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COMPARATIVE DUE DILIGENCE ANALYSIS OF DEBT CAPACITY AND COST OF DEBT: COMPANIES IN EURO AREA VERSUS COMPANIES IN TURKEY

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KEYWORDS

Capacity of debt, cost of debt, industrial firms.

ABSTRACT

During and after 2008 global financial crisis, financial indicators and sources of corporations in Euro Area countries and Turkey have been changed. This study aims to compare and analyze the debt capacities and the cost of debt for a large sample of 2.938 industrial firms operating in 17 Euro Area countries and Turkey between 2006 and 2010. Furthermore, it aims to determine the effects of global financial crisis on these firms. As a result of the study, when all firms are concerned, Anova test showed that firms in Euro Area and Turkey have debt ratios significantly different from each other for the whole period. All firms slightly increase their debt ratios in the crisis period. Increase is higher for Turkish firms for both production and service sectors. The cost of debt was maximum for Turkish firms in the group at four out of five years. In 2009, it started to decrease and got closer to the level of Euro Area firms in 2010. Furthermore, the effects of the global financial crisis were felt deepest in production sector firms in Turkey. Suggestions for Turkish firms to continue to decrease their cost of debt are made at the conclusion.

1. INTRODUCTION

Capital structure is a result of firms' preferences between debt and equity financing. These preferences are determined by variety of factors that are investigated by several researchers at the finance literature. These studies show that the determinants of capital structure differ across countries, time and conditions. During last three decades, some theories have been developed and tested in order to get the idea of how capital structure is determined. Theories that have been tested most frequently are pecking order theory and trade-off theory.

Pecking order theory, first stated by Myers in 1984, is based on information asymmetry, which states that firms have no target debt ratio. According to this theory, firms have only three sources of finance, which are retained earnings, liabilities and equity. They prefer to use liability only when there are no retained earnings. Equity financing is the last option for firms as the cost of equity is first among others.

Trade-off theory infers that capital structure is determined by comparisons of the benefits and costs of debt. For example, debt has an advantage of tax shield despite disadvantage of increasing bankruptcy costs. Firms have to make repayment of loans at the maturity whether they make profit or not. Another approachconsidersincreases and decreases in agency costs. This approach states that liability leads the managers to increase the performance in order to make payments. In this way, agency costs are decreased. On the other hand,debt might increase the costs to shareholders in product and factor markets in some cases.

This study aims to make comparative due diligence analysis of capacity and cost of debt for non-financial firms in 17 countries operating in Euro Area and Turkey for 2006-2010 period. As well known, global financial crisis was experienced during 2007 and 2008. This study also aims to compare the effects of this financial crisis on these two groups in terms of financial costs and debt ratios.

2. INDEBTNESS OF FIRMS AND RELATED PREVIOUS STUDIES

Taking in the account the bankruptcy costs and agency costs, corporate debt financing is a firms' choice that includes multi directional and cross-functional decision-making process. During and after this process, there are benefits and costs, which should be analytically examined by managers and shareholders since since the results of the decision might be dramatic. Several studies (most frequently cited studies are Rajan and Zingales (1995), Frank and Goyal (2003 and 2009), Bancel and Mitto (2002) and Hovakimian et al. (2001)) have been made about the tradeoffs between equity financing and debt financing as well as the determinants of capital structure.

The bankruptcy cost results from financial distress, when promises to creditors are broken. As stated by Brealey, Myers and Marcus (2009), cost of financial distress is reflected in the current market value of the levered firm's securities. Financial distress is costly when the conflicts among stakeholders get in the way of running the business.

The agency cost between managers and investors or between debt holders and equity holders, as explained by Mello and Parsons (1992), emanate from the different assumed financial structures and different operating strategies of firms resulting in various stochastic processes of firm's value and debt. The divergence of the chosen and the first best operating policy make the agency cost increase.

Beside the already mentioned associated costs, the macro benefit of corporate debt financing is that it pushes firms to undertake profitable investments. Otherwise, firms may not be financed by using the leverage effect and the economy grows as a result. The primary micro benefit is the tax deductibility of financial expenses, which has a positive effect on the cash flows. Moreover, Binsbergen, Graham and Yang (2010) stated that other benefits include committing managers to operate efficiently and engaging lenders to monitor the firm.

For the cost and the capacity of corporate debt financing, country-level factors are found significant as well as firm-level factors. For example, Mitton (2007) analyzed the trends in market-value corporate debt ratios in 34 emerging economies for the period 1980 and 2004. He found that the ratios increase by 15 percent over 24 years. This increase is tied both to the renowned determinants of capital structure of firms and financial development as well as the financial openness to the foreign markets of these emerging countries.

Zou and Adams (2008) studied the relationship between debt ratio, cost of debt and the corporate property insurance. Using 1997-2003 data of Chinese listed firms, they found that the three variables are simultaneously related. This study also emphasizes the role of high credit risk of banks on the cost of borrowing for firms.

Shareholder identity and cost of debt are examined by Ballesta and Meca (2011). Using variety of control variables, they examined Spanish listed firms between 1999 and 2002, found that firms with government ownership face lower cost of debt and that banks monitor managers to lower the agency costs associated with debt.

Bondt (2005) analyzed the macroeconomic determinants of the corporate debt issuance in Euro Area between 1991 and 2003. There is a structural break on the debt issuance over the Euro introduction time period. Both for the short and the long run, it is found that mergers and acquisitions together with the gross domestic product determine the cost of debt securities. Another important finding of Bondt is that for the short run, internal financing and the debt securities are substitutes for each other.

One of the two parts of the traditional weighted average cost of capital (WACC) formula constitutes the cost of debt for firms. Pagano and others (2004), Farber and others (2006), Husmann and others (2006) and Brusov and others (2011) studied the WACC in the frameworks of different taxation systems, finite lifetime companies, real empirical examples and adjusted present value and they all develop a general WACC formula by modifying the traditional Modigliani-Miller's (1963) formula.

The study of Hennessy and Whited (2005) develops the dynamic trade-off model, which has inconsistent findings with the static model. It also designates that firms have no target debt ratio and leverage is a path dependent concept. They state that "... leverage is decreasing in lagged cash flow and profitability; and leverage varies negatively with an external finance weighted average Q ratio. We also show that taxation does not have a "second order" effect on leverage decisions..."

Gaud, Hoesli and Bender (2007) analyzed the debt and equity preferences of European Union and European Free Trade Association member firms from 13 different countries for 1998-2000 interval. They prepared tables that clear out the average debt ratios of firms, and they make dynamic analysis of the determinants for the debt ratios. They investigate the coefficients' signs of frequently used independent variables. The main findings are as follows: debt ratio depends both on the concepts of corporate governance and market timing; the preferences could be in conflictsince the windows of opportunity and the future excess of slack probability may change the preferences.

Gomez-Puig (2008) analyzed the cost of borrowing for nine Euro Monetary Union Countries before and after the constitution of the union. This is 1996-1998 and 1999-2001 periods. Even though the aim of this study is about the cost of borrowing for firms, cost of borrowing for union countries provides valuable information for better understanding of the data. Puig defined the cost of borrowing as 10-year yield difference of governmental bonds over Germany and as 10-year interest rate swap difference over Germany. According to these definitions, Belgium and Italy used the most expensive debt after the monetary union. However, France and Ireland used the cheapest debt in the group. Cost of borrowing was increased after the monetary union compared to before. This increase is explained by domestic factors rather than the global factors.

Lin and others (2011) using a wide data set of 3468 firms in 22 countries for 1996-2008 period, analyzed the relationship between cost of debt and the ownership structure by taking into account both direct and indirect cash flow rights and control rights. They used loan spreads as a measure of cost of debt and at the same time used a wide range of control variables. They found that control-ownership wedge results in a higher cost of debt financing. On the other hand, sensitivity is higher for family-controlled firms, firms with greater informational opacity, lower credit ratings and firms during financial crises.

Binsbergen, Graham and Yang (2010) studied the function of tax benefit of debt and function of firm-level cost of debt. They estimated the marginal cost curves for a panel of firms for the period 1980 and 2007 by simulating the tax benefit curve assuming that marginal benefit and marginal cost curves intersect at the observed level of debt. Their main finding is that being over levered is more expensive than being under levered.

3. DATA AND METHODOLOGY

3.1. Data

The scope of this study is the industrial companies in Euro zone and Turkey. The financial and non-financial secondary data about these companies were obtained from the Osiris database of Bureau van Dijk Electronic Publishing. It allows ensuring the obtainability, comparability and reliability of the data and frigid attitudes of companies in sharing information regarding their operations and results. Osiris is a database containing the comparable financial and non-financial data of about 50 000 private and public financial and non-financial companies active in 130 different countries. The industrial company financial data on OSIRIS is provided by World'Vest Base (WVB) and five regionally specialized providers; Korea Information Service (KIS), Teikoku Databank (Japan), Huaxia International Business Credit Consulting Company (China), Reuters (USA) and Edgar Online (USA).

The combined industrial company dataset contains standardized and as reported financials, including restated accounts. As a result of studies carried out using the database, 2006 and 2010 periods are determined as containing the maximum available data, at the same time which could represent pre and post global financial crisis period. Accounts are presented on OSIRIS database in three categories: Industrial, Bank and Insurance. Industrial category is used for effective cross-border account analysis and comparison.

Companies in the sample are operating in variety of industry sectors. The SIC (Standard Industrial Classification) three-digit core codes were used in this study. For simplifying purposes, these sectors are classified as production sector and service sector, then analysis are made separately for these two groups so that the sectorial differences can be observed.

Euro Area includes 17 of the EU countries using Euro currency officially: Austria, Belgium, Cyprus, Germany, Estonia, Spain, Finland, France, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Slovenia and Slovakia.

In OSIRIS database, there are 3850 firms in Euro Area and 315 firms for Turkey, which operate in industrial or service sector. Firms not having the required accounts record are set aside. Firms that may be financially constrained (with zero debt) are also eliminated in order to study with firms that are balancing the capital structure. Table 1 presents the country list as well as the number of firms in each country. In total, 2657 Euro Area firms (1381 in service sector and 1276 in production sector) and 281 Turkish firms (136 in service sector and 145 in production sector) are included in the analysis.

Table 1: Number of Firms Included in the Analysis

Countries	Service	Production	Service+Production
Austria	26	45	71
Belgium	61	66	127
Cyprus	86	25	111
Germany	376	298	674
Estonia	6	8	14
Spain	64	77	141
Finland	44	65	109
France	362	310	672
Greece	99	121	220
Ireland	25	24	49
Italy	87	138	225
Luxembourg	29	13	42
Malta	11	1	12
Netherlands	59	59	118
Portugal	38	16	54
Slovenia	7	6	13
Slovakia	1	4	5
EuroArea SUM	**1381**	**1276**	**2657**
Turkey	136	145	281

3.2. Methodology

The most widely preferred methods in financial analysis are ratio analysis, vertical analysis and horizontal analysis. Ratio analysis is the frequently used method for the evaluation of financial status and the activity results of firms. The chosen accounts in the ratio analysis are related to each other considering the aims of the analysts and they are used as a measure of the activity results.

In this study comparison of debt structure for countries in the Euro Area and Turkey is aimed. Therefore, ratios are built so as to reflect the debt capacity and cost of debt. The capacity of debt is measured by the leverage ratio, measured by "total debts and liabilities/total assets". This ratio shows what portion of a firm's assets is financed by short and long term debts. In general, high debt ratio is linked with high level of risk and low debt ratio is linked with low level of risk. Shareholders are mostly affected from this increase in the level of risk because they have the right on the income and assets of the firm after the debt holders. The cost of debt is an important factor in order to make connection between debt capacity and the risk of a firm as well as the firm size, cash flows, sector, etc. It affects the level of business risk and the expected return on the investments. The cost of debt is generally measured by the ratio "financial expenses/total debts and liabilities". Quite often cost of debt is increased with the increase in the capacity of debt since the default risk is higher for these firms.

Total liabilities and debt include total current liabilities, total long-term interest bearing debt, minority interest, deferred taxes, provisions and other long-term liabilities. Financial expenses cover interest and investment expenses and total periodic expense for using borrowed short and long term debt. In certain countries this also includes debt discounts and foreign exchange losses. It would be better to see the composition of debt and financial expenses in detail or how they change over the time however; the related data does not exist accurately. Therefore, analyses are made based on the total values.

In order to shed a light on these connections, tables reflecting the debt capacity and the cost of debt for firms operating in Euro Area countries and Turkey for five years are prepared. The main assumption here is that the firms try to make optimal debt choices and their choices are reflected by the debt ratio. In order to find out whether Turkish and European firms significantly differ in debt capacity and the cost of debt, Anova test was run for both factors and both sectors. Data set is considered as a mini panel (t=5 and n=2) for five years and two groups as Turkish and European companies between year 2006 and 2010.

4. ANALYSIS RESULTS

This part of the study includes the tables of debt capacity and the cost of debt for service sector and production sector companies in 17 Euro Area countries and Turkey. Each column in tables represents the mean values of measures for the firms in two sectors. Table 2 represents that for 2010, service sector in Portugal used 79.15 percent leverage and it is the country with the highest debt ratio. In the same year, production sector in Estonia used 37.97 percent leverage and this is the lowest debt ratio. In that year, Turkish service sector and production sector used 56.31 percent and 47.90 percent leverage, respectively. Debt ratio for production sector is lower than that of the Euro Area average of 56.39 percent.

Production sector firms in Portugal had the highest debt ratio of 78.27 percent while service sector firm in Slovakia had the lowest debt ratio of 37.51 percent in 2009. Turkish production sector debt ratio (49.58 percent) is lower than the Euro Area countries' debt ratio (56.01 percent) so is the service sector firms (57.26 percent versus 54.75 percent). From Table 2 it is obvious that again, service sector firms in Portugal have the highest leverage used with the debt ratio of 78.96 percent in 2008. On the other hand, least levered were the service sector firms in Malta with 44.92 percent. Production sector firms in Turkey financed 51.26 percent of their assets by creditors while production sector firms in the Euro Area financed 57.71 percent of their assets by creditors.

The most levered firms were production sector firms in Netherlands with the debt ratio of 73.94 percent in 2007. In the group, service sector firm in Slovakia used minimum debt for financing assets. Debt ratio was 38.18 percent. In this year, both service and production sector firms in Euro Area on the average had higher leverage ratios than the Turkish firms. For service sector it is 55.38 percent vs. 51.71 percent and for production sector it is 55.64 percent vs. 45.19 percent.

Table 2: Capacity of Debt for Firms in 2010

Countries	Sectors	2010	2009	2008	2007	2006
Austria	Service	53.38	51.23	52.75	50.76	55.98
	Production	58.63	59.97	58.97	56.68	58.85
Belgium	Service	51.39	53.93	55.09	53.20	51.40
	Production	53.04	53.54	55.14	53.84	55.82
Cyprus	Service	55.72	52.29	49.97	50.48	46.81
	Production	49.02	46.85	50.85	47.71	40.45
Germany	Service	53.89	55.03	54.29	53.32	54.73
	Production	55.90	57.40	58.56	56.22	56.63
Estonia	Service	54.94	55.82	52.30	44.84	49.90
	Production	37.97	39.25	45.48	42.72	49.38
Spain	Service	63.62	62.26	63.83	58.07	56.86
	Production	64.48	64.08	61.86	62.30	61.09
Finland	Service	55.50	59.25	55.35	56.27	52.66
	Production	55.51	56.70	57.23	52.96	55.47
France	Service	60.07	61.99	62.07	60.42	61.76
	Production	57.33	59.17	60.85	58.91	58.91
Greece	Service	62.70	60.21	61.14	59.61	60.09
	Production	63.40	61.91	64.50	59.41	58.54
Ireland	Service	51.72	55.14	58.04	52.64	48.68
	Production	56.58	58.13	61.56	62.18	56.17
Italy	Service	67.65	67.28	67.27	65.59	67.41
	Production	64.98	64.64	65.38	61.65	63.48
Luxembourg	Service	53.43	56.30	54.07	50.81	51.78
	Production	56.79	62.79	57.57	59.33	57.89
Malta	Service	47.93	47.92	44.92	45.29	39.65
	Production	40.84	42.52	45.57	56.04	59.78
Netherlands	Service	56.71	56.56	60.33	52.74	59.72
	Production	56.37	54.76	59.96	73.94	54.43
Portugal	Service	79.15	77.94	78.96	71.45	74.04
	Production	72.89	78.27	78.16	46.66	71.74
Slovenia	Service	66.25	62.85	61.84	54.00	41.90
	Production	56.16	45.89	53.13	63.23	44.81
Slovakia	Service	39.40	37.51	48.91	38.18	33.03
	Production	58.78	46.26	51.52	50.76	61.36
Euro Area AVERAGE	Service	57.26	57.26	58.02	55.38	53.32
	Production	56.39	56.01	57.71	55.64	56.75
Turkey	Service	56.31	54.75	55.82	51.71	51.50
	Production	47.90	49.58	51.26	45.19	45.80

In 2006, mostly levered firms were service sector firms in Portugal with 74.04 percent leverage ratio. However, service sector firm in Slovakia had the lowest debt ratio of 33.03 percent. Euro Area service sector and production sector firms on the average had higher debt ratios than Turkish firms. For service sector, leverage ratios were 53.32 percent vs. 51.50 percent; and for production sector debt ratios were 56.75 percent vs. 45.80 percent.

In order to analyze the differences between capacity of debt for Turkish and European companies for the whole period, panel data Anova test was run for production and service sector. According to the test, null hypothesis stating that there is no difference between Turkish and European companies in terms of debt capacity is rejected for production and service sectors. Table 3 and Table 4 present the results.

Table 3: Test for Equality of Means of Debt Capacity of Production Sector Companies

Sample: 2006 2010 Includedobservations: 10				
Method		df	Value	Probability
Anova F-test Analysis of Variance		(2, 7)	46.99643	**0.0001**
Source of Variation		df	Sum of Sq.	MeanSq.
Between		2	196.6555	98.32777
Within		7	14.64568	2.092239
Total		9	211.3012	23.47791
CategoryStatistics				
PRODUCTION SECTOR CAPACITY	Count	Mean	Std. Dev.	Std. Err. of Mean
[45, 50)	4	47.11750	2.010578	1.005289
[50, 55)	1	51.26000	NA	NA
[55, 60)	5	56.50000	0.793473	0.354852
All	10	52.22300	4.845401	1.532250

Table 3 shows that companies in production sector have significantly different debt ratios in Euro area and Turkey with $\alpha = 0.0005$significance level. Euro area companies actually have taken less leverage risk during the analysis period.

Table 4: Test for Equality of Means of Debt Capacity of Service Sector Companies

Sample: 2006 2010
Includedobservations: 10

Method	df	Value	Probability
Anova F-test	(4, 5)	48.29591	**0.0003**
Analysis of Variance			
Source of Variation	**df**	**Sum of Sq.**	**MeanSq.**
Between	4	46.44843	11.61211
Within	5	1.202183	0.240437
Total	9	47.65061	5.294512

CategoryStatistics

SERVICE SECTOR CAPACITY	Count	Mean	Std. Dev.	Std. Err. ofMean
[50, 52)	2	51.60500	0.148492	0.105000
[52, 54)	1	53.32000	NA	NA
[54, 56)	3	55.31667	0.537804	0.310501
[56, 58)	3	56.94333	0.548483	0.316667
[58, 60)	1	58.02000	NA	NA
All	10	55.13300	2.300981	0.727634

Table 4 shows that companies in service sector also have significantly different debt ratios in Euro area and Turkey with $\alpha = 0.0005$ significance level. Euro area companies actually have taken less leverage risk during the analysis period.

Table 5: Cost of Debt for Firms in 2010

Countries	Sectors	2010	2009	2008	2007	2006
Austria	Service	2.16	2.87	4.68	2.18	1.56
	Production	2.97	2.82	3.14	2.68	2.40
Belgium	Service	3.71	3.96	4.03	3.49	2.85
	Production	2.88	3.20	3.66	3.27	2.89
Cyprus	Service	3.80	3.75	4.22	3.54	3.66
	Production	3.41	3.88	3.95	3.11	3.60
Germany	Service	2.93	2.83	3.06	2.83	2.69
	Production	3.00	3.09	3.36	2.95	2.74
Estonia	Service	3.43	4.21	3.03	2.99	2.58
	Production	3.78	2.82	2.35	1.64	1.81
Spain	Service	2.39	2.43	3.35	2.74	1.99
	Production	2.76	2.90	3.53	3.12	2.41
Finland	Service	2.33	2.69	3.12	2.32	2.00
	Production	2.85	3.26	3.63	2.72	2.65
France	Service	2.06	2.02	2.53	1.92	1.71
	Production	2.50	2.33	2.80	2.44	2.09
Greece	Service	2.84	2.83	3.88	3.18	2.92
	Production	3.06	3.19	4.11	3.52	2.97
Ireland	Service	2.90	2.24	3.07	2.20	2.78
	Production	3.75	3.46	3.37	3.49	2.72
Italy	Service	2.31	2.55	3.04	2.84	2.23
	Production	2.42	2.71	3.64	2.87	2.81
Luxembourg	Service	2.74	2.79	2.67	2.93	2.81
	Production	4.31	4.16	4.02	4.12	3.84
Malta	Service	2.18	2.41	2.37	1.68	2.43
	Production	2.75	2.98	3.07	2.39	2.69
Netherlands	Service	2.71	2.47	2.70	2.68	2.28
	Production	3.00	3.20	3.31	3.33	2.86
Portugal	Service	3.12	2.86	3.56	4.04	2.67
	Production	3.45	4.09	4.32	3.34	3.33
Slovenia	Service	6.02	5.06	4.79	2.87	2.83
	Production	4.91	3.13	5.64	1.56	3.18
Slovakia	Service	1.41	1.34	2.84	5.57	6.09
	Production	2.85	2.20	4.71	2.18	3.36
Euro Area Average	Service	2.88	2.90	3.68	2.67	2.71
	Production	3.21	3.14	3.35	3.19	2.85
Turkey	Service	4.13	5.80	7.42	5.44	6.25
	Production	3.94	6.04	9.45	5.78	7.05

For the cost of debt, Table 5 shows that service sector firm in Slovakia paid the minimum percentage of its total debt and liabilities as financial expense equals to 1.41 percent in 2010. On the other hand, service sector in Slovenia used the most expensive debt as 6.02 percent. In the same year, service sector firms in Euro Area used cheaper debt (2.22 percent) on the average than Turkish service sector firms (4.13 percent). The same situation is valid for production sector firms. (3.21percent vs. 3.94 percent).

The cost of debt was lowest for service sector firm in Slovakia (1.34 percent) in 2009. However, firms operating in service sector in Turkey used the most expensive debt (5.80 percent). Euro Area firms in service sector used cheaper debt (2.90 percent) as well as firms in production sector. Euro Area average for production sector was 3.14 percent and it was 6.04 percent for Turkish firms.

The cost of debt was highest for production sector firms in Turkey in 2008. It was 9.45 percent. However, production sector firms in Estonia paid 2.35 percent of their total debt and liabilities as financial expense. For service sector, Turkish firms almost doubled Euro Area firms. Their cost of debt was 7.42 percent and 3.68 percent, respectively. For production sector, it was 3.35 percent for Euro Area firms.

Production sector firms in Turkey used the most expensive debt with 5.78 percent in 2007. On the other hand, production sector firms in Slovenia used the cheapest debt in the group. Their costs were 1.56 percent. Compared to Turkish firms, Euro Area firms were on the average using cheaper debt in service sector (2.67 percent vs. 5.44 percent) and in production sector (3.19 percent vs. 5.78 percent).

The cost of debt was highest for production sector firms in Turkey with 7.05 percent in 2006. It was lowest for service sector firms in Austria with 1.56 percent. Cost of debt was higher for both of the sectors. The cost of debt was 2.85 for Euro Area firms in production sector and 2.71 in service sector. Turkish service sector firms had a cost of debt of 6.25 percent.

For analyzing the differences between cost of debt for Turkish and European companies for the whole period, panel data Anova test was run for production and service sector. According to the test, null hypothesis stating that there is no difference between Turkish and European companies in terms of cost of debt is rejected for both production and service sectors. Results can be found on Table 6 and Table 7.

Table 6:Test for Equality of Means of Cost of Debt for Production Sector Companies

Sample: 2006 2010 Includedobservations: 10				
Method		df	Value	Probability
Anova F-test Analysis of Variance		(3, 6)	72.83139	**0.0000**
Source of Variation		df	Sum of Sq.	MeanSq.
Between		3	42.53535	14.17845
Within		6	1.168050	0.194675
Total		9	43.70340	4.855933
CategoryStatistics				
PRODUCTION SECTOR COST	Count	Mean	Std. Dev.	Std. Err. ofMean
[2, 4)	6	3.280000	0.362767	0.148099
[4, 6)	1	5.780000	NA	NA
[6, 8)	2	6.545000	0.714178	0.505000
[8, 10)	1	9.450000	NA	NA
All	10	4.800000	2.203618	0.696845

Table 6 shows that companies in production sector have significantly different cost of debt in Euro area and Turkey with $\alpha = 0.0005$ significance level. Euro area companies actually have used cheaper debt during the analysis period.

Table 7:Test forEquality of Means of Cost of Debt for Service Sector Companies

Sample: 2006 2010 Includedobservations: 10				
Method		df	Value	Probability
Anova F-test Analysis of Variance		(5, 4)	200.2114	**0.0001**
Source of Variation		df	Sum of Sq.	MeanSq.
Between		5	26.47796	5.295592
Within		4	0.105800	0.026450
Total		9	26.58376	2.953751
CategoryStatistics				
SERVICE SECTOR COST	Count	Mean	Std. Dev.	Std. Err. ofMean
[2, 3)	4	2.790000	0.116905	0.058452
[3, 4)	1	3.680000	NA	NA
[4, 5)	1	4.130000	NA	NA
[5, 6)	2	5.620000	0.254558	0.180000
[6, 7)	1	6.250000	NA	NA
[7, 8)	1	7.420000	NA	NA
All	10	4.388000	1.718648	0.543484

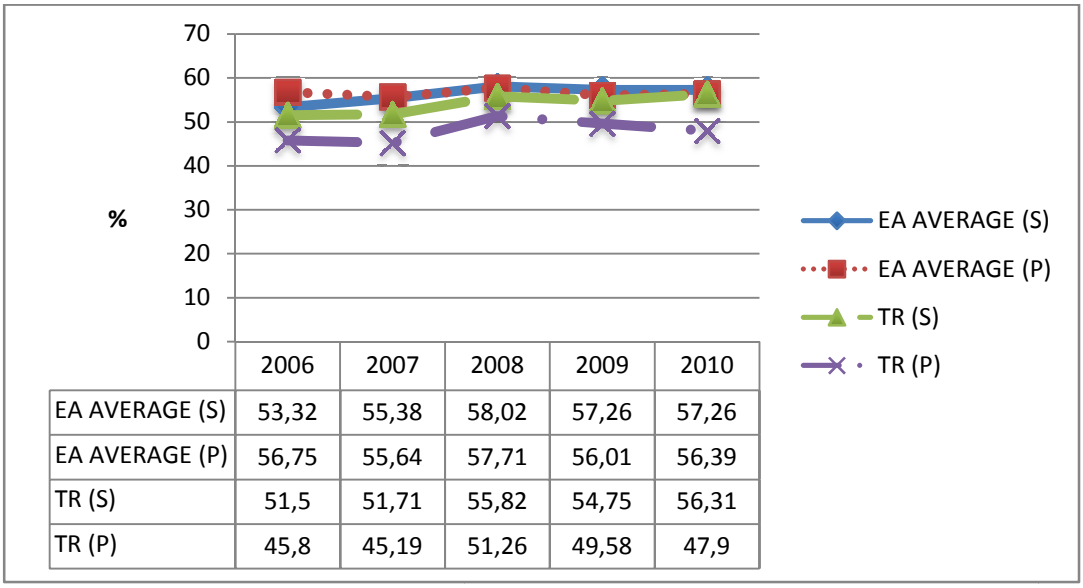
Table 7 shows that companies in service sector have also significantly different cost of debt in Euro area and Turkey with $\alpha = 0.0005$ significance level. Euro area companies actually have used cheaper debt during the analysis period.

In order to find out which country in which sector has used more or less leverage, at the same time in order to figure out which country in which sector used the most expensive or the cheapest debt, Table 2 and Table 5 could be analyzed vertically. In four out of five years, firms in Portugal had the maximum debt capacity and three out of five years, firms in Slovakia had the minimum debt capacity among 18 countries. On the other hand, the cost of debt was highest for Turkish firms in four out of five years, and it was lowest for Slovakia in two out of five years. In the light of these information, we can reach a conclusion that low debt ratio might provide low cost of debt and vice versa. This may be related to bankruptcy costs, which are considered to be lower for these firms. In order to horizontally analyze these tables, two figures are drawn presenting the capacity and cost of debt across the time. Time is an important factor since the effects of the 2007-2008 global financial crises on the capacity and the cost of debt for industrial firms could be determined.

Figure 1 shows that in general, firms in Euro Area and Turkey have capital structures are different from each other. All firms slightly increase their debt ratios in the crisis period. Increase is higher for Turkish firms compared to firms in Euro Area. When four groups of firms are analyzed

simultaneously it is seen that debt ratios of service sector firms are more sensitive to financial stress than production sector firms.

Figure 1: Debt Ratios for Firms in Euro Area and Turkey, 2006-2010.

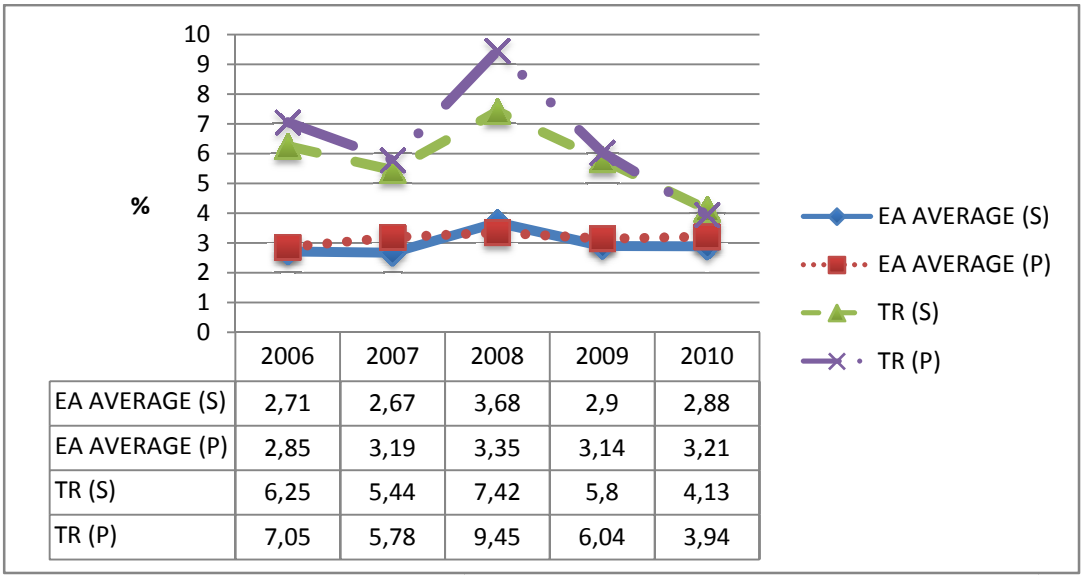


	2006	2007	2008	2009	2010
EA AVERAGE (S)	53,32	55,38	58,02	57,26	57,26
EA AVERAGE (P)	56,75	55,64	57,71	56,01	56,39
TR (S)	51,5	51,71	55,82	54,75	56,31
TR (P)	45,8	45,19	51,26	49,58	47,9

Figure 2 shows that the cost of debt was higher for Turkish firms than Euro Area firms for the whole period. In 2009, costs started to decrease and got closer to the level of Euro Area firms in 2010. Inflation rates as consumer prices for Euro Area countries and Turkey take place in Table 8 and credit ratings take place in Table 9. Inflation rate was highest in Turkey for the whole period so that one can expect that the cost of borrowing would be highest for firms operating in Turkey. Moreover, credit rating of Turkey is the second lowest after the Greece, together with Italy and Ireland. The highest credit ratings are for Germany, Slovakia, Slovenia and Spain. Firms in these countries also had low cost of debt in the analysis period. Since a firm is not able to have a rating higher than the country it operates in, as expected, the cost of debt and credit ratings are actually seem to be related to each other.

The cost of debt that Turkish production sector firms used are more expensive than the service sector firms especially in 2008, but cost of borrowing for these two sectors was very close to each other in Euro Area for the same period of time. The effects of the global financial crises were felt deepest in production sector firms in Turkey. Their costs of debt increased by almost 50 percent in the crisis year 2008. Service sector firms in Turkey also could found more expensive debt in the crisis period. The cost of debt for Euro Area firms in both sectors did not increase significantly in the crisis. This might result from the better structured and long-term planning of debts of Euro Area companies. Besides, Turkish firms were able to reach towards the Euro Area firms' levels after the crisis. This may be regarded as a positive indication for Turkish firms.

Figure 2: Cost of Debt for Firms in Euro Area and Turkey, 2006-2010.



	2006	2007	2008	2009	2010
EA AVERAGE (S)	2,71	2,67	3,68	2,9	2,88
EA AVERAGE (P)	2,85	3,19	3,35	3,14	3,21
TR (S)	6,25	5,44	7,42	5,8	4,13
TR (P)	7,05	5,78	9,45	6,04	3,94

Table 8: Inflation Rates as Consumer Prices (Annual - %)

Countries	2006	2007	2008	2009	2010
Austria	1.45	2.17	3.22	0.51	1.81
Belgium	1.79	1.82	4.49	-0.05	2.19
Cyprus	2.50	2.37	4.67	0.37	2.38
Estonia	4.43	6.60	10.37	-0.08	2.97
Germany	1.57	2.29	2.63	0.31	1.14
Finland	1.57	2.51	4.07	0.00	1.22
France	1.68	1.49	2.81	0.09	1.53
Greece	3.20	2.90	4.15	1.21	4.71
Ireland	3.94	4.88	4.05	-4.48	-0.95
Italy	2.07	1.82	3.38	0.75	1.54
Luxembourg	2.68	2.30	3.40	0.37	2.28
Malta	2.77	1.25	4.26	2.09	1.52
Netherlands	1.14	1.62	2.48	1.19	1.27
Portugal	2.74	2.81	2.59	-0.83	1.39
Spain	3.52	2.79	4.07	-0.40	1.92
Slovenia	2.46	3.61	5.65	0.86	1.84
Slovakia	4.48	2.76	4.60	1.62	0.96
Euro Area Average	2.59	2.70	4.17	0.21	1.75
Turkey	10.51	8.76	10.44	6.25	8.57

Source: The World Bank, http://www.worldbank.org/

Table 9: Standard&Poors Credit Ratings for Countries, 2012

Austria	AA NEGATIVE
Belgium	AA NEGATIVE
Cyprus	BB NEGATIVE
Estonia	AA NEGATIVE
Germany	AAA STATIONARY
Finland	AAA NEGATIVE
France	AA NEGATIVE
Greece	CC NEGATIVE
Ireland	BBB NEGATIVE
Italy	BBB NEGATIVE
Luxembourg	AAA NEGATIVE
Malta	A NEGATIVE
Netherlands	AAA NEGATIVE
Portugal	BB NEGATIVE
Spain	A NEGATIVE
Slovenia	A NEGATIVE
Slovakia	A STATIONARY
Turkey	BBB NEGATIVE

Source: http://www.standardandpoors.com/ratings/en/us/

5. CONCLUSION

As it is well known, Turkey and Euro Area countries have differentiated during and after the global financial crisis. They have priced economic and business risks differently and implemented different public and private sector policies. For Euro Area, focus is said to be on increasing demand and growth and low inflation prospects are indicated as a room for monetary easing to the real economy. On the contrary, Turkey concerns about potential activity slowdown. After the recovery from recession and cutting off the policy interest rates, monetary tightening is considered by the economists to be need. Capital expenditures are considered as another important issue for the Turkish economy. This study is trying to constitute the reflections of these differences on the real production and service sector firms. The aim is to expose how the debt capacity and the cost of debt for firms have experienced the differentiation of Euro Area and Turkey.

The main conclusion of the study is that Turkish firms should continue to decrease their cost of debt in order to enhance their competitive position in the world. Firms in the Euro Area and Turkey are competing over the export operations and over the sources of funds. Turkish firms should increase their credibility by any way such as exhibiting better performance on their operations in contravention of the effects of inflation and credit rating scores of the countries on the cost of borrowing of firms. Cash flows are also considered as very important factor for increasing the credibility. At a given capacity of debt, a firm, which has more regular cash flows, may have higher credit score than a firm, which have more irregular cash flows. Therefore,

Turkish firms should increase the quality and disposal of their cash flows. Redesigning of the sales, procurement and investment decisions and timing of these activities could do this. On the other hand, the sources of debt may be diversified in order to benefit from the competition among the sources of debt. Turkish firms should find ways to take advantage of the unsustainable debt structure of Euro Area firms. Expectation of increase in exchange rate and interest rates for Turkish firms may be the key point. Turkish firms will benefit as the foreign demand increase for their goods and services.

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