale for the sample size: 20 MNCs versus 30 DCs (Sakpal, 2014).

The domestic company sample was selected using random sampling from non-finance companies that have positive asset values on BIST 100. The DCs sample also took into account the MNCs sample and sector harmonies.

4.2. VARIABLES

To construct the model, the variables were classified in two groups: the dependent variables that show debt usage levels, which are also called leverage ratios, and the independent variables that are firm specific factors that determine capital structure, which are also called control variables.

4.2.1. DEPENDENT VARIABLES

Capital structure can be assessed in two main groups as debt to assets ratio and debt to equity ratio. When the assets and equity value of a firm are calculated, either the book value of equity or the market value of equity is used. Our calculations were based on book value, and we used the total debt/total assets ratio, which represents the financial leverage ratio, as the dependent variable. This ratio shows how much of enterprise assets are financed through debt. This leverage ratio has been used as the dependent variable in many studies (Durukan, 1997; Drobetz and Fix, 2003; Huang and Song, 2006; Karadeniz, 2008; Frank and Goyal, 2009; Demirhan, 2009; Park et al., 2001).

4.2.2. INDEPENDENT VARIABLES

The independent variables used in the model are growth opportunities of firm, profitability, firm risk, size, firm asset structure, non-debt tax shield, liquidity, number of years since initial public offering, cost of debt and firm age.

Different financial ratios can be preferred as the determinants of capital structure. At this point, the important thing is to determine the accessibility of these ratios while forming data set. Table 2 summarizes the independent variables and financial ratios pertaining to the variables used in the analysis.

Table 2. Independent Variables

Variables	Abbreviation	Measurement
Asset Structure of Firm	Tang	Tangible Fixed Assets / Total Assets
Profitability	Prof	Net Profit / Total Assets
Firm Risk	Risk	Standard Deviation (Cash Flow / Sales)
Firm Size	Size	Logarithm of Total Assets
Growth Opportunities	MTB	Market Value / Book Value
Non-debt Tax Shield	NDTS	Depreciation / Total Assets
Liquidity	Liq	Current Assets / Short Term Debt
Cost of Debt	CD	Financing Expenses / Total Debt
Firm Age	Age	Logarithm of Company's Age
Firm Age	Age-IPO	Logarithm of Number of Years Since Initial Public Offering

4.3. STATISTICAL ANALYSIS OF DATA

In this study, which is comprised of different cross-sectional data from samples of multinational corporations and domestic companies for a 9-year time series, used panel data analysis. To analyze the sample groups, we used two models based on 180 and 270 observations, respectively.

This study first analyzed comparatively the company-specific factors that affect the capital structure decisions of MNCs and DCs trading on Borsa Istanbul between 2004 and 2012. After the comparative analysis, we made panel data regression models that allow for assessing cross-sectional and time series data for each of the samples together and analyzed the factors that affect the capital structures of multinational corporations and domestic companies separately. In the analysis stage, we used Eviews 8.0 and Stata 12 software.

Before moving on to the analysis section, short-term debt and long-term debt amount in total debts, resource allocation for the financing of total assets and their maturities, and debt-equity relations

were analyzed. Using the data set for the sample groups, the averages of required variables were obtained.

Table 3. The Capital Structure, Allocation of Resources and Debt Maturity Periods of the Sample Groups (2004-2012)

Variable	MNCs	DCs
Short-Term Debt / Total Debts	0,61	0,69
Long-Term Debt / Total Debts	0,39	0,31
Total Debts / Total Assets	0,51	0,40
Short-Term Debt / Total Assets	0,31	0,27
Long-Term Debt / Total Assets	0,20	0,13
Total Debts / Total Equity	1,39	0,86
Total Equity / Total Assets	0,47	0,59

Table 3 shows that the debt ratio of the MNCs (0.51) is higher than that of the DCs (0.40). The ratio of total debt to equity confirms this since the debt amount used for financing the company assets is more than the equity for the MNC sample (1.39), whereas the debt amount used for financing company assets is less than equity for domestic companies (0.86). This means that domestic enterprises predominantly use equity for financing their assets. When we look at the equity to total assets ratio that shows how much of the assets of sample groups are financed by enterprise owners, we see that domestic companies (0.59) give more weight to equity for financing of assets than the MNCs sample. If we put it in a broader context, while companies in the MNCs sample mainly prefer debt financing in their capital structures, domestic companies prefer financing through equity.

Table 3 also provides information about the debt maturities of groups in the analysis. When we look at the debt maturities for each of the sample groups, we see that there are no great differences in terms of short-term or long-term debt usage. However, in both the MNCs and DCs samples, short term liabilities are higher in the total debts. If agency costs are higher for MNCs, using short-term debt heavily can control their managements' arbitrary behavior. It can also increase the frequency of lenders' monitoring activities and reduce agency costs (Park et al., 2012). In addition, the economic conditions of the parent company as well as economic conditions of affiliated companies affect the debt maturities of MNCs.

4.3.1. COMPARATIVE ANALYSIS OF THE VARIABLES THAT AFFECT THE CAPITAL STRUCTURE OF MNCS AND DCS

The comparative analysis results for the capital structure-related variables that were prepared using the financial statements of the multinational corporations and domestic companies are presented in Table 4.

Table 4. Comparative Analysis of the Variables That Affect MNCs and DCs Capital Structures

	MNCs		DCs		Difference	P value
	Arithmetic Average	Standard Deviation	Arithmetic Average	Standard Deviation		
TD/TA	0.509	0.154	0.401	0.172	.108	0.000*
MTB	1.652	1.440	1.561	1.105	.090	0.479
Tang	0.366	0.167	0.413	0.170	-.046	0.005*
Risk	0.695	0.082	0.075	0.082	-.005	0.466
Non-debt Tax Shield	0.045	0.027	0.044	0.023	.001	0.810
Age-IPO	1.115	0.310	1.166	0.240	-.051	0.068
Age	1.549	0.196	1.555	0.186	-.006	0.726
Prof	0.047	0.059	0.062	0.087	-.015	0.032*
Liq	1.669	0.732	2.186	1.473	-.516	0.000*
CD	0.108	0.083	0.127	0.127	-.018	0.060
Size	9.207	0.534	8.936	0.604	.271	0.000*

Table 4 shows that the variables that turn out to be significant at the 5% significance level are the independent variables of size, liquidity(L), profitability(Prof) and Tangibility(Tang)

The dependent variable of total debt to total assets ratio (TD/TA) is higher in MNCs. There are a few reasons for the difference between MNC and domestic company leverage ratios. First, because MNCs carry out their activities at the international level they have access to more financing sources than domestic companies. If the financial markets of home country and host country are not integrated, MNCs can increase their capital by borrowing from different countries. Second, MNCs can use the foreign currency debt they raised as an instrument of protection against currency exchange rate risk. The MNCs are exposed to higher exchange rate risk than DCs, and this generates their preference for debt financing at higher rates. Finally, the cash flows of MNCs are more regular, which lowers their risks and reduces the cost of the debt they use. As a result, the leverage ratios of MNCs, which can raise debt finance easier and cheaper, can be higher than DCs.

4.3.2. ANALYSIS OF THE COMPANY-SPECIFIC VARIABLES THAT AFFECT THE CAPITAL STRUCTURES OF MNCS AND DCS

The variables that affect the capital structure decisions of 20 MNCs trading on BIST and 30 DCs trading on BIST were analyzed using panel data analysis. For MNCs and DCs, whether the error terms are distributed normally was tested using the Jarque-Bera Normality Test.

Table 5. Jarque-Bera Normality Test Results

Variables	MNCs		DCs	
	Jarque-Bera	Probability	Jarque-Bera	Probability
TD/TA	4.81	0.089*	6.36	0.0414*
MTB	1194.01	0.0000*	4280.52	0.0000*
Tang	9.24	0.0098*	11.68	0.0028*
Prof	143.98	0.0000*	49.72	0.0000*
Risk	7438.57	0.0000*	144.74	0.0000*
Size	616.31	0.0000*	2629.70	0.0000*
NDTS	96.32	0.0000*	130.24	0.0000*
Liq	361.30	0.0000*	578.95	0.0000*
CD	157.17	0.0000*	1379.60	0.0000*
Age	1503.36	0.0000*	74.38	0.0000*
Age-IPO	76.12	0.0000*	296.94	0.0000*

*at $\alpha = 10\%$ level. All parameters are normally distributed. H_o: Errors are normally distributed. H_1: Errors are not normally distributed.

The Jarque-Bera test statistics results in Table 5 show that the probability values are less than the 10% confidence level, therefore the null hypothesis that the error terms are normally distributed was rejected.

In the panel data analyses, to obtain sound results and avoid spurious relationships between the variables the data should be stationary. In order to test whether the series are stationary, panel unit root tests were conducted. The results of these tests are presented in Table 6 and Table 7.

Table 6. Panel Unit Root Tests for MNCs

Variables	LLC		Im, Pesaran and Shin W-stat Unit Root Test		ADF Fisher Chi-Square	
	With Constant	With Constant/ With Trend	With Constant	With Constant/ With Trend	With Constant	With Constant/ With Trend
TD/TA	-8.36935*	-9.08404*	-3.52009*	-0.63883	83.6700*	59.3005**
MTB	-11.0678*	-12.8592*	-3.97113*	-1.05454	86.2737*	62.5009*
Tang	-15.7314*	-15.7197*	-4.71533*	-1.27571	91.8710*	66.5780*
Risk	-16.8529*	-12.7434*	-6.02526*	-1.00681	110.088*	63.7349*
NDTS	-10.2738*	-13.5664*	-4.24015*	-1.46574***	90.2255*	72.8768*
Age	-25.6887*	-7.23155*	-146.455*	-49.6903	239.469*	110.524*
Prof	-9.22096*	-14.8890*	-4.20615*	-2.25431**	90.4282*	86.6366*
Liq	-6.86322*	-14.6361*	-2.47437*	-1.45477***	68.2275*	76.8788*
CD	-12.7503*	-19.3569*	-3.16214*	-1.34095***	70.8568*	67.2077*
Size	-36.6692*	-522.448*	-15.6646*	-55.8068	68.8134*	85.3197*
Age-IPO	-16.8894*	-28.5070*	-86.6728*	-49.5282	331.226*	301.899*

The ones marked with * are significant at 1%. The ones marked with ** are significant at 5%, and the ones marked with three asterisks*** are significant at 10%.

Table 7. Panel Unit Root Tests for DCs

Variables	LLC		Im, Pesaran and Shin W-stat Unit Root Test		ADF Fisher Chi-Square	
	With Constant	With Constant/ With Trend	With Constant	With Constant/ With Trend	With Constant	With Constant/ With Trend
TD/TA	-9.64385*	-12.3618*	-1.98482**	-0.87278	99.9865*	85.6750*
MTB	-5.29616*	-7.61487*	-1.49830***	0.22844	82.1126**	59.5909
Tang	-4.24647*	-9.04528*	-1.27023***	-1.48345***	76.6727***	101.909*
Risk	-15.7446*	-11.3193*	-6.84548*	-1.72891**	165.913*	111.450*
NDTS	-11.3104*	-23.9413*	-3.33740*	-3.69424*	114.161*	148.165*

Age	-41.6678*	-16.9419*	-180.894*	-46.8805*	368.414*	147.365*
Prof	-10.8074*	-15.5975*	-3.90942*	-1.88567**	121.722*	110.438*
Liq	-12.4962*	-12.9503*	-4.42100*	-1.46504***	125.864*	106.468*
CD	-9.02906*	-17.3590*	-3.25562*	-0.89035	101.671*	77.6823***
Size	-63.9583*	-27.9263*	-14.3812*	-0.22550	62.2237	75.2157***
Age-IPO	-22.5212*	-30.9356*	-111.139*	-67.4518*	537.064*	497.989*

The ones marked with * are significant at 1%. The ones marked with ** are significant at 5%, and the ones marked with three asterisks*** are significant at 10%.

For all the three tests, the hypotheses were:

H_o: There is a general unit root in the series.

H_1: There is no general unit root in the series.

When Table 6 and Table 7 are analyzed, we find that in two of the models and for each of the three models with constant, p values were found to be significant. Since the p values are less than the critical value for each of the three tests conducted, the null hypothesis (H_o)stating that series contain unit root was rejected. Since the series does not contain a common unit root process, and there is no unit root process for each unit, in other words, because the series are stationary for the period in question, we proceeded to model estimation.

To determine which type of panel and data analysis is most suitable for the data set is of great importance for doing correct regression analysis. Therefore, first, by using F-test and Likelihood Ratio Test (LR), we examined whether the data set can be pooled.

Table 8. F-Test and LR Test Results

	MNCs	DCs	MNCs	DCs	MNCs	DCs
Test Summary	**F statistics**		**Degree of Freedom**		**P- Value**	
Unit Effects	13.88	8.251	(19,150)	2.18	0.0000	0.0291
Time Effects	1.3e-13.	1.40	10	10	1.0000	0.1186

According to the test results in Table 8, since the p values are less than 0.05, the (H_o) null hypothesis of "unit effects are equal to zero" was rejected, meaning that unit effects do exist. However, for the LR test, which is used to see if there are time effects, the p values were greater than 0.05, and the null hypothesis (H_o) of "time effects are equal to zero" was accepted, meaning that time effects do not exist. Therefore, analysis was done using a one-way model. After finding that the data set is not suitable for the pool model, to decide whether a one-way constant or a random effects panel regression model would be used in the analysis, we used the Hausman test.

Table 9. Correlated Random Effects - Hausman Test

	MNCs	DCs	MNCs	DCs	MNCs	DCs
Test Summary	Chi-square statistics		Degree of Freedom		P-Value	
Random cross-section	21.52	85.45	10	10	0.0178	0.0000

The hypotheses for the Hausman test, by which whether fixed effects or random effects method would be preferred, are:

H_o: There are random effects.

H_1: There are no random effects.

Since the Hausman test statistics show that for both of the models the p value is less than 0.05 significance level, the H_0 hypothesis was rejected. Table 8 shows that it is appropriate to use the fixed effects method in the estimation of MNCs and DCs. The panel regression analysis was formed with the one-way fixed effect method in which there is no time effect, and unit effects are included in their current model.

Before running the panel regression, various tests were conducted to see whether there was autocorrelation problem in the data set, whether there was autocorrelation between the units as well as the problem of heteroskedasticity. In the fixed effects model, to determine the existence of autocorrelation between the units, the Pesaran Test was used. Whether the error terms of the cross-section units had heteroskedasticity was tested using the the Wald heteroskedasticity test. Finally, whether there was an autocorrelation problem was analyzed using the Durbin-Watson test and Baltagi-Wu locally best invariant test (Tatoglu, 2013). The results of these tests are presented in Table 10.

Table 10. The Heteroskedasticity, Autocorrelation and Inter-Unit Correlations Tests

	MNCs	MNCs	DCs	DCs
Tests	Test Value	P value	Test Value	P value
Pesaran Test	-0.219	0.826	1.219	0.166
Wald Heteroskedasticity	515.78	0.000	1066.08	0.000
Durbin-Watson	0.966		1.027	
Baltagi-Wu LBI	1.295		1.358	

The Pesaran test found a p-value higher than the 0.05 significance level under the null hypothesis that there is no correlation between the units, and the null hypothesis (H_0) was accepted. In other words, there is no correlation between the units in the series.

The null hypothesis of the Wald heteroskedasticity test is:

H_o=All the error terms of cross-sectional units have heteroskedasticity.

When we look at the results in Table 10 we see that the p value of Wald heteroskedasticity test is less than the 0.05 significance level. Therefore, the H_o hypothesis is rejected. In the constructed model, error terms of cross-section units have heteroskedasticity. Whether there is the problem of autocorrelation in the fixed effects model was analyzed using the Baltagi-Wu LBI test and the Durbin-Watson test by Bhargava, Franzini and Narendranathan. When we look at LBI test results of Durbin-Watson and Baltagi-Wu, we see that the value of both tests are less than 2. Therefore, we have identified an autocorrelation problem.

When the results in Table 10 are assessed altogether, we find no correlation between the units in the model constructed with respect to the fixed effects method, but find heteroskedasticity and an autocorrelation problem. Therefore, if at least one of heteroskedasticity, autocorrelation or inter-unit correlation exists in the constructed models, either the standard errors should be corrected without touching the parameter estimations (robust standard errors should be obtained) or estimations should be done using appropriate methods (Tatoglu, 2013: 241). Since we have heteroskedasticity and autocorrelation problems for the models constructed with the panel data fixed effects method in this study, we have constructed a regression that generates consistent and robust errors. This was done using the Driscoll and Kraay Estimator. The research results for MNCs and DCs were interpreted based on statistics obtained from Driscoll and Kraay Estimator model, which has wide assumptions, and therefore, high reliability.

Table 11 presents the results of fixed effects regression, which was done using the dependent variable TD/TA, along with 10 independent variables, for the period from 2004 to 2012.

Table 11. Robust and Consistent Fixed Effect Model Regression Results for MNCs

Dependent Variable: TD/TA
Period: 2004-2012
Time Interval: 9
Number of Cross-Sections: 20
Total Number of Observations in the Panel: 180

Variables	Coefficient	Standard Error	t-statistics	Probability
C	-.088	.078	-1.14	0.289
MTB	.005	.002	2.07	0.072
Tang	-.656	.083	-7.87	0.000*
Risk	.091	.102	0.89	0.399
NDTS	-2.876	.377	-7.62	0.000*
Age	-.438	.192	-2.28	0.052
Prof	-.582	.072	-8.08	0.000*
Liq	-.163	.023	-6.90	0.000*

CD	.360	.147	2.44	0.041**
Size	.220	.101	2.18	0.060
Age-IPO	.186	.063	2.95	0.018**
R^2=0.634	F(10.8)= 805.38		Prob>F=0.0000	

Note: * at α= 1% level. ** at α= 5% level.

It can be seen that the results are statistically significant according to F test (Prob>F=0.0000), when Table 11, which shows the variables effecting the changes in the capital structure of MNCs, is analysed, Moreover, the R^2 value's being 0,634 in the designed model shows that approximately 63% of the changes in TD/TA rate is explained by the independent variables. According to fixed effects regression model, the independent variables, which are related with TD/TA dependent variable at 1% significancy level for MNC, are Tangibility, NDTS, Profitability and Liqudity. Cost of debt and number of years since initial public offering, on the other hand, are the variables which are related at 5% significancy level. In the established model, 6 variables was found to be statistically significant, while the variables such as market- to- book ratio, age, risk and size, which we thought to effect the capital structure of MNCs, were found to be statistically insignificant

Table 12. Robust and Consistent Fixed Effects Model Regression Results for DCs

Dependent Variable: TD/TA

Period: 2004-2012

Time Interval: 9

Number of Cross Sections: 30

Total Number of Observations in the Panel: 270

Variables	Coefficient	Standard Error	t-statistics	Probability
C	.239	.2358	1.02	0.339
MTB	.007	.0072	1.05	0.325
Tang	-.079	.1202	-0.66	0.527
Risk	.104	.0523	1.99	0.082
NDTS	-1.193	.2574	-4.64	0.002**
Age	-.542	.1891	-2.87	0.021**
Prof	-.236	.0760	-3.10	0.015**
Liq	-.067	.0050	-13.30	0.000*
CD	.068	.0234	-2.90	0.020**
Size	.116	.0151	7.71	0.000*
Age-IPO	.207	.0311	6.65	0.000*

$R^2 = 0{,}591$	$F(19, 150) = 13.88$	$Prob > F = 0.0000$

The results marked with ***** are significant at the 1% level. The results marked with ****** are significant at the 5% level

When the fixed effects regression results applied for DCs are analysed, it is observed that the results of F-Test is statistacally significant and the explanatory power of independent variables for dependent variables is approximately 59% (R^2=0,591). Market -to -book ratio, tangibility and risk variables were found to be statistically insignificant in the established model. Liquiditiy, size and number of years since initial public offering are the independent variables which are related with TD/TA dependent variable at 1% significancy level. NDTS, profitability, cost of debt and age, on the other hand, are the variables which are related at 5% significancy level with the dependent variable.

5. COMPARISON AND GENERAL ASSESSMENT OF THE RESULTS
This study determined that the resource structures of the capital structures of the MNCs and domestic companies in the samples do differ; however, they are similar from the perspective of debt maturities. The variables that affect capital structures also differ. When the capital structures of MNCs and DCs were analyzed, it was observed that MNCs use debt financing more than domestic companies. However, there is no difference from the perspective of debt maturities, and both MNCs and DCs prefer short term debt. This result shows that conditions of the country where a company operates affect its debt usage levels and the short-term and long-term debt ratios. Domestic companies' preference for equity financing can be explained by the inefficient functioning of capital markets, the limited possibilities for and high cost of long-term borrowing, and the presence of older enterprises in Turkey.

The table below shows the results for all the variables included in the analysis MNCs and DCs. Seeing these variables together sheds light on their differences:

Table 13. Comparison of the Panel Data Analysis Results

Variables	MNCs	DCs
MTB	No significant relationship	No significant relationship
Tang	Negative relationship	No significant relationship
Risk	No significant relationship	No significant relationship
NDTS	Negative	Negative
Age	No significant relationship	Negative
Prof	Negative	Negative
Liq	Negative	Negative
CD	Positive	Positive

Size	No significant relationship	Positive
Age-IPO	Positive	Positive

According to Table 13, the variables of asset structure, profit, non-debt tax shield, liquidity, debt cost and number of years since initial public offering affect the capital structure decisions of MNCs. Likewise, non-debt tax shield, company age, liquidity, firm size, number of years since initial public offering, cost of debt and profitability variables affect the capital structure decisions of DCs. Both models show that non-debt tax shield, profitability, liquidity, cost of debt and number of years since initial public offering affect debt ratios. The magnitude of the effect of these variables on debt ratio is important for capital structure decisions.

According to the comparative analysis results, there are no great differences between the non-debt tax shield averages of MNCs and DCs. However, regression analysis shows that their effect levels on debt ratios are different. Non-debt tax shield causes a decrease in the debt ratios of MNCs (-2.87) and DCs (-1.19) and has a stronger effect on the capital structure decisions of MNCs. The non-debt tax shield substitutes for the tax advantage of debt financing. There is a negative relationship between debt ratio and non-debt tax shield. Since non-debt tax shield is constituted mostly by the internal financing, this negative relationship conforms to the pecking order theory, which claims that companies will use lower levels of debt when possible.

For MNCs, the non-debt tax shield protects their incomes against taxation. In addition, when we take into account that the leverage ratios of MNCs are higher than DCs, whereas their tangible fixed assets are lower, this gives rise to thought that there might be non-depreciation account items that make up the non-debt tax shield. Account items such as the tax reductions on the high R&D expenses of MNCs or investment tax credits and investment loans may be among their non-debt tax shield instruments.

Both models indicate a negative relationship between total debt ratio and profitability. This negative relationship again conforms to pecking order theory, which claims that as profitability increases, borrowing decreases. Profitability has a stronger effect on the capital structures of MNCs (-0.58), and this shows that the MNCs operating in Turkey have been using funds transfer mechanism, which is also called transfer pricing, and that they have been transferring their profits. In this way, MNCs have been transferring their profits to branches in the countries where tax rates are lower to benefit from tax advantages. The fact that the comparative analysis results show that the variable of profitability is lower for the MNC sample supports these findings.

Another variable that affects the total debt ratios of MNCs and DCs is liquidity. According to the comparative analysis, this ratio, which shows whether enterprises can pay their short term liabilities on time, is lower for MNCs. When we look at debt maturities, the fact that short-term debt to total debt ratio is higher for MNCs, while their liquidities are lower supports this result. According to the

regression analysis results, there is a negative relationship between the debt ratios of both MNCs and DCs and the liquidity variable. The strength of the reverse relation between liquidity and debt ratios of MNCs (-0.16) was found to be higher than DCs. These results are in line with pecking order theory, which claims firms with higher rates of liquidity will borrow less. This can also be associated with the fact that, having more opportunities to raise finance from international capital markets, MNCs prefer more aggressive policies. Due to their relatively deficient ability to acquire resources, domestic companies prefer more cautious liquidity policies. The fact that their liquidity ratios are higher than MNCs may indicate that they adopt this policy as a precaution against financial distress.

The variable of cost of debt is one of the company-specific variables that determine capital structure for both MNCs and DCs. The cost of debt variable has a positive relationship to total debt ratio for MNCs and DCs. The cost of debt variable has a larger effect on the capital structures of MNCs (0.06) than domestic companies (0.36). Debt usage levels increasing as the cost of debt increases may be a result of the desire to benefit from the positive effects of financial leverage. The fact that, despite increased cost of debt, the debt usage ratio is higher for MNCs shows that their agency problems between shareholders and managers are larger. This finding corresponds to finance theory's proposition that agency costs are higher for MNCs.

Our comparative analysis results show that the variable of number of years since initial public offering is higher for DCs than MNCs. We found a positive relationship between enterprises' number of years since initial public offering and their total debt ratios for both MNCs (0.18) and domestic companies (0.20). According to the analysis results, the number of years since initial public offering has a larger effect on the debt ratios of the domestic companies. Higher number of years since initial public offering have lower information asymmetry allows both MNCs and DCs to go for higher borrowing rates.

As a whole, the results indicate that the variables of non-debt tax shield, profitability, liquidity, cost of debt and number of years since initial public offering affect the totsl debt ratios of MNCs and domestic companies. Among these variables, the one that affects debt ratios the most is non-debt tax shield. This shows that MNCs and DCs consider non-debt expenses as a kind of tax shield, like depreciation. After the non-debt tax shield, the variable that has the second most effect on the debt ratios of MNCs and DCs is the profitability. The profitability that has a negative effect on capital structure of MNCs and DCs shows that these companies prefer internal sources rather than external financing. The negative effect of the profitability variable on total debt ratios shows that multinational corporations and domestic companies prefer internal financing for their projects.

6. CONCLUSION

MNCs predominantly prefer debt financing, whereas DCs mainly prefer self-financing methods such as undistributed profits, reserves. Otherwise, they mainly go for equity-linked external financing options such as capital increase, bringing in a new partner or issuing new shares. Although their debt maturities are similar, both types of enterprises prefer short-term debt.

The comparative analysis shows that MNCs' leverage ratios and firm size are higher than than those of DCs, whereas their fixed assets to total assets ratio, number of years since initial public offering, profitability and liquidity are lower than those of DCs.

According to the panel data regression analysis, the variables that differ in the capital structures of MNCs and DCs are fixed tangible asset structure, company age and firm size. In both models, the growth opportunities and risk variables were found to be statistically insignificant.

The variable of asset structure has a negative effect on the borrowing of MNCs, however it was found to be insignificant for DCs. This negative relationship between asset structure and debt ratio can be explained by MNCs' preference for internal sources to finance their fixed tangible asset investments. In addition, the agency costs arising from conflict of interests between shareholders and lenders affect these corporations' preference for using internal sources to finance fixed tangible asset investments, indicating that agency costs are high for MNCs.

As the trade-off theory posits, the variable of firm size has a positive relationship to debt ratio for DCs, whereas it was found to be insignificant for MNCs. The fact that as the companies grow in size they can access funds in capital markets more easily, their bankruptcy costs decrease and their revenues become more stabilized explains this positive relationship.

While we have identified a negative relationship between the debt ratios and company ages of DCs, we could not find a significant result for MNCs. This situation shows that for the capital structures of domestic companies plays an important role whether these companies are new or old. According to pecking order theory, the probability of making more profit is higher for companies that have been in operation for a longer time. Therefore, companies that are older need less debt.

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