FINANCIAL FRAGILITIES OF TURKISH NON-FINANCIAL SECTORS

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ABSTRACT

FINANCIAL FRAGILITIES OF TURKISH NON-FINANCIAL SECTORS

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This thesis investigates financial structure of Turkish non-financial sectors and the impacts of their financial fragilities on profitability using the Central Bank of the Republic of Turkey (CBRT) sector level company accounts data base.

The results suggest that corporate sector leverage dramatically increased after 2009. Despite the improvements in maturity and liability dollarization of the corporate sector, fragilities still appear to be substantially high. Foreign currency denominated assets have become far from being adequate to hedge dollarized debts. Liability dollarization of the corporate sector is funded heavily by domestic banking system and external loans.

Empirical results from the dynamic panel data GMM models suggest that corporate sector's profitability decreases with indebtedness and real interest rates and increases with export share for non-financial sectors. Real exchange rate appreciation tends to increase profitability for non-financial and manufacturing sectors with lower export ratios due to the availability of foreign exchange denominated funds with lower costs. The impact of appreciation is, however, negative for the sectors with higher export ratios suggesting that the trade and competitiveness channels dominate. The negative impact of leverage ratio tent to decrease and positive impact of appreciation tend to increase with the average firm size of the sectors.

Keywords: Fragility, Corporate Sector, Dollarization, Currency Risk, Interest Rate

ÖZ

TÜRKİYEDE FİNANS DIŞI SEKTÖRLERİN FİNANSAL KIRILGANLIKLARI

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Tez'de finansal kesim dışındaki sektörlerin finansal yapıları, kırılganlıkları ve bu kırılganlıkların kârlılık üzerindeki etkilerinin sınırları, Türkiye Cumhuriyet Merkez Bankası'nın sektör bazlı şirket hesapları veri seti kullanılarak incelenmiştir.

Bulgular şirketler kesimi borçlarının 2009 yılı sorasında önemli ölçüde arttığını göstermektedir. Şirketler kesimi borçlarının vade yapısı ve dolarizasyon oranındaki iyileşmelere rağmen, kırılganlıkların halen yüksek düzeyde olduğu görülmektedir. Yabancı para cinsinden varlıklar, dolarize olmuş borçların riskinden korunmak için yeterli olmaktan daha da uzaklaşmıştır. Şirketler kesiminin borç dolarizasyonu çoğunlukla yerel bankacılık sistemi ve yurt dışı kredilerle fonlanmıştır.

Dinamik panel data GMM modellerinden elde edilen ampirik sonuçlar, şirketler kesimi kârlılığının borçluluk ve reel faiz oranı ile düştüğünü ve finans dışı sektörlerin ihracat yoğunluğu ile arttığını göstermektedir. Yabancı para cinsinden düşük maliyetli fonların erişilebilir olması nedeniyle ihracat oranı daha düşük olan finans dışı sektörler ve üretim sektörlerinde reel kur artışı kârlılığı artıcı etkiye sahiptir. Öte yandan daha yüksek ihracat orana sahip sektörler için kur artışının etkisinin negatif olması, ticaret ve rekabet kanallarının dominant etkisini göstermektedir. Sektörlerdeki ortalama şirket büyüklüğüne göre borçluluk oranının negatif etkisi azalmakta ve kur artışının pozitif etkisi artmaktadır.

Anahtar Kelimeler: Kırılganlık, Şirketler Kesimi, Dolarizasyon, Kur Riski, Faiz

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I have to stretch myself during the studies by enhancing my soft-ware usage skills. There, I would thank to thank my colleague Levent Özer for instructing me macro-codes which I used for properly deriving data from hundreds of CBRT data files. Also I express my gratitude to my colleague Erdinç Akyıldırım for helping me to generate Stata 12 codes.

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CHAPTER 1

INTRODUCTION

The term financial fragility originates from the ideas of Shumpeter, Fisher and Keynes and embodied mostly by Minsky (1977). In recent years the term became more popular due to FED policies which can stimulate capital outflows from emerging markets and cause currency depreciations (Aizenman, Binici, and Hutchison, 2014).

In fact, the concept fragility is used to refer risky positions in balance sheets which can increase probability of defaults in the whole economy (Davis, 1995). In this sense, we try to assess Turkey's corporate sector fragility and draw extends of it via empirical analysis. Corporate sector fragilities are essentially important to economy to extend that can transform ordinary economic cycles to financial crisis (Friedman 1986, Kaufman 1986, Kiyotaki and Moore 1997).

In section two, before describing the corporate sector fragilities, development of the fragility concept is comprehensively explained and its manifestations in the literature of economic theories, applied economics and game theory economics are illustrated. We then discuss the impact of macroeconomic fragilities on economies in the context of two very recent examples. First, Central and Eastern Europe, the region which includes also Turkey, is compared with other regions with their fundamental fragility indicators such as high current account deficits and dependence on capital inflows in the years before global financial crisis and under performance of the economy of the region displayed with the rupture of inflows. Secondly, recent studies on country fragilities are mentioned briefly to explain how fragility perception of investors leads to currency depreciations especially in "The Fragile Five" countries.

In section three, financial environment in Turkey is discussed via international comparisons to underline fragilities in Turkey. It is shown that financial depth in Turkey still behind the comparable countries but there is an improvement. Credit generation performance of the financial system is also gradually improved compared to 2007. Profitability and liability analysis of non-financial sectors included a few of developed countries to compare since there is limited data available. Nevertheless, it can be observed that bank liabilities of Turkish firms are comparable to developed countries. US and German firms appear to be strong with higher equity-asset ratios with above 60 percent where the ratio is nearly 40 percent in Turkey. Liability composition of Turkish firms differentiates from other countries with high trade credits rate and debt securities market is still very small.

Section four is dedicated to investigate financial fragilities of non-financial sector firms. It should be noted that, the liability data included in this section may differ across tables because of different sources. Some of the data for debts are derived from CBRT sector level company balance sheets whereas others derived from aggregate risk tables where maturity and dollarization of debts are illustrated clearly. One more point to be mentioned, it is possible to distinguish sector level data only for small, medium and large firms for manufacturing sectors but neither for non-manufacturing sector nor all non-financial sector. Therefore, size related matters are depicted only for manufacturing sector.

Descriptive analyses have shown that debts of non-financial sectors are observed to increase considerably in 2010 and 2011. Debt structures in terms of maturity and dollarization gradually improved from 2003 to 2012 but are still weak. Asset dollarization far behind to hedge liability dollarization and that imbalance has worsened in recent years. The dollarization of liabilities of non-financial sector is mainly funded by domestic banks loans and external loans. Any turmoil caused by currency depreciation affecting corporate sector can spread to domestic financial sector and foreign lenders via underperformance of those loans.

Empirical analysis included in section five in order to observe extension of effects fragilities on corporate sector profitability performances. Analyses are conducted using dynamic panel data Generalized Method of Moments (GMM) methods. "Sector level data" and "sector and size level data" are used for sector specific variables from 2003 to 2012. Sector specific fragility factors and exogenous macroeconomic variables that can trigger economic crisis if there exists balance sheet fragilities of corporate sector are included in to model. For the "sector level data" all the sector specific and macroeconomic variables are found to be significant. Results are presented and discussed in detail in this section.

The dynamics of corporate sector profitability with fragility factors are portrayed. Bearing debts are found to restrain profitability. Exports are found to be helpful for raising profits. Also, hedging side of the exports (Echeverrya et al. 2003), defined in this study as robustness against depreciations via exports, sound to support profitability. Real exchange rate depreciations are found to have negative effect on corporate profitability in contrast to Mundel-Fleming model and findings of Rodrik (2009). Real interest rate variable has negative coefficient pursuant to economic theory and empirical findings by Özmen et al. (2012).

In the conclusion part, noteworthy remarks for the previous sections summarized. Summary of empirical analysis is given and also further conclusions, comments and recommendations for further research added. In this section, empirical results are reevaluated to discuss fragilities and effects of them on income statements. The results yielded that indebtedness creates profit loses and fragility for Turkish corporate sector. Despite the Mundel-Fleming model, arguments and empirical finding of Galindo et al. (2003), Frankel (2005), Montiel and Serven (2008); Levy-Yeyati and Sturzenegger (2009) who suggest that liability dollarization and dependence of industries on imported inputs can reverse counter cyclical profit increasing effect of depreciations, are confirmed by the empirical study which indicates that real exchange rate depreciations have reducing effect on corporate profitability.

CHAPTER 2

FRIGILITIES AND CRISES

2.1 The Concept Fragility in Economics

Financial fragility refers to vulnerability of financial system allowing modest and everyday economic turmoil to cause large-scale financial and economic crisis. The term originally depends on initial theories of Fisher and Keynes both developed in nineteen thirties after great depression (Davis, 1995).

Fisher (1933) mentions the following nine items related to fragility: i) debt liquidation, ii) distress setting and contraction of deposit currency, iii) fall in the level of prices, iv) fall in the net worth of business, v) fall in profits, vi) reduction in output, in trade and in employment, vii) pessimism and loss of confidence, viii) hoarding and slowing down still more the velocity of circulation, ix) complicated disturbances in the rates of interest. According to Fisher (1933) these nine phenomenons are all correlated and there are many interrelations between them. Those interrelations both rational and empirical are yet to be clearly formulated. He also suggests that a combination of the debt disease and precipitating the currency disease leads to a catastrophe.

As presented by Minsky (1982), Keynes (1936) also describes how the financing of investment through debts, a characteristic activity of that modern capitalism can be destabilizing. An increase in over optimistic investments can trigger a boom or a boom in consumption can trigger over investments in the economy and increase in interest rates as demand for money increases. By increasing interest rates or perhaps in a solely independent way, marginal efficiency of capital may decrease over the time and an economic catastrophe takes place together with pessimism. At that time,

even reductions in the interest rate by monetary authorities may not be enough to recover the economic activity. Yet, he suggests not keeping interest rates high to inhibit booms and create recessions since high interest rates may not be efficient way of pressuring investments and deepen the severity of turmoil. In contrast, set the rates low to keep economy in a semi-boom state.

In fact, how to avoid from financial fragilities or mitigate with effects of them during crisis is a debatable issue in the literature. The term is generally accepted as a natural part of dynamic capitalistic economy and its sources are suggested to be unavoidable by the government intervention. Moreover; such interventions can bring more instability than expected to prevent (Calomiris, 1995). There is no general accepted model for financial fragility as Meltz (1982) expressed: "*If [someone] would only fully specify any one financial-fragility model …, perhaps we could think more clearly about the potential scope of the argument. As things now stand, we are in the dark…"*

Nevertheless; Minsky's "The Financial Instability Hypothesis" put much on effects of fragilities stem from debt financing. He re-modified Schumpeter's idea of the innovating entrepreneur to the idea of financial innovations produced by financial institutions, thus; his main success was to link financial market fragility with speculative financing of investments. (Knell, 2012)

Knell (2012) noted that, in "The Theory of Economic Development" Schumpeter (1912) presented determined equilibrium prices of all factors under free competition. Profits are maximized when there remain no profits in the economic system and agents reach that equilibrium via cost minimizing activities. At this point Schumpeter (Shumpeter, 1939) takes innovation as an endogenous process. Innovation creates surplus over costs for economic agents and provides entrepreneurial profit. Thus; the resulting disequilibrium alters and displaces the previous equilibrium state constantly (Schumpeter, 1912). In contrast to Schumpeter who suggested that innovation was the main source of stability, Minsky suggest innovations mainly comes from profit

seeking financial sector and financial innovations create fragility, crisis and instability (Knell, 2012).

The "Financial Instability Hypothesis" of Minsky (1975, 1992) accepts banking as a serious profit seeking activity. To make more profits, bankers seek for innovative financial ways of to provide liability or acquire assets. Thus; velocity of money becomes linearly related to price levels of financial assets in contrast to be constant as quantity theory of money suggested (Minsky, 1992). Where that price levels of assets are determined by future developments and expectations (Minsky, 1975).

During optimist stability periods, as stock prices rises higher than interest rates investors take more risks and borrow more and over pay for assets. As understanding of risk and proper liability structure change, debt levels increase, proportion of short term debts rises, financial system becomes more fragile and number of speculative and Ponzi firms increase. Minsky (1977) defined Ponzi firms as borrowers who can neither repay the interest nor the original debt from their investments, and solely rely on increasing asset prices to allow them continually to refinance their debt. Speculative firms refer borrowers who can meet their interest payments via their investment, but need refinancing to pay back the original loan. He lastly described hedge firms, who are borrowers can meet all interest and principle debt payments with the help of their investments. In such optimistic circumstances increases in interest rates also leads the number of speculative and Ponzi units to increase as cash flow commitments of firms rise without increasing forecasted receipts (Minsky, 1986).

As the number of Ponzi firms and financial institutions become more prevail, fragility of the system increase and short-falls in payments create crisis. Crisis began with a "not unusual" event such as a bankrupt of a bank or large firm, than assets prices sharply declines as everybody raise cash to pay their debts (Minsky, A Theory of Systemic Fragility, 1977). This mechanism explains how an economy does have stable and unstable periods and how the stable periods do create unstable ones. Thus;

he claims cyclical behaviors of capitalist economies are their intrinsic parts due to sophisticated and profit seeking financial systems (Minsky, 1992).

Later Wolfson (2002) extended Minsky's financial crisis theory for a domestic economy to a global scale and explain his ideas in the context of the East Asian crisis. He added on Minsky's Ponzi financing of short term debts and interest rate risk by introducing Ponzi financing of "carry trade" which leads foreign exchange rate risk via foreign currency denominated debts, since Asian banks acquired short-term debts with low interest rates especially from Japan in dollar and yen and lend them to Asian countries in long term loans during the stable period in Minsky's definition. As Japan began to raise interest rates, not the local central bank in Minsky's theory but an internationally strong one, countries had difficulty in defending their currency pegs and in paying the foreign exchange dominated debts. Thus; the crisis began in Thailand and spread to other countries as investors fled from all of them, this over all fled of investor called "contagion" which can be accepted as "not unusual event" of Asian crisis.

On the other hand; economic theorists who focus on asymmetric information has developed models of financial and credit market imperfections and their effects on economy (Bernanke and Gertler, 1987). Some of the main sources in this field are studied by Akerlof (1970), Jaffee and Russel (1976), Stiglitz and Weiss (1981), Prescott and Townsend (1984). In that the literature on financial crises are originated from asymmetric information between borrowers and lenders where borrowers are assumed to have more private information about the investment projects they wish to conduct, resulting in an adverse selection problem (Mishkin, 1991). Mankiw (1986), for example revealed that in the case of asymmetric information wholly collapse of credit markets can stem from a little increase in interest rates. Kiyotaki and Moore (1997) show that collateral value has influence on credit limits; thus on investment demand and severity of macroeconomic fluctuations.

Applied macro economists also underlined the effects of financial conditions, such as aggregate and sector level balance sheets, on the characterization of economic cycles.

For example; Eckstain and Sinai (1986) claimed that pro-cyclical changes in the ratio of net worth to liabilities of barrowers feeds up the real output and this is an important mechanism to describe volatility of economic activity. Likewise Friedman (1986) and Kaufman (1986) also stressed the dark side of the debts by expressing that creating debt lead to economic and financial exhilaration and discussing implications of aggregate and business-sector debt on the economy.

Depending on asymmetric information theories Bernanke and Gertler (1987) developed a model where they characterize a "financially fragile" situation as balance sheets are too weak and the economy experiences substantial underinvestment, misallocation of investment resources, and possibly even a complete investment collapse. Later, Lagunoff and Scherff (1999) created a game-theoretic, dynamic, stochastic model for financial fragility. They develop the model depend on existing financial linkages and breakage of the linkages by routine economic shocks that spread through the linkages as in the previous models to explain financial crisis. However, their model is the first in defining and characterizing fragility. In the model financial positions of agents are linked through the diversified portfolios they hold and the payment commitments that emerge from credit market. According to the model, only if, agents have foresight about default propagating on them and there will be contagion, then fragility can be characterized as speed of overall collapse of financial system. The model yields larger economies experience such financial system collapses earlier which means they are more fragile. Also, greater diversity, holding degree of financial linkages fixed, delay collapses; in other words, reduces fragility. Yet, Lagunoff and Scherf (1999) accept that their model is very simple and have some highly specialized assumptions.

To sum up, concerns over financial fragility has roots in the studies of Fisher (1933) and Keynes (1936) and fragile economies has more attention in recent years due to FED policies that can stimulate out flows from emerging economies (Aizenman, Binici, and Hutchison, 2014). Although there are number of works stimulating the studies on financial fragility, there are still a limited number of researches on this

area to provide a fully consistent model providing some insight about the nature of fragility and its implications. (Lagunoff and Schreft, 99) Yet, we should mention a last explanation of the fragility:

"*Financial fragility is defined as a state of balance sheets offering heightened vulnerability to default in a wide variety of circumstances"* (Davis, 1995).

2.2 Macro-Economic Fragilities and Global Financial Crisis: The Case of Central and Eastern Europe

Current account deficits and high dependence on capital inflows can be a source of fragility besides high inflation and weak growth (Lord, 2013). A global liquidity boom started in 2003 and reached to a peak level in 2007 as the liquidity receiving countries took liquidity easing measures. This huge amount of capital inflow added upward pressure on asset prices while the concerns over vulnerabilities to sudden stop of inflows upraised.

In 2008 countries with high capital inflows were heavily affected from the global financial crisis although they were not the origin of this crisis. IMF's studies reveal that net capital inflows to 41 inflow receiving countries turn to negative in 4rd quarter of 2008 as the risk expectations of the investors changed. Bank loans and portfolio investments on bonds and equities exhibit net outflows contrary to foreign direct investment which is decreased but stayed as a net inflow term. (IMF, April 2010)

To observe what type of inflows pose financial fragility, the global financial crisis presented an experimental field. During the crisis emerging market economies with larger "debt liability" or "financial foreign direct investment" to GDP ratios displayed worse growth rate reductions empirically. However, those with larger "non-financial foreign direct investments" performed better during the crisis. Also no empirical relation is found with GDP growth reductions and equity liability to GDP ratio. Those empirical observations comply with the common understanding: debt is an obligation to barrower; however foreign direct investment is not prone to flee in a

crisis, it can also be source for fresh financing. The one interesting point is fragility effect of financial foreign direct investments. It represents a debt flow characteristic rather than foreign direct investment. (Ostry, Ghosh, Habermeier, Chamon, Qureshi, and Reinhardt, 2010)

Table 2.1: Current Account, Net Capital Inflow and Growth in Country Groupings before and during the Recent Global Crisis

	Savings (2003-07)	CAB (2003-07)	Net Inflows (2003-07)	Net Inflows (2008)	Net Inflows (2009)	Growth (2003-07)	Growth (2009)	Impact On Economy
Advanced Economies	21.23	-0.86	-	-	-	2.78	-3.43	-6.22
Central and Eastern Europe	16.24	-6.02	8.64	9.23	5.04	5.97	-3.61	-9.59
Commonwealth of Independent States	29.64	6.87	3.10	-5.38	-1.28	8.07	-6.45	-14.52
Developing Asia	40.82	4.26	3.03	0.44	3.04	9.72	7.70	-2.02
Latin America and the Caribbean	21.73	0.85	0.91	1.95	2.61	4.82	-1.22	-6.05
Middle East and North Africa	37.55	12.19	-2.38	-3.89	0.24	6.68	2.99	-3.69
Sub-Saharan Africa	20.67	0.09	0.77	3.42	3.79	6.30	2.64	-3.67
World	23.59	-	-	-	-	4.82	-0.38	-5.20

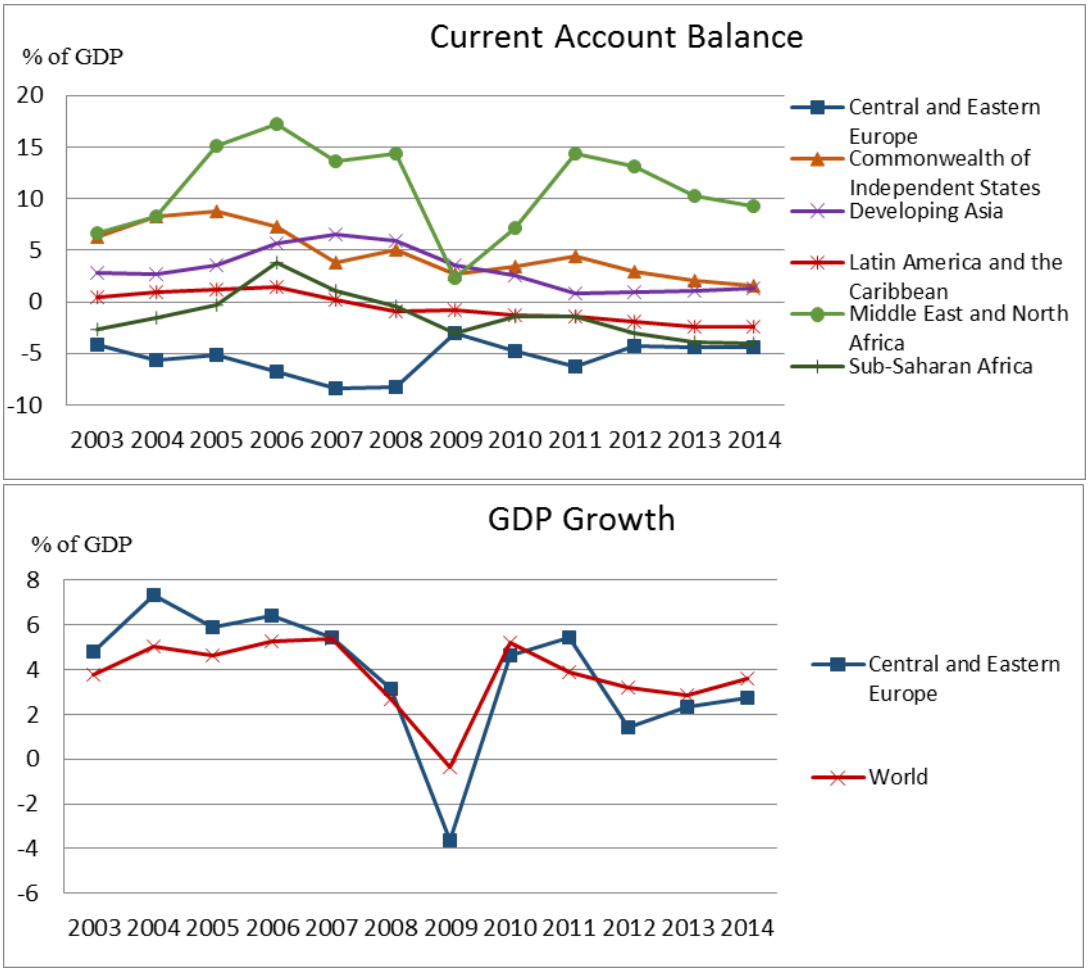
Source: IMF, World Economic Outlook Database – October 2013. Savings, Current Account Balances (CAB) and Net Inflows are as % of GDP. Central and Eastern Europe countries: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Kosovo, Latvia, Lithuania, FYR Macedonia, Montenegro, Poland, Romania, Serbia and Turkey.

Table 2.1 presents current account balance (percent of GDP), net capital inflow (percent of GDP), saving (percent of GDP) and GDP growth rates for groups of countries before the recent global financial crisis (2003-2007) and the crisis (2008) periods. From 2003 to 2007 Central and Eastern Europe including Turkey was the region that has minimum saving rate, maximum current account deficit and net inflow to GDP ratio. As the crisis began by 2008 and severely hit the economies in 2009, net capital inflow figures converged towards to zero as liquidity providing out flow countries invest less to abroad and receiving inflow countries encountered with difficulty for financing investments. In fact, private inflows to Central and Eastern Europe reduced from 157 billion USD in 2008 to 31 billion USD in 2009 but the reduction is compensated by official inflows which are reached to 49 billion $ from 20 billion $ during same period. (WEO Database, October 2013)

Before the crisis, loans received from Western European parent banks to Central and Eastern Europe was the main part of the net inflow. In this period, increasing domestic demand bring more inflows to those countries. The entry of large amount of capital formed macroeconomic and financial sector fragilities such as high current

account deficit, accelerated credit growth, poorer fiscal positions and excessive indebtedness of households. Because of these fragilities and vulnerability of credit growth due to financing restrictions of the parent banks, emerging Europe experienced a deeper decline then other emerging regions during the crisis. (Mathisen and Mitra, 2010)

High level of current account deficit, the signaling macro level fragility, compensated with capital inflows boost the economic growth in Central and Eastern Europe before 2008 (Figure 2.1). But, as the crisis began, the region faced with a constant economical disturbance while the world economy entered a recovery period. Although none-of those countries in the region included in euro area, long lasting Eurozone crisis may also affect those economies. In the five years period of the crisis, from 2003 to 2007 average growth rate for the Central and Eastern Europe was 5.97% whereas world economy grew 4.82 % percent on average. According to IMF's data and expectations, for the 5 consecutive years after the crisis, from 2010 to 2014 average growth rate for Central and Eastern Europe reduces to 3.3% on average which is below the world's average economic growth rate of 3.75% for the same period.



Source: IMF, World Economic Outlook Database – October 2013

Figure 2.1: Current Account Balance and GDP Growth in Developing Country Regions

2.3 "The Fragile Five" and Turkey's Vulnerability

"Fragile Five" is the concept first defined by Morgan Stanley in August of 2013 to refer five financially fragile economies: Brazil, Indonesia, South Africa, India and Turkey. High inflation, weakening growth, large current account deficits and high dependence on capital inflows are reported to leave these country currencies vulnerable and there is an expected depreciation for those currencies in the medium term. Turkey has the highest current account deficit and second highest expected inflation for 2014. There are very high real exchange rates in Brazil and Indonesia

that gives a signal of devaluation for a correction as Turkey and India are expected to join them with high inflation rates.

A new type of fragility is also described as fragility of currencies against slowdown of Chinese economy. Countries providing industrial metal are sensitive to Chinese demand. In that sense Chili, Peru, South Africa and Indonesia seems to be dependent to China's performance. Mexico, Poland, South Africa and Turkey and Czech Republic are the top five who benefitted from inflows via fixed income securities since 2009 to 2013 as percentage of GDP. In fact, those countries are vulnerable against a shortage of debt security inflows.

It is expected that countries with high requirement of foreign inflows, which can be measured by current account deficit, will have to struggle with more difficulties in their currency policies. On the other side, funding is also crucial to external debts. Total funding requirement of an economy can be calculated as current account deficit and total external debts that are due in next twelve months. The ratio of this total funding requirement to foreign exchange reserves of Central Bank is defined as "External Coverage Ratio". Turkey's external coverage ratio was 1.06 the indicating the highest risk among emerging markets. South Africa closely follows with 0.92 and it and Indonesia having 0.66 not far behind. Except from exposure to China and real exchange rate Turkey was among the most fragile countries with its inflation, current account deficit, dependence on fixed income flows and external debt payable in short term to foreign exchange reserves ratio as of August 2013. (Lord, 2013)

There have been many references to "The Fragile Five" in newspapers but little in the literature. In fact concern over fragile economies increased in the last quarter of 2013 (Aizenman, Binici, and Hutchison, 2014) after FED Chairman Ben Bernanke's congressional testimony on May 22, 2013. In his speech Bernanke mentioned the possibility of gradually reducing of purchases of government and asset backed securities. Those purchases carried out during the crisis and recession of 2007-2009 by FED to lower the longer term interest and stimulate the economy. Those reductions in the security purchases is take place in the literature as "tapering" let

financial market participants to consider on when that highly expansionary monetary policy will change to normal and when short term policy interest rates will rise. (Bauer and Rudebusch, 2013)

As the financial market participants become more sensitive to tapering news; emerging market currencies become more vulnerable to FED announcements. After May 2013, many emerging market economies experienced currency depreciations. There were significant differences in the depreciation levels since investors appear to have responded in different ways to FED tapering news from country to country while the fragile five was having larger depreciations than other emerging economies. Dependence on capital inflow and high fiscal and current deficit of the fragile five seems have effect on those depreciations (Nechio, 2014).

On the other hand an empirical study using daily panel data from November 2012 to October 2013 have shown that emerging markets with "robust" fundamentals (Peru, Israel, South Korea, Malaysia, Philippines, Thailand, Bulgaria, Russia, Hungary), which satisfies at least two of those three criteria: current account surpluses, high foreign exchange reserves and less external debt, are more severely affected by the tapering news of FED especially to those from Bernanke's speeches compared to fragile economies (Turkey, South Africa, Argentina, Brazil, Chile, Columbia, Mexico, India, Indonesia, Pakistan, Ukraine, Czech Republic, Latvia, Lithuania, Poland, Romania) including The Fragile Five. Not only exchange rate depreciation but also increases in CDS's were larger for robust countries. Additionally, quantitative easing news also boosted fragile country stock markets more significantly.

Although daily data studies have shown that "robust" countries were more vulnerable to FED decisions and announcements, this is probably stem from the fact that those fragile countries received less inflows during the quantitative easing years of crisis and were more resistant to outflows.

Despite the results depending on initial daily responses, it is a described fact that in terms of the dynamics of financial markets in robust and fragile economies, emerging markets with more fragile international positions especially the ‘fragile five,’ were affected more adversely by FED policy over the period of November 2012 to October 2013. After May 2013 currencies of countries with fragile fundamentals performed worse in currency rate depreciations and CDS increases from those with strong fundamentals in terms of current account, external debt and exchange reserves. Yet, fragile countries still outperformed in equity market index level especially after a new tapering announcement in 19th of June 2013, until October 2013. (Aizenman, Binici, and Hutchison, 2014).

CHAPTER 3

INTERNATIONAL COMPARISONS TO UNDERSTAND FINANCIAL STRUCTURE OF TURKEY

3.1 International Comparison for Financial Depth

A study by Kaplan *et al.* (2006) has shown that non-financial sectors in Turkey have constrained financial access. Financial crowding out effect strengthened those constraints since domestic debts of public sector heavily financed by banking system. However, debt requirements of government decreased and macro-economic stability attained and bank credits to private sector boosted after 2003. Nevertheless; to judge private sector's bank loan liabilities as financial fragility, we have to compare financial system activities as a whole with the international benchmarks (Özmen and Yalçın, 2007). Total assets of financial system as a percentage of GDP is described as a measure of financial depth. The financial system includes assets of Central Bank, Deposit Money Banks and Other Financial Institutions (Beck, Demirgüç-Kunt, and Levine, 1999). In our analysis for financial depth we use World Bank data which includes year 2011 at last. Inspired by Yalçın and Özlü (2010), "credits of financial system to private sector as a percent of GDP" and "credits to private sector over total assets of financial system" which can be indicated as "Credit Allocation Index" or shortly CAI were also included from the data. We examine 50 largest economies which have data for both years 2006 and 2011. Those 50 countries represent 88 percent of world economy and among the major economies only Canada is not included since it does not have data for 2011. Since the first three countries, Japan, USA and South Africa, with greatest total financial system asset to GDP ratios are have far more financial depth ratios; we described them in **Table 3.1:** Financial

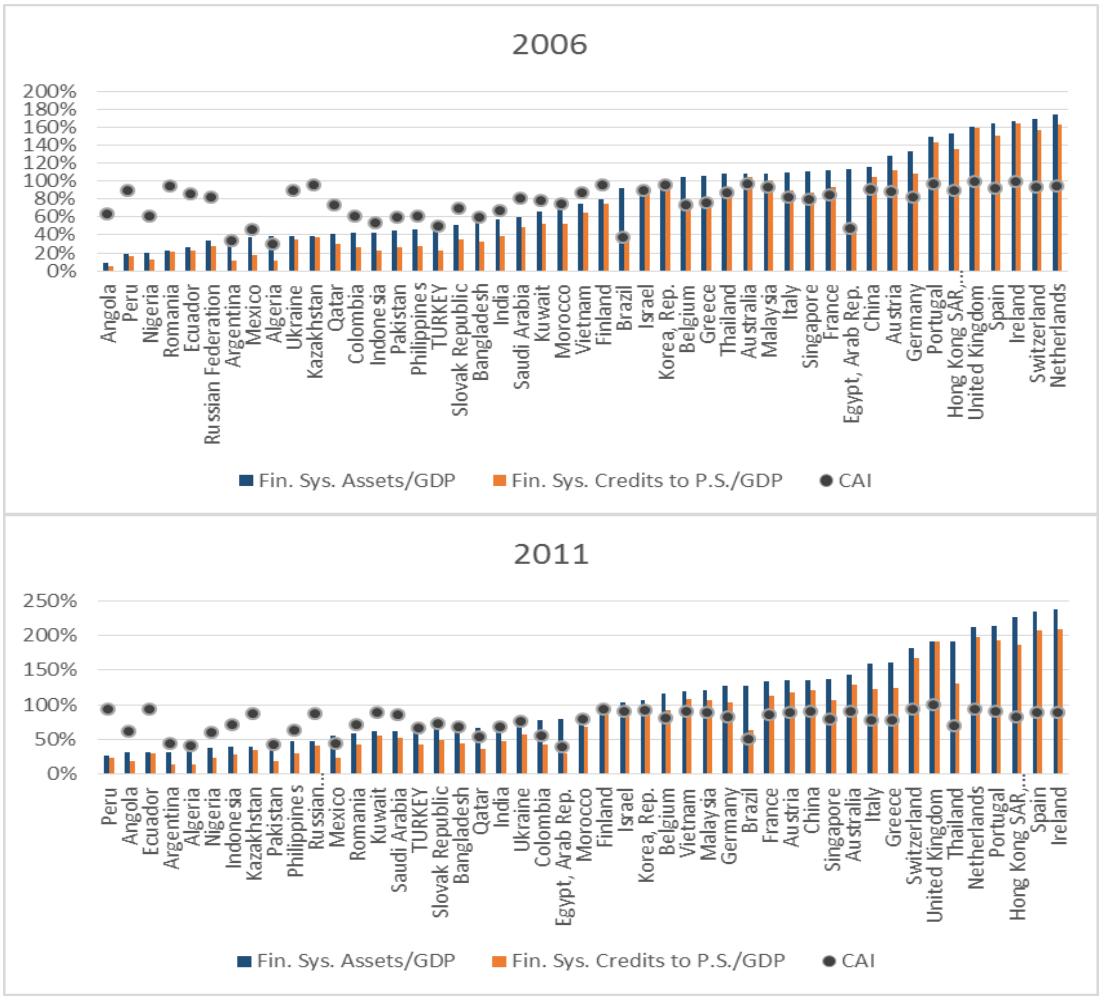
depth measures of Japan, USA and South Africa are discarded from the figures 3.1 and 3.2 to achieve a better appearance for the analysis.

Table 3.1: Financial depth measures of Japan, USA and South Africa

Countries		Fin. Sys. Assets/GDP	Credits to P.S./GDP	CAI		Fin. Sys. Assets/GDP	Credits to P.S./GDP	CAI
South Africa	2006	277%	140%	51%	2011	275%	142%	51%
United States		369%	193%	52%		374%	188%	50%
Japan		461%	180%	39%		457%	178%	39%

Source: World Bank

We can conclude that the top three saturated financial depth countries did not have noteworthy changes from 2006 to 2011. On the other hand, financial depth has deepened more for the rest of the world from 2006 to 2011 (Figure 3.1).



Source: World Bank Data (see Appendix A)

Figure 3.1: Financial depth in 2006 and 2011: An International Comparison

For the 47 countries represented in Figure 3.1 average of financial system assets to GDP ratio climbed from 82 percent in 2006 to 105 percent in 2011. Financial System credits to private sector over GDP ratio also increased from 67 percent in 2008 to 84 percent in 2011. Credit Allocation Index (CAI) remained constant around 76 percent on average for those 47 big economies during the same period.

In parallel with these economies, Turkish financial system depth also improved from 2006 to 2011. Despite the great enhancements in all indicators, Turkey's rank in financial system assets to GDP ratio reduced by one and still remains behind the many countries with same level of economic development. On the other hand, credits

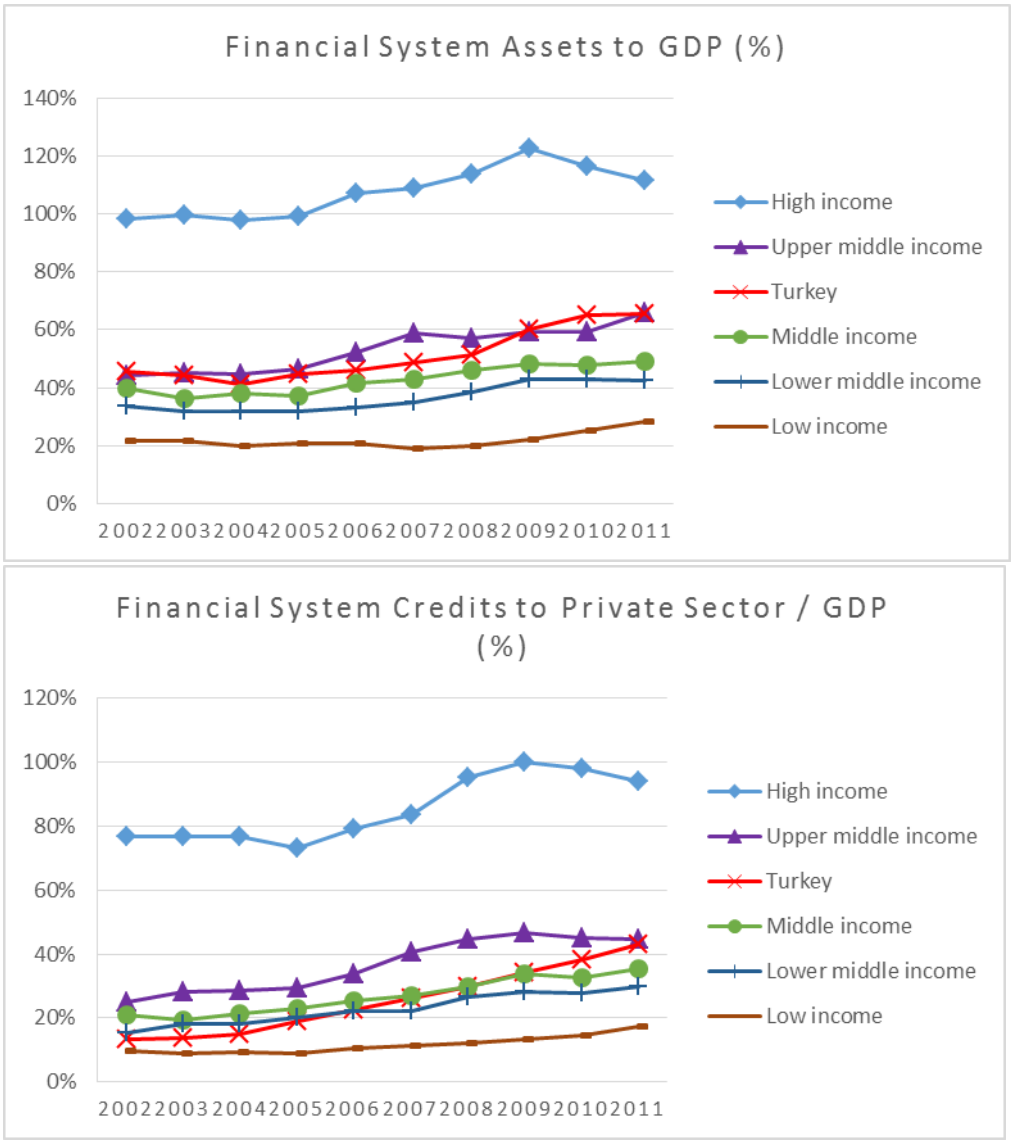
to private sector over GDP ratio rank of Turkey is performed better for the period. Which implies, relatively to GDP, credits to private sector grew faster from the comparable financial systems. Thus; Turkeys CAI, credits to private sector over financial system assets ratio, rank was also improved. Turkey was among the worst CAI rank in the list in 2006, as the credits to private sector increased more than total financial assets credits to private sector, the two indicators in Table 3.2. enhanced and Turkey's rank in categories which are related to loans to private sector reach-up the comparable levels with financial depth rank. Nevertheless; there is still room for a growth in financial depth.

Table 3.2: Turkey's rank in financial depth figures

Indicator:		%	Rank		%	Rank
Fin. Sys. Assets/GDP	2006	46%	34	2011	65%	35
Fin. Sys. Credits to P.S./GDP		23%	41		43%	34
CAI		49%	44		66%	36

Source: World Bank Data

In Figure 3.2 Turkey's financial depth described by financial system assets to GDP and growth in loans to private sector as a percent of GDP is given for years 2002 to 2011 to compare with different income levels of groups of countries.



Source: World Bank Data

Figure 3.2: Financial depth and credits to private sector: Comparison of Turkey and Different Country Groupings

As the income group level decreases, both financial depth and credits to private sector as a proportion of GDP decreases. Although, financial depth in Turkey was close to its peer group income level countries, upper-middle, credit loans to private sector was lower than that of "lower middle income" countries. By the time, weight of loans to private sector in the economy catches up the "upper middle income" countries. It can be also observed that low income countries performed less than in financial depth and private sector loan growth. On the other hand, upper middle

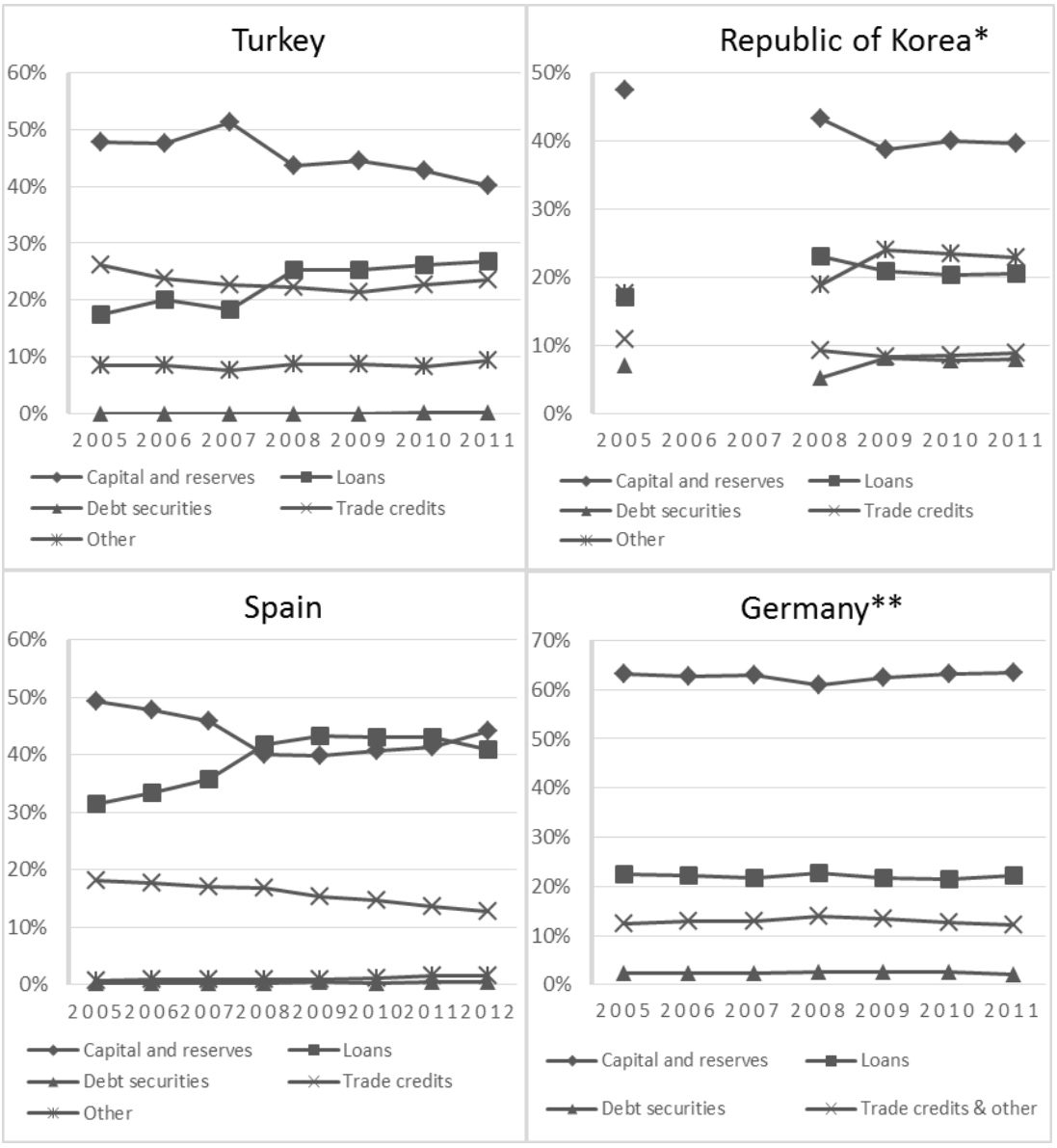
income countries outperformed in financial depth and private sector credit growth from lower income groups, as the differences on the figure 3.2. widened from 2002 to 2011. Response to the crisis in 2009 can also be observed. As GDP growths impacted, financial system assets and private sector loans reached relatively higher rates in 2009.

3.2 Non-Financial Sector Liability Comparisons

There is limited data and investigation on international non-financial sector comparisons for Turkey. One detailed study on investment climate in Turkey by World Bank (2010) has included some comparisons between Eastern European countries and Turkey. The study, depending on Enterprise Financial Crisis Assessment Survey conducted in the summer of 2009, has shown that Turkish corporations have high rates of debts with a less than one year maturity and high foreign currency domination in their liabilities. Short term debt maturity and foreign currency exposure create a potential risk for corporations in countries like Turkey, Hungary, Lithuania, Romania, Bulgaria and Latvia. In Turkey, approximately one third of the responded firms delayed their tax payments or commercial debts more than one week. The situation is similar in Romania, Bulgaria and Hungary. Those payment delays occur for about half of the firms in Latvia and Lithuania. In Turkey and Lithuania, almost half of the enterprises restructure their debts for survival. Debt restructuring is more prevail among Hungarian and Latvian corporations. Another strategy to survive for firms is to benefit from state aids. According to the survey nearly a quarter of Turkish firms apply for government aid from summer of 2008 to summer of 2009. State aids applications are more prevailed in Turkey than any of other five countries. On the other hand, similar to the other countries Turkish firms was mostly complainant about access to credit.

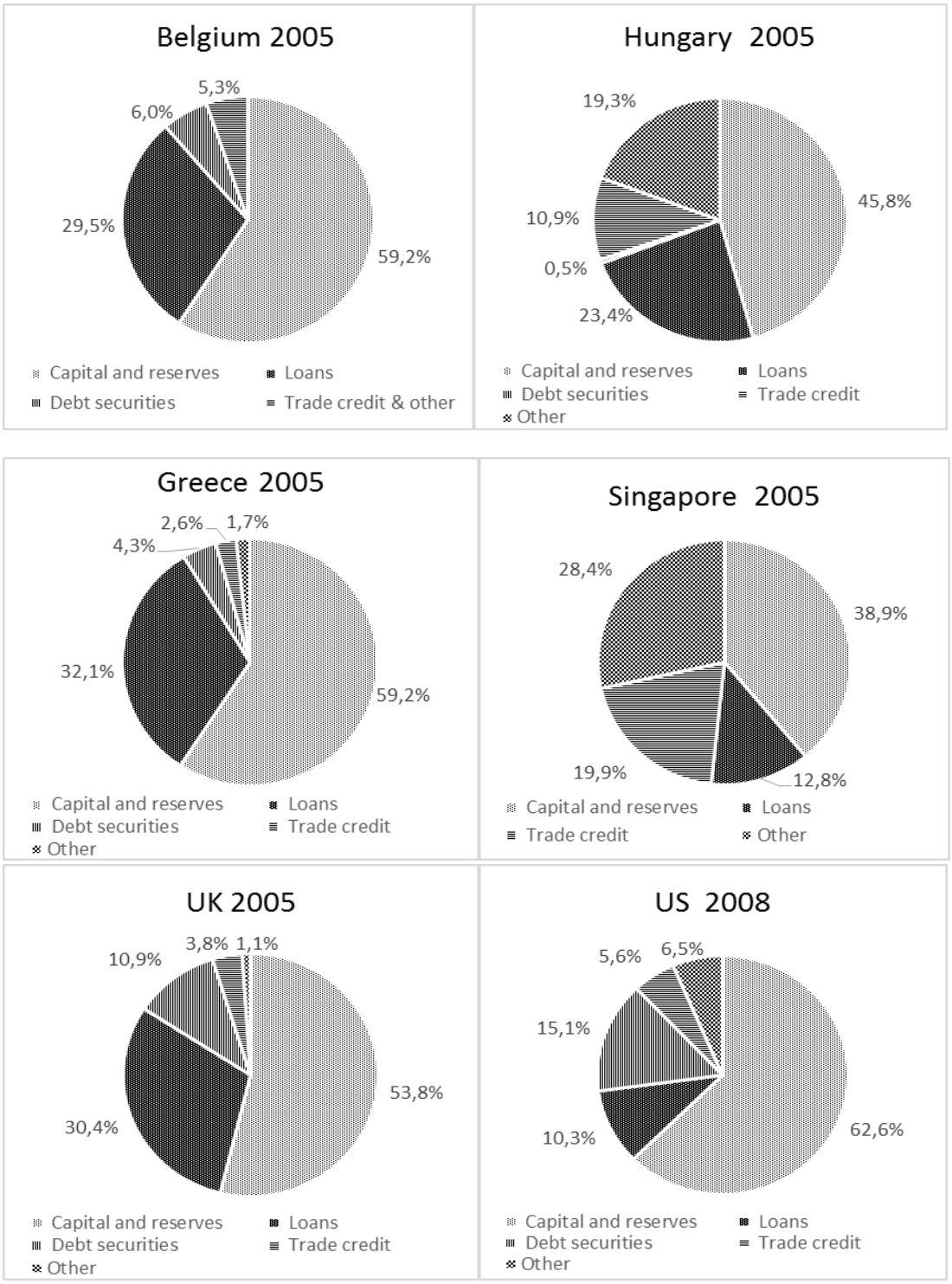
As we described in previous section, Turkish financial system credits to private sector grew from 23 percent in 2006 to 43 percent in 2011 with a very high growth rate, non-financial sector balance sheets changed over time. To understand the effect of private sector credit boom, on balance sheets of corporations, we examined non-

financial sector liabilities from IMF's FSI data. FSI data covers a limited number of countries including Turkey. For some countries there only exist data for year 2005. Nevertheless, the data represent comprehensive information for included countries while revealed data cover trillions of dollars or euros of assets that belongs to non-financial sector firms. We included all available data to our graphs. Countries with data over years after 2008 are described in annual line charts and the rest is depicted in pie charts.



Source: IMF, FSI data
* Data for 2006 and 2007 is not available
** Total balance sheet, loans, capital reserves and debt securities data is used as provided. Since trade credit and other liabilities values are given as the same in FSI data, one of them is used and assumed to be total of both to do not have excess value over total balance sheet data.

Figure 3.3: Liability composition of non-financial sectors (2005-2012): Turkey, Korea, Spain and Germany



Source: IMF, IFS data

Figure 3.4: Liability composition of non-financial sectors: Belgium, Hungary, Greece, Singapore, UK and USA

According to IMF's soundness indicators, US and German non-financial sectors sound well with a strong and stable liability composition. Capital and reserves in liabilities stay above 60 percent. The main in those two countries appears in debt security usage, bank loans stays around 22 percent and debt securities around 2 percent for of liabilities for German firms whereas they are 10.3 and 15.1 percent relatively for US firms.

The two PIGS countries, Greece and Spain are remarkable with their high loan liabilities of non-financial corporations. In Spain, loans have worth even more than capital and reserves for several years. Non-financial sector balance sheet fragilities of those countries and their impact during the global financial crisis would be a noteworthy field for detailed investigations.

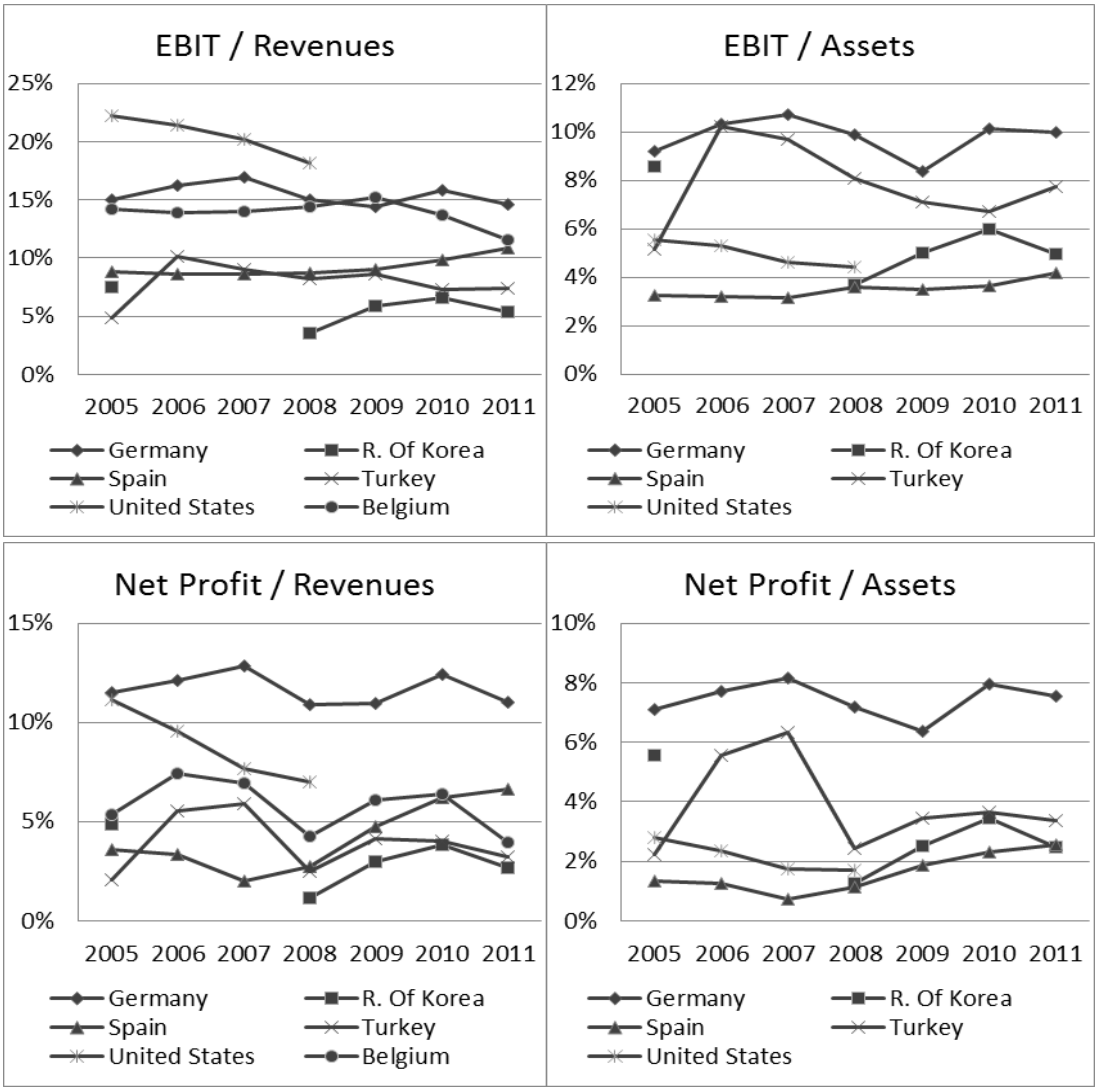
Trade credits to whole balance sheet values are highest for Turkish non-financial sector. On the other hand, IMF data implies that loans increase their share in liabilities as rate of capital and reserves shrank over time. Share of bank loans increased from 17.4 percent in 2005 to 26.9 percent in 2011. Capital and assets' ratio was 47.9 percent in 2005, reached up to 51.3 percent in 2007 and dropped down to 40.1 percent in 2011.

To understand if those changes and differences have impact on profitability, we also portrayed profitability analysis of those countries and some others.

As weight of loans to private sector raised more than developed countries such as Korea and Germany, especially after 2008, Turkish non-financial sectors become noteworthy for detailed study to understand if corporations are financially fragile or not. We examine more details in this issue depending on the CBRT and Banking Regulation and Supervisory Authority statistics including years 2012 and 2013 in the next chapters.

3.3 Corporate Sector Growth and Profitability Comparisons

To discuss corporate profitability, we use IMF's FSI data for consistency. There exists data for only six countries including Turkey for multi-year analysis from 2005 to 20011. The rest of the five countries are all developed economies: Belgium, Germany, Republic of Korea, Spain and United States. Data for United States covers years from 2005 to 2008. For Republic of Korea, data points for 2006 and 2007 are missing. Belgium's non-financial corporate assets are also not available whereas total revenues from sales exist. We include whole available data in Figure 3.5.

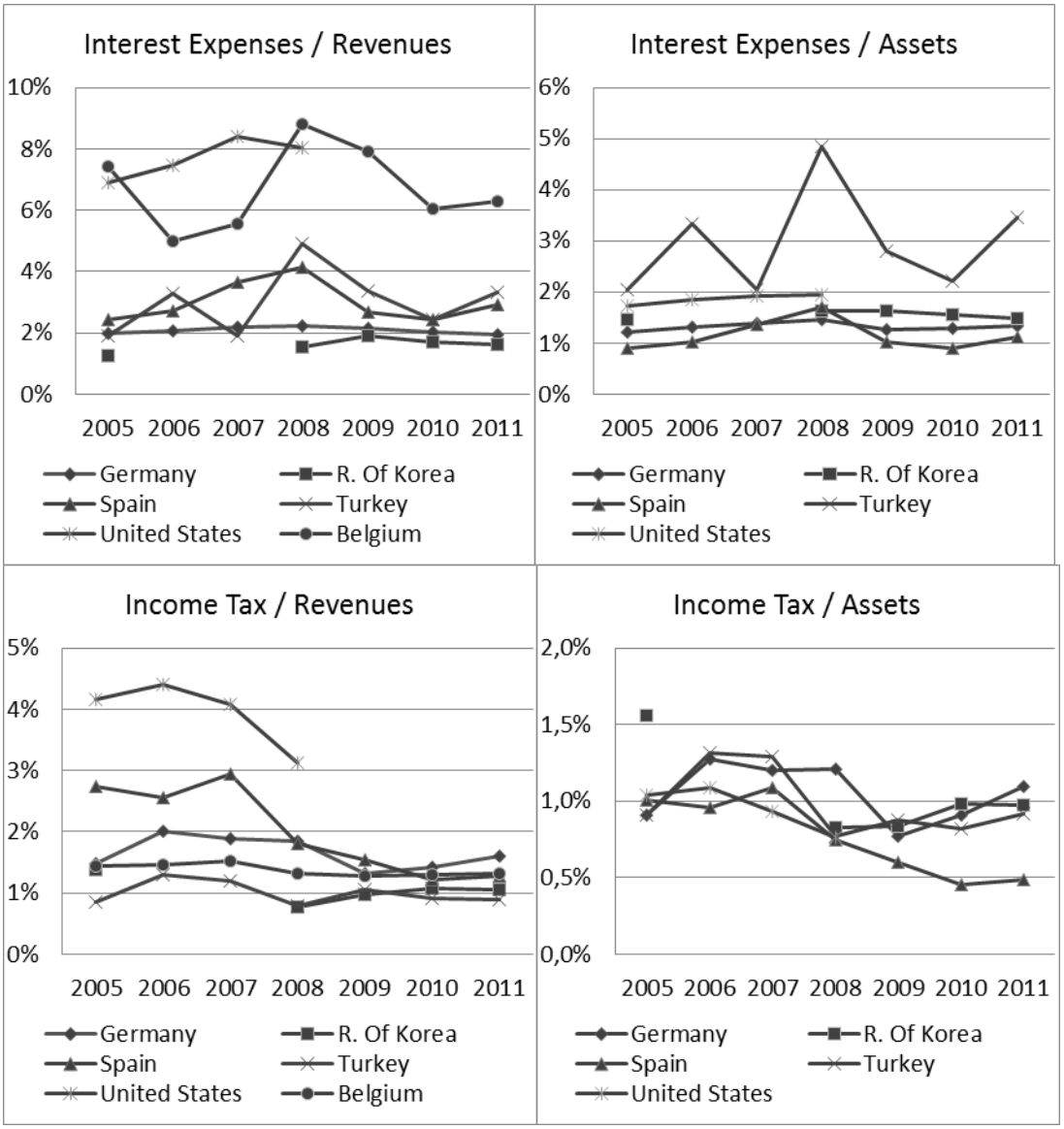


Source: IMF, FSI data

Figure 3.5: Non-financial sector profitability (2005-2012): Turkey, Korea, Spain and Germany

Turkish firms achieved better profit over assets rates than Spain and Korea in general. However, volatility of profitability of Turkish non-financial sector inspires us for further investigations on the dynamics of it.

EBIT (Earnings before interest and taxes) /sales revenue ratio is higher for non-financial corporations in United States. Which implies high added value exists for US firm's products and services. Decrease in profitability of US firms in the all measure type of profits also notable from 2005 to 2008. On the other hand, German non-financial sector performs better in net profit over revenues and profits over assets measures. Due to lower interest expenses and income tax constraints German firms achieved better profitability ratios (see figure 3.6). Korean corporations had lower profit margins from the sales compared to other countries.



Source: IMF FSI data

Figure 3.6: Interest expenses and taxes: an international comparison

Interest expenses over assets are for Turkish non-financial sector compared to counterparts in developed economies such as Germany, United States, Korea and Spain.

Although net profits over assets ratio in Turkey is higher than examined countries except Germany, we need further analysis to understand profit and growth performance of Turkish firms. The World Bank study (2010) has distinguished

SME's and large firms in terms of profit and growth performances since they have different constraints for growth. SME's represents 79 percent of employment, 67 percent of total sales and 57 percent of added value and 45 percent of investments in Turkey. Besides being essentially important to economy, Turkish SME's grow lower than large firms contrary to international experience and comparer countries such as Russia, Romania, Ukraine. Additionally, SME growth rates in Turkey are lower than those comparer countries and the weighted average of Europe and Central Asia.

CHAPTER 4

FINANCIAL STRUCTURE OF NON-FINANCIAL SECTORS IN TURKEY: DESCRIPTIVE ANALYSES

"A high ex post corporate failure rate might be evidence of a financially fragile corporate sector, which may have important macroeconomic consequences (Vlieghe, 2001)

4.1 Effects of financing strategies on corporate growth

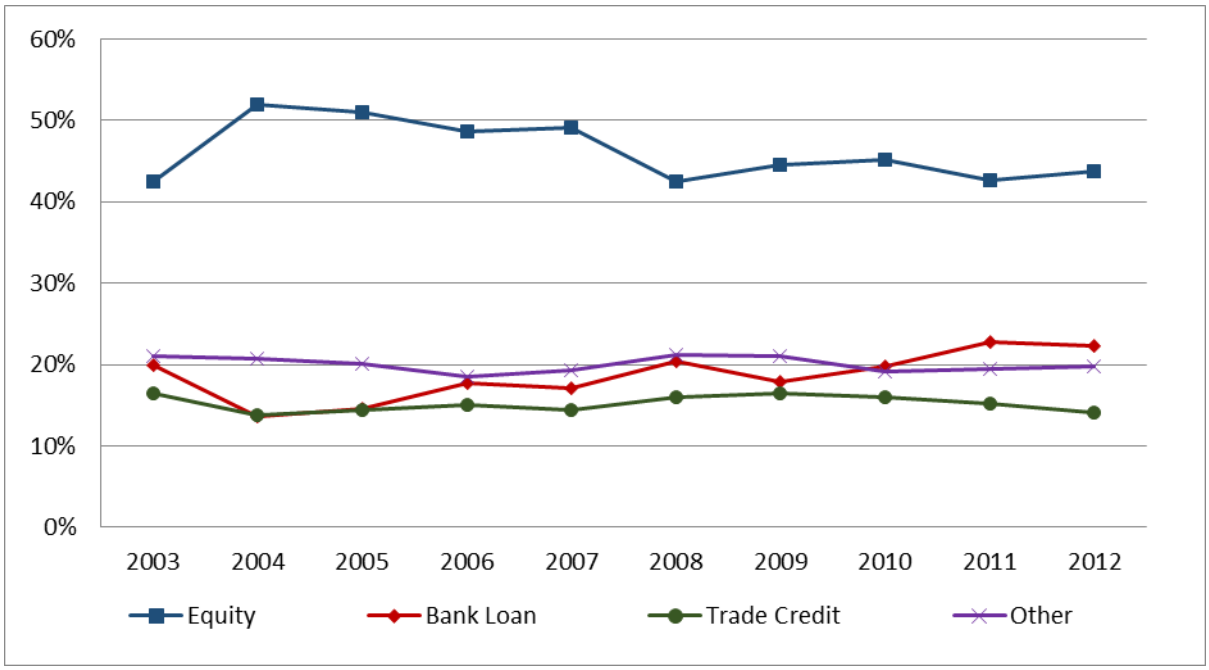
An IMF (2009) study has been revealed that in countries with more primitive financial markets, corporate savings are more sensitive to financial sector reforms. Reforms improving credit access diminishes corporate savings in those countries where as they help to increase saving rates in countries with well-developed financial markets. For Turkey, a World Bank (2010) study on access to finance and investment climate based on data for 2003 to 2007 suggest that small and medium sized enterprises (SME's) had grown more slowly compared to SME's in comparable countries. On the other hand, large firm growth rates are comparable to counterparts in other countries. One probable reason for this is being financially constrained, which means SME's in Turkey cannot access external financing such as bank loans, commercial credits and equity investment adequately. (World Bank, 2010)

Financing structure of non-financial sectors has changed after the crisis of 2001 as structural reforms and huge amount of capital inflows supported domestic demand. Economic stability and improvement of investment environment boost the profits and investments on efficiency and capacity enhancing are financed by those profits. Thus, share of equity in liabilities climbed from 35 percent in 2002 to approximately 50 percent in 2004 and remedied stable until 2007 just before the global financial crisis. On the other hand percentage of bank loans dropped from approximately 30

percent to 14 percent in 2004 when it reached one of its historical deeps (Özmen, Şahinöz, and Yalçın, 2012).

The main external financing system in Turkey is the banking, nearly half of non-equity liabilities are bank loans and market financing is almost negligible. Also, share of trade credits in balance sheet liabilities are higher in Turkey compared to other countries. (Özlü and Cihan, 2010) In the last decade access of corporate sector to banking enhanced. Bank loans to corporate sector to GDP ratio more than doubled from 2002 to 2008. (Özmen, Şahinöz, and Yalçın, 2012)

Improving access to banking system in the first decade of new millennium verified also by our analysis (see figures 4.1 and 4.4).



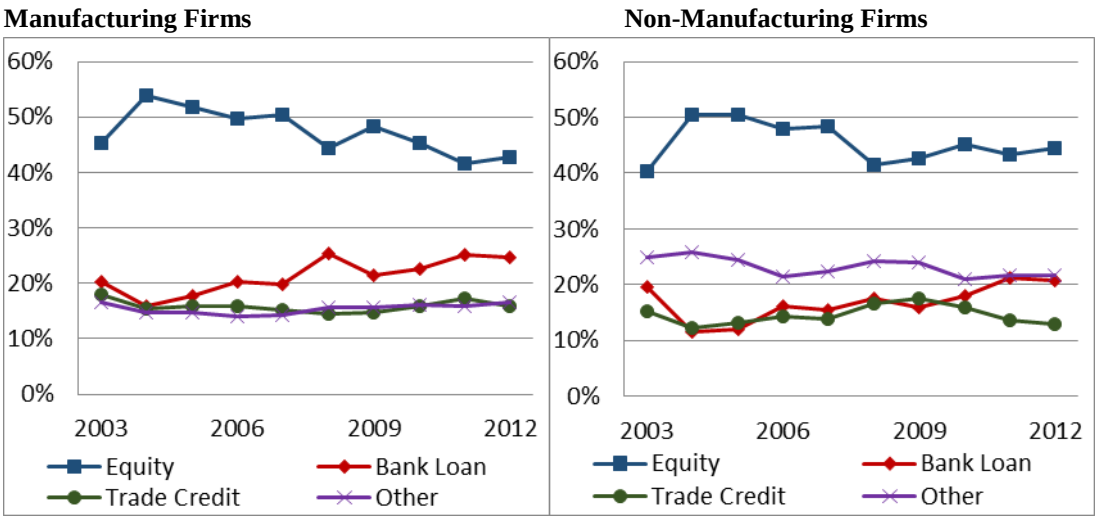
Source: CBRT sector level balance sheet data

Figure 4.1: Liability Composition of Non-financial firms:

Although, CBRT data include different number of firms for different years, it exhibits a snap shot of thousands of firms in Turkey. In fact, any firm may switch from small to medium scale or it may change its sector overtime; therefore, it could be difficult to track growth rates of different aspects of sectors by using the data.

However, CBRT data provides a strong and detailed picture of balance sheet and income assessments of specific sectors, for given years and for different size of firms in a comprehensive manner. Depending on the CBRT data after the crisis of 2001, in 2004 Turkish non-financial sectors were financially strengthened with above 50 percent equity to total liabilities/assets ratio and very lowered bank liabilities. After 2004, it can be observed that share of equities in liabilities began to drop as the bank loans entered a growing period where the weight of other type of liabilities is stayed stable. Share of bank loans reached to 23% in 2011 as the equities reduced to 43 percent. The year 2009 was the very clear exception on the trends of improving bank loan access and growing fragility on balance sheets. According to CBRT data Bank loans shrink and trade credits stayed stable nominally in TL terms in 2009. This indicates access to credit is stopped for a while and trade credits, traditional way of financing, could not replace the financial shrinkage.

Growing share of bank loans since 2004 and effect of global financial crisis for the year 2009 can be observed both for manufacturing and non-manufacturing sector's balance sheets.

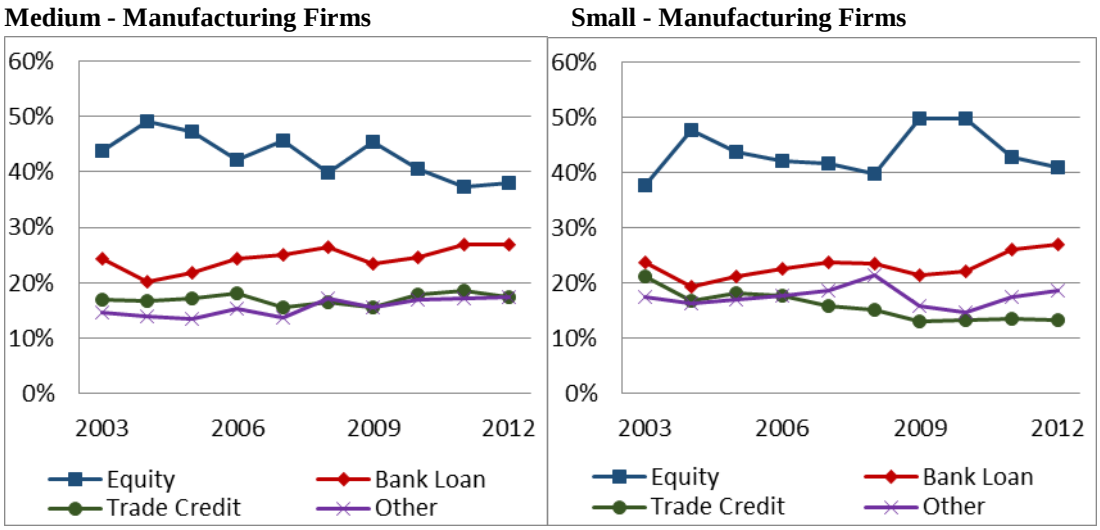


Source: CBRT sector level balance sheet data

Figure 4.2: Liability composition of manufacturing and non-manufacturing firms

Bank loan access or financing with bank loans seems to be more prevailed among manufacturing firms. For non-manufacturing firms, it can be interfered that, growing share of bank loan financing not only replaces share of equities but also other liabilities.

There exists sector level balance sheet information for large, medium and small scale firms only for manufacturing sector in CBRT data base. Since large firms represents the three quarters of total assets/liabilities of whole manufacturing sector, their liability composition can be interfered from figure 4.2. For medium and small sized manufacturing firms we can observe additional noteworthy aspects of debt composition.



Source: CBRT sector level balance sheet data

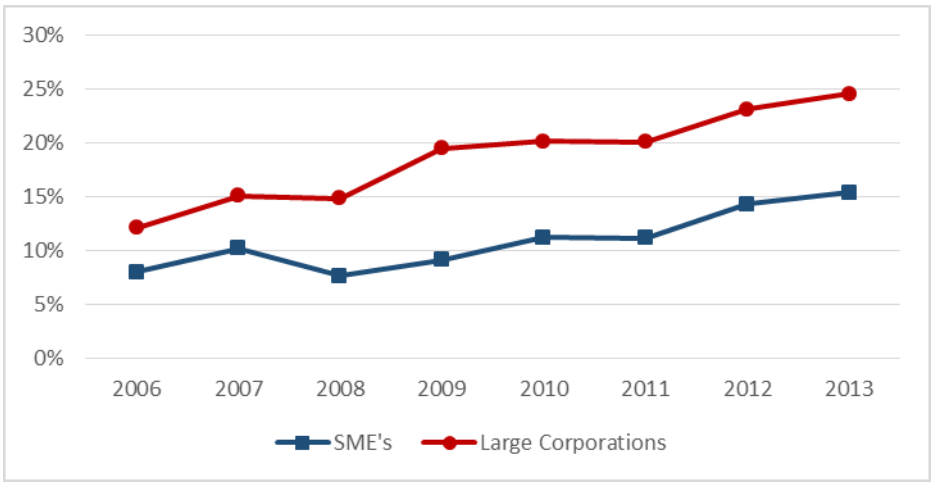
Figure 4.3: Liability composition of medium and small sized manufacturing firms

Medium scale manufacturing firm's liability composition is not much differ from the large ones for the last decade. For small manufacturing firms, percentage of bank loans in liabilities does not differ from that of medium and large firms. Only a few percent up or down side differentiation may exist but it can be observed that bank loans are the main source external financing for manufacturing SMEs as well as large firms. It confirms the World Bank survey in Turkey:

"Other indicators in the survey confirm that Turkish SMEs are dependent on bank finance but their applications for bank credit are faced with onerous collateral requirements and high rejection rates." (World Bank, 2010).

One observation from Figure 4.3 is that share of trade credits for small manufacturing firms reduced from 21 percent in 2003 to 13 percent in 2012. This implies another changing behavior of Turkish small manufacturing firm's financing strategies.

Boosting credits to corporations can also be observed from the Banking sector data:

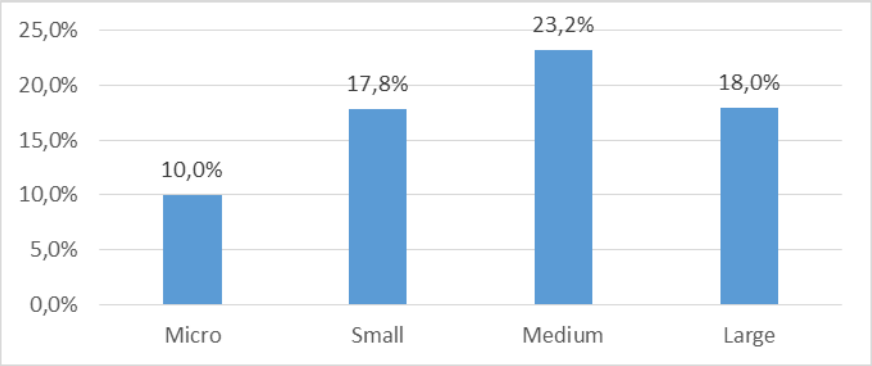


Source: Banking Regulation and Supervisory Authority Statistics

Figure 4.4: Bank credits to SME's and Large Corporations as a percentage of GDP

During the years of crisis, 2008 and 2009, SME credit growth under-performed from that of the large corporations. (Özmen, Şahinöz, and Yalçın, 2012) However; SME credits also enlarged as well as large corporations during the post-crisis period. Both credit to GDP ratios of SME's and large corporations almost doubled during the 2006-2013 period. Credits to SME's reached to 15 percent from 8 percent of GDP and credits to large corporations increased from 12 percent to 25 percent of GDP.

It can also be observed from the figure 4.5 annual average growth rate of credits to small and medium scale corporations does not differ much from the growth rate of credits to large corporations during the pre and post crisis period, 2006-2013:



Source: Banking Regulation and Supervisory Authority Statistics

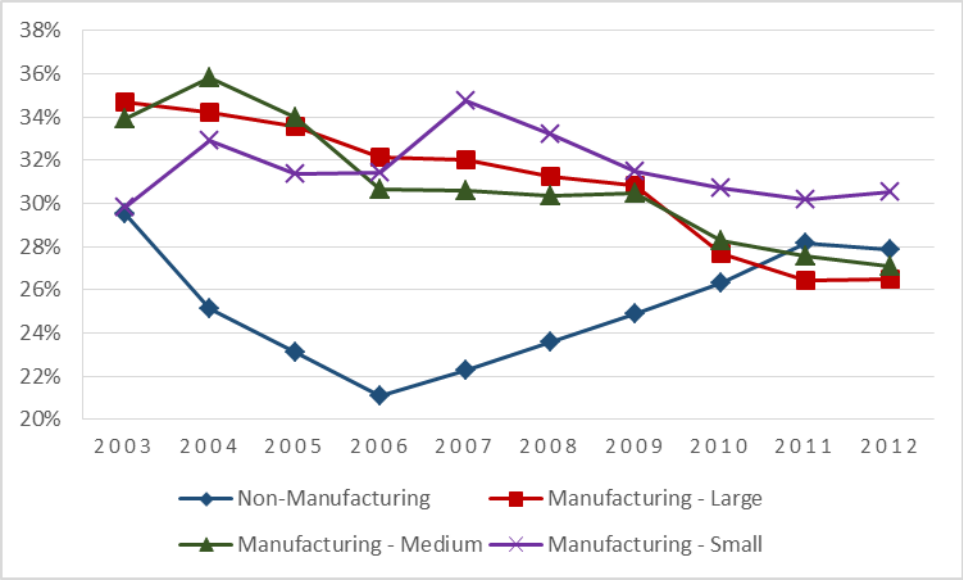
Figure 4.5: Average annual growth rate of credits to small, medium and large corporations (2006-2013, in nominal USD terms)

When the dividend ratio is high and availability of external finance is constrained, firm growth becomes restrained by only internal funds. The restriction can only be moderated partly by boosting profitability and reducing the dividend payouts to enhance saving rate. To boost to economic growth, a financial system that provides required funds for highly profitable projects is necessary. Accessibility of funds foster profits through high return investments and retaining earnings. (Özmen, Şahinöz, and Yalçın, 2012)

Although they are generally profitable, smaller firms have been under performed in growth than large firms. There are two main reasons for that: inadequate access to finance and corporate governance. The access to finance is crucial for rapid growth. (World Bank, 2010) From the banking regulatory authority statistics, we can calculate that aggregate annual average growth rate of bank credits to micro and

small sized firms 13.7 percent annually and below the credit growth rate of medium and large firms. However, when we distinguish small and micro firms, the small firms seems to have a well growing credit access environment especially in 2011 and 2013. Lack of access to credits remained as a problem for micro level firms.

On the other hand, not only available funding but also policies that encourage firms to use internal funds for growth are important. Turkish small sized firms were less likely to invest in fixed assets to generate growth. Macroeconomic turmoil that affected Turkey especially in the second half of the 1990s led firms to invest more in liquid interest earning assets such as government securities and cash. After 2001, as the reforms raised confidence and those trends began to change (Özmen, Şahinöz, and Yalçın, 2012). How fixed investments of firms are changed can be assessed by tangible fixed assets to total assets ratio. Figure 15 shows how tangible fixed assets to total assets of manufacturing sector firms in different sizes are changed over time:



Source: CBRT Balance Sheet Data

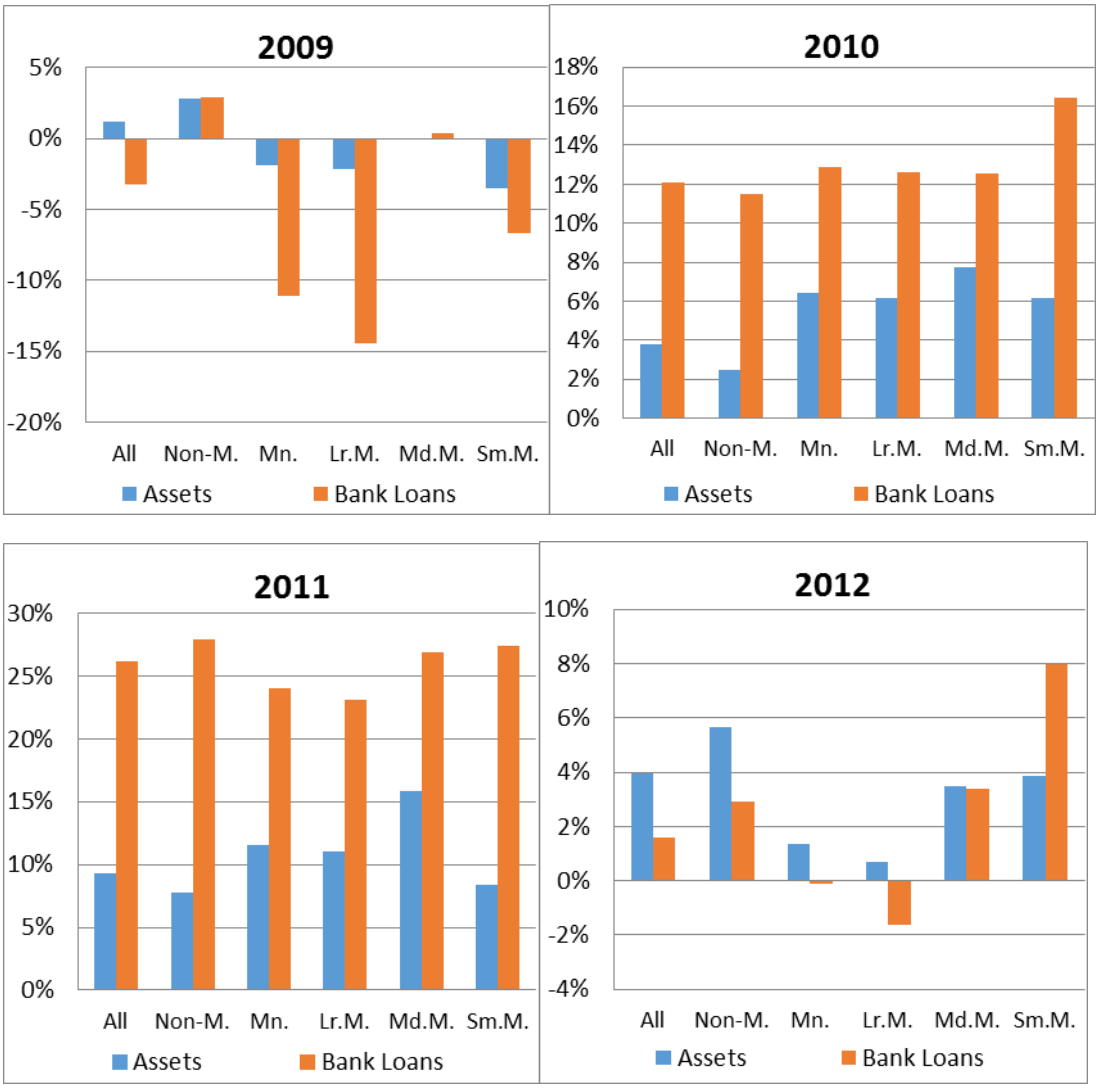
Figure 4.6: Tangible fixed assets to total assets ratios non-financial sectors

Small sized manufacturing firms keep their tangible assets to total asset ratios over 30 percent for the last decade but it can be observed that the ratio is decreased by the

crisis. It can be explained by a reduction in new tangible fixed asset investments. Nevertheless, a mall recovery observed in 2012. On the other hand, tangible fixed assets to assets ratios decreases both for large and medium sized manufacturing firms since 2004.

To sum up the descriptive analyses of financial environment we can conclude that banking is the main source of financing and banking sector credits to corporations increased from 20 percent of GDP to 40 percent of GDP from 2003 to 2012. Banking sector credits to almost doubled both for SME's and large firms. Especially for the manufacturing sector, bank loans became a bigger part of the total liabilities since 2004 and weight of bank loans in balance sheets of small, medium and large firms climbed to 27, 27 and 24 percent in 2012 respectively. The information derived from CBRT and Banking Regulation and Supervision Authority (BRSA) makes the previous conclusions of World Bank (2010) and Özmen at all. (20012) depending on the data for before 2009 that SME's are more constrained financially is questionable for manufacturing firms especially after 2009.

Since we only have publicly available CBRT data for the same sample of firms for 3 year periods, we can enlighten the above question using the CBRT data revealed in 2011 that include sector level balance sheets for years 2008 to 2010 regarding consecutively reported 8,576 firms to observe effect of crisis and data revealed in 2013 regarding the years 2010 to 2012 regarding consecutively reported 9,468 firms. (See figure 4.7)



Source: CBRT sector level balance sheet data

Figure 4.7: Asset and Bank Loan Growth of Non-Financial Sectors (2009-2012)

In 2009 as the economy declined 4.83 percent, asset growth slowed down and bank loan growth turned to negative. Asset growth rate in constant 2008 TL values was positive 2.8 percent for non-manufacturing non-financial sector whereas manufacturing sector total assets severely decreased by the crisis. Assets of large manufacturing firms decreased by 2.2 percent and assets of small manufacturing firms by 3.5 percent. Bank loan liabilities shrank for all non-financial sectors as a whole. According to CBRT data, bank loan volume was having a lowering growth rate for non-manufacturing sector but was having drop-down for manufacturing

sector in both real and nominal terms. Bank loan liabilities of large manufacturing firms reduced by 14.5 percent and bank loan liabilities of small manufacturing firms by 6.7 percent. The shrinkage in bank loans observed also nominally for large and small manufacturing firms.

The year after crisis when the economy grew by 9.16 percent, asset growth rate for manufacturing sectors lead to over-all increase in asset growth in real terms. Asset growth rates of all large, medium and small scale manufacturing firms were close to each other. The growth rate of bank loan liabilities recovered to about 12 percent both for manufacturing and non-manufacturing sector. Bank loan liability growth of small manufacturing firms was 16.1 percent, 3.8 percent higher than that of large and medium scale manufacturing firms.

In 2011, economy grew by 8.77 percent and asset growth rate of all firms more than doubled and reached 26 percent. Again manufacturing firms were the locomotive of the asset growth. Small manufacturing firms underperformed in asset growing but kept bank loan growth rate above the medium and large firms.

In 2012, Turkish economy grew only by 2.17 percent. Asset growth for all non-financial sectors declined and bank loan growth is almost diminished. Whereas non-manufacturing sectors affected moderately, manufacturing sector's asset and bank loan growth nearly stopped in real terms. When we look deeper in to manufacturing sector, affection on medium and small firms seems to be milder. Bank loan growth rate for small manufacturing firms was still above the medium and large ones.

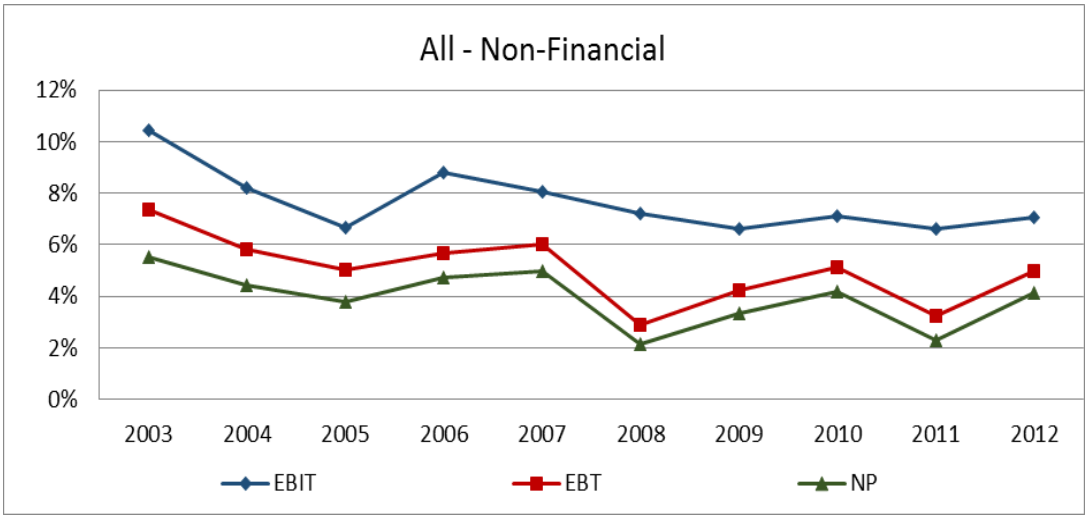
Depending on the CBRT data for the crisis and post crisis period, we can conclude that Bank loans are severely volatile and access to banking depends heavily on the macro-economic conditions.

Over-all non-manufacturing sectors are more stable compared to manufacturing sector in terms of asset growth and bank loan liability growth. Although asset growths are not sounding, bank loan liabilities of small sized manufacturing firms

grew faster compared to medium and large sized manufacturing firms in three consecutive years after the crisis.

CBRT data for years 2003 to 2012 also provide that (see figure 4.3) bank loan liabilities to assets ratios are close to each other for small, medium and large firms. Additionally; BRSA data for 2006 to 2013 (see figure 4.4) exhibits that SME's seems to have bank loan growth similar to large firms. Therefore we can conclude that access to financing for SME's is not a serious difficulty as it has been in before. Nevertheless; this claim needs to be supported by more studies in this field.

4.2 Profitability

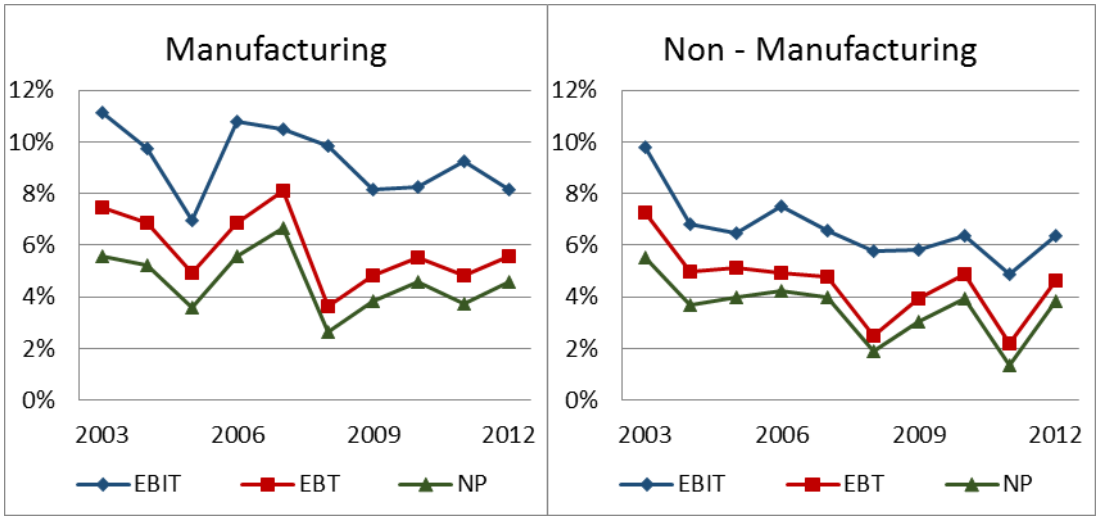


Source: CBRT Sector Level Data

Figure 4.8: Profitability of corporate sector

Corporate sector profitability in Turkey decreased from 2003 to 2005 and increased until 2007, then went down to the lowest rates in 2008 during the period 2003 to 2012. Year 2011 is also a drop down year for profitability against assets. One interesting observation is that EBIT is smoother for non-financial sectors and both decreases in 2008 and 2011 are due to financial expenses that can be observed from difference between EBIT and EBT curves. 2008 was an interesting year as financial expenses worth 4.29 percent of all assets by reaching highest level during the last decade. Financial expenses to assets ratio was 2.44 percent on average from 2003 to

2007 and 2.46 percent from 2009 to 2011 on average. In fact, we observe no common exceptional changes in nominal and real interest rates for commercial credits or real exchange rate in 2008 and 2011. We expect the sudden change in profitability in 2008 and 2011 can be explained by further studies.

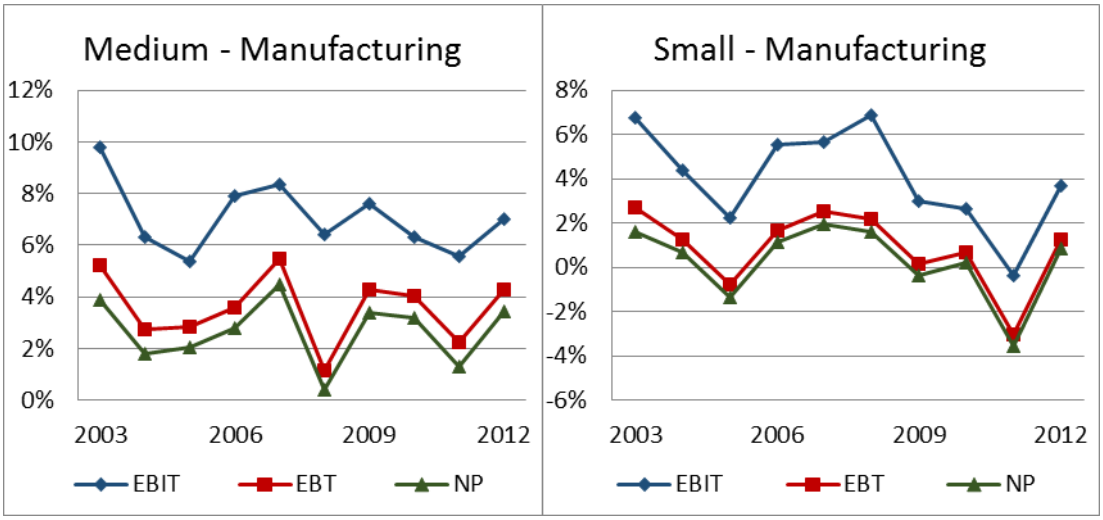


Source: CBRT Sector Level Data

Figure 4.9: Profitability of Manufacturing and Non-Manufacturing Corporate Sectors

When we separate the manufacturing and non-manufacturing sectors it can be observed that net profitability of manufacturing sector is generally higher than that of non-manufacturing except for year 2005. Manufacturing sector's net profitability against assets was 4.60 percent on average whereas it was 3.55 percent for non-manufacturing firms. Nevertheless; it should be noted that the difference between EBIT and EBT curves which represents financial expenses are higher for manufacturing sector.

Since large-manufacturing firms represent most of the whole manufacturing sector, its graphs are similar to whole sector in general. Therefore; we include only medium and small manufacturing firms in to our analysis.



Source: CBRT Sector Level Data

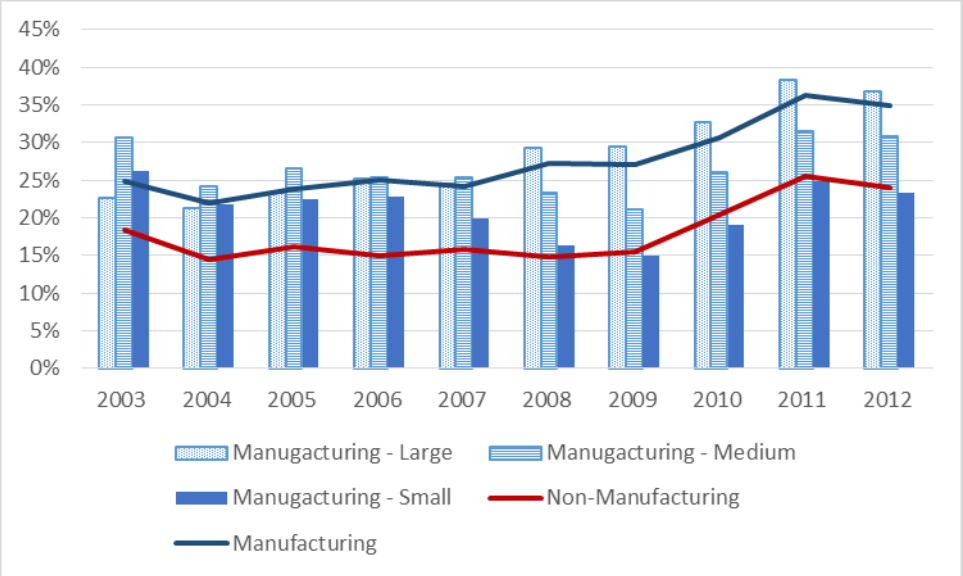
Figure 4.10: Profitability of Small and Medium Manufacturing Firms

Small manufacturing firms had less profits than medium ones. Besides, medium scale manufacturing firms also under-performed compared to whole sector which means they were not as profitable as large manufacturing firms. Actually, CBRT data shows that large manufacturing firms' aggregate profitability out-performed than medium and small manufacturing firms each of the years during last decade and their aggregate net profitability was 2.9 and 5.30 percent higher respectively. Profitability of small manufacturing firms was higher than medium manufacturing firms only in 2008 when profitability of large and small manufacturing firms sharply reduced. Although they were fluctuating, financing expenses to assets ratios were close to each other for large, medium and small firms.

One major conclusion can be derived from the figures 4.3 and 4.10 is that, small manufacturing firms have bank loan to asset rates as big as medium and large firms but their profitability is much more lower than those of big ones. That is why we have to question financial fragility of small firms in terms of their debts rather than their accessibility to credit.

4.3 Debt Structures and Fragilities

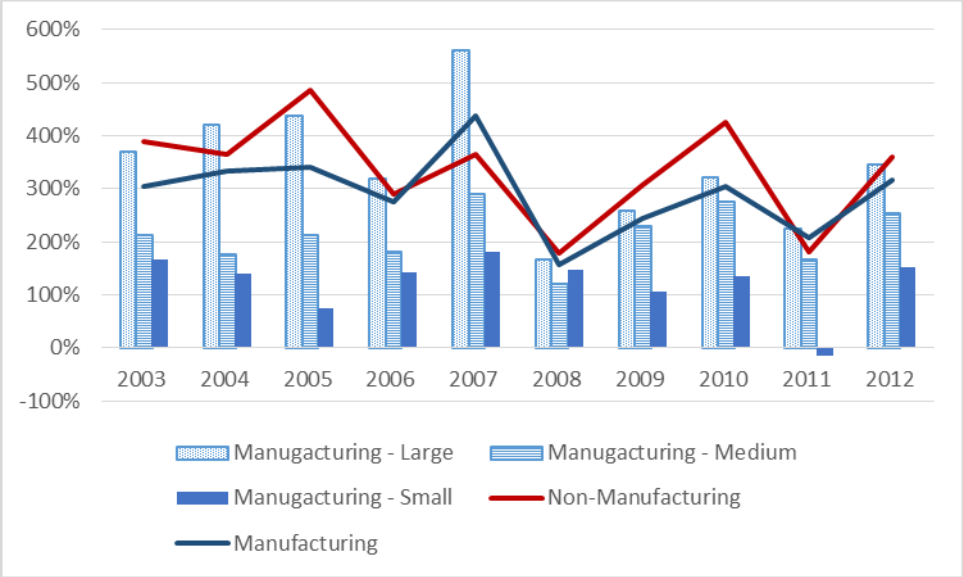
Total debt of Turkish non-financial sectors climbed to one its highest levels in 2001 against total assets and decreased in the following years. (Özmen and Yalçın, 2007) In figure 4.1 debt to assets ratio of non-financial sectors depicted to observe trends in the last decade. After the decreases following the crisis, debt to assets ratios of non-manufacturing sectors stay stable until 2009 but increased by 2010. While being indebtedness of manufacturing sectors higher in all years, it differs by scale of firms. Debts of manufacturing SME's dropped against assets as assets grow faster than the debts especially in 2008 and 2009. However, growth of debts accelerated over asset growth and SME's become more fragile by 2010. On the other hand large manufacturing firm's debts over assets ratio gradually increased since 2005. Over all, it can be concluded that non-financial sectors acquired more debts against assets especially in 2010 and 2011. Those results can be explained by increases in bank loans as we described in section 4.1.



Source: CBRT Sector Level Data

Figure 4.11: Debts/Assets ratio for non-financial sector

As debt related credit risks increased in recent years, as a measure to debt and interest rate risk, interest coverage ratios calculated as EBIT/Interest Expenses of non-financial firms are illustrated (see figure 4.12).



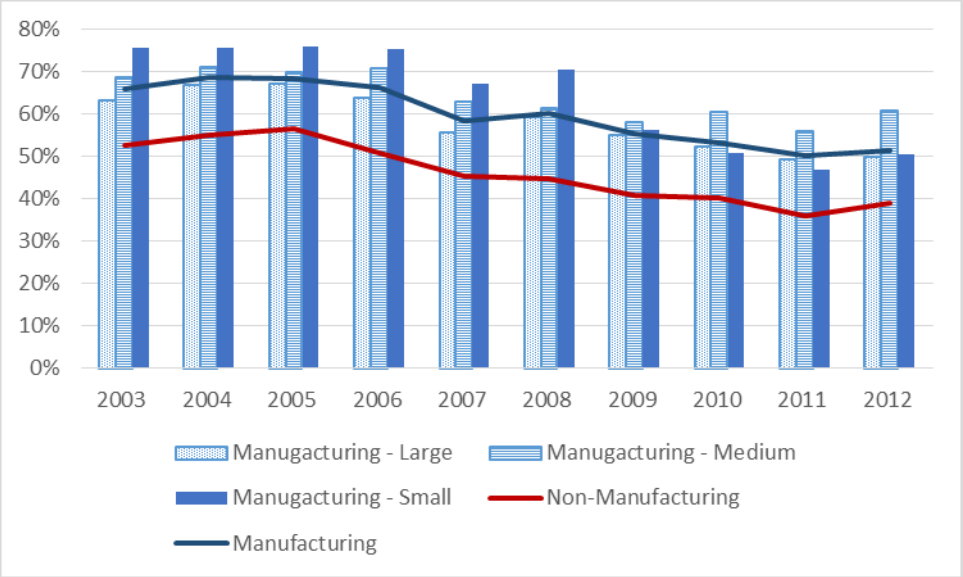
Source: CBRT data, EBIT/Interest Expenses

Figure 4.12: Interest coverage ratio for nonfinancial sector

Interest coverage ratios of manufacturing firms are more volatile compared to non-manufacturing firms since their interest expenses more volatile due to higher debt ratios and or inability to hedge their interest risks. Figure 4.2 helps to understand that volatility. Nevertheless, large manufacturing firms are has higher interest coverage ratios than small and medium scale manufacturing firms despite their higher level of debts. Especially small manufacturing firms have difficulty in paying their interest expenses with their earnings which is reflected by close to or below hundred percent interest coverage ratios in the last decade. In 2005 manufacturing SME's made losses due to interest expenses and in 2011, even EBIT was reflecting loss rather than profit.

Short term debts are one of the main fragility factors against interest rate shocks and credit crunches. In Turkey, one of the non-financial sector credit risks is stems from maturity structure of debts. Due to long lasting inflation and instability sort term approaches in economic activities became prevalent. Uncertainties in the economy lead to shortening of maturity of financial contracts such as credits, deposits and

public debt instruments. Compared to other countries maturity of corporate debts in Turkey was very short term (Özmen and Yalçın, 2007).



Source: CBRT data, short term debts to total debts ratio

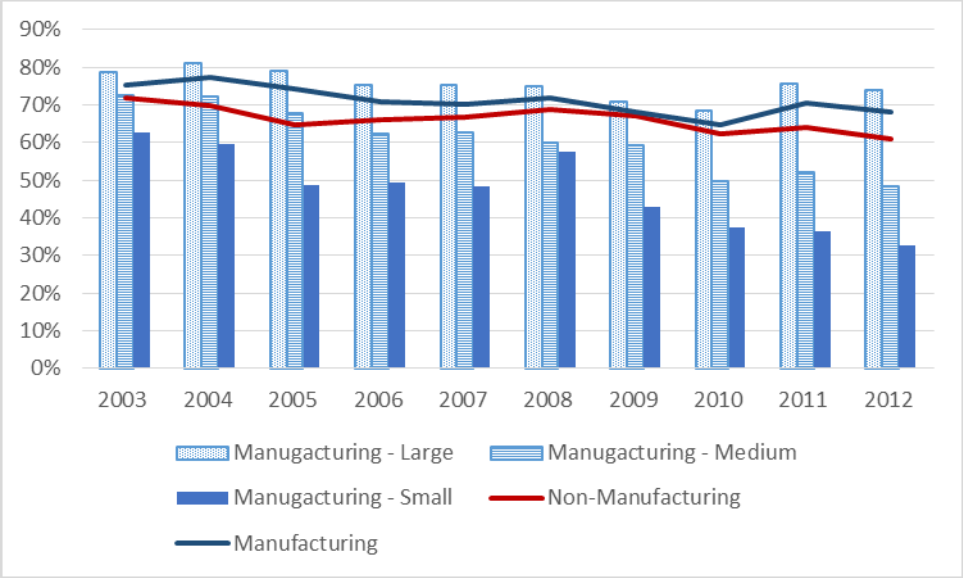
Figure 4.13: Maturity risk of debts of non-financial sector

Yet, short term debt to total debts ratio is in a decreasing trend for non-financial sectors. Higher share of short term debts in the debt portfolio for smaller manufacturing firms relative to larger ones is no longer a case since 2009.

Debt dollarization is another important source of fragility especially against global financial shocks and exchange rate depreciations. Sudden capital outflows or cease of inflows causes devaluations that mainly hurt balance sheets of sectors having imported inputs with high foreign exchange debts. Then, due to sector interactions whole economy becomes more fragile. This events increases risk prime and triggers interest rate risk besides exchange rate risk. (Levy-Yeyati E., 2006) High inflation, high budget deficits, public debt and macro-economic instability lasting for long years in Turkey caused dollarization in assets and liabilities. Consequently debt dollarization which can be measured as total foreign exchange denominated debts to

total debts ratio become higher than all Latin America countries while the region is known with its high dollarization.

Despite the gradual decrease over years since 2001, debt dollarization is still very high (Özmen and Yalçın, 2007) (see figure 4.1). The decreasing trend in debt dollarization ceased in 2011. Another noteworthy result that can be derived is during the whole period smaller firms could have less access to foreign currency denominated debts.

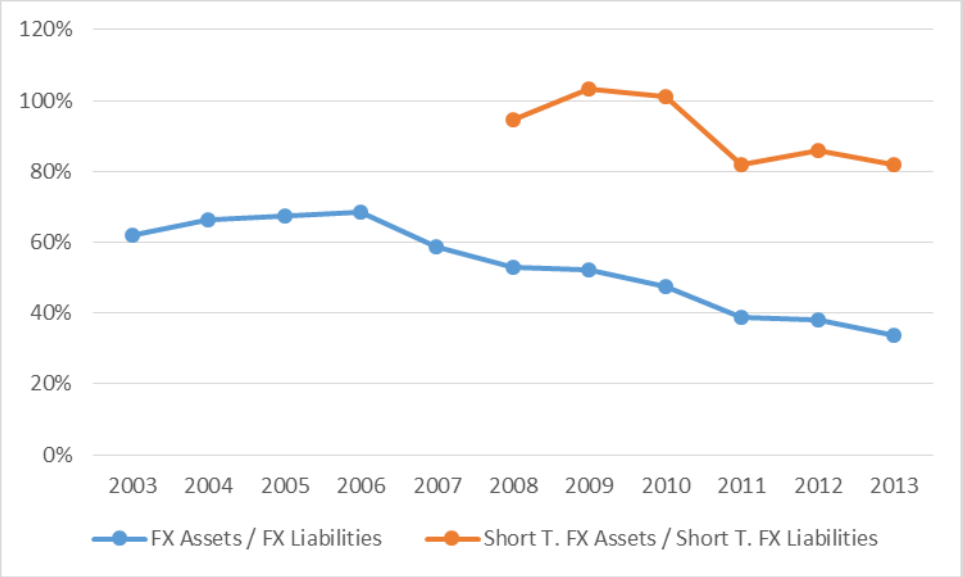


Source: CBRT data, foreign currency denominated debts to total debts ratio

Figure 4.14: Liability dollarization of non-financial sector

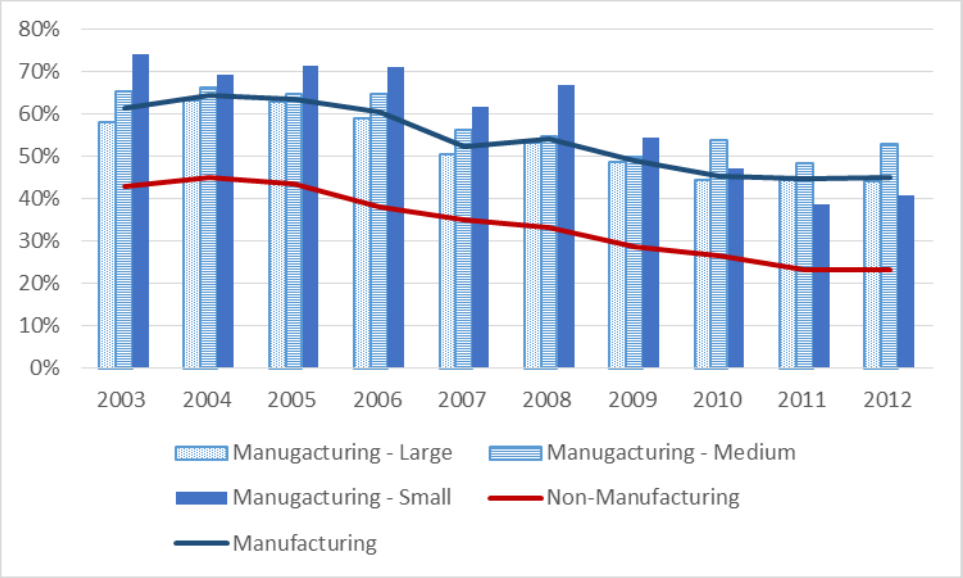
On the other hand, foreign currency denominated assets of non-financial firms did not grow as fast as liabilities in foreign currency. According to CBRT data debt dollarization of non-financial sectors worsened in and foreign currency denominated assets become further from being adequate to hedge liability dollarization (see figure 4.15). Dollarized Assets to dollarized debts ratio worsened dramatically in 2010 and 2011. As the asset to debt positions of non-financial firms diminished, corporate sector becomes more fragile against currency shocks. (Frankel, 2005) It can be observed in Appendix B from the indicative values for 2014 that is a slight recovery

to 2012 ratios, but effects of 2010 and 2011 remain unrecovered. An improvement in maturity of foreign currency denominated debts is also observed.



Source: CBRT data for Foreign Exchange Assets and Liabilities of Non-Financial Companies (see Appendix B)

Figure 4.15: Foreign Exchange denominated assets to liabilities ratios of Turkish non-financial firms



Source: CBRT data, shot term over total foreign currency denominated debts ratio

Figure 4.16: Sort term foreign currency denominated debts to total foreign currency denominated debts ratio for non-financial sector

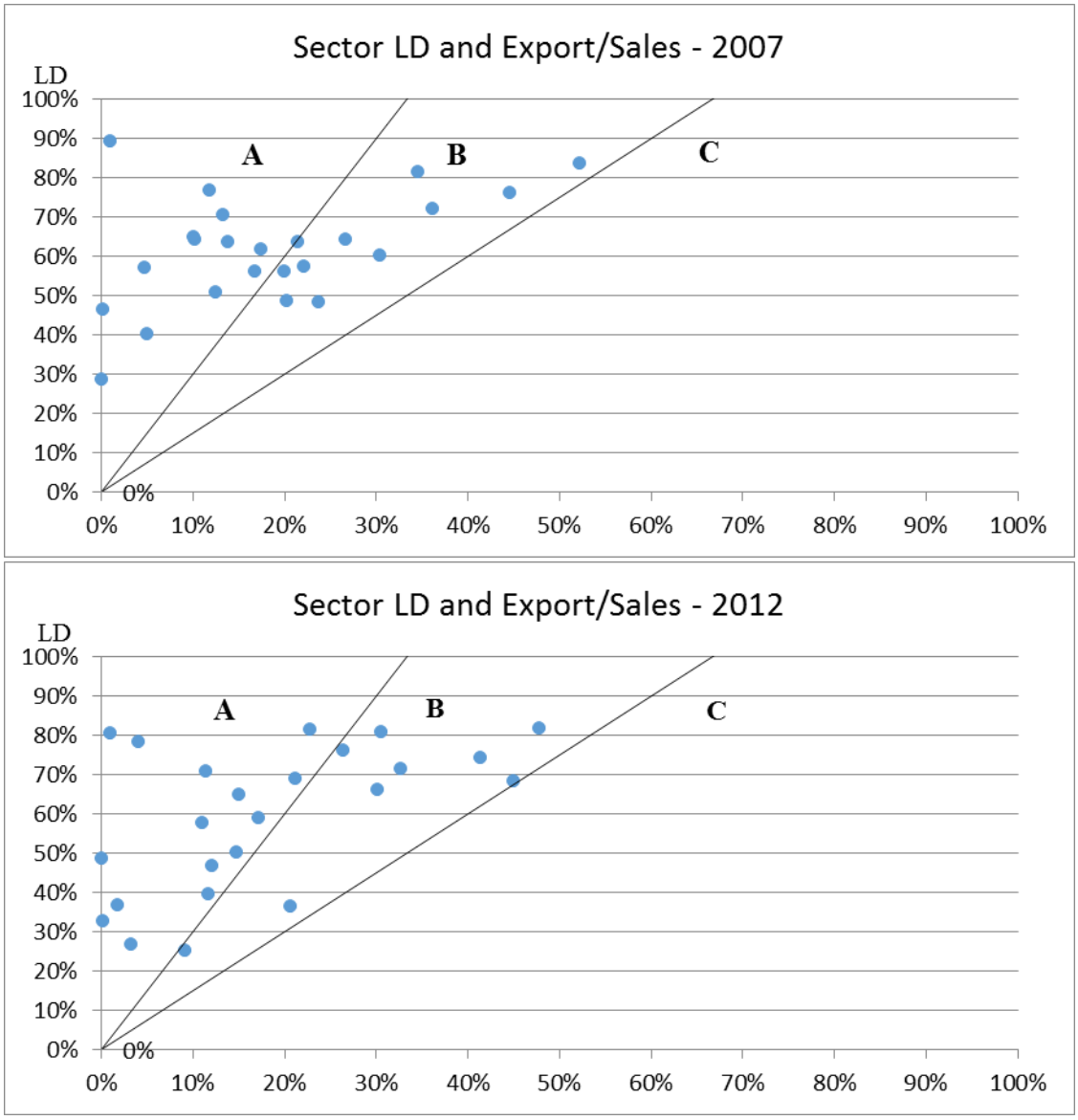
It should also be noted that, while liability dollarization of manufacturing and non-manufacturing sectors are close to each other, manufacturing sector is more fragile in terms of weight of total debts in liabilities and maturity of liabilities.

Exports may buffer liability dollarization fragilities by helping asset dollarization to hedge against currency shock risks. Domestic currency depreciations increases liabilities of firms with liability dollarization whereas exporting firms benefit from those depreciations with the improving price competitiveness and increase their revenues. Therefore, liability dollarization should be evaluated together with share of exports in sales. Due to confidence against currency shocks acquired by foreign sale revenues, export oriented sector firms can be more prone to liability dollarization. Firms can be classified according to their tendency to exports and liability dollarization in hell, hedge and heaven positions where hell represents high liability dollarization with small or no amount of exports, hedge position implies share of exports in total sales liability dollarization comparable to each other and heaven stands for predominantly exporting firms with small or no amount of liability dollarization. (Echeverrya, Fergusson, Steinerb and Aguilara, 2003)

According to our classification in Appendix C we have data for twenty four sectors from year 2007 to 2012 depending on CBRT data and we observe that those twenty four non-financial sectors more prone to liability dollarization if they are more export oriented. Foreign currency denominated debts to total debts ratio increases with exports to total sales ratio according to firm level CBRT data analysis (Kesriyeli, Özmen, and Yiğit, 2011) and we found correlation coefficient is 0.48 and 0.55 respectively in 2007 and 2012 for those 24 sectors.

On our analysis, we set boundaries of positions depending on the classification of Özmen and Yalçın (2007), which is derived from the study of Echeverrya et

al.(2003), with upper and lower bounds of hedge position are determined as “LD = 3 X Export/Sales” and “LD = 3/2 X Export/Sales.”1



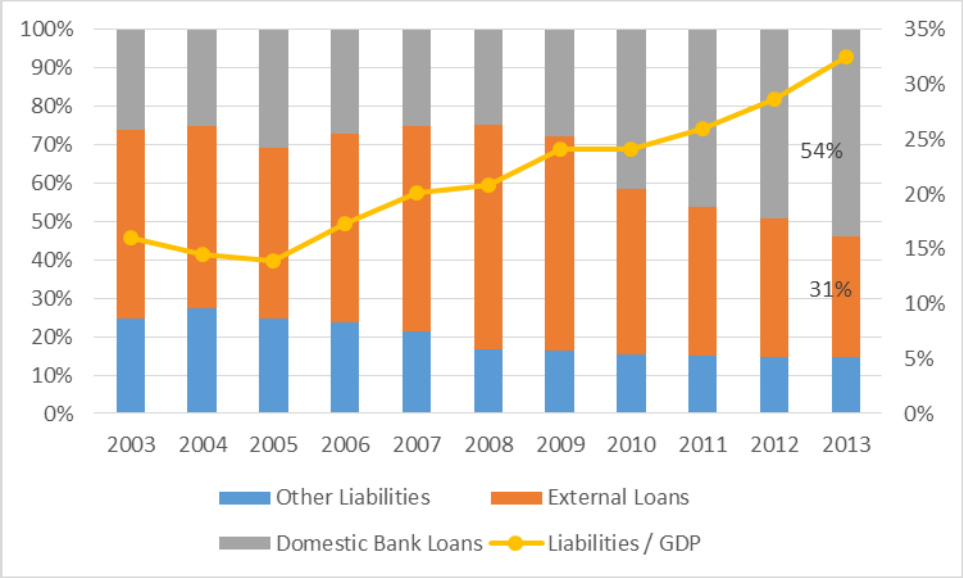
Source: CBRT Data (A: Hell, B: Hedge, C: Heaven with respect to currency risks)

Figure 4.17: Sector level liability dollarization and export intensity

[1] Echeverrya et al. determined the bounds as LD=3/2 X Export/Sales and 2/3 X Export/Sales. Yet, they accep that those boundary lines are respective to data. Özmen and Yalçın claim that is total debt to total sales ratio is lower than one, the field determined for risky area becomes over-large. Therefore, they ensized risky area smallerly. Since, in our data total debt to total salesartio is 0.19 in 2007 and 0.27 in 2012, we used area boundaries determined by Özmen and Yalçın in Figure 4.17.

11 out of 24 sectors were in hedge position in against a currency depreciation risk in 2007, however; the number of sectors in hedge position reduced to 9 in 2012. In fact, two sectors "Mining and quarrying" and "Manufacture of coke and refined petroleum products" moved from hedge position to risky position. Both changed position because of increases in liability dollarization while exports to sales rations stayed stable from 2007 to 2012.

Who bears the risk for liability dollarization fragilities of Turkish corporate sector? It becomes a noteworthy question and findings from CBRT data given in Appendix B provide the answers.



Source: CBRT data for Foreign Exchange Assets and Liabilities of Non-Financial Companies (see Appendix B)

Figure 4.18: Foreign exchange denominated liabilities of non-financial sector and its components

Foreign exchange denominated liabilities of non-financial sectors reached from 14 percent to 33 percent of GDP from 2005 to 2013. By 2009, share of domestic bank loans in dollarized liabilities increased and reached to 54 percent. External loans are the second largest component of dollarized liabilities with 31 percent share. The other liabilities are import payables, non-bank financial institutions and past due

loans taken over by Saving Deposit Insurance Fund. The total foreign exchange liabilities of Turkish non-financial sector nearly USD 267 billion and USD 144 billion of it funded by domestic banks and nearly USD 83 billion by external loans.

The dollarized liability structure reveals that any currency shock that triggers economic turmoil in Turkey affects the corporate sector due to its fragility originated from liability dollarization, and that affection can spread to domestic banks and other countries funding foreign exchange loans. Thus, a currency shock can trigger a financial system crisis.

CHAPTER 5

EMPIRICAL ANALYSYS OF NON-FINNACIAL SECTOR PROFITABILITY

In this section, we investigate the impacts of macroeconomic conditins and sector specific financial fragilities on profitability of Turkish non-financial sectors. To this end, we attempt to provide answers to some important questions including "how do debt structure, real exchange rate depreciation or interest rate movements affect sectors?" At the firm level, answers for such questions depend on debt structuring and asset management strategies of firms in a complex manner (Süer, 2005). For example, currency risk depends on the assets and liabilities with net payment streams denominated in foreign currency (Chamberlain, 1996).

Nevertheless; there are firm level empirical studies to exhibit how firm level variables and macroeconomic variables effect profitability. Some Central Bank of Republic of Turkey (CBRT) working papers including Özmen, Şahinöz and Yalçın, (2012) reveals aggregate effect of those factors on firm profitability. Besides benefitting from those articles, we attempt to provide sector level analysis to encompass the earlier firm level analysis in the literature and to estimate the effects of sector specific variables such as debt structures and export intensities along with macroeconomic condition variables on non-financial sector profitability. We also aim to investigate the effects of fragilities on sector profitability and consequently discuss the extension of effects of fragilities.

5.1 Data and Sampling

For sector specific variables we use the CBRT data set that covers aggregated balance sheets, income statements and debt structures of non-financial sectors for the

years 2003-2012. We did face up with some difficulties in standardizing the data set. First of all, the data are revealed each year covering previous 3 years at sector level depending on the same reporting firms' variables. However the number of reporting firms changes over time. Therefore; for each year, the last available data are used. For example, the last data revealed in 2013 covers balance sheets and income statements for 2012, 2011 and 2010 and data for those years picked-up from data revealed in 2013. Data for 2009 is gathered from data revealed in 2012, data for 2008 is gathered from data revealed in 2011 and so on.

We could not address the changing firm samples for a sector over the time since firm specific data are not publicly available on the web site of CBRT. However; the changing samples is not problematic since those number of firms do not dramatically change over time and affect aggregate ratios for whole sector. Additionally, it is natural for a sector to have bankrupting and emerging firms over time. Including all those firms in a snapshot aggregate sector data, instead of only those who have survived for whole period of study, may help better to our aim of understanding what is really realized at whole sector level over time.

One difficulty is, descriptions of sectors are changed in 2011 in CBRT data base. CBRT uses Turkish Statistics Institute's industry classification which is derived from "International Standard Industrial Classification of All Economic Activities" (ISIC) by United Nations Statistics Division. The new classification depends on revision 4 of ISIC whereas the previous one revision 3.1 of ISIC. Therefore our data for the first five years, 2003 to 2007, come from the same classification of sectors whereas data for the second five years, 2008 to 2012, are from another classification. Only the revision by CBRT to ISIC 4 is sector "K-Financial and insurance activities" is replaced by sector "K-Holding company activities" to include only the non-financial sectors.

Correspondence tables between Revision 4 and Revision 3.1 of the ISIC provided by United Nations Statistics Division are considered. It is observed that some sectors directly correspond to many previous ones, some are separated in to two or three,

some are merged and some are continued with different or the same name for revision 4. This problem is solved by examining all sector names and modifying the data by appropriate mergers. Number of firms also controlled for each sector when doing this changes to prevent mistakes. Thus, we obtain greatest possible number of sectors' data for ten years.

There are two different sets of data that can be derived from CBRT. One is "sector level data" and the other is "sector and size level data" consisting of aggregate large, medium and small firm data for each sector. We used later one in our analysis to compare smaller and larger firm cluster comparisons. From sector level data, it is possible to have 24 sectors with 10 years of data but there are still some sectors that are not match for the first and second five years and have data only for one of these first or second five year periods or less that we cover. We also include those 14 sectors in to the analysis to have a comprehensive coverage of whole non-financial sectors to cover whole sample. Thus we have 38 sectors with 308 data points from 2003 to 2012 where 17 of the sectors are from manufacturing sector corresponding to 150 data point. How sectors are merged in consistent lists can be observed from Appendix C.

From size leveled data for sectors, we derived 18 sectors from available data where 11 of them from manufacturing sector. Since there are large, medium and small divisions for each sector, data includes 54 clusters for 10 years including 447 data points. 300 of the data points belong to 33 manufacturing sector clusters.

Data for macroeconomic variables are derived from different sources. GDP growth, public gross debt to GDP ratio and inflation rate which is used to calculate real credit interest rate are obtained from IMF's World Economic Outlook data base. Credit interest rate that banks apply to firms is derived from weekly CBRT data on weighted average interest rate of TL nominated credits supplied by banks in Turkey. We averaged weekly data to obtain yearly values. Real interest rate for credits obtained by normalization with yearly inflation rate figures obtained from IMF. Real exchange rate figures for TL were derived from CBRT's monthly data on consumer

price index based real effective exchange rate figures. Financial depth figures were also obtained from CBRT's monthly data on domestic credits supplied by banking sector. The figures were normalized as percent of GDP.

5.2 The Model and the Variables

To figure out effects of financial fragilities and macroeconomic variables on profitability of Turkish non-financial sectors for 2003-2010 the following generic equation is considered:

$$Y_{it} = Y_{it-1} + \beta S_{it} + \gamma M_t + u_{it}$$

"i" represents indices for sectors, "t" represents indices for year. "Y" is dependent variable standing for profitability. "S" is vector of sector specific variables and "M" is the vector of macroeconomic condition variables. When determining variables and the model we are inspired by the study of Özmen *et al.* (2012). However, we also added real interest rate as an explanatory variable to the model.

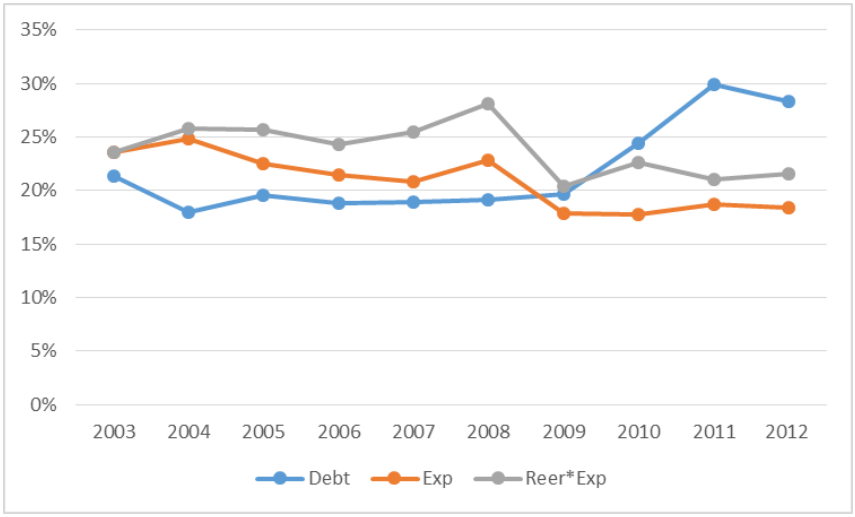
For dependent variable term "Y" we use **"PROFIT"** represents net profits for the period over asset ratio. The main sector specific variables to detect fragility are debt related variables. We include different debt terms in our analysis in different models.

Debt (Total debts over total assets ratio): The debt term is used to investigate whether debt has positive or negative effect on profitability. In fact debts can create leverage for more profitability. On the other hand, they can increase financial costs and reduce profitability. Thus, debts can create fragility for the corporate sector. We try to understand which effects of debts are dominant in Turkish non-financial sector.

Exp (Export intensity): This variable is defined as the sahae of exportsto total sales. There are two controversy forces effecting coefficient of this variable. First, exporting sectors may face with international competition and are likely to have less profit ratios. Second, it is easier for exporting sectors to reach cheap financing and thus they can create more profits. Which force is more dominant is determined by the empirical analysis.

Reer*Exp (Interaction of real exchange rate of Turkish lira with export intensity) Reer*Exp, a currency shock absorber indicator, is also added since exporting sectors' income is more denominated in foreign currency and those sectors can be more profitable as currency depreciates. (Özmen, Şahinöz, and Yalçın, 2012)

The effect of exchange rate on corporate profits heavily depends on export and import intensities of those corporations. A study by Campa and Goldberg (1999) on implications of exchange rates for time series of sectoral investment, both theoretically and empirically, have shown that responsiveness to exchange rates changes by the time, positively for sectors having high reliance on exports and negatively for sectors depend on imported inputs in production.



Source: CBRT Data

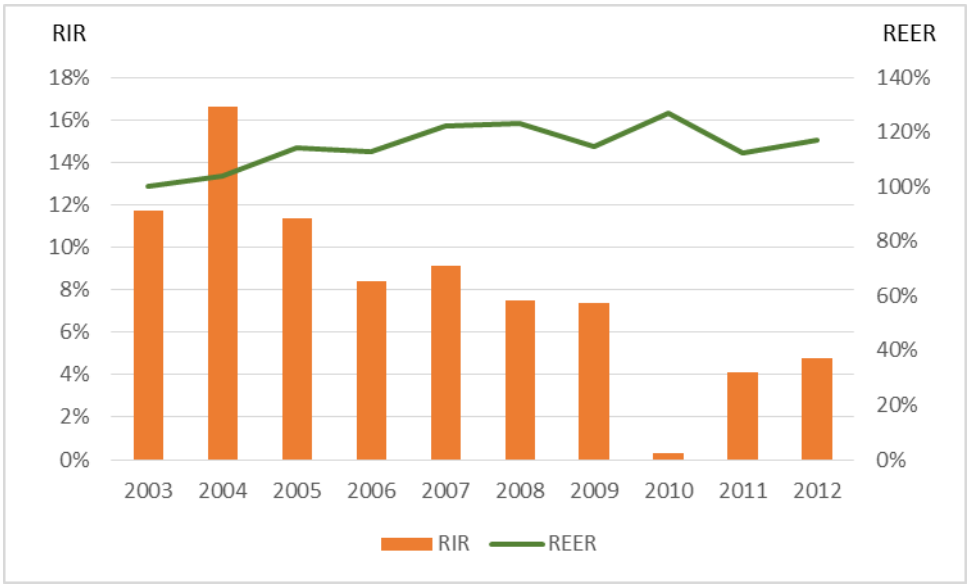
Figure 5.1: Export Intensity and Exports Originated Robustness against currency shocks for non-financial sectors as a whole

Figure 5.1 depicts that indebtedness of non-financial sectors in Turkey highly increased in 2010 and 2011 as the liquidity easing policies conducted by central banks to recover from the global financial crisis. In fact both TL denominated and foreign exchange denominated debts grew faster than assets in 2010 and 2011 according to CBRT data. On the other hand, exports intensity declined in 2009 as the crisis hit world trade and exports to total sales ratio cannot be recovered thereafter.

Reer (Real exchange rate): There are controversial studies about effect of real exchange rate on growth. Especially in developing countries currency depreciation can stimulate growth. (Rodrik, 2008) Because exchange rate depreciation reduces relative prices of domestic inputs, enables more use of domestic sources, enhance employment, exports and profitability. Competitive exchange rate boosts performance of tradable sectors. (Rodrik, 2009) Hausmann Pricett and Rodrik, (2005) studied on rapid growth accelerations since 1950's and find out a positive correlation with exchange rate depreciation and growth. However, some researchers are skeptical about impacts of the real exchange rate. There are many different types of relations between exchange rate and profits. Market orientation and cost structure of production are the main drivers that determine direction of the effect of currency rates. Export activities that depend on domestic resources can be diminished by exchange rate appreciation due to reducing competitiveness. On the other side, such an appreciation fosters domestic markets if production is depending on imports due to reducing cost of inputs and borrowing in foreign currency. (Montiel and Serven, 2008)

Despite the conventional Mundell-Fleming model, some researches support the idea that devaluations cause turmoil in dollarized economies due to their balance sheet effects (Frankel, 2005). In the same wein, Levy-Yeyati and Sturzenegger (2009) argue that a positive relation between currency depreciation and growth can be supported by data only if there is no considerable liability/financial dollarization. Because of financial dollarization, exchange rate depreciation can behave like a pro-cyclical cause of economic disturbances instead of a countercyclical shock absorber. That means as a fragility factor, dollarization can reduce or even reverse the expected impact of currency rates. There are also micro economic evidence on how foreign exchange liabilities reverse the expected Mundell-Fleming expansions in Latin America during devaluations. Profits of firms with high dollar liabilities diminish when currency depreciates. (Galindo, Panizza, and Schiantarelli, 2003)

Rir (real interest rate): Short term debts create a credit risk when interest rate shocks hits the economy. An essential risk for developing economies is defined as financial risk when the interest rates raised and liquidity crunch emerges. Internal fragilities in balance sheets of main sectors such as households, public sector, banking sector and corporate sector determine the severity of such shocks. (Özmen and Yalçın, 2007) CBRT data for interest rate applied by banking systems to domestic credits normalized with inflation is used to observe whether increase in real interest rates reduces profitability via financial expenses or increases via interest earning assets.



Source: CBRT Data and IMF, World Economic Outlook Database – October 2013

Figure 5.2: Macro economic variables 2003-2012

Table 5.2. exhibits macroeconomic variables used in the empirical analysis. Turkish lira steadily appreciated whereas real interest rate of domestic credits declined before global financial crisis affected the economy in 2009. It is observed that both real exchange rate and real interest rate of domestic credits become more volatile by 2009.

There are also some other sector specific and macro-economic variables which are often found to be insignificant. These include, tangibility ratio, GDP growth rate, public gross debt to GDP ratio, financial depth over GDP ratio. Tangible assets to total assets ratio represents tangibility ratio and it can be evaluated as an implication of collateral intensity. Sectors with more collateral ratio can be expected to have less profitability over assets, since it is given that the fixed assets are very high and further return on fixed assets may be low. Real GDP growth rate provides an indicator for aggregate demand for sectors. Accelerating output growth of economy enhances corporate profits. An evidence of positively significant growth would rate effect supports accelerator model of investment (Farazzi, Hubbard, and Petersen, 1988) and that supports the argument that policies to stimulate macroeconomic conditions can have a Keynesian multiplier effect developed by Richard Khan (1931). For public gross debt to GDP ratio in Turkey, it can be mentioned that since financial markets are deep enough, Turkey's government fiscal position had heavy influence on financially fragile firms. Large firms generally invested in government bonds and bank dependent firms had not been able to raise funds, therefore public deficit severally crowded out private activities. Financial depth over GDP ratio is included to reflect development level of financial system in Turkey described by total domestic credits of banking system to GDP ratio. It exhibits a liability for firms to fund new investments and expected to increase profitability. (Özmen, Şahinöz, and Yalçın, 2012).

5.3 Methodology

We use sector-specific variables and macroeconomic condition variables to test the determinants of sector profitability over assets rates by adopting Generalized Method of Moments (GMM) procedure for the dynamic panel data developed by Arellano and Bond (1991) and Arellano and Bover (1995). Since our data cover many sectors with maximum 10 years of data with a time lag variable, a dynamic model is chosen instead of fixed effect estimations on panel data since models with lagged dependent

variable on such models are generally misleading (Bond, 2002). All calculations are conducted using Stata 12.1 software using Xtabond2 command. (Roodman, 2009)

To achieve our purposes of determining fragility factors of non-financial sectors, we had some restrictions in modelling. We try to find an optimal model that explains fragility factors under restrictions such as having limited size of samples, choosing public gross debt or interest rate as a fragility factor as they have strong correlation. Debt related variables and real exchange rate always included to models and they are mostly significant in explaining profitability in the models. To include or not include the variables such as size of financial system as a percent of economy, export intensity and tangibility ratio of sectors to model was another issue to decide in modelling.

To determine an efficient and useful model we try almost all possible variable set scenarios. For each variable set, stata Xtabond2 codes are run with the methods of system GMM, GMM with leveling, GMM with differential transformations and GMM with orthogonal transformations (Arellano and Bover, 1995). All codes included robust, two step estimations. In our codes the dependent variable and all sector specific variables included in GMM code with t-1 to t-2, t-2, and t-2 to t-3 lags of dependent variable and all sector specific variables S_{it} as they are accepted as endogenous. On the other hand, macro-economic variables M_t which are assumed to be strictly exogenous are included in the set of instrumental variables. Stata 12.1 codes in "do files" generated to include all available scenarios in determining models with significant coefficients. This procedure is conducted for each of samples and sub-samples such as manufacturing and non-manufacturing sectors, large, medium and small firm groups if possible.

Since GMM with orthogonal transformations using all the available t-2 dynamic lags of dependent variable and firm-specific variables yield more variables with significant coefficients for the samples and subsamples, it is chosen as the optimal method. For the sector and size level data manufacturing and non-manufacturing clusters also divided to sub samples and GMM estimations are conducted.

In the empirical model the chosen variable set includes indebtedness variables (Debt), export intensity (Exp), interaction of real exchange rate of Turkish lira with export intensity(Reer*Exp), real exchange rate (Reer) and real interest rate (Rir).

5.4 Empirical Results

Results of two step robust system GMM estimation with orthogonal transformation (Arellano and Bover, 1995) using the t-2 lags of dependent variable and sector specific variables based on "sector level data" are presented by Table 5.1.

The consistency of GMM estimators is strictly related with absence of serial correlation. To observe that disturbance in original dynamic levels equation does not have serial correlation, AR(1) should be significantly negative and AR(2) should not be significant (Arellano and Bond, 1991). Therefore, AR1 and AR2 values on the tables imply lack of serial correlation. All the equations, passes Hansen-J test for instrument validity.

The results clearly confirm that sector-specific fragility factors and macroeconomic risk variables are significant to explain nonfinancial sector profitability in Turkey. Sector profitability decreases by increasing weight of debts whereas focusing on exports is a profit boosting factor. Yet, robustness against currency shocks due to export intensity has readjusting role on profitability. Real exchange rate depreciations are found to have reducing effects on profitability which can be accepted as a signal of serious fragility against currency shocks. Increases in real interest rate also have negative effect on sector profitability and that can imply fragility against interest rate shocks (Özmen and Yalçın, 2007).

Table 5.1: Determinants of non-financial sector profitability by industry

	All non-financial sectors	**Manufacturing sectors***	**Non-manufacturing sectors**
$Profit_{i,t-1}$	0.290*** (2.88)	0.175 (0.91)	0.296*** (4.45)
$Debt_{i,t}$	-0.107** (-2.12)		-0.0966 (-1.63)
$Exp_{i,t}$	0.345** (2.38)	-0.069 (-0.37)	0.00600 (0.02)
$Reer*Exp_{i,t}$	-0.251** (-2.05)	0.054 (0.36)	0.0129 (0.04)
$Reer_{t}$	0.0477*** (3.39)	0.0299*** (-2.84)	0.0576*** (2.93)
Rir_{t}	-0.154* (-1.69)	0.0584 (0.69)	-0.334* (-1.66)
Statistics			
Number of Observations	270	133	137
Number of Sectors	38	17	21
Number of Instruments	65	49	65
χ2W(6)	203.4 [0.00]	231.4 [0.00] (χ2W(5))	113.3 [0.00]
AR1	-2.99 [0.00]	-1.70 [0.09]	-2.60 [0.01]
AR2	0.98 [0.33]	0.30 [0.77]	0.61 [0.55]
P[Hansen]	0.99	1.00	1.00

Source: CBRT data analysis results

*: "$Debt_{i,t}$ variable removed from the model to address multicollinearity.

Notes: The values in parentheses "()" are z-values based of the coefficients that are robust to within cross-section residual correlation and heteroscedasticity (Arellano, 1987); *, ** and *** represents significance at 10%, 5%, and 1% levels, respectively; χ_{2W} is the Wald test for the joint insignificance of the explanatory variables; AR1 and AR2 are the Arellano and Bond (1991) tests for first-order and second-order serial correlation, asymptotically N(0,1); Cornered parenthesis "[]" stands for p-values of corresponding statistics; P[HANSEN] reports the p–value of Hansen J test for instrument validity and over-identification restrictions.

Debt included in the model as a measure of fragility and the results have shown that contracting impact of indebtedness on profitability is obvious. (see Table 5.1 and 5.2) Indebtedness is a profit diminishing problem for Turkish non-financial sectors. Both TL denominated and foreign exchange denominated debts has negative coefficients. Especially dollarized debts have bigger more significant negative effect on profits of

industries. As the debts grew faster than assets, total debts reached 19.6 percent to 29.3 percent of assets from 2009 to 2011. Therefore; fragilities caused by indebtedness have to be tracked more cautiously.

Exporting industries perform better despite the international competition they faced. Negative coefficient of Reer*Exp implies that exchange rate robustness stem from exports has a shock absorber effect on profits. Profits of sectors that have high export share or are more involved in tradable activities are less sensitive to exchange rate movements.

It is understandable to have a bigger coefficient of Reer*Exp for non-manufacturing sectors since they are more open to international markets as 28.9 percent of their sales comes from exports on average annually for the studied decade and share of exports represents only 20.9 percent of sales on average for manufacturing sectors according to CBRT data.

Real exchange rate appreciation of Turkish Lira has an increasing effect on corporate profits. The results does not supports the previous views in literature such as currency depreciation can stimulate growth especially in developing countries (Rodrik, 2008) via reducing cost of domestic inputs to foster profitability (Rodrik, 2009). That means, Mundell-Fleming model is not valid for Turkish non-financial sectors and currency depreciation was a pro-cyclical shock factor during the period 2003 to 2012. Liability dollarization dominantly determines overall effect of depreciations by creating profit losses and economic turmoil as it did before in Latin America (Galindo, Panizza, and Schiantarelli, 2003). Dominance of balance sheet effect of foreign exchange liabilities in dollarized economies expressed by Frankel (2005) and Levy-Yeyati and Sturzenegger (2009) and effects of dependence of some industries on imported inputs examined by Montiel and Serven (2008). These fraglity factors, debt dollarization and dependence on imported inputs are found to be strong enough to diminish countercyclical effect of depreciations on the whole industry. Non-manufacturing sectors again has a bigger coefficient in positive direction on

table 5.1 and 5.2 for “Reer” compared to whole sample, and it implies that those sectors are more fragile against currency shocks.

Previous empirical evidence from firm level analysis based on CBRT firm level data from 2002-2007 by Özmen et al. (2012) have revealed a negative relationship between real exchage rate depreciation and profitability. However, we found a positive sign of real exchange rate variable in our analysis where we included the data from 2003 to 2012 containing additional 5 years. Why we have reached a different result can be explained by our descriptive analylisis, where we have shown that dollarized assets to dollarized liabilites ratio havily decreased by reducing from 59 percent in 2007 to 34 percent in 2013. Thus; Turkish corporate sector become more fragile.

Real interest rate increases significantly reduced profits. It is an exact evidence of fragility and can be explained by dominance of short term debts in liability portfolios (Özmen and Yalçın, 2007). Those results it in parallel with Mundell-Fleming model and the empirical evidence from firm level analysis based on CBRT data by Özmen et al. (2012) where they used public gross debt as an indicator of interest rate and found there is a reversal relationship with profitability. Non-manufacturing sectors have bigger coefficients again which implies they are more fragile against interest rate shocks too.

In table 5.2 empirical results based on sector data separated by size illustrated. For the size “sector and size level data” the same GMM methods with “sector level data” is used. The equation for small firm clusters contains an insignificant AR1 value but it is close to be significant at ninety percent confidence interval. Thus; results of analysis for the subsample with small sized firm clusters should also be interpreted to discuss important differences relative to large and medium firm clusters and to derive noteworthy questions for further research.

Table 5.2: Determinants of non-financial sector profitability by industry and size

	All-Sectors	**Manuf.**	**Non-Manuf.**	**Large**	**Medium**	**Small**
Lag.Profit $_{i,t-1}$	0.224***	0.275***	0.266*	0.293**	0.149	-0.0435
	(4.23)	(3.88)	(1.93)	(2.54)	(1.01)	(-0.33)
Debt $_{i,t}$	-0.0655**	-0.0635*	-0.0530	-0.0780**	-0.0835**	-0.155***
	(-2.56)	(-1.84)	(-1.61)	(-2.06)	(-2.3)	(-4.01)
Exp $_{i,t}$	0.0867	0.254	-0.0931	0.153	0.534*	-0.327*
	(0.53)	(1.26)	(-0.18)	(0.88)	(1.84)	(-1.82)
Reer*Exp $_{i,t}$	-0.0246	-0.166	0.0684	-0.174	-0.392*	0.248
	(-0.19)	(-0.96)	(0.16)	(-1.25)	(-1.72)	(1.58)
Reer $_{t}$	0.0190*** (2.74)	0.0221*	0.0145	0.0590***	0.0296**	0.0316**
		(1.82)	(1.01)	(3.48)	(2.51)	(1.98)
Rir $_{t}$	0.0470	-0.0394	0.235*	-0.00365	-0.0334	0.185**
	(0.85)	(-0.58)	(1.79)	(-0.04)	(-0.48)	(2.54)
Statistics						
Number of Observations	393	267	126	131	131	131
Number of Sectors	54	33	21	18	18	18
Number of Instruments	65	65	65	65	65	65
χ2W(6)	195.4 [0.00]	131.5 [0.00]	157.0 [0.00]	384.6 [0.00]	212.1 [0.00]	56.48 [0.00]
AR1	-3.65 [0.00]	-3.22 [0.00]	-2.02 [0.04]	-2.48 [0.01]	-2.59 [0.01]	-1.55 [0.12]
AR2	-0.60 [0.55]	-0.33 [0.75]	0.60 [0.55]	0.11 [0.91]	-0.50 [0.61]	-0.82 [0.41]
P[Hansen]	0.69	1.00	1.00	1.00	1.00	1.00

Source: CBRT data analysis results

Notes: The values in parentheses "()" are z-values based of the coefficients that are robust to within cross-section residual correlation and heteroscedasticity (Arellano, 1987); *, ** and *** represents significance at 10%, 5%, and 1% levels, respectively; χ_{2W} is the Wald test for the joint insignificance of the explanatory variables; AR1 and AR2 are the Arellano and Bond (1991) tests for first-order and second-order serial correlation, asymptotically N(0,1); Cornered parenthesis "[]" stands for p-values of corresponding statistics; P[HANSEN] reports the p–value of Hansen J test for instrument validity and over-identification restrictions.

In the analysis, diminishing effect of indebtedness significantly observed in almost all subsamples. Influence of indebtedness on profits is stronger for small firms compared to medium and large ones.

Exports have significantly negative coefficient for small sized firm clusters in the analysis. That implies smaller firms are more vulnerable to international competition. Coefficient of Reer*Exp variable is significant and negative as expected.

Reer has positive coefficient in almost all sample and subsample analysis. Analysis of size leveled sector clusters provided further information that manufacturing sectors are also fragile against currency shocks. Reer has significant and positive coefficients for large, medium and small firm cluster samples and it has a bigger coefficient for large firm clusters compared to medium and small ones. That implies large firms are more fragile against currency depreciations due their higher debt dollarization and lack of hedging abilities.

Rir has positive coefficients in analysis of non-manufacturing firm clusters and small firm clusters by representing robustness against interest rate risks. It can be explained by interest earning assets of those firms but we do not include that data in this study to confirm this suggestion. Those results can be supported by the smaller and enhancing short term debt intensity of non-manufacturing sector compared to manufacturing sector and reducing short term debt intensity of small manufacturing firms at least. We have illustrated those two in descriptive analysis in chapter 4. Rir has a negative coefficient for sector level data but a positive one for sector and size level data. That implies there is a different behavior for small, medium and large firms. We could not include the analysis each for only large, medium or small non-manufacturing sector clusters as explained in methodology. Yet it can be suggested from analysis of all small sized firm clusters in table 5.2. that real interest rates specifically affects large non-manufacturing firm profitability.

CHAPTER 6

CONCLUDING REMARKS AND SUGGESTIONS FOR FURTHER RESEARCH

The concept fragility refers to risky positions in balance sheets that can increase probability of defaults in variety on means (Davis, 1995). As investors focus more on fragility of economies in recent years (Aizenman, Binici, and Hutchison, 2014) we have shown that Turkey is in a region with a fragile macro-economic dynamics such as low saving rates, dependence on external inflows, high current account deficits. In fact, the region Central and Eastern Europe experienced sudden stop of capital inflows and affected more severally economically during the global financial crisis of 2008-2009.

Turkey is also among the most fragile economies and concerns over Turkey continue due to its high current account deficit, high foreign exchange liabilities, slowing GDP growth and still high inflation (Lord, 2013).

In this frame fragility of Turkish corporate sector is studied since corporate sector fragilities very important to economy. Corporate sector fragilities influence willingness of banks to lend. If financial positions of the firms cause credit constraints and failure of illiquidity or increase the cost of intermediation via raising interest rates thus, failure of insolvency, both of these failure mechanisms can cause loss of welfare for the economy (Myers, 1993).

Descriptive analysis have shown that despite the improvements in debt structuring of non-financial sectors from 2007 to 2012 in terms of exposure to interest rate risk described by short term debts to total debts and exposure to currency risk described by foreign exchange denominated debts to total debts, both risks still exists for the

corporate sector. Total debts to assets ratio of the corporate sector strongly increased in 2010 and 2011 in parallel to increases in share of Bank Loans in balance sheets. On the other hand, foreign currency denominated assets to liabilities ratio decreased from 52 percent in 2009 to 34 percent in 2013 a level far from being sufficient for hedging. Another point, that should be mentioned is, debt related data shows that small manufacturing firms are more constrained financially whereas balance sheet data implies that in recent years small and medium scale manufacturing firms had access to bank loans as well as large manufacturing firms.

Empirical analysis are also included with the aim of addressing effects of sector specific fragilities on non-financial sector profitability and responses of corporate sector performance to exogenous macroeconomic variables to understand extension of those effects of the fragility factors.

Before the conclusions for empirical analysis, an initial remark is that, after the sector descriptions changed, sector level data publicly provided by CBRT is still sufficient to derive significant results to generate in dynamic time series analysis such as GMM models. We conducted analysis by inspiring from the study conducted by Özmen et al. (2012) but with updated, publicly available sector based data for this time. In fact, CBRT's sector level data is used for GMM estimations by Kesriyeli et al.(2011) for the data from 1992 to 2003. However sector classifications of United Nations and European Union have changed later. CBRT changed classifications for the data from 2008 accordingly. Therefore; by redrawing sector names we create data set includes all sectors with most probable number of sectors with data from 2003 to 2012. It is noteworthy, for other researches, in the future, to achieve significant panel data analysis, with acceptable statistics by using a publicly available data that includes limited number of data points by inspiring from our sector adjustments. Nevertheless; it would be beneficial for researchers if CBRT could publish re-classified sector level data for the period before 2008 according to new standards of ISIC Revision 4.

As an output of the empirical study we achieved statistically significant models for sector level profitability for Turkish non-financial sectors. Summary of the effects of explanatory variables are illustrated in table 6.1. The results have shown that sector-specific variables as well as macroeconomic variables are significantly influence profitability in Turkey. Sector profitability decreases by increasing weight of debts. Focusing on exports helps profit making. Also, export supported robustness against currency shocks represented by Reer*Exp increases profitability during depreciations which supports the arguments of Echeverrya at al. (2003) that exports can smooth liability dollarization fragilities via asset dollarization in the case of currency shocks. Real exchange rate depreciations of TL seems to have reducing effect on profitability supporting the idea of Frankel (2005) that currency depreciations lead to recessions in dollarized economies because of their influence on balance sheets (Frankel, 2005). Real interest rate is found to have negative effect on profitability in conformity with macroeconomic theory and previous empirical analysis. Yet, it can be a sign of fragility that short term debts are dominant in balance sheets of sectors.

Table 6.1: Effects of sector level and macroeconomic variables on sector profitability

Sector Specific Variables				Macroeconomic Variables	
L.Profit	Debt	Exp	Reer*Exp	Reer	Rir
+	-	+	-	+	-

Notes: This table represents a summary of tables 5.1and 5.2. Debt: total debt over total assets ratio, Reer*Exp: interaction of real exchange rate of Turkish Lira with foreign sales to total sales ratio, Reer: real exchange rate, Rir: real interest rate for domestic credits.

The main conclusion from the descriptive and empirical study is that weight of debts in assets, poor maturity structure and heavy dollarization of liabilities are creating fragility and diminishing burden on profitability of Turkish non-financial sectors.

Here, further discussion on the results of empirical analysis should be added to make deeper conclusions on fragility related aspects of the corporate sector. We create a model with an indebtedness related variable that includes fragility factor and macroeconomic variables that can exogenously change by external events such as interest rate increasing decisions by FED. Responses of non-financial sector

profitability performances to real exchange rate and real interest rates are observed to determine severity of fragilities against exchange rate and interest rate risk.

The empirical analysis suggests that debts are signaling fragility by restraining profits at sector level as more indebted sectors are found be less profitable during the period from 2003 to 2012. Analysis yielded that indebtedness affect profitability.

Arguments and empirical finding of Galindo et al. (2003), Frankel (2005), Montiel and Serven (2008); Levy-Yeyati and Sturzenegger (2009) suggest that liability dollarization and dependence of industries on imported inputs can reverse counter cyclical profit increasing effect of depreciations. Mundell-Flaming model does not properly work for those kind of fragile economies. Our findings have shown that this is the case for Turkey as real exchange rate depreciations worsens corporate profitability.

Increasing the interest rate to stop such exchange rate depreciation can also cause deeper economic turmoil as our results have shown that real interest rate has and negative coefficient which is a sign of fragility due to poor debt maturity structure and other economical dynamics (Özmen and Yalçın, 2007).

Nevertheless; empirical profitability analysis yielded a positive coefficient of real interest rate for the analysis conducted on sector clusters consisting of small sized firms. SME profitability should be studied carefully by further researches, with firm level data if necessary, since SME's accounts for majority of the employment, total sales, added value and nearly half of investments in Turkey (World Bank, 2010).

To sum up, corporate sectors in Turkey under pressure of their debts that cause profit losses. Exchange rate depreciations seem to have pro-cyclic effects on profits when the data for 2003 to 2012 analyzed. Balance sheets are not promising strong bases for investment. Total indebtedness and assets to liabilities denominated in foreign currencies heavily worsened after 2009. Any currency shock that affect corporate sector is prone to spread financial sector due to their dominant funding of dollarized debts.

In this study we use sector level data and try to reveal results for corporate sector profitability in general, which is helpful to predict macro-economic results of unexpected exchange rate and interest rate shocks on corporate sectors. Researches for sector level analysis depending on firm level data can be helpful in deriving results for each sector regarding fragilities and response dynamics against exogenous financial disturbances. Those kinds of studies would be helpful to policy makers to detect vulnerable sectors and strategically subsidize them during currency depreciations or interest rate shocks.

An active de-dollarization strategy including financial market regulations is still needed. It should also be noted that prerequisites of such a strategy are strong macro-economic indicators and price stability (Levy-Yeyati E. , 2006). Developing debt securities markets would be another way to diversify financing opportunities of corporations. Improving the capital markets in terms of trade volume and market capitalization, fostering access of firms to those markets, creating multi layered capital market mechanisms (Mugaloğlu, 2012) and structures for private capital market investments especially for small and medium sized firms are other preliminary measures that can be taken to reduce fragilities and improve equity financing of non-financial sector firms. Developing financial tools such as futures and options markets to provide hedging tools to corporations would also be beneficial to manage those fragilities.

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APPENDICES

Appendix A: Financial Depth Figures of 47 Big Economies

2011							2006						
Country	Fin. Sys. Assets/GDP	Rank	Credits to P.S./GDP	Rank	CAI	Rank	Country	Fin. Sys. Assets/GDP	Rank	Credits to P.S./GDP	Rank	CAI	Rank
Japan	457%	1	178%	8	39%	49	Japan	461%	1	180%	2	39%	47
United States	374%	2	188%	6	50%	43	United States	369%	2	193%	1	52%	42
South Africa	275%	3	142%	10	51%	42	South Africa	277%	3	140%	9	51%	43
Ireland	238%	4	209%	1	88%	16	Netherlands	174%	4	163%	4	94%	9
Spain	235%	5	208%	2	88%	14	Switzerland	169%	5	157%	6	93%	10
Hong Kong SAR, China	226%	6	186%	7	82%	22	Ireland	166%	6	164%	3	98%	2
Portugal	214%	7	194%	4	90%	8	Spain	165%	7	151%	7	91%	12
Netherlands	212%	8	198%	3	93%	3	United Kingdom	160%	8	159%	5	100%	1
Thailand	192%	9	131%	11	68%	33	Hong Kong SAR, China	153%	9	136%	10	89%	16
United Kingdom	192%	10	192%	5	100%	1	Portugal	149%	10	143%	8	96%	4
Switzerland	181%	11	167%	9	92%	6	Germany	133%	11	109%	12	82%	25
Greece	160%	12	124%	13	77%	27	Austria	128%	12	112%	11	88%	18
Italy	159%	13	122%	14	77%	28	China	116%	13	105%	14	90%	13
Australia	143%	14	129%	12	90%	9	Egypt, Arab Rep.	114%	14	53%	27	46%	45
Singapore	136%	15	107%	19	78%	26	France	112%	15	94%	17	84%	22
China	135%	16	121%	15	90%	11	Singapore	110%	16	87%	20	79%	27
Austria	135%	17	118%	16	88%	17	Italy	110%	17	90%	19	82%	23
France	133%	18	114%	17	85%	20	Malaysia	108%	18	101%	15	93%	11
Brazil	128%	19	63%	27	50%	44	Australia	108%	19	105%	13	97%	3
Germany	127%	20	104%	21	82%	23	Thailand	108%	20	94%	16	87%	19
Malaysia	120%	21	106%	20	88%	15	Greece	106%	21	79%	22	75%	29
Vietnam	120%	22	108%	18	90%	12	Belgium	104%	22	76%	23	73%	31
Belgium	116%	23	92%	25	80%	24	Korea, Rep.	97%	23	92%	18	95%	5
Korea, Rep.	107%	24	98%	22	92%	7	Israel	96%	24	86%	21	89%	15
Israel	103%	25	93%	24	90%	10	Brazil	92%	25	34%	34	37%	48
Finland	101%	26	94%	23	93%	4	Finland	79%	26	75%	24	95%	7
Morocco	87%	27	69%	26	79%	25	Vietnam	74%	27	64%	25	87%	20
Egypt, Arab Rep.	80%	28	30%	40	38%	50	Morocco	71%	28	53%	26	75%	30
Colombia	77%	29	42%	36	54%	40	Kuwait	67%	29	52%	28	78%	28
Ukraine	75%	30	56%	28	75%	29	Saudi Arabia	60%	30	48%	29	80%	26
India	70%	31	47%	32	68%	34	India	57%	31	39%	30	67%	34
Qatar	67%	32	35%	38	53%	41	Bangladesh	56%	32	33%	35	59%	40
Bangladesh	67%	33	45%	33	67%	35	Slovak Republic	52%	33	35%	32	69%	33
Slovak Republic	66%	34	48%	31	73%	30	TURKEY	46%	34	23%	41	49%	44
TURKEY	65%	35	43%	34	66%	36	Philippines	46%	35	28%	37	60%	38
Saudi Arabia	62%	36	52%	30	84%	21	Pakistan	45%	36	27%	39	59%	39
Kuwait	62%	37	55%	29	89%	13	Indonesia	42%	37	23%	42	53%	41
Romania	59%	38	42%	35	71%	31	Colombia	42%	38	26%	40	61%	36
Mexico	55%	39	24%	45	44%	46	Qatar	41%	39	30%	36	73%	32
Russian Federation	48%	40	42%	37	87%	19	Kazakhstan	39%	40	37%	31	95%	6
Philippines	48%	41	30%	41	62%	37	Ukraine	39%	41	35%	33	89%	14
Pakistan	43%	42	18%	48	42%	47	Algeria	38%	42	11%	48	29%	50
Kazakhstan	40%	43	35%	39	87%	18	Mexico	37%	43	17%	45	46%	46
Indonesia	40%	44	28%	43	71%	32	Argentina	34%	44	11%	49	33%	49
Nigeria	39%	45	23%	46	59%	39	Russian Federation	34%	45	27%	38	82%	24
Algeria	36%	46	14%	49	40%	48	Ecuador	26%	46	22%	43	85%	21
Argentina	32%	47	14%	50	44%	45	Romania	23%	47	21%	44	94%	8
Ecuador	32%	48	30%	42	93%	5	Nigeria	20%	48	12%	47	60%	37
Angola	32%	49	19%	47	60%	38	Peru	19%	49	17%	46	89%	17
Peru	26%	50	24%	44	94%	2	Angola	9%	50	5%	50	62%	35

Source: World Bank

CAI: Financial System Credits to Private Sector / Financial System Assets

Appendix B: Foreign Exchange Assets and Liabilities of Non-Financial Companies

FOREIGN EXCHANGE ASSETS AND LIABILITIES OF NON-FINANCIAL COMPANIES (Million USD) — **CBRT Statistics Dep.**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
ASSETS	**30,202**	**37,671**	**45,392**	**62,659**	**76,131**	**80,465**	**76,994**	**84,180**	**77,788**	**85,974**	**90,312**
Deposits	**19,957**	**24,565**	**30,898**	**45,446**	**54,821**	**60,370**	**57,301**	**62,150**	**54,755**	**61,298**	**63,872**
Domestic Banks	8,573	10,598	12,636	18,756	24,401	27,261	29,833	30,638	35,864	40,825	47,032
Banks Abroad	11,384	13,967	18,262	26,690	30,420	33,109	27,468	31,512	18,891	20,473	16,840
Securities	**919**	**1,307**	**1,034**	**933**	**830**	**695**	**1,116**	**1,288**	**931**	**843**	**356**
Goverment Securities	807	1,176	789	632	573	495	589	565	412	421	322
Issued Domestically [1]	271	379	96	83	61	40	15	0	3	0	0
Issued Abroad	536	797	693	549	512	455	574	565	409	421	322
Portfolio Investment Abroad	112	131	245	301	257	200	527	723	519	422	34
Export Receivables	**4,381**	**6,016**	**6,404**	**8,823**	**10,289**	**8,566**	**9,310**	**10,526**	**10,945**	**12,130**	**13,481**
Direct Investment Abroad	**4,945**	**5,783**	**7,056**	**7,457**	**10,191**	**10,834**	**9,267**	**10,216**	**11,157**	**11,703**	**12,603**
LIABILITIES	**48,651**	**56,753**	**67,344**	**91,466**	**129,978**	**151,797**	**147,829**	**176,664**	**200,872**	**226,173**	**266,789**
Loans	**42,106**	**47,363**	**56,339**	**79,756**	**115,479**	**137,159**	**132,582**	**158,559**	**180,424**	**203,661**	**238,614**
Domestic Loans	**18,158**	**20,458**	**26,429**	**34,804**	**46,323**	**48,066**	**50,333**	**81,887**	**102,292**	**121,842**	**155,164**
Banks	12,664	14,245	20,796	24,744	32,805	37,435	41,155	73,015	92,608	111,158	144,041
FX Loans	12,664	14,245	15,397	17,370	20,800	22,547	28,897	57,268	74,522	90,209	116,762
Short-Term	0	0	0	0	14,416	15,895	14,340	17,927	18,277	19,300	21,021
Long-Term [2]	0	0	0	0	6,384	6,652	14,557	39,341	56,245	70,909	95,741
FX Indexed Loans [3]	0	0	5,399	7,374	12,005	14,888	12,258	15,747	18,086	20,949	27,279
Non-Bank Financial Institutions	**0**	**0**	**0**	**4,869**	**8,220**	**8,576**	**7,320**	**6,739**	**7,312**	**8,293**	**9,709**
Factoring Companies	0	0	0	143	270	405	462	765	765	771	954
Consumer Finance Companies	0	0	0	400	383	447	428	343	405	439	439
Financial Leasing Companies	0	0	0	4,326	7,567	7,724	6,430	5,631	6,142	7,083	8,316
Past-Due Loans Taken Over by SDIF	**5,494**	**6,213**	**5,633**	**5,191**	**5,298**	**2,055**	**1,858**	**2,133**	**2,372**	**2,391**	**1,414**
External Loans	**23,948**	**26,905**	**29,910**	**44,952**	**69,156**	**89,093**	**82,249**	**76,672**	**78,132**	**81,819**	**83,450**
Short-Term	1,595	1,206	1,058	1,120	695	1,169	650	959	1,099	1,470	2,049
Long-Term [4]	22,353	25,699	28,852	43,832	68,461	87,924	81,599	75,713	77,033	80,349	81,401
One Year or Less to Maturity	0	0	0	0	0	26,470	22,403	19,701	22,260	21,388	15,194
Over One Year to Maturity	0	0	0	0	0	61,454	59,196	56,012	54,773	58,961	66,207
Import Payables	**6,545**	**9,390**	**11,005**	**11,710**	**14,499**	**14,638**	**15,247**	**18,105**	**20,448**	**22,512**	**28,175**
Short-Term	6,297	9,088	10,674	11,354	14,085	14,049	14,710	17,483	20,132	22,084	27,828
Long-Term [4]	248	302	331	356	414	589	537	622	316	428	347
One Year or Less to Maturity	0	0	0	0	0	254	225	282	160	212	197
Over One Year to Maturity	0	0	0	0	0	335	312	339	156	216	150
Net Foreign Exchange Position	**-18,449**	**-19,082**	**-21,952**	**-28,807**	**-53,847**	**-71,332**	**-70,835**	**-92,484**	**-123,084**	**-140,199**	**-176,477**

Short -Term Assets	69,631	67,727	73,964	66,631	74,271	77,709
Short -Term Liabilities	73,577	65,476	73,207	81,184	86,613	94,961
Short-Term Net Foreign Exchange Position	**-3,946**	**2,251**	**757**	**-14,553**	**-12,342**	**-17,252**

[1] Includes FX Indexed securities. Indicative value.

[2] Maturity breakdown is based on the original maturity.

[3] In the absence of a maturity breakdown, the maturity is taken to be short-term.

[4] Following any backward revisions, the breakdown of the long-term loans by remaining maturity is calculated on the basis of pre-revision percentage distribution.

[5] Indicative value.

Short-Term Assets	= Deposits + Securities + Export Receivables
Short-Term Liabilities	= Short-term Domestic FX Loans + FX Indexed Loans + FX Liabilities to Factoring Companies + FX Credits Extended by Consumer Finance Short-term External Loans + Long-term External Loans With One Year or Less to Maturity + Short-term Import Payables + Long-term Import Payables With One Year or Less to Maturity

Appendix C: Sector Classifications

Sector Name For 2003-2007 (TUIK Version of ISIC Rev. 3.1)	Sector Name For 2008-2011 (TUIK Version of ISIC Rev. 4)	Determined Sector Name For Analysis
A - Agriculture, hunting and forestry	A - Agriculture, forestry and fishing	A - Agriculture, forestry and fishing
B - Fishing		
C - Mining and quarrying	B - Mining and quarrying	B - Mining and quarrying
DA - Manufacture of food products, beverages and tobacco products	C - 10 Manufacture of food products	C - 10-11-12 Manufacture of food products, beverages and tobacco products
	C - 11 Manufacture of beverages	
	C - 12 Manufacture of tobacco products (NA for 2009)	
DB - Manufacture of textiles and wearing apparel	C - 13 Manufacture of textiles	C - 13-14 Manufacture of textiles and wearing apparel
	C - 14 Manufacture of wearing apparel	
DC - Manufacture of leather and leather products	C - 15 Manufacture of leather and related products	C - 15 Manufacture of leather and related products
DD - Manufacture of wood and of products of wood	C - 16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	C - 16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
DE - Manufacture of paper and paper products and publishing, printing and reproduction of recorded	C - 17 Manufacture of paper and paper products	C - 17-18 Manufacture of paper and paper products and publishing, printing and reproduction of
	C - 18 Printing and reproduction of recorded media	
DF - Manufacture of coke, refined petroleum products and nuclear fuel	C - 19 Manufacture of coke and refined petroleum products	C - 19 Manufacture of coke and refined petroleum products
DG - Manufacture of chemicals and chemical products	C - 20 Manufacture of chemicals and chemical products	C - 20-21 Manufacture of chemicals and chemical products
	C - 21 Manufacture of basic pharmaceutical products and pharmaceutical preparations	
DH - Manufacture of rubber and plastics products	C - 22 Manufacture of rubber and plastics products	C - 22 Manufacture of rubber and plastics products
DI - Manufacture of other non-metallic mineral products	C - 23 Manufacture of other non-metallic mineral products	C - 23 Manufacture of other non-metallic mineral products
DJ - Manufacture of basic metals and fabricated metal products	C - 24 Manufacture of basic metals	C - 24-25Manufacture of basic metals and fabricated metal products
	C - 25 Manufacture of fabricated metal products, except machinery and equipment	
DL - Manufacturing of electrical and optical apparatus	C - 26 Manufacture of computer, electronic and optical products	C - 26-27 Manufacturing of electrical and optical apparatus
	C - 27 Manufacture of electrical equipment	
DN - Manufacture clessified in other sections	C - 28 Manufacture of other machinery and equipment n.e.c.	C - 28 Manufacture of other machinery and equipment n.e.c.
DM - Manufacture of and transport vehicles	C - 29 Manufacture of motor vehicles, trailers and semi-trailers	C - 29-30 Manufacture of and transport vehicles
	C - 30 Manufacture of other transport equipment	
	C - 31 Manufacture of furniture	C - 31 Manufacture of furniture
	C - 32 Other manufacturing	C - 32 Other manufacturing
	C - 33 Repair and installation of machinery and equipment	C - 33 Repair and installation of machinery and equipment
DK - Manufacture of machinery and equipment		CDK - Manufacture of machinery and equipment
E - Electricity, gas and water supply	D - Electricity, gas, steam and air conditioning supply	D - Electricity, gas, steam and air conditioning supply
	E - Water supply; sewerage, waste management and remediation activities	E - Water supply; sewerage, waste management and remediation activities
F - Construction	F - Construction	F - Construction
G - 50 Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	G - 45 Wholesale and retail trade and repair of motor vehicles and motorcycles	G - 45 Wholesale and retail trade and repair of motor vehicles and motorcycles
G - 51 Wholesale trade and commission trade, except of motor vehicles and motorcycles	G - 46 Wholesale trade, except of motor vehicles and motorcycles	G - 46 Wholesale trade, except of motor vehicles and motorcycles
G - 52 Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	G - 47 Retail trade, except of motor vehicles and motorcycles	G - 47 Retail trade, except of motor vehicles and motorcycles
I - Transport, storage and communications	H - Transportation and storage	H - Transportation and storage
H - Hotels and restaurants	I - Accommodation and food service activities	I - Accommodation and food service activities
	J - Information and communication	J - Information and communication
K - Real estate, renting and business activities		K - Real estate, renting and business activities
	K - Holding Company Activities	K - Holding Company Activities
	L - Real estate activities	L - Real estate activities
	M - Professional, scientific and technical activities	M - Professional, scientific and technical activities
	N - Administrative and support service activities	N - Administrative and support service activities
M - Education	P - Education	P - Education
N - Health and social work	Q - Human health and social work activities	Q - Human health and social work activities
O - Other community, social and personal service activities		O - Other community, social and personal service activities
	R - Arts, entertainment and recreation	R - Arts, entertainment and recreation
	S - Other service activities	S - Other service activities

Appendix D: Tez Fotokopisi İzin Formu

ENSTİTÜ

Fen Bilimleri Enstitüsü ☐

Sosyal Bilimler Enstitüsü ☐

Uygulamalı Matematik Enstitüsü ☐

Enformatik Enstitüsü ☐

Deniz Bilimleri Enstitüsü ☐

YAZARIN

Soyadı : Kılıç
Adı : Abdurrahman
Bölümü : İktisat Bölümü

TEZİN ADI (İngilizce) : Financial Fragilities of Turkish Non-Financial Sectors

TEZİN TÜRÜ : Yüksek Lisans ☐ Doktora ☐

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
3. Tezimden bir bir (1) yıl süreyle fotokopi alınamaz. ☐

TEZİN KÜTÜPHANEYE TESLİM TARİHİ:

Appendix E: TURKISH SUMMARY

Finansal kırılganlık terimi, 2013 yılından itibaren uygulanmakta olan FED politikalarının gelişmekte olan ülke ekonomilerinde paranın değer kaybına neden olacak sermaye çıkışlarına sebebiyet verebileceği endişesiyle daha çok gündeme gelmeye başlamıştır (Aizenman, Binici, ve Hutchison, 2014). Bu kavram, sıradan ekonomik çalkantıların büyük ekonomik krizlere dönüşmesine neden olabilecek bilanço bozuklukları olarak tanımlanabilir (Davis, 1995). Özellikle şirketler kesiminin riskli finansal pozisyonları, ülke ekonomileri için, sıradan ekonomik dalgalanmaların finansal bir krize dönüşmesine neden olabilecek derecede öneme sahiptir. Şirketlerin bilanço kırılganlıkları bir yandan bankaların borç verme iştahını etkilerken diğer yandan kredi kısıtları yoluyla likiditeyi azaltır ve faiz artışını tetikleyerek iflaslara neden olur ki her iki mekanizma da finansa krize sebep olabilir (Myers, 1993). Bu nedenle tezde Türkiye'nin şirkeler kesimi kırılganlıkları ve bu kırılganlıkların sektör kârlılığı üzerindeki etkileri incelenmiştir.

Finansal kırılganlık kavramı, Fisher (1933) ve Keynes (1936) tarafından büyük kriz sonrasında 1930'larda ortaya konulan fikirlerden türetilmiş olup (Davis, 1995), özellikle Hyman P. Minsky (1982) tarafından geliştirilmiştir.

Fisher (1933) yüksek borçluluk oranlarının olduğu bir ortamda kurdaki erimenin ekonomik bir kaosa neden olabileceğini ifade etmiştir.

Öte yandan Minsky'nin de ifade ettiği üzere Keynes (1936), kapitalist ekonomilerde yatırımların borçlanma ile finanse edilesinin istikrar bozucu olabileceğini belirtmektedir. Optimist dönemlerde yatırımlar ve tüketim artmakta ve para talebi nedeniyle faizler yükselmekte, faiz artırımları aşırı yatırımları azaltamamakta ama sermayenin marjinal getirisini düşürmektedir. Düşen kârlılık nedeniyle pesimizim başlamakta ve ekonomik bir çöküş yaşanabilmektedir. Böyle zamanlarda para otoritesi tarafından faiz indirimi yapılması ekonomik faaliyetleri düzeltmeye

yetmeyebilir. Bu nedenle Keynes faizlerin sürekli olarak düşük tutulmasını savunmaktadır.

Minsky ise Shumpeter'in inovatif girişimci fikrinden yola çıkarak asıl inovasyon kaynağı olarak finans sektörünü işaret etmekte bankacılığın kâr amaçlı bir aktivite olarak tanımlamakta ve bankacıları inovatif yollarla varlık alımı ve borçlanma metotları geliştirdiklerini ifade etmektedir (Knell, 2012). Bu nedenle paranın hızı finansal varlıkların fiyat seviyeleri ile doğru orantılı olarak artmaktadır (Minsky, 1992). Optimist dönemlerde artan varlık fiyatları nedeniyle yatırımcılar risk almakta ve varlıklara yatırım yapmak için aşırı derecede borçlanmaktadır. Çünkü varlık fiyatlarının daha fazla getiri getireceğini düşünmektedirler (Minsky, 1975).

Bu optimisttik dönemlerde politika belirleyicilerin faiz oranını artırması firmaların geliri artmadığı halde ödemelerini artırır ve nakit akışlarını bozar. Artık firmalar ne borçlarının anaparasını, ne de faizini ödemeyecek derecede borçlanmış durumdadır. Bu şekilde borçlanan firmaları Minsky "ponzi" firmalar olarak tanımlamaktadır. Yaptığı yatırımlarla borçlarının faizini ödeyebilen ancak anaparasını ödemek için borçlanan yatırımcıları "spekülatif" hem ana para hem de faizi karşılayabilenleri ise "hedge" yatırımcılar olarak tanımlamaktadır. Ponzi firmaların ve finansal kuruluşların sayısının artması finansal sistemdeki kırılganlığı artırır ve borç ödemelerindeki aksamalar ekonomik krizlere neden olur. Kriz, küresel finansal krizde olduğu gibi bir bankanın batması ya da varlık fiyatlarının bir anda düşmesi gibi bir olayla tetiklenir (Minsky, 1977). Minsky'e (1992) göre bu kriz döngüsü kâr amaçlı bir finansal sistem barındırması nedeniyle kapitalist ekonomilerin doğal bir parçasıdır.

Daha sonra Wolfson (2002) Minsky'nin yerel ekonomiler üzerindeki teorilerini global ölçütlere taşımış ve Asya Krizini bu teoriler üzerinden açıklamayı başarmıştır. Asya krizinde gelişmekte olan Asya ülkelerindeki banka ve firmalar ucuz kredi ile Japonya gibi gelişmiş ülkelerden yüksek oranda borçlanmış, borçlanma maliyetlerini ise Japon merkez bankasının düşük faiz oranları belirlemiştir. Wolfson'a göre burada faiz artırma politikası uygulayarak sistemin nakit akışını değiştiren yerel bir merkez

bankası değil, Japon Bankası olmuştur. Japonya'nın faiz artımında sonra bölgedeki diğer merkez bankaları sıkı döviz kuru politikalarını sürdürememiş ve kriz Tayland'dan başlayarak tüm bölgeye yayılmıştır. Wolfson Minsky'nin krizi tetikleyen ani olay şeklinde tabir ettiği durumu ise Asya krizi örneğinde yatırımcıların bir anda bu ülkelerden paralarını çekmesine neden olan bulaşma etkisi "contagion" olarak göstermektedir.

Finansal kırılganlıklarla ilgili teoriler geliştirilmiş olsa da kırılganlık faktörleri ekonomik modellerin içine henüz yerleşmemiştir. Yine de asimetrik bilgi üzerine kurulan ekonomik teorilerde finansal kırılganlık kavramı yer almış olup uygulamalı makroekonomi ve oyun teorisi çalışmalarında finansal kırılganlık üzerine modeller geliştirilmiştir.

Asimetrik bilgi hakkındaki çalışmalarda Akerlof (1970), Jaffe ve Russel (1976) Stiglitz ve Weiss (1981), Prescott ve Townsend (1984), Mishkin (1991) gibi ekonomistler kredi sağlayanlarla kreditörler arasındaki asimetrik bilgiden kanaklanan kırılganlıklara ve bu kırılganlıkların yol açabileceği krizlere değinmişlerdir. Bernanke ve Gertler (1987) finansal sistem aksaklıkları ve bu aksaklıkların ekonomi üzerindeki etkisi üzerine modeller kurmuştur. Mankiw(1986) ise asimetrik bilginin yaygın olduğu durumlarda küçük bir faiz artışının bile kredi piyasalarında çöküşe neden olabileceğini ortaya koymuştur.

Uygulamalı makroekonomi alanında ise sektör bazlı bilanço verileri gibi finansal göstergelerin ekonomik dalgalanmalar üzerindeki etkisi ortaya konulmuştur. Örneğin Eckstain ve Sinai (1986) kredi alan taraftaki üreticilerin borçluluk oranlarının milli hasılayı etkilediğini ve ekonomik aktivitenin volatilitesini konjoktğr yönlü olarak etkilediğini ortaya koymuşlardır. Benzer şekilde Fredman (1986) ve Kaufman (1986) şirketler kesimini borçlarının ekonomik ve finansal alandaki olumsuz etkilerini göstermişlerdir.

Oyun teorisi alanında ise Lagunoff and Scherff (1999) kırılganlık kavramını ilk defa modelleyen ve tanımlayan bir dinamik ve sthıcastik bir model geliştirmişledir. Yine

de bu ekonomistler modellerinin oldukça fazla varsayıma dayalı ve basit yapılı olduğunu kabul etmektedirler.

Köklerini Fisher (1933) ve Keynes (1936)'in çalışmalarından alan kırılganlık terimi, bir çok ekonomist tarafından ekonominin farklı disiplinleri içinde incelenimiş olsa da kırılganlığı tam olarak tanımlayacak ve etkilerini ortaya koyacak bir model henüz geliştirilmemiştir. Yinede kırılganlık kavramı güncelliğini korumaya ve ekonomistlerin ilgisini çekmeye devam etmektedir.

Son dönemlerde finansal kırılganlıklar makroekonomik düzeyde de incelenmeye başlamıştır. Gelişmekte olan ülkeler 2008 yılına kadar yüksek sermaye girişiyle büyüme sağlamış, borçluluk oranları hızla artmış ve sermaye girişlerine bağımlı olmaya başlamışlardır. IMF (2010) çalışmaları gelişmekte olan 41 ülkeye net sermaye girişi olurken 2008'in son çeyreğinde yatırımcıların risk algısının değişmesiyle bunun negatife döndüğünü göstermektedir. Banka kredileri, portföy yatırımları, bono ve hisse senedi yatırımlarında net giriş pozisyonundan net çıkış pozisyonlarına geçiş yaşanmıştır. Sadece doğrudan yabancı yatırımlar kalemi net giriş azalmasına rağmen pozitif kalmaya devam etmiştir.

Türkiye'yi de içeren Orta ve Doğu Avrupa ülkelerinin küresel finansal kriz öncesindeki yüksek cari açığı ve sermaye girişine bağımlılığı makroekonomik kırılganlık örneği olarak Uluslararası Para Fonu tarafından raporlanmış ve bölgenin kriz dönemi ve sonrasındaki göreceli olarak kötü ekonomik performansı bu kırılganlıklar kapsamında irdelenmiştir (Mathisen and Mitra, 2010). Ayrıca yine Türkiye'nin yer aldığı "Kırılgan Beşli" gibi kısaltmalar daha popüler hale gelmiş, kırılgan olarak tanımlanan ülkelere yönelik yatırımcı algısının kötüye gitmesi nedeniyle bu ülke para birimlerinin nispeten daha hızlı biçim de değer kaybına uğradığı görülmüştür (Nechio, 2014).

Türkiye yüksek seviyedeki yabancı para cinsinden borçluluk oranı ve yüksek cari açığı, yavaşlayan ekonomik büyümesi ve yüksek enflasyonu ile hem dünyanın en kırılgan ekonomik bölgelerinden birinde yer almakta (Mathisen and Mitra, 2010)

hem de dünyanın en kırılgan ekonomilerinden biri olarak gösterilmektedir (Lord, 2013). Kırılgan Beşli gibi kavramlar literatürde henüz yeterince yer almamış olsa da FED tarafından Mayıs 2013'de likidite artımında azaltmaya gidileceğini duyurulduktan sonra kırılgan olarak tanımlanan ülkelerin bu dönemden sonra FED'den gelen azaltım (tapering) haberlerinden diğer gelişmekte olan ülkelere göre daha az (Nechio, 2014) ya da daha çok (Aizenman, Binici, ve Hutchison, 2014) etkilendiğini ortaya koyan çalışmalar yapılmıştır. Yine de Türkiye'nin kırılganlığına ilişkin tespitler yatırımcılar açısından önem arz etmektedir.

Bu nedenle öncelikle Türkiye'deki finansal ortamı uluslararası karşılaştırmalarla birlikte anlamak ve kırılganlıkları tespit etmek gerekmektedir. Ülkelerin ekonomik gelişmişlik düzeyleri ile finansal sistem derinliği arasında doğru bir orantı gözlemlenmektedir. 2006 yılı sonrasında gelişmekte olan ülke ekonomilerinde finansal sistemin reel ekonomiden daha hızlı büyüdüğü gözlemlenmektedir. Türkiye ise finansal derinlik konusunda, özellikle finansal sistemin özel sektöre kredi sağlama performansı bakımından diğer ülkelere göre daha hızlı bir ilerleme sağmıştır. Özel sektöre sağlanan kredilerin milli hasılaya oranı 2004 yılında aşağı orta gelir grubu ülkeler seviyesinin altındayken, bu oran 2011 yılında üst orta gelir grubu ülkelerle aynı seviyeye ulaşmıştır. Öte yandan finansal derinlik olarak Türkiye karşılaştırılabilir ülkelere göre halen geride kalmaktadır.

Türkiye şirketler kesiminin bilançodaki pasifler tarafı incelendiğinde öz kaynakların borçlara oranının yüzde kırk seviyesinde olduğu görülmektedir. Bu oran ABD ve Almanya'da yüzde altmış civarındadır. Banka borçlarının toplam varlıklarına oranı ise gelişmiş ülkelerdeki düzeylere yakındır. Türk firmalarının yabancı kaynak dağılımı yüksek ticari kredi oranı ve düşük borçlanma araçları finansmanı ile diğer ülkelerden ayrışmaktadır. Öte yandan kârlılık ve vergilerin satış veya varlıklar toplamına oranı gibi konularda gelişmiş ülkelere göre belirgin bir farklılaşma görülmezken, faiz giderlerinin toplam varlıklara oranının Türkiye'deki şirketler kesimi için oldukça yüksek ve değişken olduğu gözlemlenmiştir. Bu oran ABD,

Almanya, Güney Kore, ve İspanya gibi ülkelerde 2005-2011 döneminde %1-2 seviyelerindeyken, Türkiye'de %2-5 aralığında dalgalanmaktadır.

Türkiye'de şirketler kesiminin finansman yapısı özel olarak incelendiğinde yatırım ortamı ve kırılganlıklar hakkında daha ayrıntılı bilgilere ulaşılabilir. Finans dışı sektör firmalarının finansman yapısı 2001 yılındaki krizden sonra yapısal reformlar ve iç tüketimle desteklenen büyün miktardaki sermaye girişleri ile değişmiştir (Özmen, Şahinöz, and Yalçın, 2012).

Türkiye'de dışsal finansmanın ana kaynağı bankacılık sistemi olmuştur. Şirketler kesiminin sermaye dışındaki pasiflerinin yaklaşık yarısını banka krediler oluşturmaktadır. Bankacılık Düzenleme ve Denetleme Kurulu verilerine göre Bankaların özel sekötre sağladığı kredilerin milli hasılaya oranı 2006'dan 2013'e kadar %20'den %40'a ulaşarak iki kat artmıştır. Bu büyümede büyük ölçekli firmalara sağlanan kredilerin büyüme hızı ile küçük ve orta ölçekli firmalarasa sağlanan kredilerin büyüme hızı kayda değer bir farklılık göstermemiştir.

TCMB veri setinde yer alan finans dışı sekötr şirketlerinin toplam pasifleri arasında 2004 yılından 2012 yılına kadar öz kaynakların payı azalırken banka kredilerinin oranı artmış, diğer dış kaynakların oranları ise sabit kalmıştır. Borçlanma araçları kullanımı oldukça zayıf durumdadır. Ticari krediler de diğer ülkelere nispeten dış kaynaklar arasında önemli bir paya sahiptir (Özlü and Cihan, 2010).

Banka kredilerinin pasifler tarafındaki ağırlığının artması hem imalat sektöreri hemde imâlat dışı sektörler için geçerli olup, imâlat sektörlerindeki banka kredileri oranı görece daha yüksektir. Öte yandan banka kredilerinin ağırlığı ve artış trandindeki hız firma öleçeğine göre değişmemektedir. KOBİ'lerde büyük ölçekli firmalar gibi banka kredilerine yönelmiştir. Küçük firmalar için baka kredilerinin oranını arttıkça ticari kredi oranlarının azaldığı görülmekte, bu da Türkiye'deki ticaret ve finansman kültürünün değiştine işaret etmektedir.

Şirketler kesimin büyümesi sadece finansmana erişim ile ilgili değildir. Firmaların yatırım yapmalarını teşvik edecek politikalar geliştirilmesi de önem arz etmektedir.

1990'lardaki ekonomik çalkantılar firmaları likit ve faiz getirisi olan tahvil ve bono gibi varlıklara yatırım yapmaya yöneltmiştir. 2001 sonrasında sağlanan güven ortmamında bu eğilim değişmişse de (Özmen, Şahinöz, and Yalçın, 2012) 2007'den sonra imalat sektörlerinde uzun vadeli yatırımlarının göstergesi olan maddi duran varlıkların topmla varlıklarına oranı verisinde düşüş trendi gözlemlenmektedir.

Şirketler kesiminin kârlılıkları incelendiğinde ise faiz ve vergi öncesi kârların son 10 yılda daha durağan olduğu ancak 2008 ve 2011 yıllarında faiz giderlerindeki dalgalanmalar nedeniyle kârlılığın azaldığı görülmektedir. Küçük ölçekli imalat şirketlerinin kârlılık oranları büyük ve orta ölçekli şirketlerden daha düşük olarak gözlemlenmiştir.

Türkiye'de finans dışı sektör firmalarının bilanço kırılganlıkları ayrıntılı olarak incelendiğinde, faiz oranı riskine karşı kırılganlık göstergesi olan borç vade yapısının ve döviz kuru riskine karşı kırılganlık göstergesi olan borç dolarizasyon oranının 2003 yılından sonra kısmen iyileştiği görülse de her iki göstergede kırılganlıkların devam ettiğini işaret etmektedir. Firmaların borçluluk oranları özelliklere banka kredileri yoluyla 2009 yılından sonra hızla artmıştır.

Şirketler kesiminin döviz cinsi varlıklarının döviz cinsi borçlarına oranı 2003-2006 yıllarında %60'ın üzerindeyken bu oran daha sonraki yıllarda sürekli azalmıştır. Finans dışı sektör firmalarının döviz cinsi varlılarının borçlarını karşılama oranı 2009'da bir bölü ikiye, 2013 yılında bir bölü üç oranına çekilmiştir. Bu oran hizmet sektörü firmalarında imalat sektörüne göre çok daha düşük olup dörtte bir düzeyindedir. Şirketler kesimi döviz cinsi borçlarının milli hasılaya oranı ise 2005 yılından sonra sürekli olarak artmış ve 2005'de %40 düzeyindeyken 2013'de %90'ı aşmıştır. Şirketler kesiminin 2013 sonunda 267 milyar ABD dolarına ulaşan döviz cinsi borçlanmanın yaklaşık yarısı yerel bankalardan ve yaklaşık üçte biri de yurt dışından alınan kredilerle sağlanmış olup, şirketler kesimini olumsuz etkileyecek döviz hareketlerinin hem yerel bankacılık sektörü hem de yurt dışındaki kreditörler açısından risk doğurabileceği görülmektedir.

Borç dolarizasyonundaki kırılganlık ihracattaki artışla dengelenebilir. Döviz kuru artığında bir yandan dolarize olmuş borçlar nedeniyle borçluluk oranı artarken ihracatçı firmalar kurla birlik artan fiyat rekabetçiliği sayesinde kârlılıklarını yükseltebilir. Bu nedenle bir borç dolarizasyonu ihracat yoğunluğu ile birlikte incelenmelidir. Bu kapsamda Echeverrya vd. (2003), tarafından geliştirilen ve sektör ya da şirketleri borç dolarizasyonu ve ihracat yoğunluğu bakımından kırılganlık durumuna göre güvenli, ortada ve riskli olarak sınıflayan bir metot geliştirilmiştir. Türkiye'deki finans-dışı sektörleri bu metotla incelediğimizde 24 ana sektörden hiç birinin güvenli alanda olmadığı, riskli alandaki sektör sayısının 2007 yılında 13 iken 2012'de iki sektörün daha riskli alana kaydığı ve bu sayının 15'e çıktığı görülmüştür.

Şirketler kesiminin finansal kırılganlıklarının tespitinden sonra sektörlere özgü kırılganlık faktörlerinin ve makro-ekonomik değişkenlerin sektör kârlılıkları üzerindeki etkileri ampirik olarak incelenmiştir. Ampirik çalışmada finansal kırılganlıkların finans dışı sektörler üzerindeki etkilerinin düzeyini ortaya koymak amaçlanmıştır.

Analizlerde dinamik panel veri modeli olan Genelleştirilmiş Momentler Metodu (GMM) (Arellano ve Bond, 1991; Arellano ve Bover, 1995) kullanılmıştır. Veri setimiz onlarca sektöre ait maksimum 10 yıllık bir dönemi içerdiği ve bağımlı değişkenin bir yıllık gecikme faktörü modeli dahil edildiği için panel data üzerinden sabit etkili bir tahmin yöntemi yerine dinamik bir model seçilmiştir. Sektör bazlı değişkenler için Türkiye Cumhuriyet Merkez Bankası'nın erişime açık olan sektör bilançoları verisinden yararlanılmıştır. 2003 ve 2012 yıllarını kapsayan on yıllık döneme ait "sektör bazlı" ve "sektör ve büyüklük bazlı" iki ayrı veri seti elde edilmiştir. Bu veri setleri aşağıdaki jenerik model üzerinden test edilmiştir:

$$Y_{it} = Y_{it-1} + \beta S_{it} + \gamma M_t + u_{it}$$

"i" sektör indisini, "t" zaman indisini, "Y" kârlılık için seçilen bağımlı değişkeni, "S" sektör bazlı değişkenler vektörünü ve "M" makroekonomik değişkenler vektörünü simgelememektedir.

Kârlılık, modelde bağımlı değişken olarak bir sektörün (ya da bir sektörde ilgili büyüklükteki firmalarının) ilgili yıldaki toplam net dönem kârının toplam varlıklarına oranı olarak belirlenmiştir.

Açıklayıcı değişkenler olarak hem sektör bazlı kırılganlık faktörleri hem de bu kırılganlıkların finansal bir krize neden olabileceği durumları tetikleyebilecek makroekonomik değişkenler kullanılmıştır. Sektör bazlı değişkenler olarak borçluluk oranı, ihracat yoğunluğu ve reel efektif döviz kurunun ihracat yoğunluğu ile çarpımı kullanılmıştır. Makroekonomik değişkenler ise reel efektif döviz kuru ve ticari kredilerdeki reel faiz oranı olarak belirlenmiştir.

Borçluluk sektörün toplam borçlarının toplam varlıklarına oranı, ihracat yoğunluğu yurt dışı satışların toplam satışlara oranı olarak hesaplanmıştır. İhracat yoğunluğunun reel efektif döviz kuru ile çarpımı ise ilgili sektörün kur riskine karşı bağışıklığını göstermektedir.

GMM modeli uygulanırken tüm hesaplamalar Stata 12.1 yazılı ile Xtabond2 (Roodman, 2009) kodu kullanılarak yapılmıştır. Uygun GMM modelinin belirlenmesi için öncelikle makroekonomik teoriye ve Özmen vd. (2012) tarafından yapılmış olan çalışmaya uygun olarak bazı kısıtlamalar yapılmıştır. Makroekonomik değişkenler dışsal faktör olmaları nedeniyle GMM modeldeki enstrüman setine dahil edilmişlerdir. Sektör bazlı değişkeler ise içsel olarak kabul edildiğinden bağımlı değişkenle birlikte GMM kodunun içine dahil edilmişlerdir.

Başlangıçta ekonomik büyüme hızı, finansal derinlik gibi farklı değişkenlerde göz önüne alınarak mümkün olan en geniş değişken seti ile e-testlere başlanmıştır. Etkin ve anlamlı bir model oluşturmak için mümkün olan tüm değişken setleri test edilmiştir. Her bir değişken seti; sistem GMM, düzeltmeli GMM (GMM with leveling), diferansiyel tranformasyonlu GMM ve ortogonal transformasyonlu GMM (Arellano and Bover, 1995) ile test edilmiştir. Her bir GMM modeli için GMM kodu içinde bağılı değişken ve sektör bazlı değişkenlerin birinciden ikinciye, ikinci ve ikinciden üçüncüye gecikme faktörleri eklenerek testler tekrar edilmiştir. Tüm testler

her bir veri seti ve alt veri setleri için tekrar edilmiştir. Testleri kolaylaştırmak amacıyla "do dosyası" kodları oluşturulmuştur. Tüm GMM testlerinde robust, iki adımlı kodlama kullanılmıştır. Tüm veri setlerinde, Ortogonal transformasyon kullanılan ve GMM kodu içinde ikinci gecikme faktörlerini içeren model, tezde yer alan değişken seti ile en anlamlı ve yorumlanabilir sonuçlarını vermiş ve tezde optimal metot olarak yer almıştır.

Ampirik analizler sonucunda Tükiye'deki finans dışı sektörlerin kârlılık faktörlerini ortaya koyan, istatistiksel olarak anlamlı modeller elde edilmiştir. GMM modelinin geçerli olması veri setinde seri korelasyon olmamasına bağlıdır. Uygulanan değişken seti ve metottan alınan sonuçlar tüm veri setleri ve alt veri setlerinde seri korelasyon olmadığını göstermektedir. Tüm model tahminleri enstrüman anlamlılığını sağlayacak şekilde Hansen-J testini sağlamaktadır.

Bulgular hem sektör bazlı kırılganlık faktörlerinin hem de makroekonomik değişkenlerin anlamlı şekilde sektör kârlılıklarını etkilediğini göstermektedir:

- Borçluluk oranları arttıkça sektörlerin kârlılık oranları azalmaktadır.
- İhracat oranları yüksek olan sektörler daha yüksek oranlarda kâr elde etmektedir.
- İhracat yoluyla sağlanan kur riskine dayanıklılık faktörü, Echeverrya vd. (2003) tarafından öngörülen şekilde kârlılığı artırmaktadır.
- Rodrik'in (2009) bulguları ve Mundell Fleming modelinin aksine, Türk Lirasının reel efektif döviz kuru artışı kârlılığı artırmakta, değer kaybı ise kârlılığı azaltmaktadır.
- Ekonomik teori ve önceki ampirik çalışmalara (Özmen vd. 2012) uygun olarak reel faiz oranı artışı kârlılığı düşürmektedir.

Ampirik analizden elde edilen bu sonuçlar özetle, borçların pasifler tarafındaki ağırlığının, zayıf vade yapısının ve yüksek dolarizasyonunun Türkiye'deki finans dışı sektörler için kırılganlık doğurduğunu ve kârlılığa engel olduğunu göstermektedir.

Ampirik analizden elde edilen bu sonuçlar ayrıntılı olarak tartışıldığında, şirketler kesiminin kırılganlıkları hakkında daha derin çıkarımlar yapılabilir.

Borçluluk oranı daha yüksek olan sektörler daha az kâr elde etmektedir. Bu da sektör bazında borçluluğun bir kaldıraç faktörü olarak kullanılamadığını, alınan borçların kârlılığı düşürecek şekilde finansman giderlerine neden olduğunu göstermektedir.

Yabancı para cinsinden düşük maliyetli fonların erişilebilir olması nedeniyle ihracat oranı daha düşük olan finans dışı sektörler ve üretim sektörlerinde reel kur artışı kârlılığı artıcı etkiye sahiptir.

Öte yandan reel efektif döviz kurunun TL'nin değer kaybı esnasında kârlılıkların düştüğünü göstermesi Frankel (2005) tarafından ifade edilen şekilde dövizdeki artışların dolarize olmuş ekonomilerde bilanço etkisi ile resesyona neden olabileceği gerçeği ile örtüşmektedir. Galindo vd.(2003), Frankel (2005), Montiel ve Serven (2008), Levy-Yeyati and Sturzenegger (2009) gibi ekonomistler para değer kaybettiğinde artan ihracatla birlikte toprlanması beklenen ekonomilerin, borç dolarizastonu ve üretimde ithalata bağımlılık gibi kırılganlıklar nedeniyle toparlanamadıklarını, sektörlerlerdeki bilanço etkileri nedeniyle firma kârlılıklarının azaldığını ve ekonomik kriz yaşayabildiklerini göstermektedir. Bu tip ekonomilerde Mundell-Flaming modeli geçerli olmamaktadır. Bu tezdeki bulgular, reel efektif döviz kurundaki zayıflamanın şirketler kesimi kârlılığını düşürdüğünü ve Türkiye'nin de böyle bir riske sahip oldğunu göstermektedir.

Reel dözviz kurunun şirketler kesiminin kârlılığı üzerindeki etkisi ise makroekonomik teoirye ve daha önceki empirik çalışmalara uygun şeklide negatif çıkmıştır. FED'in faiz artırımı gibi dışsal bir etken ani döviz kuru artışlarını tetiklediğnden kurdaki değer kaybını önlemek için faiz oranlarının artırılması da yine şirketler kesimini olumsuz etkileyebilir.

Firma büyüklüğüne göre ayrılmış sektör bazlı veriler üzerine yaplan ampirik analizler ise sektörlerdeki şirket büyüklüğü sınıflamasına göre büyük şirketlerde

borçluluk oranının negatif etkisinin azaldığını ve TL'nin değer kaybı esansındaki negatif etkinin arttığını ortaya koymaktadır.

Sonuç olarak bu çalışmada sektör bazlı veriler kullanılarak şirketler kesiminin kârlılığını etkileyen faktörler ortaya konulmuş ve kur ya da faiz şokları gibi dışsal etkenlerin şirketler kesimi üzerindeki etkileri incelenmiştir. Bu sonuçlar şirketler kesimi kırılganlıklarının ekonomik dalgalanmalar esnasında oluşturacağı makroekonomik sonuçları tahmin etmeye yardımcı olabilir. Elde edilen bulgular, Türkiye'deki şirketler kesiminin borçluluk oranları nedeniyle kârlarda kayıp yaşadığını göstermektedir. Kurdaki değer kayıpları konjonktür yönlü etkilere neden olmaktadır. Borçluluk ve borç dolarizasyonu son yıllarda hızla artmıştır. Bu tespitler şirketler kesiminde kayda değer finansal kırılganlıklar olduğunu işaret etmektedir.

Her bir sektör için, firma bazlı veriler kullanılarak benzer çalışmalar yapılması, dışsal şoklar karşısında ilgili sektörün nasıl etkileneceğini anlamada yardımcı olabilir. Bu tip çalışmalar, politika yapıcılar için kırılgan sektörlerin belirlenmesine ve kur artışı veya faiz artışı gibi şoklar karşısında stratejik olarak bu sektörlerin desteklenmesine yardımcı olacaktır.

Dolarizasyonu azaltıcı düzenlemeler, şirketler kesimi için borçlanma piyasası araçlarının yaygınlaştırılması, sermaye piyasalarının geliştirilmesi, küçük ve orta ölçekli firmaların erişebileceği sermaye finansmanı mekanizmalarının kurulması, türev piyasalardaki risk önleyici araçların kullanımının yaygınlaştırılması gibi politikalar mevcut kırılganlıklarla mücadelede akla ilk gelen yöntemler olarak öne çıkmaktadır.