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Capital structure and financial crisis: an empirical analysis of Italian firms

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Alle persone che hanno creduto in me.

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Abstract

This thesis aims to ascertain the effect of global financial crisis on the capital structure of medium, large and listed Italian companies.

This dissertation presents a structured and precise analysis on leverage of Italian companies for the period from 2005 to 2014, then dismantled into maturity, short-term debt, long-term debt; for listed companies, a further breakdown allowed a further understanding of the substitution effect from banks borrowing to corporate bonds.

Furthermore, we will narrow the focus to subsamples of different company's sizes, allowing to reveal peculiarities of peer size firms.

Overall, the results will suggest a significant reduction in leverage from 2009, mainly driven by a consistent decrease in short-term debt which is greater than the reduction in long-term debt, leading maturity to increase.

Keywords: Capital Structure, Financial Crisis, Credit Crunch.

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Résumé

Cette thèse vise à fournir une compréhension plus profonde de l'impact de la crise financière mondiale sur la structure du capital des moyennes, et grandes entreprises cotées italiennes.

Cette thèse présente une analyse significative sur les effet de levier des entreprises italiennes pour la période 2005-2014, puis sépare cet indicateur en : date d'échéance, dette à court terme, dette à long terme; pour les sociétés cotées, une ventilation plus poussée a permis de comprendre davantage l'effet de substitution des emprunts bancaires aux obligations de sociétés.

Par la suite la construction d'une base de données appropriée, des observations par société annuelles sont examinées à la fois de façon descriptive et par les régressions de données du panel.

Après une analyse de l'ensemble des données, la mise au point se rétrécit sur les sous-échantillons de tailles différentes de sociétés, ce qui permet de révéler les particularités des entreprises de taille similaire.

Dans l'ensemble, les résultats indiquent une réduction significative de l'effet de levier à partir de 2009, principalement en raison d'une diminution constante de la dette à court terme qui était plus grande que la réduction de la dette à long terme; la maturité financière ayant augmenté. Tous les changements sont loin d'une pleine récupération.

Keywords: Capital Structure, Financial Crisis, Credit Crunch.

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1. Introduction and Research Question

This thesis aims to ascertain the effect of global financial crisis on the capital structure of medium, large and listed Italian companies.

The implications of financial crisis on capital structure do not find an all agreed position on previous literature, mainly due to differences in the nature of the previous crisis, changing institutional factors, specific company determinants.

A vast literature has focused its efforts in understanding the changes both in capital structure and in the determinants affecting capital structure choices due to the global financial crisis, but I believed that this dissertation will help to fill the existing information lack for Italian companies.

The decision to focus exclusively on medium, large-sized and listed companies, is due to the extensive literature already existent for SMEs in Italy, Europe and around the world. Soana, Verga and Regalli (2015) proves how private Italian SMEs faced credit rationing between 2007 and 2012. Gualandri and Venturelli (2014) provides evidences for deterioration in granting bank loans for European SMEs: French as German companies faced some minor issues after 2010, whereas Spanish SMEs were those with the lowest availability. Kitching, Smallbone and Xheneti (2009) analyzes the overall implications of “credit crunch” for UK SMEs, from tightening debt supply to late payments from customers, from variation in revenues to profit margin. Mach and Wolken (2012) focused their efforts in understanding the relation between credit crunch and survivability for American Small Businesses.

Presuming the relevance and the importance of the chosen topic, I decided to develop this research question to accomplish a broad and wide vision on the determinants of capital structure, and also to gain some specific knowledge about empirical analysis and econometric models.

This thesis aims to investigate on the following research question:

“To what extent has the global financial crisis impacted on the capital structure of medium, large size and listed Italian companies?”

1.2 Thesis Outline

Companies capital structure is the result of firm-specific determinants, institutional settings and macroeconomic factors (Demirgüç-Kunt and Maksimovic, 1999; Graham, Leary and Roberts, 2014).

After a small introduction where the most relevant capital structure theories are presented, the focus shifts on the broad literature that has been developed regarding the determinants that affect capital structure choices; by controlling for firm-specific determinants, as company size, profitability, tangibility and growth, capital structure changes ascribable to the Global Financial crisis can be identified.

Since this analysis is country-specific based, institutional settings are taken as fixed, assuming a *ceteris paribus* condition.

Global financial crisis, its background and its main effects on the economy is the discussed, with a particular focus on the impact on the supply of loans and on the corporate debt investor reaction.

Afterwards, the methodology is described, starting from the dataset, to the different models and the variables employed.

The empirical analysis starts with the whole dataset, where its purpose is to assess the overall trend for Italian companies; the sample is then divided into sub-categories considering different company sizes, in the attempt to evaluate at its best, the impact of the financial crisis on companies of the same peers group.

Results are then commented. The main differences between diverse size groups are discussed.

A further analysis attains the study of the controls and how they change with different sizes.

2. Capital Structure Theories and Firm-specific Determinants

This chapter has been structured as follows: starting from Modigliani and Miller Irrelevance Theorem, the focus moves to the main theories that have been developed in the last 50 years; furthermore, a wide array of papers have been reviewed, with the aim of providing a broad collection of different theoretical and empirical analysis that try to explain how companies make their decisions about different capital structures.

2.1 Corporate Finance Theory: the Irrelevance Theorem

In their 1958 and 1961 seminal papers, Modigliani and Miller provided their perspective on capital structure decisions. Implementing arbitrage arguments, they stated how the “market value of any firms is independent of its capital structure and is given by capitalizing its expected return at the rate appropriate to its class”¹. Apparently, different capital structure choices don’t have any influence on how management decide to distribute the generated cash flow to equity or debt holders, and that different capital structures don’t lead to have different company values.

Presumably, managers don’t have interests or doubts on how companies have to be funded, either the financial resources come in the form of equity or different types of debt.

Straight assumptions underpin their model: presence of an efficient market; perfect capital market conditions, such as the absence of taxes, agency costs and asymmetric information, bankruptcy related costs.

It is undeniable that these assumptions cannot be found in the real world; nevertheless, their theoretical model represents the first attempt to explain the relation between capital structure and its determinants.

In the last five decades a vast discipline around capital structure decisions has seen an exponential growth, with the aim of develop realistic models that, supported by empirical evidences, explain in a significant way how firms make their capital structure choices.

1. Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American economic review*, 48(3), 261-297.

Starting from the Irrelevance theorem, three major theories have been developed, with the implementation of several market frictions such as bankruptcy costs, agency costs and asymmetric information:

- Trade-Off Theory: companies make their capital structure choices balancing costs and benefits of different leverage levels;
- Pecking Order Theory: firms prefer equity over debt and, once it is depleted, they move to raise capital through debt;
- Market Timing Theory: companies pay attention to the market conditions in formulating their capital structure choices.

2.1.2 Trade-Off Theory

“In the static trade-off theory, optimal capital structure is reached when the tax advantage to borrowing is balanced, at the margin, by costs of financial distress”².

Originally formulated by Kraus and Litzenberger in the 1973, it assumes that firms try to reach a fixed capital structure which takes into consideration the benefit derived from debt tax deductions compared to the costs that arise from the use of debt, as the costs related to financial distress situations and bankruptcy costs.

Passive interest expenses are deductible from the firm’s tax liability, therefore companies prefer to employ debt over equity. The net present value NPV of all the resulting tax gains, the so-called tax-shield, represents a positive item that increases the firm’s value.

Nonetheless, higher leverage levels imply higher probability of bankruptcy and higher risk; companies that prefer debt over equity should take into account costs resulting from possible situations of financial distress, weighting the benefits of the debt against those potential costs.

Financial distress costs have been classified by Haugen and Senbet (1978) in direct and indirect:

- Direct costs refer to the costs directly linked to the probability of bankruptcy, such as credit costs, restructuring costs and legal parcels;

2. Kraus, A., & Litzenberger, R. H. (1973). A state- preference model of optimal financial leverage. The journal of finance, 28(4), 911-922.

- Indirect costs concern costs related to the impact on the environment in which companies operate, like potential loss in customer retention as well as the possibility to loose employees.

Agency costs, and its trade-off against the use of debt, represent another important theory on capital structure choices field.

Companies balance their leverage ratio weighting tax advantages, gained by the use of debt, against agency costs (Jensen and Meckling, 1976).

Agency costs occur in any situation of cooperative effort, when there is an incentive's conflict between firm's insiders and firm's outsiders.

Agency costs play important roles between:

- Management and Ownership: when they are distinct, managers could take decisions that favour their own interests instead of shareholders' ones; a counter measure is a high debt to equity ratio, as managers face periodic payments, paying out cash and pushing them to engage with long-term projects that have a positive impact on the equity value (Jensen, 1986);
- Management and Bondholders: since bondholders do not participate in the investment decisions, their controlling power is limited; for these reasons they ask for a yield premium, with the result of lowering the willingness of companies to offer debt (Harris and Raviv, 1991).

Overall, a company is said to follow the static trade-off theory "if its leverage is determined by a single period trade-off between tax benefits of debt and the deadweight costs of bankruptcy as well as the agency costs of debt and equity"³.

2.1.3 Pecking Order Theory

Mayer and Majluf (1984) and Myers (1984) assume that firm capital structure is the outcome of their financing requirements over time. Companies firstly look to employ their equity

3. Norton, E. (1991). Factors affecting capital structure decisions. *Financial Review*, 26(3), 431-446.

resources and, once they need further means, they prefer debt financing, given its intrinsic characteristic of present less asymmetric information problems than equity.

Managers have better and more reliable information about the real conditions of the company. Current shareholders are reluctant to accept a new share offering when the value of the stock is undervalued; at the opposite, when managers presume that company's shares are overvalued, in issuing new stock there is an implicit signal that they are expecting a cheaper stock price, with the consequent drop in the shares' price.

Firms operate in the interest of their shareholders; in the case that no projects have a Net Present Value NPV greater than the potential loss that current stockholders could face, debt funding should be preferred over equity funding.

Summarizing, companies should firstly employ their equity and retained earnings; once they are depleted, they should go for the safest security possible, starting with debt, then hybrid securities, such as convertible bonds, and, at the end, equity.

2.1.4 Market Timing Theory

Elaborated by Baker and Wurgler (2002), companies issue new equity when the market conditions are considered as being favourable and when MTB ratio (market-to-book ratio) is relatively high. Furthermore, once they have issued new equity, the change in leverage persists over time, considering the fact that firms don't tend to readjust their capital structure following a target ratio, but it is only the result of the cumulative outcome of former market timing issuings.

2.2 Firm-specific Determinants

Empirical studies prove how several firm-specific factors are consistently correlated with capital structure. In the following sections, different determinants and their implications are deeply analysed. Theories and evidences do not provide a univocal view of all factors that might affect capital choices, as well as for prediction's sign.

2.2.2 Firm Size

Following pecking order theory, firm's size is a possible proxy that could help to estimate the information asymmetry: larger companies are frequently followed by a greater number of investor relators, filling in a better way the information gap that exists between management

and investors; following these assumptions, it predicts that larger firms should prefer equity over debt, so it is consistent to expect a negative relation between leverage and size.

Following trade-off theory (Titman and Wessels, 1988; Talavera and Tsapin, 2011), since large companies are more diversified, they have a lower probability to go bankrupt; consequently, financial distress costs decrease, with the result of allowing companies to take a greater advantage of leverage; therefore, a positive relation between size and leverage is expected.

Jensen and Meckling (1976), as well as by Doukas, McKnight and Pantzalis (2005), large companies are more complex and less transparent than small size companies, where communication is more easy and direct; large companies face a greater amount of agency costs, reinforcing the supposition of a positive relation between size and leverage, following the trade-off theory.

Rajan and Zingales (1995), examining non-financial corporations of G7 countries during 1987-1991, report a significant and negative relation between size and leverage for all the examined countries, concluding saying that they “do not really understand why size is correlated with leverage”⁴.

2.2.3 Profitability

Considering trade-off theory, it is expected that companies with greater profitability have lower bankruptcy costs; weighting them with tax deductibility of passive interests, firms should take advantage of a greater amount of debt financing, suggesting a positive relation between profitability and leverage.

Jensen and Meckling (1976), Easterbrook (1984) and Jensen (1986) suggest a positive relation as well: a higher amount of debt helps to lower the related agency costs, forcing managers to pay-out the overabundant cash.

Pecking order theory predictions are on the opposite side: profitable firms, should employ as primary source of financing the retained earnings then, successively, raising fund through debt and, last choice, through equity; therefore, when retained earnings are greater than investments,

4. Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *The Journal of Finance*, 50(5), 1421-1460.

companies should employ internal funding; once it is depleted, debt funding come after and, as last option, equity funding; a negative relation is expected.

Rajan and Zingales (1995), as well as Titman and Wessels (1988), provide significant evidences for a negative relation between profitability and leverage.

2.2.4 Tangibility

Tangibility, measured as the proportion between fixed assets and total assets, is important to the extent that companies could use tangible assets as collateral for its debt.

Higher tangibility ratio lowers agency costs. Interest rate are lower in companies with a greater amount of fixed assets over total assets; Baker and Martin (2011) forecast a positive relation between tangibility and leverage.

Trade-off theory presumes a positive relation between leverage and tangibility. In the situation where companies present a higher tangibility, the distress costs linked to the probability of bankruptcy are lower; companies then will take the opportunity to take a greater advantage of leverage (Galai and Masulis, 1976).

Pecking order theory suggests a negative relation: Harris and Raviv (1991) assume a low information asymmetry when companies have a higher level of tangible assets that lead to be less costly for them to raise capital through equity.

Rajan and Zingales (1995) and Myroshnichenko (2004) demonstrate a significant and positive relation between tangibility and leverage.

2.2.5 Growth Opportunities

Fast growing companies have less constraints in taking capital structure choices than flat growing companies.

In growing companies, agency costs between managers and bondholders are greater; Titman and Wessels (1988) suppose a negative relation between growth opportunities and leverage.

Meanwhile, managers could take advantage of such flexibility; there is the possibility that they maximize their own wealth and, following, shareholders' one; issuing new debt balance this situation, suggesting a positive relation between growth and leverage (Jensen and Meckling, 1976; Myers, 1977).

Most of the time, growing companies are profitable and produce a great amount of cash; pecking order theory predicts a negative relation: companies should employ internal funding as primary source of funds.

Rajan and Zingales (1995) demonstrate a significant and negative relation between growth opportunities and leverage.

2.2.6 Industry

Harris and Raviv (1991) find evidences in the industrial classification as an important determinant affecting companies' capital structure.

Managers take the industry median leverage as a benchmark to set their capital structure strategies (Gilson, 1997; Hull 1999).

Companies of the same industry face common forces that shapes managers' decisions; a list of possible factors is: different technology, types of assets, the business risk and the nature of the competition. Regulated industries have more stable cash-flows so lower levels of financial distress costs, leading to a higher leverage.

Bartholdy and Mateus (2008), analyzing unlisted European companies from sixteen different countries, find that industry determinants is, among others, the most significant one and that companies of the same industry employ similar capital structure.

3. Institutional Determinants and Capital Structure

Capital structure choices are affected by the institutional environment in which the company is located. Institutional determinants affecting capital structure choices refer, among others, to factors such as corruption level, foreign direct investments, stock market development, government gross debt, market-based economies versus bank-based economies.

Without the presumption to provide a fully documented analysis, some factors have been reported.

Fan, Titman and Twite (2012) find a negative correlation between a country gross debt and companies' leverage, as the consequence of a fixed debt capital supply, where companies and governments have to compete to gain such limited resources.

Booth, Aivazian, Demirguc- Kunt, and Maksimovic (2001) suppose a positive, but not significant, correlation between GDP growth and leverage, affirming that companies in prosperous economies tend to borrow a greater amount of resources.

Claessens (2001), analyzing companies in markets with different degrees of stock market development, find a positive relation between it and the propensity of employ long-term debt and equity resources compared to the latter, focused more on short-term borrowings.

Levine (1999), Demirgüç-Kunt and Maksimovic (1996), support a positive relation between an active financial market and the use of long-term debt, concluding how companies tend to substitute equity with long-term debt in developed countries.

Alves and Ferreira (2011) suppose a positive relation between corruption, measured by a corruption perception index, and larger levels of debt, especially employing greater amounts of short-term financing compared to long-term one and equity.

Since this elaborate is not a cross-country analysis, all the institutional determinants were not taken into account, giving a situation of *ceteris paribus*.

4. Macroeconomics Factors and Capital Structure

The Subprime Mortgages Crisis of 2007-2009, and the following European Sovereign Debt Crisis, are considered by many economists as the worst financial crisis since the Great Depression of the 1930s.

Macroeconomic conditions represent important determinants that affect how firms fund themselves (Erel, Julio, Kim and Weisbach, 2012); in particular, referring to:

- quantities of funding;
- types of securities;
- maturities.

Existent literature provides strong evidences on the relation between previous financial crisis, either in the form of bank or currency crisis, and companies' capital structure; unfortunately, the sign of the relation does not find an agreed position.

Deesomsak, Paudyal and Pescetto (2004), in a comparative analysis of capital structure pre and post Asian Financial Crisis of 1997 in Thailand, Malaysia, Singapore and Australia, prove that while capital structure of Australian companies remain stable for all the considered period, the others increase their leverage during the crisis; Singapore firms recovers quicker compared to the other two countries.

Balsari and Kirkulak (2010), investigating the impact of the financial crisis on the Turkish companies of the Istanbul Stock Exchange Index during the 1994 and 2001 financial crisis, show as in the first crisis the leverage decreased while, in the second one, in order to compensate from a lack of lending funding, Turkish companies employ more short-term debt.

In the next sections, the Global Financial Crisis is firstly dismantled in the Subprime Financial Crisis and in the consequent European Sovereign Debt Crisis; then, the main effects on companies' financial structure are deeply examined with supporting evidences.

4.1 Global Financial Crisis

Subprime Mortgages Crisis reached its peak on the 15th September 2008, when Lehman Brothers went bankrupt without any public intervention by the US authorities. Subprime Crisis' name is due to its intrinsic nature: even before the increase on the interest rate by the Federal Reserve, the amount of non-performing loans was already enormous; after the change on the

interest rate, an increasing number of people and firms were not able to repay them anymore, causing liquidity constraints to banks.

Many other important investment banks were involved in the Subprime activity, and their financial distress infected European financial markets, via channels of global financial interdependencies. This caused an increase in the spreads between interbank rates and the reference rate set by monetary authorities, a decrease in trading on the interbank market and an expansion in the overnight deposits within the ECB. Banks funding maturities' mismatches began to arise as banks relied on relatively short-term ECB refinancing and retail bond issues. At this stage, the crisis did not highly affect Italian banks: no one bank filed for bankruptcy or were rescued by public authorities.

In the second stage of the Global Financial crisis, the European Sovereign Debt Crisis of 2010, an increasing countries' risks affected financial intermediaries' balance sheets. Sovereign bonds' ratings fell and their yield raised; funding sources became more scarce and expensive, as the access of banks to collateralized as uncollateralized lending decreased. Governments, in the attempt of diminishing sovereign tension, imposed tightening fiscal policies. All these factors impacted bank's ability to provide credit and its cost.

Hempell and Sorensen (2010): "focusing on the 2007-2009 financial crisis, our empirical findings suggest that strains on banks' liquidity positions and their access to market financing contributed significantly to the slowdown in corporate lending, whereas such effects were not significant prior to the crisis. [...] In sum, although overall loan developments in the euro area appear to have been mainly driven by cyclical and demand-side factors, these findings suggest that the financial turmoil induced shock to the banking sector significantly impaired euro area banks' ability to supply loans"⁵.

The impact of macroeconomic conditions on the firm's capital structure could be classified into two main groups (Erel, Julio, Kim and Weisbach, 2012):

- Lack of financing supply, either through a contraction in banks' offerings or due to a change in demand for securities by investors. The shortage on the supply of capital is

5. Hempell, H. S., & Kok Sorensen, C. (2010). The impact of supply constraints on bank lending in the euro area-crisis induced crunching?.

mainly due to the phenomenon of “credit crunch” that lower the availability of intermediary capital;

- Changes in the demand of financing resources by companies. It is affected by the economic downturns in different ways; since the state of uncertainty create by the financial crisis, economies experienced a drop on consumption and an increased in savings; capital expenditures decreased with the increase of uncertainty and the impossibility for companies to evaluate growth opportunities.

Even though the two predictions are not mutually exclusive and there is the possibility that macroeconomic conditions had an impact on both of them, evidences show as during the recent financial crisis the supply of financial resources had a larger impact on the supply side than on the demand of capital (Erel, Julio, Kim and Weisbach, 2012).

Their study was reinforced by the *Bank Lending Survey* of ECB; a collapse in the financing demand by Italian companies, at the beginning of 2009 as at the end of 2011, came after a decrease in the credit supply, which was the consequence of the tightening rules imposed by the ECB to banks in order to approve new loans.

Considering the reported evidences, a higher impact on the supply side than on the demand one is assumed.

Focusing on the supply of capital, the existing literature give three main justifications:

- Bank lending supply shock;
- Balance sheet multiplier;
- Investor’s reaction.

4.2 Baking Lending Supply Shock

The shortage on the supply of capital is mainly due to the phenomenon of “credit crunch”, that lowered the availability of intermediary capital.

The phenomenon of credit crunch does not found a consensual definition: Council of Economic Advisor defines it as “a situation in which the supply of credit is restricted below the range

usually identified with prevailing market interest rates and the profitability of investment projects”⁶.

In 2007 and 2008, financial institutions registered enormous amount of losses on their portfolios, especially in the United States. Considering bank’s intrinsically high leverage, when it increases over a certain limit, as the equity value decrease due to losses, banks are forced either to sell their assets or to raise new capital. Among other ways to decrease their assets, the most effectively ones are either to do not grant new loans or to do not renew the already existing ones. Following the decreased in banks’ borrowings, companies found more difficult in accessing to bank’s loans (Brunnermeier, 2009).

Compared to Anglo-Saxon economies, Italy presents an underdeveloped stock market, with 271 listed firms, an amount that comprehends banks, insurance as well as holding companies; a market capitalization that counts for 27% of the GDP (2014) compared to the 151% of the GDP (2014)⁷ of the United States. Even though Italian banking system were not aggressively affected by the Subprime Crisis, since a small exposure versus international financial markets, a contagion in the inter-banking market resulted in a bank lending supply shock; Italian bank-oriented system represented a multiplier of such effect, considering that companies had no other option to fund themselves.

As supported by Chava and Purnanandam (2011), countries with a lower degree of banking financial system development, where small and medium companies rely heavily, or even exclusively, in bank lending, present a greater vulnerability to banking crises, compared to countries where companies have alternative sources of financing.

Fosberg (2012) provides evidences for a positive impact on leverage of 2007-2009 financial crisis on American companies, as the consequence of a reduction in debt as equity capital financing.

Iqbal and Kume (2014), studying the changes on listed firms’ capital structure in UK, France and Germany, demonstrated that there is a significant increase in the leverage ratio from pre-crisis to post-crisis for German and UK companies, before it recovered in the after-crisis; at the

6. Council of Economic Advisors (1991), Economic Report of the President, Washington, D.C.

7. World Bank. 2016.

opposite, there are no significant evidences supporting the changes in the leverage for French companies. During the crisis, the UK companies employed more debt, both short-term as the long-term; at the opposite, there is no consistent change on debt structure of German and French companies.

H1: Leverage has decreased

4.2.1 Debt Maturity and Company Size

Italian companies present an average maturity which is lower compared to other companies in other countries (Magri, 2006; Fan, Titman and Twite 2010); it is due to the fact that firms rely almost exclusively on bank lending, giving a restricted access to security market.

Furthermore, leverage is lower in small and young companies, and for those with a lower tangibility ratio (Lamieri, 2009).

González (2014), studying corporate debt maturity of 111.892 firm-year observations for 39 countries over the period 1995-2012, finds a small reduction in the corporate debt maturity as the consequence of the crisis; however, this negative effect is greater in countries where the weight of banking industry in the economy is significant; the difference between the average long-term debt to total-debt ratio before and during the crisis, for the Anglo-Saxons countries is around -5%, while for countries like Italy, France, Germany and Spain is around +5%.

Alves (2015), analysing 11.209 firms from 43 different countries, finds that for almost all sample, the financial crisis increased the leverage on the short-term debt to debt and decrease the long-term debt to debt; in particular, European companies differ from the main sample for a lower magnitude of this trend. Furthermore, PIGS companies substituted long term financing by short term debt, as the result of credit's collapse.

H2: Maturity has decreased

H3: Short-term debt has increased

H4: Long-term debt has decreased

Smaller firms suffer from a greater information asymmetry; they disclose less information, they are less transparent, and with a lower tangibility ratio compared to large firms (Stohs and Mauer, 1996).

Under their lower creditworthiness, financial institutions are less willing to grant long-term debt to small enterprises, and smaller firms issue more short-term debt. This has been even greater during the financial crisis, as proved by Ayadi (2009) for European SMEs and by Costa and Laureano (2014) for Portuguese small and medium-sized companies.

4.3 Balance Sheet Multiplier

Italian economy was negatively affected by the slowdown of global demand and trade, especially due to its largely export economy; companies' balance sheets deteriorated and the credit quality of firms worsened, especially for small and medium enterprises, making them riskier for their lenders.

In the 2009 survey on 4.000 Italian manufacturing companies, Costa and Margani provide evidences on both the tightening supply of loans by financial intermediaries and on the deteriorating companies' profitability, making them riskier to get access to the banks loans; the effects have been seen greater on small and medium enterprises than on the bigger ones.

4.4 Corporate Debt Investor reaction

Kaya, Meyer, Dallmeyer and Hoffmann (2014) deeply study the substitution effect from bank lending to corporate bonds in Euro Area. Between 2007 and 2014, Loan's supply decreased by 7,4% of GDP, while the volume of outstanding corporate securities increased by 2.4% of GDP; therefore, they assume as bond market worked like a cushion, replacing almost a third of the reduction in bank's lending. As for French companies, Italian companies experienced an increase in bond funding by roughly the same amount of the contraction in loans; Spanish companies doubled bond financing; at the opposite, German firms increased their bonds' offerings just by 16%, probably due to the fact that they have not been impacted by the same amount as other countries.

Iyer, Lopes, Peydró and Schoar (2010), provide evidences for the substitution from bank lending to corporate bonds for Portuguese Listed companies.

Adrian, Colla and Shin (2012), find consistent evidences on the 2007-2009 crisis that suggest that the US listed companies increased their bond financing, making up much of the gap existing due to bank landing constraints.

H5: Short-term bank loans have increased (Listed companies)

H6: Long-term bank loans have decreased (Listed companies)

H7: Corporate bond have increased (Listed companies)

5. Data and Methodology

In the next sections, the Data employed and the Methodology developed are analysed.

5.1 Data

The database has been created using as source AIDA (Italian Digital Database of Companies), which is the Italian provider for the Bureau Van Dijk European Database; the choice has been made following its reliability for financial information for private as public Italian companies.

AIDA provides accounts on the basis of the 4th EU Directive for up to ten years for companies with at least 1 million revenues.

Financial companies such as banks and insurance were removed, to avoid the effect of specific financial sector regulation. To do so, US Sic code was considered: companies between US Sic 6000 and 6799 were erased. It is believed that Italian companies were firstly categorized by ATECO code, an Italian standard, and then converted into US Sic code with some mistakes, due to the fact that several industrial parent companies were recorded as financial intermediaries; for this reasons, just banks, insurances and other financial intermediaries were removed, keeping the remaining companies.

Public sector companies were removed as well.

The requirements that companies have to satisfy in order to be categorized into different sizes are deduced by the EU Commission Recommendation of 6th May 2003, concerning the definition of micro, small and medium-sized enterprises, acknowledged by the Italian Ministry of Economy on the 18th April 2005. In particular, small firms have maximum 50 employees and a maximum turnover of € 10 million or a total balance sheet of € 10 million; medium-sized companies have a maximum of 250 employees and a maximum of € 50 million or a total balance sheet of € 43 million; companies with the above requirements are counted as large. The requirements are summarized in the table below.

Size	Small	Medium	Large
Employees	< 50	< 250	All the others
Turnover OR	< € 10 m	< € 50 m	
Balance sheet total	< € 10 m	< € 43 m	

Tab.1 : Firm size requirements

Since the focus of this dissertation is to study the impact of the crisis on the capital structure of medium and large companies, small enterprises were not take into consideration (section 1).

The values that were considered to create the Database are summarized in the table below:

Category Value:	Firm-specific	Balance Sheet		Income Statement
Values	US Sic Employees Company Type Private/Public	Intangible Tangible Cash ST/LT ST/LT Equity	Assets Assets Debt Bonds	Revenues Ebitda Financial Expenses Pre-tax Income Net Income

Tab.2 : Database's Values

5.1.1 Descriptive analysis of the Data

Dataset is composed by 136.850 company-year observations with an increasing trend from 2005, with 10.921 companies, to 2014, with 14.904 companies. Medium-sized companies, with a 69,2%, represent the biggest part of the database observations, followed by large-sized companies with 29,9% and the remaining 0,9% by listed companies. Except for a smaller increase in the incidence of large companies, the proportions between different size remain pretty stable.

A breakdown of the company-year observations is exposed below, by year and company size:

Year:	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Medium	7.737	8.717	9.188	9.169	9.308	9.558	10.300	10.251	10.300	10.204	94.732
%	70,8%	69,9%	69,5%	68,6%	69,9%	68,9%	69,0%	68,8%	68,8%	68,5%	69,2%
Big	3.103	3.659	3.943	4.088	3.877	4.167	4.473	4.504	4.532	4.570	40.916
%	28,4%	29,4%	29,8%	30,6%	29,1%	30,1%	30,0%	30,2%	30,3%	30,7%	29,9%
Listed	81	86	93	114	134	141	145	137	141	130	1.202
%	0,7%	0,7%	0,7%	0,9%	1,0%	1,0%	1,0%	0,9%	0,9%	0,9%	0,9%
Total	10.921	12.462	13.224	13.371	13.319	13.866	14.918	14.892	14.973	14.904	136.850
%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Tab 3 : Descriptive Data Analysis by Year and Size

Not surprisingly, manufacturing industry with more than a half company-year observations, represents the biggest part of the database; services with 14% and wholesale with 10%, rank respectively second and third. Retail and services are the industries that experienced a growing trend, contrary to finance companies that saw a substantial decrease (section 5.1 for further information on what "Finance" Industry comprehends).

A breakdown of the company-year observations is exposed below, by year and industry.

Industry	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Agriculture	121	146	143	116	159	158	197	206	209	200	1.655
%	1,1%	1,2%	1,1%	0,9%	1,2%	1,1%	1,3%	1,4%	1,4%	1,3%	1,2%
Mining	33	44	43	42	44	46	45	44	44	42	427
%	0,3%	0,4%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%	0,3%
Construction	657	772	800	809	811	813	889	852	794	760	7.957
%	6,0%	6,2%	6,0%	6,1%	6,1%	5,9%	6,0%	5,7%	5,3%	5,1%	5,8%
Manufacturing	5.870	6.581	6.976	7.056	6.821	7.120	7.508	7.482	7.517	7.540	70.471
%	53,7%	52,8%	52,8%	52,8%	51,2%	51,3%	50,3%	50,2%	50,2%	50,6%	51,5%
Transportation	917	1.068	1.140	1.181	1.215	1.280	1.412	1.442	1.469	1.479	12.603
%	8,4%	8,6%	8,6%	8,8%	9,1%	9,2%	9,5%	9,7%	9,8%	9,9%	9,2%
Wholesale	1.068	1.214	1.304	1.302	1.323	1.353	1.415	1.414	1.455	1.417	13.265
%	9,8%	9,7%	9,9%	9,7%	9,9%	9,8%	9,5%	9,5%	9,7%	9,5%	9,7%
Retail	589	714	761	762	819	860	984	1.004	1.008	979	8.480
%	5,4%	5,7%	5,8%	5,7%	6,1%	6,2%	6,6%	6,7%	6,7%	6,6%	6,2%
Finance	420	447	440	421	351	333	302	261	240	211	3.426
%	3,8%	3,6%	3,3%	3,1%	2,6%	2,4%	2,0%	1,8%	1,6%	1,4%	2,5%
Services	1.246	1.476	1.617	1.682	1.776	1.903	2.166	2.187	2.237	2.276	18.566
%	11,4%	11,8%	12,2%	12,6%	13,3%	13,7%	14,5%	14,7%	14,9%	15,3%	13,6%
Total	10.921	12.462	13.224	13.371	13.319	13.866	14.918	14.892	14.973	14.904	136.850
%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Tab 4 : Descriptive Data Analysis by Industry and Year

Manufacturing industry represents the main industry for all sizes, even though from medium to listed companies, its incidence decrease. Services is the second industry for all sizes and, contrary to manufacturing, it has the greatest percentage on large companies. The other industries remain pretty stable on their ranking position throughout different sizes, expect for finance industry that peaks on the listed size.

A breakdown of the company-year observations is exposed below, by industry and size:

Size:	Medium	Big	Listed	Total
Agriculture	1.282	363	10	1.655
%	1,4%	0,9%	0,8%	1,2%
Mining	325	100	2	427
%	0,3%	0,2%	0,2%	0,3%
Construction	6.214	1.679	64	7.957
%	6,6%	4,1%	5,3%	5,8%
Manufacturing	51.060	18.875	536	70.471
%	53,9%	46,1%	44,6%	51,5%
Transportation	7.785	4.680	138	12.603
%	8,2%	11,4%	11,5%	9,2%
Wholesale	8.355	4.831	79	13.265
%	8,8%	11,8%	6,6%	9,7%
Retail	5.627	2.800	53	8.480
%	5,9%	6,8%	4,4%	6,2%
Finance	2.318	976	132	3.426
%	2,4%	2,4%	11,0%	2,5%
Services	11.766	6.612	188	18.566
%	12,4%	16,2%	15,6%	13,6%
Total	94.732	40.916	1.202	136.850
%	100,0%	100,0%	100,0%	100,0%

Tab 5 : Descriptive Data Analysis by Industry and Size

The created dataset, and the following analysis, were carried out in an unbalanced database, since the numbers of available observations for each firms varies over different companies.

5.2 Econometric Model

Previous well reviewed papers, for instance Rajan and Zingales (1995), De Jong and Veld (2001) and Deesomsak, Paudyal and Pescetto (2004), have founded their econometric analysis on the Ordinary Least Squared (OLS) Model. This linear regression model assumes that the observable covariates capture all relevant heterogeneity within individual firms. The model presents the following equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_i X_i + \varepsilon$$

Where:

- Y: Dependent Variable;
- X: Independent Variables;
- β_0 : Intercept;
- β_i : Measure of the change in Y with respect to X_i .

5.3 Dependent Variables

The purpose of this dissertation is to study how the capital structure of Italian companies were affected by the Global Financial crisis. Starting from the theoretical background (section 2), and after the reviewing of all the existent literature review on this topic (section 4), a series of Dependent Variables have been created to have a better understanding of such impact.

5.3.2 Leverage

Considering the above literature review, our assumption is:

H1: Leverage has decreased

Leverage is identified by the dependent variable $d1lev$; computed as:

$$d1lev = \frac{Tot\ Debt}{Tot\ Assets}$$

In particular, it is expected that leverage decreases for a higher amount for middle companies than for large companies; Listed companies should have not suffered from the financial crisis. Summarizing:

Company Size:	Medium	Large	Listed
Expectations	Higher impact	Medium Impact	Not affected

Tab 6 : Leverage expectations

5.3.3 Maturity

Considering the above literature review (section 4.2.1), our assumption is:

H2: Maturity has decreased

Maturity is identified by the dependent variable $d2mat$; computed as:

$$d2mat = \frac{Long - term\ Debt}{Tot\ Debt}$$

And that companies should employ a greater amount of short-term debt to compensate the decrease of the long-term funding.

H3: Short-term debt has increased

Short-term debt is identified by the dependent variable $d3std$; computed as:

$$d3std = \frac{\text{Short-term Debt}}{\text{Tot Assets}}$$

H4: Long-term debt has decreased

Long-term debt is identified by the dependent variable $d4ltd$; computed as:

$$d4ltd = \frac{\text{Long-term Debt}}{\text{Tot Assets}}$$

Especially for long-term funding, it is expected a greater impact on medium-sized firms in respect to large and listed companies. Summarizing:

Company Size:	Medium	Large	Listed
Maturity	Higher impact	Medium Impact	Not affected
ST Debt	Increased	Increased	Not affected
LT Debt	High decrease	Medium decrease	Not affected

Tab 7 : Maturity expectations

5.3.5 Corporate Bond Investor reaction

Considering the above literature review (section 4.4), Italian firms are supposed to have substituted the lack in bank's financing with bond issuing. In order to further analyse what happened, for Listed companies the short-term debt and the long-term debt have been dismantled into short-term bank loan, long-term bank loan and corporate bond. In particular, for Listed companies:

H5: Short-term bank loans have increased (Listed companies)

H6: Long-term bank loans have decreased (Listed companies)

H7: Corporate bond have increased (Listed companies)

5.4 Independent Variables

The Independent Variables considered in the econometric model are derived from the theoretical background (Section 2.2); evidences have demonstrated how specific capital structure determinants have a significant impact on capital structure choices, and many papers focus their efforts in understanding how those determinants changed throughout the crisis. By controlling for firm-specific determinants, capital structure changes ascribable to the Global Financial crisis can be identified.

5.4.1 Size

As discussed in section 2.2.2, even though the theoretical background does not find an agreed position, evidences demonstrate how there is a significant and positive relation between Firm Size and Leverage, mainly due to the fact that bigger companies are more diversified, so less risky, and for the presence of a lower information asymmetry, compared to smaller firms.

Since the accounting measure Total Assets is right-skew, with long tail and high end, an OLS model could be harshly impacted by one or a few cases at the high end; in order to offset the reduce or eliminate skews, the independent variable $c1size$ has been calculated as the Natural Logarithm of Total Assets:

$$c1size = \log(\text{Total Assets})$$

5.4.2 Profitability

As discussed in section 2.2.3, evidences demonstrate a negative relation between profitability and leverage, and theoretical background provides strong conceptual frameworks to explain such behaviour. The independent variable $c1profitability$ has been computed using the Return on Assets (ROA):

$$c2profitability = ROA = \frac{\text{Net Earnings}}{\text{Total Assets}}$$

5.4.3 Tangibility

As already discussed in section 2.2.4, Tangibility is a great proxy for the degree of collateralizable debt, which participates in reducing agency costs, and leading to an increase in leverage. The independent variable $c3tangibility$ has been computed as the ratio between Fixed Assets and Total Assets:

$$c3tangibility = \frac{\text{Fixed Assets}}{\text{Total Assets}}$$

5.4.4 Growth Opportunities

Evidences prove a significant and negative relation (section 2.2.5) between Growth Opportunities and Leverage. The best way to explain such behaviour is that, in fast growing companies, shareholders are reluctant to share the generated wealth with bondholders, preferring equity over debt.

Growth Opportunities have been computed as the logarithm of the year to year percentage change in Total Assets:

$$c4growth = \log \frac{Tot\ Assets_1 - Tot\ Assets_{n-1}}{Tot\ Assets_{n-1}}$$

5.4.5 Industry

Either managers of the same companies take the industry median leverage as a benchmark to set their capital structure strategies, or companies of the same industry face common forces, like different kind of assets, different technology or business risk, evidences show how different industries have common capital structure.

Dummy variables were created to take into account different leverages of different industries; US Sic code was taken into consideration, in particular the first digit one:

One digit US Sic	US Sic	Industry
1	0100-0999	Agriculture
2	1000-1499	Mining
3	1500-1799	Construction
4	2000-3999	Manufacturing
5	4000-4999	Transposrtation
6	5000-5199	Wholesale Trade
7	5200-5999	Retail Trade
8	6000-6799	Finance
9	7000-8999	Services

Tab 8 : One digit US Sic code categories

5.5 Crisis Variables

Crisis was considered into the model as an independent variable in the form of several dummies.

The crisis blew up at the end of 2008 and spread throughout all 2009; in order to fix the right starting date, between 2008-2009 or 2009-2010, two different approaches have been developed:

- Italy GDP trend: as exposed in the section 4.1, GDP trend is a great proxy to establish crisis' starting date. Looking at the chart below, the crisis had its major impact during 2008-2009 than 2009-2010; following the previous reasoning, the starting point that should be considered is the 2008-2009.

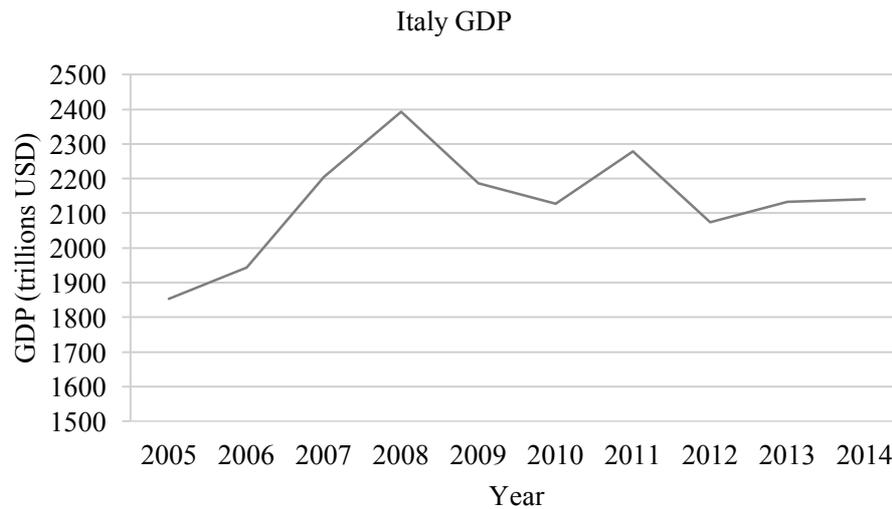


Fig 1 : Italy GDP⁸

- R^2 : this value measures the goodness-of-fit of the model. Two different models were run, the first one considering a dummy crisis with starting point 2008-2009 and the second one considering 2009-2010; the first model presents an r^2 value of 0,092 while the second one an r^2 of 0,098. Following our previous reasoning, starting point 2009-2010 should be the right choice.

Between the two methods, GDP one is supposed to be the best one; even if it presents a lower r^2 , it is believed that it could give a greater view of what happened in reality.

Several dummies were created in order to explain not only if the crisis has had an impact on the leverage or on the others dependent variables, but also in the attempt to check if, and the magnitude, the crisis impacted on specific periods of time:

- cr1: crisis' impact on the dependent variable from 2009;
- cr2: crisis' impact on the dependent variable between 2009 and 2011;
- cr3: crisis' impact on the dependent variable between 2009 and 2012;
- cr4: crisis' impact on the dependent variable between 2009 and 2013.

8. The World Bank. 2016.

Crisis draw representation:

Year:	2006	2007	2008	2009	2010	2011	2012	2013	2014
cr1	0	0	0	1	1	1	1	1	1
cr2	0	0	0	1	1	1	0	0	0
cr3	0	0	0	1	1	1	1	0	0
cr4	0	0	0	1	1	1	1	1	0

Tab 9 : Crisis Dummies

5.6 Variables Summary and Descriptive Statistics

All the variables have been summarized in the below Table:

Dependent Variables		
d1lev	Leverage	Tot Debt / Tot Assets
d2mat	Maturity	LT Debt / Tot Debt
d3std	ST Debt	ST Debt / Tot Debt
d4ltd	LT Debt	LT Debt / Tot Debt
d5Bstd	Bank ST Debt	ST Bank Loans / Tot Assets
d6Bltd	Bank LT Debt	LT Bank Loans / Tot Assets
d7bond	Bond	Tot Bond / Tot Assets

Independent Variables		
c1size	Size	Log (Tot Assets)
c2profitability	Profitability	Net Income / Tot Assets
c3tangibility	Tangibility	Fixed Assets / Tot Assets
c4growth	Growth	Log (%change in Tot Assets)
c5industry	Industry	Industry Dummies

Crisis Variables		
cr1	Crisis	2009-2014
cr2	Crisis	2009-2011
cr3	Crisis	2009-2012
cr4	Crisis	2009-2013

Tab 10 : Variables Summary

Descriptive Statistics about the Dependent and Independent Variables have been reported below:

Dependent Variables								
	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>10th</i>	<i>25th</i>	<i>50th</i>	<i>75th</i>	<i>90th</i>
d1lev	112.257	0,193	0,184	0,000	0,008	0,161	0,328	0,451
d2mat	77.801	0,338	0,322	0,000	0,000	0,277	0,591	0,837
d3std	110.126	0,120	0,137	0,000	0,001	0,073	0,203	0,314
d4ltd	8.170	0,073	0,106	0,000	0,000	0,024	0,113	0,212
d5Bstd	1.202	0,088	0,118	0,000	0,001	0,044	0,129	0,239
d6Bltd	1.202	0,087	0,114	0,000	0,000	0,045	0,133	0,248
d7bond	1.202	0,026	0,080	0,000	0,000	0,000	0,000	0,090

Independent Variables								
	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>10th</i>	<i>25th</i>	<i>50th</i>	<i>75th</i>	<i>90th</i>
c1size	134.248	10,409	1,168	9,223	9,589	10,184	11,004	11,908
c2profitability	136.072	0,010	0,138	-0,042	-0,002	0,009	0,037	0,082
c3tangibility	136.157	0,224	0,203	0,017	0,058	0,171	0,338	0,514
c4growth	64.682	-2,507	1,294	-4,125	-2,362	-1,664	-1,664	-1,067

Crisis Variables								
	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>10th</i>	<i>25th</i>	<i>50th</i>	<i>75th</i>	<i>90th</i>
cr1	136.850	0,537	0,499	-	-	-	-	-
cr2	136.850	0,210	0,408	-	-	-	-	-
cr3	136.850	0,319	0,466	-	-	-	-	-
cr4	136.850	0,429	0,495	-	-	-	-	-

Tab 11 : Descriptive Statistics

5.7 Models Summary

After having introduced the reference Econometric Model (section 5.2), Dependent Variables (section 5.3), Independent Variables (section 5.4) and the Crisis Dummies (section 5.5), a summary of the different models is provided:

Model 1:

$$d1lev = \beta_0 + \beta_1 c1size + \beta_2 c2profitability + \beta_3 c3tangibility + \beta_4 c4growth + c5industry + cr_i$$

Model 2:

$$d2maturity = \beta_0 + \beta_1 c1size + \beta_2 c2profitability + \beta_3 c3tangibility + \beta_4 c4growth + c5industry + cr_i$$

Model 3:

$$d3std = \beta_0 + \beta_1 c1size + \beta_2 c2profitability + \beta_3 c3tangibility + \beta_4 c4growth + c5industry + cr_i$$

Model 4:

$$d4ltd = \beta_0 + \beta_1 c1size + \beta_2 c2profitability + \beta_3 c3tangibility + \beta_4 c4growth + c5industry + cr_i$$

Model 5:

$$d5Bstd = \beta_0 + \beta_1 c1size + \beta_2 c2profitability + \beta_3 c3tangibility + \beta_4 c4growth + c5industry + cr_i$$

Model 6:

$$d6Bltd = \beta_0 + \beta_1 c1size + \beta_2 c2profitability + \beta_3 c3tangibility + \beta_4 c4growth + c5industry + cr_i$$

Model 7:

$$d7bond = \beta_0 + \beta_1 c1size + \beta_2 c2profitability + \beta_3 c3tangibility + \beta_4 c4growth + c5industry + cr_i$$

6. Empirical findings and analysis

In the following sections, regressions' results are examined. In the first part, the all panel data has been taken into account; then, the analysis narrows its focus on medium, big and listed companies; the investigation on the corporate bond issuings have been done exclusively for listed companies.

6.1 General Findings

Leverage is negative and statistically significant at 1% level for cr1 (2009-2014), confirming the hypothesis that leverage for all panel data's companies, starting from the subprime crisis of 2009, decreased without recovering; controlling by size, profitability, tangibility, growth and industry dummies, the decrease intensifies its magnitude.

All controls are significant at 1% level in all models, increasing r^2 and, consequently, the models' goodness of fit. Size is negatively and consistently related to the leverage, as found by Rajan and Zingales (1995). A consistent and negative relation exists between leverage and profitability: especially in period of lending shortage, firms with greater cash-flows prefer to fund with their internal resources instead of external ones, as supposed by pecking order theory (section 2.1.3). Tangibility and growth are, at a significant level, positively related: tangible assets, employed as collateral, and increasing businesses demonstrated to assure a higher leverage.

GENERAL FINDINGS - LEVERAGE										
cr1	-0,009 *** 0,000				-0,015 *** 0,000					
cr2		0,003 ** 0,019				0,004 ** 0,011				
cr3			0,001 ** 0,023				-0,001 0,520			
cr4				-0,002 ** 0,039				-0,008 *** 0,000		
Size					-0,009 *** 0,000		-0,009 *** 0,000		-0,009 *** 0,000	
Profitability					-0,332 *** 0,000		-0,332 *** 0,000		-0,333 *** 0,000	
Tangibility					0,182 *** 0,000		0,183 *** 0,000		0,183 *** 0,000	
Growth					0,003 *** 0,000		0,004 *** 0,000		0,004 *** 0,000	
Ind.Dummies	N	N	N	N	Y	Y	Y	Y	Y	
Costant	0,198 *** 0,000	0,192 *** 0,000	0,192 *** 0,000	0,194 *** 0,000	0,289 *** 0,000	0,281 *** 0,000	0,282 *** 0,000	0,285 *** 0,000	0,285 *** 0,000	
r^2	0,000	0,000	0,000	0,000	0,092	0,090	0,090	0,091	0,091	
Adjusted r^2	0,000	0,000	0,000	0,000	0,092	0,090	0,090	0,091	0,091	

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 12 : General findings - Leverage

Contrary to my hypothesis, since 2009 short-term debt significantly decreased, with and without controls.

As expected, long-term debt consistently decreased, especially in the models with controls. Cr2 (2009-2011) is significant and its coefficient shows almost the same magnitude of the cr1's one, meaning that a higher reduction happened in the first period of crisis.

Short-term debt decreased for a greater amount than long-term debt, justifying the unexpected and significant increase in debt maturity for the overall period, with and without controls.

Controls do not present particular differences compared to leverage's models, except for long-term debt, where size is positively and significantly related, meaning that bigger companies employ more long-term funding compared to smaller ones.

GENERAL FINDINGS - MATURITY									
cr1	0,012 *** 0,000					0,010 *** 0,000			
cr2		0,016 *** 0,000					0,006 ** 0,036		
cr3			0,010 *** 0,000					0,002 0,518	
cr4				0,008 *** 0,000					0,002 0,340
Size						0,020 *** 0,000	0,020 *** 0,000	0,020 *** 0,000	0,020 *** 0,000
Profitability						0,371 *** 0,000	0,373 *** 0,000	0,372 *** 0,000	0,372 *** 0,000
Tangibility						0,503 *** 0,000	0,502 *** 0,000	0,502 *** 0,000	0,502 *** 0,000
Growth						-0,004 *** 0,000	-0,004 *** 0,000	-0,004 *** 0,000	-0,004 0,102
Ind.Dummies	N	N	N	N		Y	Y	Y	Y
Costant	0,332 *** 0,000	0,335 *** 0,000	0,335 *** 0,000	0,335 *** 0,000		0,052 *** 0,002	0,005 0,442	0,056 *** 0,001	0,056 *** 0,001
r ²	0,000	0,000	0,000	0,000		0,116	0,116	0,116	0,116
Adjusted r ²	0,000	0,000	0,000	0,000		0,116	0,116	0,116	0,116

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 13 : General findings – Maturity

GENERAL FINDINGS - SHORT TERM DEBT									
cr1	-0,008 *** 0,000					-0,012 *** 0,000			
cr2		-0,002 ** 0,018					0,001 0,226		
cr3			-0,001 0,120					0,001 0,197	
cr4				-0,004 *** 0,000					-0,006 *** 0,000
Size						-0,012 *** 0,000	-0,012 *** 0,000	-0,012 *** 0,000	-0,012 *** 0,000
Profitability						-0,246 *** 0,000	-0,247 *** 0,000	-0,247 *** 0,000	-0,247 *** 0,000
Tangibility						0,005 * 0,065	0,006 ** 0,027	0,006 ** 0,026	0,006 ** 0,033
Growth						0,002 *** 0,000	0,003 *** 0,000	0,003 0,343	0,003 *** 0,000
Ind.Dummies	N	N	N	N		Y	Y	Y	Y
Costant	0,125 *** 0,000	0,121 *** 0,000	0,120 *** 0,000	0,122 *** 0,000		0,268 *** 0,000	0,005 0,442	0,263 *** 0,000	0,265 *** 0,000
rsquared	0,001	0,000	0,000	0,000		0,068	0,066	0,066	0,066
adjusted	0,001	0,000	0,000	0,000		0,068	0,066	0,066	0,066

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 14 : General findings – Short-term debt

GENERAL FINDINGS - LONG TERM DEBT									
cr1	0,000 0,570							-0,003 *** 0,000	
cr2		-0,005 *** 0,000							-0,003 *** 0,003
cr3			-0,004 *** 0,000						0,000 0,896
cr4				0,002 ** 0,050					-0,002 *** 0,001
Size								0,003 *** 0,000	0,003 *** 0,000
Profitability								-0,086 *** 0,000	-0,086 *** 0,000
Tangibility								0,177 *** 0,000	0,177 *** 0,000
Growth								0,001 ** 0,030	0,001 *** 0,000
Ind.Dummies								Y	Y
Costant	0,073 *** 0,000	0,072 *** 0,000	0,072 *** 0,000	0,072 *** 0,000	0,020 *** 0,000	0,018 *** 0,000	0,019 *** 0,000	0,020 *** 0,000	0,020 *** 0,000
r ²	0,000	0,000	0,000	0,000	0,133	0,133	0,133	0,133	0,133
Adjusted r ²	0,000	0,000	0,000	0,000	0,133	0,133	0,133	0,133	0,133

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 15 : General findings – Long-term debt

6.2 Medium-Sized Companies

Since medium-sized companies represent 69,2% of all firm-year observations, results do not highly differ from General findings.

Leverage is negatively and consistently related to cr1, especially for models with controls; with the 2009 crisis, it decreased without regaining the same level.

Size is not significant. Profitability, tangibility and growth follow the same pattern of General findings' section.

MEDIUM SIZE COMPANIES - LEVERAGE									
cr1	-0,009 *** 0,000							-0,015 *** 0,000	
cr2		0,003 ** 0,045							0,003 0,178
cr3			0,002 * 0,053						-0,002 0,126
cr4				-0,002 * 0,089					-0,009 *** 0,000
Size								0,000 0,742	-0,001 0,662
Profitability								-0,623 *** 0,000	-0,624 *** 0,000
Tangibility								0,181 *** 0,000	0,182 *** 0,000
Growth								0,004 *** 0,000	0,004 *** 0,000
Ind.Dummies								Y	Y
Costant	0,208 *** 0,000	0,203 *** 0,000	0,202 *** 0,000	0,204 *** 0,000	0,184 *** 0,000	0,178 *** 0,000	0,179 *** 0,000	0,181 *** 0,000	0,181 *** 0,000
r ²	0,001	0,000	0,000	0,000	0,127	0,125	0,125	0,125	0,126
Adjusted r ²	0,001	0,000	0,000	0,000	0,127	0,125	0,125	0,125	0,126

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 16 : Medium sized companies – Leverage

Maturity is positively and significantly related for all crisis dummies; adding the controls, just cr1 and cr4 present consistent relations.

Short-term debt is negative and significant for both cr1 and cr4, with and without controls; from 2009, it squeezed without recovering.

Long-term debt presents a consistent and positive increase in cr2, cr3 and cr4 for models without controls; with controls it decreased significantly during cr1 and cr4.

Controls are all significant, apart from Tangibility in the analysis of short-term debt.

MEDIUM SIZE COMPANIES - MATURITY										
cr1	0,017 *** 0,000				0,016 *** 0,000					
cr2	0,016 *** 0,000				0,006 0,127					
cr3	0,011 *** 0,000				0,002 0,552					
cr4	0,012 *** 0,000				0,006 *** 0,007					
Size					0,033 *** 0,000				0,033 *** 0,000	0,033 *** 0,000
Profitability					0,420 *** 0,000				0,424 *** 0,000	0,423 *** 0,000
Tangibility					0,505 *** 0,000				0,504 *** 0,000	0,504 *** 0,000
Growth					-0,003 ** 0,013				-0,004 *** 0,002	-0,004 *** 0,002
Ind.Dummies	N				Y				Y	Y
Costant	0,337 *** 0,000		0,343 *** 0,000		0,343 *** 0,000		0,341 *** 0,000		-0,080 *** 0,005	-0,075 *** 0,008
r ²	0,001		0,000		0,000		0,000		0,125	0,124
Adjusted r ²	0,001		0,000		0,000		0,000		0,125	0,124

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 17 : Medium size companies – Maturity

MEDIUM SIZE COMPANIES - SHORT TERM DEBT										
cr1	-0,010 *** 0,000				-0,012 *** 0,000					
cr2	-0,002 ** 0,046				0,001 0,506					
cr3	-0,002 0,108				-0,002 0,188					
cr4	-0,005 *** 0,000				-0,006 *** 0,000					
Size					-0,009 *** 0,000				-0,009 *** 0,000	-0,009 *** 0,000
Profitability					-0,465 *** 0,000				-0,467 *** 0,000	-0,467 *** 0,000
Tangibility					-0,006 * 0,081				-0,004 0,161	-0,004 0,162
Growth					0,003 *** 0,000				0,003 *** 0,000	0,003 *** 0,000
Ind.Dummies	N				Y				Y	Y
Costant	0,131 *** 0,000		0,126 *** 0,000		0,126 *** 0,000		0,128 *** 0,000		0,234 *** 0,000	0,229 *** 0,000
r ²	0,001		0,000		0,000		0,000		0,095	0,093
Adjusted r ²	0,001		0,000		0,000		0,000		0,095	0,093

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 18 : Medium size companies – Short-term debt

MEDIUM SIZE COMPANIES - LONG TERM DEBT										
cr1	0,001 0,236				-0,002 *** 0,008					
cr2	0,005 *** 0,000				0,002 0,128					
cr3	0,004 *** 0,000				0,000 0,656					
cr4	0,003 *** 0,000				-0,002 ** 0,012					
Size					0,009 *** 0,000				0,009 *** 0,000	0,009 *** 0,000
Profitability					-0,157 *** 0,000				-0,157 *** 0,000	-0,158 *** 0,000
Tangibility					0,186 *** 0,000				0,000 *** 0,000	0,187 *** 0,000
Growth					0,001 *** 0,005				0,001 *** 0,002	0,001 *** 0,002
Ind.Dummies	N				Y				Y	Y
Costant	0,077 *** 0,000		0,076 *** 0,000		0,076 *** 0,000		0,076 *** 0,000		-0,050 *** 0,000	-0,051 *** 0,000
r ²	0,000		0,000		0,000		0,000		0,163	0,163
Adjusted r ²	0,000		0,000		0,000		0,000		0,163	0,163

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 19 : Medium size companies – Long-term debt

6.3 Large-Sized Companies

Leverage is negative and significant for cr1 without controls; controlling for them, cr4 becomes significant as well.

Controls follow the standard pattern without any exceptions.

LARGE SIZE COMPANIES - LEVERAGE										
cr1	-0,009 *** 0,000				-0,015 *** 0,000					
cr2	0,002 0,283				0,006 ** 0,024					
cr3	0,002 0,267				0,001 0,547					
cr4	-0,002 0,208				-0,008 *** 0,001					
Size					-0,018 *** 0,000				-0,018 *** 0,000	
Profitability					-0,147 *** 0,000				-0,148 *** 0,000	
Tangibility					0,170 *** 0,000				0,171 *** 0,000	
Growth					0,003 *** 0,001				0,004 *** 0,000	
Ind.Dummies	N		N		N		N		Y	
Costant	0,174 *** 0,001	0,169 *** 0,000	0,169 *** 0,000	0,170 *** 0,000	0,438 *** 0,000	0,429 *** 0,000	0,430 *** 0,000	0,433 *** 0,000		
r ²	0,001		0,000		0,000		0,064		0,063	
Adjusted r ²	0,001		0,000		0,000		0,064		0,062	

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 20 : Large size companies – Leverage

Short-term debt without controls is negative and consistent related for cr1; adding the controls, it is negative and significant in cr1 and cr4.

Long-term debt is negative and consistent for cr1 with and without controls; controlling for them, it is significant in cr4 as well.

Maturity is positive and significant just in cr2 for the model without controls. Since short-term debt and long-term debt present almost the same coefficient, the maturity is expected to remain stable.

As Expected, all controls are significant, apart from growth in the analysis of long-term debt.

LARGE SIZE COMPANIES - MATURITY										
cr1	-0,004 0,304							-0,005 0,252		
cr2		0,012 *** 0,007							0,006 0,277	
cr3			0,004 0,292							0,000 0,961
cr4				-0,005 0,197						-0,006 0,201
Size							0,030 *** 0,000	0,030 *** 0,000	0,030 *** 0,000	0,030 *** 0,000
Profitability							0,264 *** 0,000	0,265 *** 0,000	0,264 *** 0,000	0,263 *** 0,000
Tangibility							0,476 *** 0,000	0,476 *** 0,000	0,476 *** 0,000	0,476 *** 0,000
Growth							-0,005 *** 0,007	-0,005 *** 0,010	-0,005 *** 0,010	-0,005 *** 0,007
Ind.Dummies	N	N	N	N	N	Y	Y	Y	Y	Y
Costant	0,316 *** 0,000	0,312 *** 0,000	0,313 *** 0,000	0,316 *** 0,000	-0,046 0,157	-0,049 0,126	-0,048 0,135	-0,046 0,152		
r ²	0,000	0,000	0,000	0,000	0,113	0,113	0,113	0,113	0,113	0,113
Adjusted r ²	0,001	0,000	0,000	0,000	0,112	0,112	0,112	0,112	0,112	0,112

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 21 : Large size companies – Maturity

LARGE SIZE COMPANIES - SHORT TERM DEBT										
cr1	-0,005 *** 0,001							-0,010 *** 0,000		
cr2		-0,002 0,354							0,002 0,300	
cr3			0,000 0,960							0,001 0,770
cr4				-0,001 0,491						-0,004 ** 0,018
Size							-0,020 *** 0,000	-0,021 *** 0,000	-0,021 *** 0,000	-0,021 *** 0,000
Profitability							-0,109 *** 0,000	-0,109 *** 0,000	-0,109 *** 0,000	-0,110 *** 0,000
Tangibility							0,023 *** 0,000	0,024 *** 0,000	0,024 *** 0,000	0,024 *** 0,000
Growth							0,002 *** 0,001	0,003 *** 0,000	0,003 *** 0,000	0,003 *** 0,000
Ind.Dummies	N	N	N	N	N	Y	Y	Y	Y	Y
Costant	0,110 *** 0,000	0,108 *** 0,000	0,108 *** 0,000	0,108 *** 0,000	0,390 *** 0,000	0,385 *** 0,000	0,386 *** 0,000	0,387 *** 0,000	0,387 *** 0,000	0,387 *** 0,000
r ²	0,000	0,000	0,000	0,000	0,059	0,058	0,058	0,058	0,058	0,058
Adjusted r ²	0,000	0,000	0,000	0,000	0,058	0,057	0,057	0,057	0,057	0,057

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 22 : Large size companies – Short-term debt

LARGE SIZE COMPANIES - LONG TERM DEBT										
cr1	-0,004 *** 0,000							-0,006 *** 0,000		
cr2		-0,004 *** 0,001							-0,004 *** 0,006	
cr3			-0,002 ** 0,050							0,001 0,475
cr4				-0,001 0,181						-0,004 *** 0,004
Size							0,003 *** 0,000	0,003 *** 0,000	0,009 *** 0,000	0,003 *** 0,000
Profitability							-0,038 *** 0,000	-0,038 *** 0,000	-0,038 *** 0,000	-0,038 *** 0,000
Tangibility							0,147 *** 0,000	0,147 *** 0,000	0,147 *** 0,000	0,147 *** 0,000
Growth							0,001 0,156	0,001 * 0,055	0,001 * 0,053	0,001 * 0,095
Ind.Dummies	N	N	N	N	N	Y	Y	Y	Y	Y
Costant	0,064 *** 0,000	0,061 *** 0,000	0,061 *** 0,000	0,062 *** 0,000	0,047 *** 0,000	0,044 *** 0,000	0,044 *** 0,000	0,044 *** 0,000	0,046 *** 0,000	0,046 *** 0,000
r ²	0,000	0,000	0,000	0,000	0,096	0,095	0,095	0,095	0,095	0,095
Adjusted r ²	0,000	0,000	0,000	0,000	0,095	0,095	0,094	0,094	0,094	0,094

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 23 : Large size companies – Long-term debt

6.4 Listed Companies

Leverage's trend for listed companies is not very clear: controls seem to have a negative impact on the significance of crisis' dummies, even though r^2 increases once they are employed; in any case, leverage without controls presents a small increase in cr1.

Profitability and growth follow the standard pattern. Size is significant and positive related to leverage, meaning that larger listed companies have a greater leverage. Tangibility is not significant.

LISTED COMPANIES - LEVERAGE									
cr1	0,029 *** 0,005						0,006 0,643		
cr2		0,017 0,146						-0,004 0,809	
cr3			0,019 * 0,068						-0,007 0,593
cr4				0,020 ** 0,049					-0,001 0,921
Size							0,020 *** 0,000	0,020 *** 0,000	0,020 *** 0,000
Profitability							-0,603 *** 0,000	-0,603 *** 0,000	-0,602 *** 0,000
Tangibility							-0,023 0,562	-0,025 0,534	-0,026 0,518
Growth							0,016 *** 0,001	0,016 *** 0,001	0,015 *** 0,001
Ind.Dummies	N	N	N	N			Y	Y	Y
Costant	0,184 *** 0,000	0,197 *** 0,000	0,194 *** 0,000	0,191 *** 0,000			0,057 0,470	0,063 0,424	0,066 0,400
r^2	0,007	0,002	0,003	0,003			0,130	0,130	0,130
Adjusted r^2	0,006	0,001	0,002	0,002			0,112	0,112	0,112

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 24 : Listed companies – Leverage

The overall maturity, in the models without controls, increased significantly for all crisis' dummies; adding controls to the models, unexpectedly no crisis' dummy is consistent anymore.

Short-term loans suffer from the same issue: apart from a negative and 5% significance relation with cr1 in the model without controls, all the other crisis' dummies are not consistent in explaining the relation.

Long-term loans significantly decreased just for the models without controls; from the significant crisis' dummies, it is possible to infer that the decrease in long-term loans has been constant since 2009.

As hypothesized, the lack in funding is balanced by a significant increase in bond funding (0,025 for cr1, without controls), which grew by more than the decrease in short-term debt (-0,013 for cr1, without controls) and long-term debt (-0,082 for cr1, without controls), justifying the increase in the leverage (+0,100 for cr1, without controls).

Controls change per each independent variable. For leverage only size is positive and significant. For short-term loans' regressions size is significantly negative: larger companies borrow less short-term debt; instead, size for long-term loans, is consistently positive, meaning that larger companies borrow more long-term loans; Size is positively and consistently related with Bond, following the same pattern for long-term debt.

LISTED COMPANIES - MATURITY										
cr1	0,104 *** 0,000						0,029 0,314			
cr2		0,104 *** 0,000						0,045 0,141		
cr3			0,111 *** 0,000						0,031 0,263	
cr4				0,087 *** 0,000						0,008 0,766
Size							0,077 *** 0,000	0,078 *** 0,000	0,078 *** 0,000	0,078 *** 0,000
Profitability							0,162 0,432	0,151 0,463	0,149 0,471	0,154 0,456
Tangibility							-0,026 0,762	-0,040 0,642	-0,032 0,708	-0,033 0,699
Growth							0,010 0,331	0,008 0,403	0,009 0,340	0,009 0,348
Ind.Dummies	N	N	N	N	N	Y	Y	Y	Y	Y
Costant	0,446 *** 0,000	0,483 *** 0,000	0,469 *** 0,000	0,467 *** 0,000	-0,186 0,246	-0,186 0,244	-0,190 0,237	-0,172 0,284		
r ²	0,021	0,016	0,023	0,015	0,205	0,207	0,206	0,204		
Adjusted r ²	0,020	0,015	0,022	0,014	0,187	0,188	0,187	0,185		

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 25 : Listed companies – Maturity

LISTED COMPANIES - SHORT TERM LOANS										
cr1	-0,013 ** 0,062						-0,006 0,463			
cr2		-0,009 0,254						-0,003 0,751		
cr3			-0,010 0,129						-0,005 0,974	
cr4				-0,008 0,242						0,000 0,970
Size							-0,010 *** 0,000	-0,010 *** 0,000	-0,010 *** 0,000	-0,011 *** 0,000
Profitability							-0,036 *** 0,000	-0,353 *** 0,000	-0,352 *** 0,000	-0,353 *** 0,000
Tangibility							0,002 0,926	0,004 0,853	0,003 0,882	0,004 0,869
Growth							0,003 0,252	0,004 0,230	0,003 0,240	0,003 0,238
Ind.Dummies	N	N	N	N	Y	Y	Y	Y	Y	Y
Costant	0,096 *** 0,000	0,090 *** 0,000	0,092 *** 0,000	0,092 *** 0,000	0,181 *** 0,000	0,178 *** 0,000	0,181 *** 0,000	1,116 *** 0,000		
rsquared	0,003	0,001	0,001	0,001	0,133	0,132	0,133	0,132		
adjusted	0,002	0,000	0,001	0,000	0,115	0,114	0,114	0,114		

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 26 : Listed companies – Short-term loans

LISTED COMPANIES - LONG TERM LOANS									
cr1	-0,082 *** 0,000							-0,005 0,583	
cr2		-0,050 *** 0,002							0,016 0,107
cr3			-0,064 *** 0,000						-0,141 0,142
cr4				-0,070 *** 0,000					0,002 0,791
Size								0,029 *** 0,000	0,012 *** 0,000
Profitability								-0,165 *** 0,006	-0,166 *** 0,006
Tangibility								0,033 0,188	0,033 0,183
Growth								0,009 *** 0,006	0,008 *** 0,007
Ind.Dummies								Y	Y
Costant	0,543 *** 0,000	0,508 *** 0,000	0,518 *** 0,000	0,529 *** 0,000				-0,128 ** 0,012	-0,128 *** 0,006
r ²	0,027	0,008	0,015	0,021	0,077	0,081	0,081	0,081	0,077
Adjusted r ²	0,026	0,007	0,015	0,020	0,059	0,062	0,062	0,062	0,058

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 27 : Listed companies – Long-term loans

LISTED COMPANIES - BOND									
cr1	0,025 *** 0,000							0,018 *** 0,009	
cr2		-0,004 0,486							0,016 ** 0,027
cr3			-0,001 0,884						0,015 ** 0,022
cr4				0,009 * 0,054					0,003 * 0,062
Size								0,018 *** 0,000	0,019 *** 0,000
Profitability								-0,082 *** 0,071	-0,083 * 0,067
Tangibility								-0,059 *** 0,000	-0,062 *** 0,001
Growth								0,004 0,124	0,004 0,123
Ind.Dummies								Y	Y
Costant	0,010 *** 0,002	0,026 *** 0,000	0,025 *** 0,000	0,021 *** 0,000				0,003 0,933	0,023 0,557
r ²	0,025	0,008	0,000	0,003	0,297	0,294	0,295	0,295	0,289
Adjusted r ²	0,024	0,007	0,000	0,002	0,282	0,280	0,280	0,280	0,274

***Significant at 1% level; ** Significant at 5% level; * Significant at 10% level.

Tab 28 : Listed companies - Bond

6.5 Regressions' empirical findings

Previous financial crisis, as the Asian currency one and the crisis in Turkey in 1994 and 2004, were not the result of comparable circumstances and did not have the same implications on economies; in fact, evidences do not provide an agreed position on the effect of financial crisis on companies' capital structure.

Asian currency crisis of 1997 increased the leverage of companies in Thailand, Malaysia, Singapore, whereas for Australian ones it remained nearly stable. Turkish currency crisis of 1994 decreased companies' leverage; instead, during the 2001 crisis, changes in leverage were not significant, but short-term debt was found to increase.

During the subprime financial crisis, American companies increased their leverage ratio during period of 2007-2009. European countries, as UK and Germans, experienced a growth on their companies' leverage ratios, whereas results for French ones were not significant (section 4).

Considering institutional factors and for the macroeconomic implications of global financial crisis, Italian economy could be compared to the French one; nonetheless, it presents a more bank-oriented system, who represented a multiplier of the lending supply choc, reason why it was hypothesize a decrease in leverage for Italian companies.

Evidences demonstrate how there has been an overall and consistent decrease in leverage; the magnitude of the reduction does not substantially vary from medium-sized to large-sized ones; contrarily, listed companies had a consistent increase in their leverage.

Smaller firms suffer from a greater information asymmetry, they disclose less information and are less transparent; under their lower creditworthiness, financial institutions are less willing to grant new loans as to renew them, especially referring to long-term ones. In order to overcome the lack of financing, companies were supposed to employ greater quantities of short-term debt, in particular for medium-sized firms (section 4.2.1).

Contrarily with predictions, evidences prove how, for the entire dataset, short-term borrowings decreased significantly for a greater amount compared to long-term borrowings; focusing on non-listed companies, size takes an important role, but depending on the different loans' maturity: medium-sized companies had a greater reduction in short-term borrowings compared to large-sized ones, whereas large-sized firms had a decrease in long-term loans by three times the reduction for medium-sized ones. On the whole, in opposition with the predictions, maturity increased consistently for the entire dataset's companies.

Listed companies disclose more information, they are more transparent and they have a better access to capital markets; evidences demonstrate how European listed companies that had to deal with a lack in borrowings, substitute them with corporate bonds (section 4.4).

Evidences prove how listed companies had a greater reduction in both short-term and long-term loans compared to medium-sized and large-sized companies; as hypothesized, corporate bonds completely replaced the reduction in bank lending, even for a higher amount, resulting in a significant increase in maturity for listed-companies.

6.7 Controls' empirical findings

Apart from some exceptions, controls follow the predicted trends.

Profitability is negatively and significantly related with all dependent variables, as supposed by pecking order theory and confirmed by evidences (section 2.2.3). Looking at the coefficients,

medium-sized companies and listed-companies present a higher relation compared to large-sized companies, meaning that small changes in profitability have a stronger impact on their capital structures.

Unexpectedly, tangibility is not significant in explaining listed-companies' capital structure; otherwise, apart from the regression model between short-term debt for medium-sized companies, all other coefficients show nearly the same positive value, following the trade-off theory and confirmed by evidences (section 2.2.4).

Except for the regression models between short-term debt for listed-companies, and long-term debt for large-sized companies, growth's coefficients are positive and significant. The results are not supported by relevant theories as well as previous evidences (section 2.2.5).

Size is the most interesting coefficient: for leverage and short-term debt it is almost in any case negative, as supposed by pecking order theory and demonstrated by evidences; instead, in the case of long-term debt, it turns out to be positive and significantly related, meaning that bigger companies had access to higher long-term funding (section 2.2.2).

7. Conclusions, research limits and implications for future research

The purpose of this dissertation was to investigate to what extent the global financial crisis has affected medium, large and listed Italian capital structures' companies.

The overall conclusion is that financial crisis, during 2009 to 2014, has significantly shaped capital structure in different ways; furthermore, the recovery is far to be accomplished.

Overall, since 2009 leverage has decreased significantly; the magnitude of the reduction does not substantially vary from both medium-sized to large-sized ones; contrarily, listed companies had a consistent increase in their leverage.

Medium-sized companies had a greater reduction in short-term borrowings compared to large-sized ones, whereas large-sized firms had a decrease in long-term loans by three times the reduction for middle-sized ones. On the whole, maturity increased consistently for the entire dataset's companies.

Listed companies had a greater reduction in both short-term and long-term loans compared to medium-sized and large-sized companies; as hypothesized, corporate bonds completely replaced the reduction in bank lending, even for a greater amount compared to the loss, resulting in a significant increase in maturity for listed-companies.

The main research limit that was found represents also a possible implication for future research. Short-term and long-term debt for medium-sized companies, as for large-sized, comprehend a portion of corporate bonds which were considered just as a whole item for non-listed companies; if in this dissertation it has been analysed just the substitution effect for listed companies, it should be interesting to widen the analysis to all companies that issued corporate bonds, especially giving the introduction of recent Italian laws which enabled, and encouraged, unlisted companies to issue debt securities, commonly known as "mini-bonds".

A further research should focus on the possible substitution effect which took place between decreasing borrowings availabilities and an increase in the delay of payments to suppliers, as a way to compensate the lack in financing.

8. References

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