UNIVERSIDADE CATÓLICA PORTUGUESA

A Comparative Analysis of Financing Decisions in export and non-export sectors: the case of Spanish non-listed firms

Master Final Work in the modality of Dissertation
presented to Universidade Católica Portuguesa
to fulfill the requirements for the degree of Msc in Finance

by

Mário Pedro Rodrigues Pinto

Católica Porto Business School
June 2019

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Acknowledgments

Since this work is the culmination of all academic learning that I had, this paragraph is dedicated to those who made this work possible in every aspects.

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Resumo

Esta tese tem como objetivo estudar as diferenças nas decisões de financiamento entre as empresas exportadoras e não-exportadoras não cotadas em Espanha e, também, examinar qual é o impacto da intensidade de exportação no nível de endividamento das mesmas empresas. Para isso, usamos uma amostra composta por 45 147 empresas, durante o período de 2012 a 2017.

Após uma revisão detalhada da literatura, foi feita uma análise usando diferentes determinantes que, de acordo com a literatura existente, têm impacto na estrutura de capital das empresas (e consequentemente nas suas decisões de financiamento): Impostos, Tangibilidade, Rentabilidade, Dimensão da Empresa, Outros Benefícios Fiscais para além da Dívida, Condições da Indústria, Risco de Negócio, Oportunidades de Crescimento, Taxa de Inflação e Intensidade de Exportação.

Os resultados obtidos sugerem que, embora alguns fatores estejam de acordo com a literatura existente, tal como o impacto dos Impostos, da Tangibilidade, da Rentabilidade, das Condições de Indústria, do Risco de Negócio e da Taxa de Inflação; a Dimensão da Empresa e os Outros Benefícios Fiscais para além da Dívida apresentam impactos no nível da dívida diferentes dos esperados. Para além disso, o único fator cujos resultados diferem das empresas exportadoras para as empresas não exportadoras são os Impostos, que apresenta um impacto negativo na alavancagem para empresas exportadoras e positivo para com as não exportadoras. Finalmente, verifica-se que a Intensidade de Exportação tem uma relação positiva com o nível de endividamento.

Palavras-Chave: Decisões de Financiamento, Estrutura de Capital, Exportações, Empresas Espanholas Não Cotadas.

Abstract

The purpose of this thesis is to study the differences in the financing decisions between non-listed Spanish export and non-export firms, as well as to examine what is the impact of export intensity in firm's leverage. To do so, we use a sample of 45,147 Spanish unlisted firms during the 2012-2017 period.

After a detailed literature review, an analysis was made using different determinants that, according to the extant literature, impact the capital structure (and consequently, the financing decisions): Taxes, Tangibility, Profitability, Firm Size, Non-Debt Tax Shields, Industry Conditions, Business Risk, Growth Opportunities, Inflation Rate and Export Intensity.

The results obtained suggest that while the impact of some factors are in line with the extant literature, namely Taxes, Tangibility, Profitability, Industry Conditions, Business Risk and Inflation Rate; the impact of Firm Size and Non-Debt Tax Shields is different from what we expected. Furthermore, the only factor that affects differently both export and non-export firms is Taxes, which presents a negative correlation with export firms' leverage and positive with non-export firms' leverage. Finally, the variable Export Intensity shows a positive relationship with Leverage.

Keywords: Financing Decisions, Capital Structure, Exportations, Spain Unlisted Firms.

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Introduction

There are several capital structure theories which attempt to explain the proportions of debt and equity that firms choose. However, none of them has provide a consensual explanation of how firms finance themselves and their projects.

The pioneering work of Modigliani and Miller (1958), which presents the capital structure irrelevance theory, triggered many studies about the subject.

We decided to contribute for the extant literature by examining the financing decisions of non-listed Spanish firms, dividing our study into export and non-export firms, following Silva and Pinto's (2018) suggestion to extend the study to other countries than Portugal. Before Silva and Pinto (2018), there was not any study trying to explain the differences between the exporter and non-exporter sectors, but now, with both works there is a solid basis to this subject for the Iberian Peninsula. Thus, we will search for an answer to the following two research questions: (*i*) What are the differences in the financing decisions between non-listed Spanish exporter and non-exporter firms? (*ii*) What is the impact of Export Intensity in the non-listed Spanish firms' leverage?

Extant literature points out several theories and determinants that may influence firms' capital structure and, consequently, their financing decisions. Modigliani and Miller (1958) present the capital structure irrelevance theory, Kraus and Litzenberger (1973) present the trade-off theory, Myers and Majluf (1984) present the pecking order theory, Baker and Wurgler (2002) present the market timing theory and Jensen and Meckling (1976) present the agency theory.

Empirical literature present some determinants that are commonly used to explain firms' capital structure, such as: Taxes [Modigliani and Miller (1963)], Tangibility [Myers (1977)], Profitability [Myers and Majluf (1984)], Firm Size [Titman and Wessels (1988)], Non-Debt Tax Shields [DeAngelo and MAsulis (1980)], Industry Conditions [Frank and Goyal (2009)], Business Risk [Bradley et

al. (1984)], Growth Opportunities [Myers (1977)], Inflation Rate [Gungoraydinoglu and Öztekin (2011)], and Export Intensity [Chen and Yu (2011)].

Since our focus is on the differences between the export and non-export sectors, it is important to emphasize that the existent literature on the subject is scanty and provide different results. While Chen and Yu (2011) suggests a negative relationship between export intensity and leverage, Silva and Pinto (2018) finds a positive relationship regarding exporting firms.

The conclusions of this study suggest that Tangibility, Profitability, Firm Size and Non-Debt Tax Shields affect the debt levels for both export and non-export firms in the same way (Tangibility and Non-Debt Tax Shields affect positively, while Profitability and Firm Size affect negatively). In addition, Taxes affects negatively leverage in the export firms and positively in the non-export firms, and Industry Conditions, Business Risk, Growth Opportunities and Inflation Rate are not significant for both type of firms. Finally, Export Intensity, within the export firms, affects positively firms' leverage, as in Silva and Pinto (2018).

This research gives an important contribution to the literature. First, we study a country that is not normally focus by the extant literature, since most of the studies focus on US firms. Second, we analyze a sample of unlisted firms, while extant literature gives higher importance to the public/listed firms. Finally, this study presents results that are not in line with some of the major capital structure studies and is important to understand why.

This work is organized as follows. Chapter 1 presents a general framework of Spain's macroeconomic effects. Chapter 2 presents a literature review regarding both capital structure theories and determinants. In Chapter 3 we raise the research questions and the research hypothesis that will be tested. Chapter 4 presents the variables, the sample, and both descriptive statistics and methodology used in this study. In Chapter 5 we present the regression results

and some robustness checks, while Chapter 6 presents the main limitations. A conclusion closes the study.

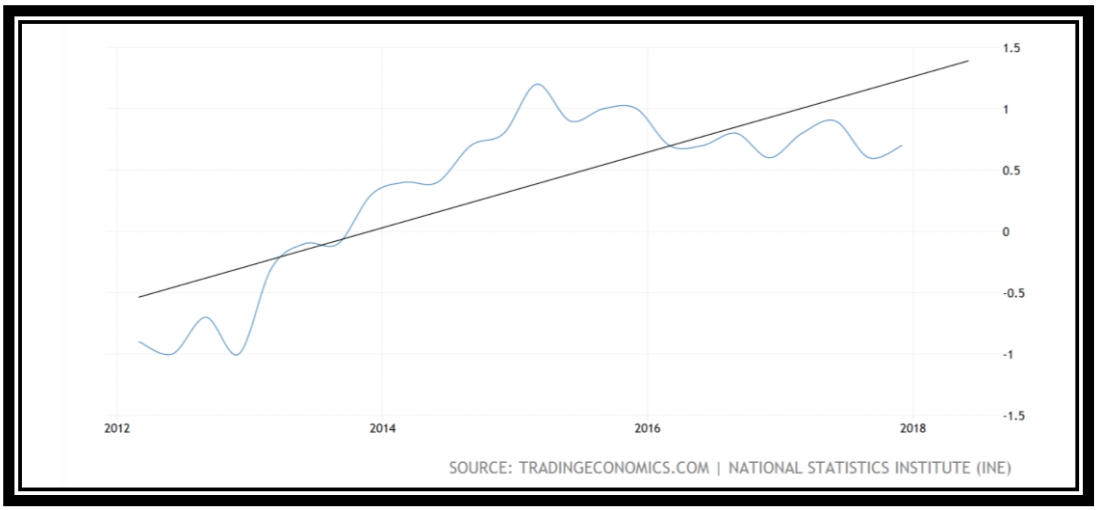
Chapter 1

1. General Framework

This chapter presents a Spain's macroeconomic big picture and focus on some indicators that might be important to fully understand the concepts that we will discuss in the next chapters. All the graphs below correspond to the 2012-2017 period, which is the basis of this work.

1.1. Spain's GDP

Spain is actually the fourth biggest economy in the Euro Zone and the fifth in the European Union. Exports and Imports of goods and sales have an important weight on the GDP[1], being responsible for 65% of Spain's GDP. Graphic 1 shows that during the 2012 -2017 period the Spain's GDP grew significantly between 2012 to 2015, whith a slightly decrease afterwards.

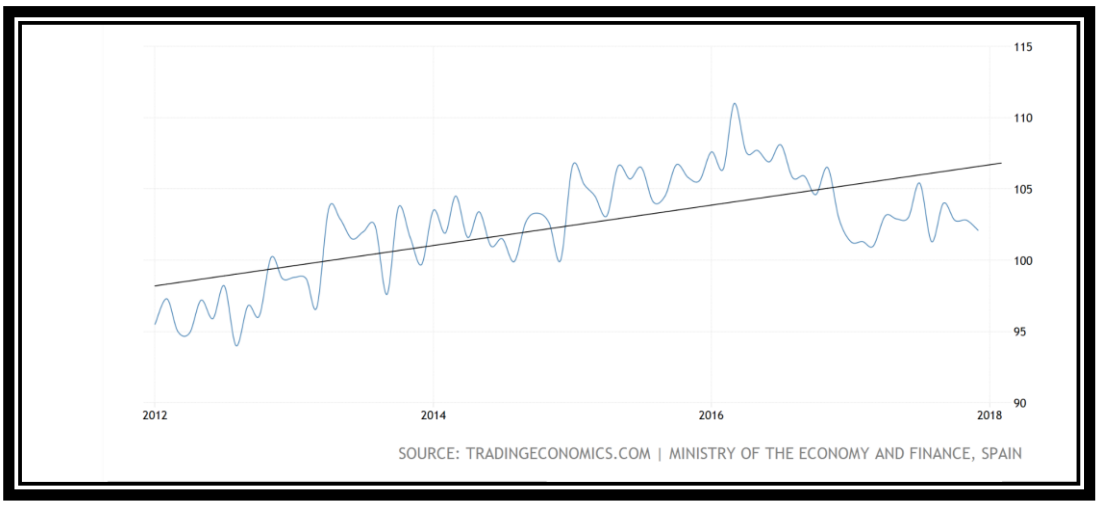


Graph 1 – Spain's GDP growth rate (in percentage points) in the 2012-2017 period.

[1] Gross Domestic Product is defined as an economic indicator that measures a nation's total output of goods and services, during a certain period of time [Tjukanov (2011)].

1.2. Spain Terms of Trade

As we are studying the export sector, it is important to know if the country is accumulating more capital from exports than it is spending in imports. For that reason, the graph below shows Spain's Terms of Trade (TOT[2]), which is an important economic health indicator. However, as changes in the prices may impact this indicator, it is also important to analyze the TOT fluctuations to draw conclusions. Nevertheless, we can see in Graph 2 that during the 2012-2017 period, TOT has consistently increased, with the exception of 2017, where this indicator slightly decrease.

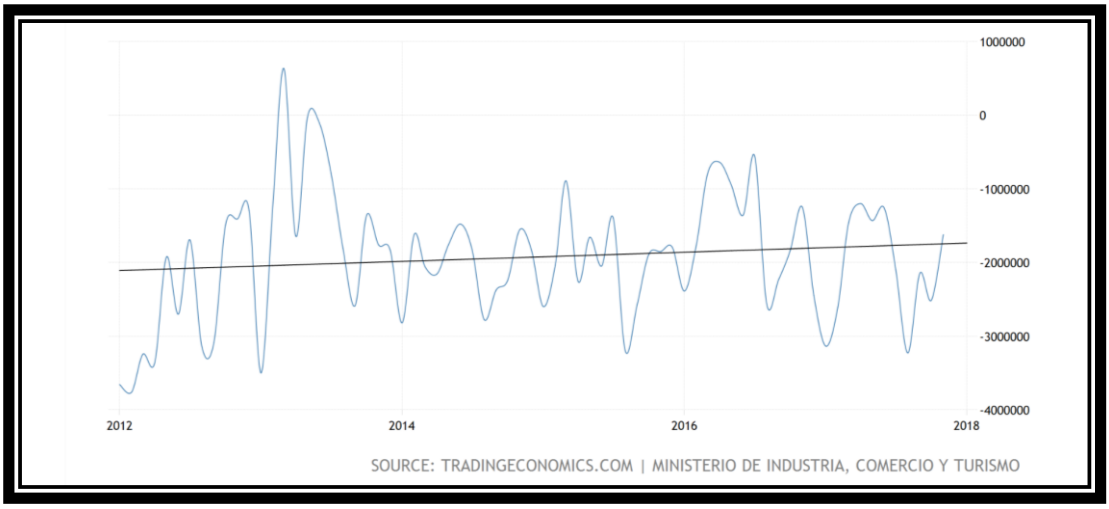


Graph 2 – Spain's Terms of Trade (in percentage points) in the 2012-2017 period.

[2] Terms of Trade is defined by the ratio between export and import prices. It is an indicator that measures the country trading efficiency. If the terms of trade figures a higher percentage than 100%, means that the country exports are higher value of goods than the country imports, then the country is accumulating capital due is trading balance.

1.3. Spain Balance of Trade

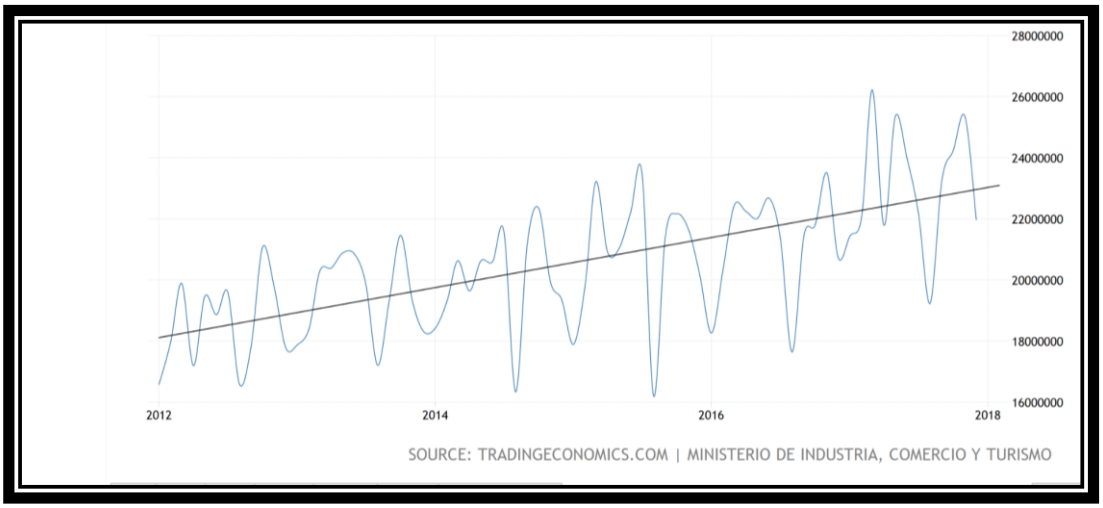
A country's Balance of Trade is the difference between exports and imports for a given period of time and is an important part of a nation´s current account. If a country exports more than imports, then it works on a trade surplus, otherwise it will work on a trade deficit. In graph 3, there are a lot of fluctuations during the 2012-2017 period. Spain always work on a trade deficit, however the trend is slightly positive, which means that Spain aims to have a lower trade deficit in the following years.



Graph 3 – Spain's Balance of Trade (in EUR thousand) in the 2012-2017 period.

1.4. Spain Exportations

Export is when a good or service is send from one country to another to sale or trade. Exportations expands markets to global customers and boost its economies. Besides that, countries with higher value of exportations tends to grow faster than those who don't export, once exports stimulate economic growth. Emery (1967) points out that there is a causal relationship between the increase in exports and economic growth. Through the graph 4 analysis, we can automatically understand that during the 2012-2017 period, the exports value in Spain grew very fast, with lot of fluctuations, but the trend was definitelly positive.

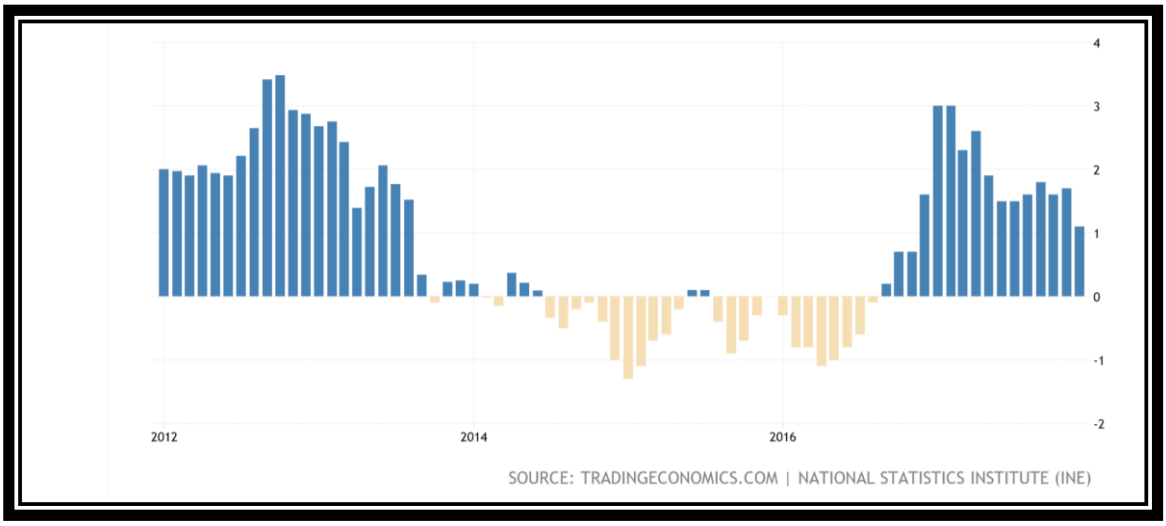


Graph 4 – Spain's exports (in EUR thousand) in the 2012-2017 period.

1.5. Spain Inflation Rate

Inflation Rate is one of the independent/explanatory variables of our study. The inflation rate is a measure of the rate at which the average price of a certain basket of goods and services (vary from economy to economy), increases or decreases during a certain period of time. This variable will be analyzed more deeply in the chapter 2 and 3.

By the analysis of the graph 5, we can see that at the end of 2012 this rate reaches the highest rate of the 2012-217 period with nearly 3,5%. During 2013 and 2014 there was a decreasing trend of the inflation rate, being negative during almost whole 2014. This rate keep negative during 2015 and until middle of 2016. After that, there was always a positive inflation rate until the end of 2017.



Graph 5 – Spain's Inflation Rate (in percentage points) in the 2012-2017 period.

Chapter 2

2. Literature Review

2.1. Capital Structure Theories

Capital Structure is one of the main topics of corporate finance and is probably the one which causes more discussion when we look to the literature.

Capital Structure theories attempt to explain the right proportions of debt and equity that a firm should have. Donaldson (1952) was the first study related to capital structure, however Modigliani and Miller (1958) is considered the pioneer study in this matter, where the authors defend the capital structure irrelevance theory. This study triggered many works on the subject, such as [Kraus and Litzenberger (1973), Bradley et al. (1984), Myers and Majluf (1984), Titman and Wessels (1988), Frank and Goyal (2009)], among others.

There are a lot of theories, mainly trade-off and pecking order theories, and a lot of authors discussing different type of theories involving capital structure, however, until now, none of them provide a solid theoretical basis that can explain the financing decisions used by firms.

During this chapter, some of the main Capital Structure theories will be reviewed in order to give a comprehensive and concise approach of this major theme.

2.1.1. Traditional View and Irrelevance Theory

Durand (1952) was the first author that discussed this issue, arguing that it is possible to achieve an optimal capital structure, which maximizes firm value. The author points out two different approaches to measure the Capital Structure impact on the firm's value.

The first is the Net Operating Income Method, where the firm's value is not affected by the change in capital structure, because it undertakes the fact that a possible advantage that the firm can take from the use of debt is offset by the simultaneous increase in the bankruptcy risks that the firm may face. This annulment of benefits happens because the increase in the percentage of debt that a company holds, will lead to a higher risk of bankruptcy and such risk will, consequently, increase the risk perception of the shareholders who will demand a higher rate of return.

The second one is the Net Income Method, by which the firm's value can increase by increasing the amount of debt. A firm should increase the weight of debt until it reaches the minimum possible WACC that the firm can achieve, and that point would be the maximization of the firm value.

The Net Income Method is in line with the traditional approach which defends that a firm must aim an optimal capital structure that minimizes the financing costs and maximizes the firm value.

Modigliani and Miller (1958) contest Durand (1952) approach by presenting the capital structure irrelevance theory. Assuming that there are no transaction costs, no bankruptcy costs, no taxes, no asymmetry information problems, no agency costs and no arbitrage opportunities, they developed to propositions. According to Proposition I, which is the one that implies the irrelevant argument, firms in the same type of business will have the same value. Therefore, the debt and equity proportion will not change the firm value. According to Proposition

II, the WACC is not influenced by the proportion of debt and equity that a firm have and is constant, which go against the Net Income Method proposed by Durand (1952).

Durand (1959) argues that Modigliani and Miller (1958) have jumped out of realism by overstep many assumptions. The author also says that Modigliani and Miller (1958) analyzed the risks in a very slight way and have painted the world as a remarkably safe one (without any type of risks).

Stiglitz (1969) points out an error in the Modigliani and Miller's (1958) work. According to Stiglitz (1969), it is not possible to ignore the default risks, once the bond yield increases with firm's leverage. Similarly, Scott (1976) asserts that the theory does not refer the dangerous effect of the unmeasured debt.

Modigliani and Miller's (1963) paper aims to correct an existent error on their previous paper. As mentioned by the authors, "*The purpose of this communication is to correct an error in our paper "The Cost of Capital, Corporation Finance and the Theory of Investment" (this Review, June 1958)".* The authors add corporate taxes to their model and come out with the conclusion that the firm's value actually increases when leverage increases.

Kraus and Litzenberger (1973) relaxed the Modgliani and Miller's (1958) model by adding bankruptcy costs. The authors argue that there is an optimal capital structure, which will origin the trade-off theory.

2.1.2. Trade-off Theory

As Modigliani and Miller (1963) point out, taxes' advantages are in fact important and will have a huge impact on further studies. According to the authors, the proportion of debt is not related to the firm's value, yet the authors predict that the increase of the leverage will increase the firm's value.

Baxter (1967) intends to explain *"in the context of the Modigliani and Miller discussion, how excessive leverage can be expected to raise the cost of capital to the firm"*. The author argues that a firm which relies too much on debt, will increase its cost of capital. According to the author, there are a lot of costs associated with bankruptcy, and for that reason, other things equal, excess leverage might reduce the value of the firm. However, the existence of corporate taxes, which treats interest as tax deductible, suggests that leverage tend to decrease the cost of capital. In sum, according to Baxter (1967), too much leverage will increase the cost of capital, however the existence of corporate taxes will mitigate the effect.

Kraus and Litzenberger (1973) came out with the conclusion that since corporate taxes are tax deductible, a firm will only finance itself with debt in order to capture those tax advantages, although a firm should be able to pay its debt obligations, or it will face bankruptcy penalties. Kraus and Litzenberger (1973) argue that the taxation of corporate profits and the bankruptcy costs[3] are core market imperfections that must be considered in the theory of the effect of leverage on the firm's market value. Thus, the optimal capital structure is the one where the level of debt maximizes the firm market value without lead to bankruptcy.

Kim (1978) says that the traditional presumption that the firm's value is a concave function of its leverage and when the slope of the that function is zero, that's where the firm's value is maximized. According to Kim (1978), in perfect markets where there are bankruptcy costs and income taxes, the optimal level of debt of a firm is less than their debt capacities. The firm's market value increases for low levels of debt and decreases when those firms rely too much on debt financing.

Bradley et al. (1984) develop a model where they include personal taxes, expected costs of financial distress[4] and positive non-debt tax shield. They state

[3] Warner (1977) distinguish direct bankruptcy costs from indirect bankruptcy costs.
[4] Bankruptcy costs (see Warner 1977) and agency costs.

that an optimal firm capital structure is inversely related to expected costs of financial distress and non-debt tax shields.

Myers (1984) argue that an increase in the firm's debt will lead to a risk increase and consequently will lead to an increase of the bankruptcy costs. However, this is balanced by the debt tax-shields. For this same reason, the author believe that is possible to balance a relationship between cost and benefit in order to achieve an optimal capital structure that maximizes the firm's value. The author complements this idea in Myers (2001), by saying that firms increase their leverage until the point where the benefits of having higher levels of debt equal the possible bankruptcy and agency costs.

Static trade-off theory can be thus summarized as the perfect balance between debt and equity, under the assumption that a firm's debt payments are tax deductible. This happens because a firm can have a lower WACC when finances itself through debt, however increasing the amount of debt also increases the bankruptcy costs.

Although there are a lot of studies that prove the importance of the Trade-off theory, there are other studies that prove that this theory is not the only one that is relevant regarding capital structure financing decisions. Fama and French (2002), point out that some relations are according to the trade-off theory (firms with more non-debt tax shields have less leverage) and some other relations are in line with the pecking order theory (more profitable firms has less leverage).

2.1.3. Pecking-order Theory and Asymmetric information

Donaldson (1961) was the first author who states that there was a pecking order of internal over external financial. The author studied some patterns of large firms and observe that the firms prioritize internal financing.

Later, Myers (1984) and Myers and Majluf (1984), states that financing decisions follow an order of preference and firm's prefer internal financing over external financing, due to the asymmetric information and also the signaling problems that could arrive with external financing. The authors defend that if a firm does not have enough internal funds, it should finance through debt, depending of the costs of each source. However, a firm should always avoid to finance through external equities in order to prevent the firm's control dilution. According to Holmes and Kent (1991), *"Owner/managers are strongly adverse to any dilution of their ownership interest and control"* Holmes and Kent (1991).

In this theory there is not an optimal capital structure and each firm will choose the debt-equity ratio that perform better under the firm's circumstances. Myers (1984) adds that a firm's debt-equity ratio will reflect the firm external financing necessities. According to Myers (1984), a firm prefers to use retained earnings instead of finance itself by debt. Debt financing only occurs when a firm do not possess enough retained earnings.

Shyam-Sunder and Myers (1999) test the traditional capital structure approach against the pecking order model and they conclude that the pecking order model, which predicts that internal financial deficit is the main force that lead to an external financing, has much more explanatory power than a static trade-off model, which predicts that a firm adjust its capital structure in order to achieve an optimal debt-equity ratio. The authors, instead of study all the hypothesis together, like Titman and Wessels (1988) have made, they studied the theories as contending hypothesis and examined their explanatory power. Shyam-Sunder and Myers (1999) add that the strong performance of the pecking order model does not rely only on the unanticipated cash needs with debt by the firms, because indeed, according to their studies, firms plan to cover anticipated deficits with debt.

Frank and Goyal (2003) tested the model of Shyam-Sunder and Myers (1999), because the authors argued that the studied sample was too small (157 firms over

1971-1989 period), and they come out with the conclusion that the pecking order model does not work very well for smaller firms. However, the pecking order theory seems the one which explains better the capital structure as the firm sizes increase.

Lemmon and Zender (2010) study show that controlling the heterogeneity in debt across firms, pecking order theory describe perfectly the financing behavior of a firm.

Information asymmetries are very important when we are studying firm's capital structure. Leland and Pyle (1977) notice that a lot of markets suffer from informational differences between the sellers and the buyers and in the financial markets, this information asymmetries are abundant. By applying this, Leland and Pyle (1977) state that in the real world, there are a lot of asymmetries between managers and shareholders. There are a lot of more information in the managers side, and for that reason, they can manipulate the shareholders by hide information for them.

According to Myers and Majluf (1984), once the investors are not fully informed as the firm insiders, equity may be mispriced by the market. This underpricing may be so severe, that can result in a net loss to the existing shareholders.

2.1.4. Market Timing theory

According to Baker and Wurgler (2002), market timing theory is defined by as *"capital structure evolves as the cumulative outcomes of past attempts to time the equity market"*. They argue that there are two versions of equity market timing, being the first one a dynamic form studied by Myers and Majluf (1984), with rational managers and investors and also adverse selection costs. The second has

irrational investors and perceptions of mispricing[5] and suggest that firms prefer to issue debt when the relative cost of equity is high and equity when is low.

Baker and Wurgler (2002) find that when the market value is high, firms with low leverage levels tend to raise funds by selling their securities, however when the market value is low, the high leverage firm are the ones who raise funds by selling securities. Also, according to the authors, there is a negative relation between leverage and historical market valuations.

According to Frank and Goyal (2009), the basic idea of this theory is to look and understand both debt and equity market conditions. After that, if they need any financing, they will use the most favorable one. If none seems good to them, they will pass the financing need. Furthermore, if they do not need to finance but there is a funding source that is unusually favorable, this source will be used.

2.1.5. Agency theory

Following Ross (1973), the agency costs[6] theory is based on the relationship between two (or more) parties, when one (the agent) acts on behalf of the other (the principal), in a particular domain of decision making. All the contracts between two parties contain important elements of agency.

Jensen and Meckling (1976) point out that, if both parties are utility maximizers, the agent will not act on behalf of the principal every time. However, the principal can align the agent interests by establishing appropriate incentives. Nevertheless, there will be always some divergence between the agent's decisions and the perfect decisions in the viewpoint of the principal, given the impossibility of writing complete contracts [Myers (2001)].

[5] Equity is issued when managers believe its cost is irrationally low and repurchase it when they think its cost is irrationally high.

[6] Agency costs are costs that arise from inefficiency and disruption within a company and are related with conflict of interest and governance.

Jensen and Meckling (1976) also states that agency costs can be sum up into the following three factors: (i) monitoring costs[7] by the principal; (ii) the bonding expenditures by the agent; (iii) and the residual loss[8]. The authors identify two major types of conflicts that agency costs may arise: conflicts between managers and shareholders and conflicts between shareholders and debtholders.

Jensen and Mecking (1976) described the costs that conflicts between managers and shareholders would bring to a firm. To do so, the authors compare the manager's behavior when he owns 100% of his firm and when he sells part of firm's shares to an outsider. When the manager owns 100% of the shares, he will make operation decisions that maximize the firm's utility[9]. On the other hand, when the manager sells part of his shares, he will stop trying to maximize firm's utility and will try to maximize his own utility, which will put the firm's welfare in risk. According to Jensen (1986), another conflict between managers and shareholders is related with the pay-out, since when there is conflicts between managers and shareholders, managers will prefer to invest excess cash-flow in negative NPV projects rather than see that money being distributed to the shareholders. However, Jensen (1986) says that it would be preferred that firm's use debt as a response to the agency costs. But why? According to the author, financing through debt would obligate the managers to pay-out cash to its debtholders, otherwise the firm would face bankruptcy. This would ensure that the managers act in the best benefit to the firms.

Conflicts between shareholders and debt holders are another type of conflicts that may arise from agency costs. Myers (2001) state that they only happen when a firm face default risk. Debtholders have no interest in the firm's

[7] Not only observe the agent, but also effort in order to restrain the agent´s budget or compensation policies.

[8] Cost of the agency relationship.

[9] Involves all utility aspects of a firm, such as physical appointments, attractiveness of the staff, employee discipline, charitable contributions, personal relations with employees.

income or value when a firm it is free from default risk. Since equity is a residual claim[10] when a firm faces a possible bankruptcy, shareholders will try to decrease the value of the existing debt. Supposing that a firm is facing a significative default risk and the managers act in accordance with the shareholders, they will try to trade value from firm's creditors to firm's shareholders Myers (2001). Managers can shift their low-risk investments into high-risk investments, because on doing so, higher return could be captured by the shareholders, while a possible downside will be absorbed by the creditors. According to Myers (2001), Jensen and Meckling (1976) were the firsts to stresses risk-shifting as an agency problem. Borrow and pay-out cash to stockholders will also trade value, since the overall firm value will remain constant, but the debt value will decrease. This will lower the value of the shares, however the cash received will offset this loss [Myers (2001)].

2.2. Determinants of Capital Structure

Extant capital structure literature, like Harris and Raviv (1991), Rajan and Zingales (1995), Gungoraydinoglu and Öztekin (2011), Chen and Yu (2011), among others, present some factors that may influence firm's leverage, such as: Taxes, Nature of Assets, Profitability, Firm Size, Growth Opportunities, Non-Debt Tax Shields, Industry Conditions, Business Risk, Growth Opportunities, Inflation Rate and Export Intensity. Analyze those factors is very important to understand how can they influence and why they influence the firm's financial decisions, in certain conditions.

[10] Equity claim is the right that the shareholder has to the firm's profit, after all the obligations have been paid.

2.2.1. Taxes

Modigliani and Miller (1963) developed the model presented in their paper of 1958 by adding the tax effect. After the inclusion of the tax effect, the authors conclude not only that firm's value depends on leverage, but also that a firm's value increase due to the tax benefits generated by leverage.

Baxter (1967) argues that the existence of corporate taxes, which treats interest as tax deductible, leads to the conclusion that leverage tend to decrease the cost of capital. On doing so, the existence of corporate taxes will create an optimal capital structure by balancing the costs of bankruptcy[11] with the benefits from corporate taxes. In the same line of reasoning, Kraus and Litzenberger (1973) assert that a firm should finance itself through debt in order to capture tax advantages, since taxes are deductible.

2.2.2. Nature of Assets – Tangibility

Myers (1977) suggests that for a firm which has no assets to give as a collateral, creditors will have to require more favorable conditions that the firm is not willing to accept. Hence, firms under these conditions, should prefer issuing equity rather than debt.

In line with Myers (1977), Myers and Majluf (1984) shows that the absence of tangible assets is deeply related to the information asymmetry, because a firm with less tangible assets has less collaterals to give to creditors. As tangible assets are viewed by the creditors as collaterals, firms with more tangible assets can rely more on debt since they can provide guarantees towards the debtholders. Titman and Wessels (1988) also state that the agency problem is reduced by firms that

[11] Bankruptcy costs are positively related to leverage; higher debt levels will lead to higher bankruptcy costs.

have more tangible assets, which provides them easily access to debt. For this reason, both studies draw that the relation between tangibility and leverage is positive.

Similarly, Harris and Raviv (1991) asserts that firms with comparatively less tangible assets will face more information asymmetries and, therefore, will face higher underinvestment problems.

Rajan and Zingales (1995) provide a study that aims to examine if the factors that were proven to be correlated with leverage for the United States firms are the same in the other countries, more precisely, in the G-7 countries[12]. As the previous authors stated, tangible assets are easy to collateralize[13] and for that reason they reduce the agency costs of debt. This study proves that tangibility[14] increase book leverage of all the countries by approximately 20% of its standard deviation, with the exception of Japan with a level of 45%.

Frank and Goyal (2009) divide assets in two major categories, tangible assets (property, plant and equipment) and intangible assets (goodwill, for example) and state that firms with more tangible assets are easier to evaluate and face less expected distress costs. So, the level of asset tangibility as well as the composition of those assets are very important in a firm's capital structure.

However, Frank and Goyal (2009) argues that under the pecking order theory a negative relationship should be found. Low asymmetry information associated with tangible assets, will induce firms to issue equity, so a firm with more tangible assets will have lower leverage ratios. However, there is some ambiguity

[12] Founded in 1975, Germany, Canada, United States, France, Italy, Japan and United Kingdom are the group of countries that form the G-7.

[13] Similarly to Rajan and Zingales (1995), Berger and Udell (1994) show that firms with close relationships to the creditors, need to provide less collateral.

[14] According to Rajan and Zingales (1995) tangibility is measure by the ratio fixed to total assets.

under the pecking order theory. If there is adverse selection[15] about the firms, when tangibility increases the adverse selection will lead to a higher leverage.

2.2.3. Profitability

When we flick through the existent literature and focus on profitability, we can notice that this is a determinant that is in line with the pecking order theory. The overall results of the literature show that higher profitable firms tent to borrow less, since they will utilize internal-generated funds instead of seeking debt financing.

According to Myers (1984) and Myers and Majluf (1984), it is possible to observe a negative correlation between profitability and leverage, however, the simple explanation about this relationship resumes to the fact the equity is costly than debt, and for that reason, most profitable firms, which have internally-generated funds, tend to rely less on debt.

Jensen (1986) shows two different ways to see profitability. In the first one, there would be a positive relationship between profitability and leverage, but this only happens when there is an efficient corporate control. This corporate control will force the firm to pay out cash when leverage increases. On the other hand, if there is not an efficient corporate control, firms will present negative relationship between profitability and leverage, once they will try to stay away from the corrective role of debt.

Titman and Wessels (1988), in line with Myers (1984) and Myers and Majluf (1984) results, state that past profitability of a firm, and consequently the retained earnings available, have an important impact on the capital structure.

[15] When sellers have information that buyers do not have about some aspect of the product and will then lead to asymmetric information.

According to Rajan and Zingales (1995) profitability has a negative impact on firm's leverage. The authors noted that larger firms tend to issue less equity and the negative impact that profitability has on leverage becomes higher as the firm sizes increases. Similar results are presented in Harris and Raviv (1991) and Frank and Goyal (2009).

2.2.4. Firm Size

Titman and Wessels (1988) find evidence in the literature that larger firms tend to rely more on debt[16]. The author also finds evidence in the literature[17], that relates the cost of issuing equity securities and debt with firm size. Small firms pay much more than large firms when issuing new equity and long-term debt, and for that reason, smaller firms may issue short-short term debt and become higher leveraged. This thinking is in line with the pecking order theory.

Bradley et al. (1984), Long and Malitz (1985) and Titman and Wessels (1988), also state that larger firms tend to have a larger debt-equity ratio than smaller firms. March (1982) and Rajan and Zingales (1995), also find that higher firms tend to rely more on debt.

Frank and Goyal (2009) reaches the same conclusion by saying that larger and more diversified firms face lower default risks and older firms face less debt-related agency costs. Therefore, firms which are larger and more mature tend to have higher leverage levels.

[16] The author points Warner (1977) and Ang et al. (1982) as providers of such evidence.
[17] Smith (1977).

2.2.5. Non-Debt Tax Shields

DeAngelo and Masulis (1980) point out that non-debt tax shields, as tax deductions for depreciations and investment tax credits, can be considered substitutes of the benefits which derive from debt financing. Authors also show that the relation between non-debt tax shields and firm's leverage is negative.

On the contrary, Bradley et al. (1984) find a significant positive relationship between leverage and the level of non-debt tax shields. As pointed out by the authors, *"the sign of the coefficient on non-debt tax shields is perverse" Bradley et al. (1984).*

Titman and Wessels (1988) could not confirm the significance of the relation between non-debt tax shields and leverage.

In order to take benefits of higher tax-shields, firms will issue more debt when the tax rates are higher, which will lead to a negative correlation between nondebt tax shields and leverage [Frank and Goyal (2009)]. Harris and Raviv (1991) reaches the same conclusion.

2.2.6. Industry Conditions

The Trade-Off theory predicts that higher industry median leverage should result in more leverage. Managers tend to use industry median leverage as a benchmark when they reflect about capital structure [Hovakimian et al. (2001) and Flannery and Ragan (2006)]. This means that industry median leverage is frequently used as a proxy for capital structure – firms adjust their debt to meet industry median leverage.

Frank and Goyal (2009), expect the same results. Authors reveal that industry effects have correlated factors[18], because firms in the same industry tend to face similar factors, like product market interactions or even competition[19].

According to Frank and Goyal (2009), there are two variables that can be related to industry conditions: industry median growth and industry median leverage. Following the trade-off theory, higher industry median growth should result in less debt, while higher industry median leverage should result in higher leverage. Under the pecking order theory, industry only matter if their valuations are correlated across firms in an industry.

2.2.7. Business Risk

Volatility of firm earnings is used as a proxy for Business Risk. Bradley et al. (1984) model predicts a negative relationship between earnings volatility and firm's leverage. Myers (1984) supports Bradley et al. (1984) prediction.

According to the trade-off theory, a firm with higher earnings volatility should have higher expected costs of financial distress and for that reason should have lower leverage [Frank and Goyal (2009)]. Frank and Goyal (2009) also stress that a firm with more volatile earnings or cash flows, will have reduced probability off having fully utilized tax shields, which leads to the conclusion that higher risk means less debt. Volatility is also linked to adverse selection. Therefore, under the pecking order theory, riskier firms have higher leverage.

[18] Hovakimian et al. (2004) also follow this interpretation and included industry leverage in their model in order to control for omitted factors.

[19] See Brander and Lewis (1986) and Chevalier (1995).

2.2.8. Growth Opportunities

Myers (1977) find that profitable investment opportunities are usually discarded by most profitable firms. Rajan and Zingales (1995) say that firms that expect high future growth should finance themselves by issuing equity rather than debt when they want to finance their investments. This is in line with Myers (1977), who says that when a firm is financed with risky debt, may pass up valuable investment opportunities.

Several authors [Myers (1977), Harris and Raviv (1991), Rajan and Zingales (1995) and Frank and Goyal (2009)] support that under the trade-off theory, growth opportunities will reduce the debt-equity ratio.

Titman and Wessels (1988) did not find any reliable relation between leverage and growth opportunities.

According to Frank and Goyal (2009), under the pecking order theory, firms with more investments accumulate more debt which leads to a positive relation between growth opportunities and debt.

2.2.9. Inflation Rate

Frank and Goyal (2009) following Gertler and Gilchrist (1993), argues that not only the firm-related determinants have impact on the capital structure choices. Macroeconomic factors significantly impact firm' s financing decisions. For example, during an expansion, stock prices usually go up and expected bankruptcy costs go down, which leads to higher borrow levels.

Agency costs, during an expansion, are likely to increase, since the managers see their wealth being reduced comparatively to shareholders'. However, if debt aligns both incentives (managers and shareholders), we should see a negative relationship between economic cycles and levels of borrow. According to the

pecking order theory, if during expansion periods the internal funds available are higher, firm should borrow less.

Gungoraydinoglu and Öztekin (2011) present a study that aims to deeply understand firm's capital structure by examining both characteristics of the firm and its institutional environment. In terms of firm's determinants, the author results are in line with both trade-off and pecking order theories.

In contrast with Frank and Goyal (2009), Gungoraydinoglu and Öztekin (2011) find a negative relation between inflation rate and leverage.

2.2.10. Exportations

According to Minetti and Zhu (2011), exporting involves a lot of initial costs and a lot of prior information in order to be successful. Das et al. (2007) assert that due to the high entry costs, which must be paid up-front, only firms with high liquidity will be able to start to export. Minetti and Zhu (2011) present results that prove that the probability of exporting is higher for firms with higher debt-equity ratios and lower cash flow[20].

Chen and Yu (2011), using 566 Taiwanese firms, suggest that the relation between export intensity and leverage is negative. This relation arises from the fact that exporter firms tend to rely more on internal funds than on external financing due to the monitoring problem. According to the authors, when firms expand their operations to foreign countries, it is harder for the creditors to monitor selling activities due to its complexity. For that reason, the agency costs increase, mainly if these selling operations are on emerging economies with poor corporate governance. This will make debtholders les motivated to lend additional funds.

[20] According to the author, the leverage effect could suggest that firms may use exports as a way to shift the risk, associated with their high debt, to creditors.

Silva and Pinto (2018), using a sample of 43,078 Portuguese firms, find that export firms have a higher leverage level than non-export firms and also that among export firms, firms with higher export intensity tend to have more debt.

The literature related to exports is very scant and this is one of the main reasons that lead us to examine the impact of export intensity in capital structure and making a comparative analysis between non-listed Spanish exporter and non-exporter firms.

Chapter 3

3. Research Questions and Hypothesis

3.1. Research Questions

The literature review allow to build the correct framework and formulate ten research questions. Our main objective is to investigate the differences between non-listed Spanish exporter and non-exporter firms financing decisions.

On doing so, we formulate the following two research questions: (*i*) What are the differences in the financing decisions between non-listed Spanish exporter and non-exporter firms? (*ii*) What is the impact of Export Intensity in the non-listed Spanish firms' leverage?

3.2. Research hypotheses

In this section, based on the determinants of firms' leverage discussed in the section 2.2, we formulate research hypothesis. Furthermore, we will identify the proxy used, following the extant literature. Note that, we use a lot of proxies due to the difficulty of finding, in the Spanish accounting, the same items that the authors use in order to calculate the determinants.

3.2.1. Taxes

Modigliani and Miller (1963) argue that the value of a firm is not only dependent from its financing decisions, but also that tax benefits increase when firms rely more on debt. This suggests a positive relationship between corporate

taxes and leverage, which is supported by Baxter (1967), Kraus and Litzenberger (1973) and Gungoraydinoglu and Öztekin (2011).

As in Gungoraydinoglu and Öztekin (2011), we use the ratio between Taxes on Profits and Profits and Losses before Tax as a proxy for Taxes.

H1: There is a positive relationship between corporate taxes and leverage.

3.2.2. Tangibility

Myers (1984) and Myers and Majluf (1984) show that firms with less tangible assets is suffer more from information asymmetries. Therefore, firms with more tangible assets can rely more on debt, which can be used as collateral [Titman and Wessels (1988), Harris and Raviv (1991), Rajan and Zingales (1995) and Frank and Goyal (2009)].

Following Rajan and Zingales (1995), we use the ratio between Fixed Tangible Assets and Total Assets to calculate firm's tangibility.

H2: Firms with more tangible assets have higher leverage.

3.2.3. Profitability

According to Myers and Majluf (1984), there is a negative relationship between profitability and the debt-equity ratio. Frank and Goyal (2009) also find a negative relationship between profitability and leverage, as well as Rajan and Zingales (1995). This expected relation is in line with the pecking order theory, since firms that are more profitable tend to finance themselves through internally generated funds.

As in Frank and Goyal (2009), the ratio between EBITDA and Total Assets is used as a proxy for firm´s profitability.

H3: There is a negative relationship between profitability and leverage.

3.2.4. Firm Size

According to Titman and Wessels (1988), the relation between firm size and leverage is positive. Harris and Raviv (1995) in line with Bradley et al. (1984) and Long and Malitz (1985) also state that larger firms rely more on debt. Frank and Goyal (2009) find evidence that larger and mature firms rely more on debt, since they face lower default risks and agency costs.

As in Rajan and Zingales (1995), we use logarithm of Total Assets as a proxy for firm size.

H4: Larger firms tend to rely more on debt.

3.2.5. Non-Debt Tax Shields

DeAngelo and Masulis (1980) point that non-debt tax shields can be considered substitutes of the benefits that derives from debt financing, and state that the relationship between non-debt tax shields and leverage is negative. Harris and Raviv (1991) and Frank and Goyal (2009) reach the same conclusion.

As in Leary and Roberts (2005), we use the ratio between Depreciation and Total Assets as a proxy for Non-Debt Tax Shields.

H5: Firms with higher non-debt tax shields have less leverage.

3.2.6. Industry Conditions

Trade off theory predicts that higher industry median leverage should result in more leverage. Industry median leverage is usually used by the authors as a capital structure benchmark [Hovakimian et al. (2001) and Flannery and

Ragan (2006)]. According to Frank and Goyal (2009), higher industry median leverage should result in higher leverage.

As in Frank and Goyal (2009), we use unadjusted Median Industry Leverage as a proxy for industry conditions.

H6: There is a positive relation between Industry Leverage and firm's leverage.

3.2.7. Business Risk

Bradley et al. (1984) predicts a negative relationship between earnings volatility (used as proxy for business risk) and leverage, which is corroborated by Myers (1984) and Myers and Majluf (1984). Frank and Goyal (2009) also expect a negative relationship, since a firm with higher earnings volatility have higher probability of financial distress costs, which may lead to lower debt levels.

We use the ratio between Enterprise Value and EBIT as a proxy for business risk.

H7: There is a negative relation between Business Risk and firm's leverage.

3.2.8. Growth Opportunities

Rajan and Zingales (1995) argue that firms with higher future growth opportunities should obtain funding by issuing equity. Hence, firms with higher growth opportunities will have less debt levels. This is in line with Myers (1977), Harris and Raviv (1991), Fama and French (2002) and Frank and Goyal (2009). Fama and French (2002) add that a firm with high growth opportunities tend to use the retained internal cash flow in investment opportunities, which leads to small levels of debt.

As in Frank and Goyal (2009), we use the ratio between CAPEX and Total Assets as proxy for growth opportunities.

H8: Firms with higher growth opportunities will have less debt levels.

3.2.9. Inflation Rate

Gungoraydinoglu and Öztekin (2011) find a negative relation between inflation rate and leverage. This result is in contrast with Frank and Goyal (2009) that find a positive relation; however, the authors expect that inflation should be the least reliable factor in their study. For this reason, the negative relation found by Gungoraydinoglu and Öztekin (2011), will be our expected relation.

We use the Annual Inflation Rate as Gungoraydinoglu and Öztekin (2011), to calculate this determinant.

H9: There is a negative relationship between the annual inflation rate and leverage.

3.2.10. Exports

According to Chen and Yu (2011), firms with higher export intensity tend to have lower debt levels.

We will use the Percentage of Export Intensity as proxy for export intensity.

H10: There is a negative relation between export intensity and leverage.

Chapter 4

4. Variables, Sample, Descriptive Statistics and Methodology

4.1. Variables

Variable	Measure	Expected impact
Taxes	$\frac{Taxes\ on\ Profits}{Profits\ and\ Losses\ before\ Tax}$	+
Tangibility	$\frac{Fixed\ Tangible\ Assets}{Total\ Assets}$	+
Profitability	$\frac{EBITDA}{Total\ Assets}$	-
Firm Size	Log(total assets)	+
Non-Debt Tax Shields	$\frac{Depreciation}{Total\ Assets}$	-
Industry Conditions	Median Market D/E (unadjusted)	+
Business Risk	$\frac{Enterprise\ Value}{EBIT}$	-
Growth Opportunities	$\frac{CAPEX}{Total\ Assets}$[21]	-
Inflation Rate	Annual Inflation Rate	-
Export Intensity	% of Exportation for each firm	-

Table 1 - Summary of the variables, their measures and their expected impact on the Leverage.

[21] CAPEX is computed as fixed tangible and intangible assets for year t, less fixed tangible and intangible assets for t-1, plus amortization for year t.

4.2. Sample

In order to study and compare the Spanish non-listed firm's financing decisions for the 2012-2017 period, we selected a restricted sample of 45,147 firms (of the 1 618 332 non-listed firms that exists in Spain[22]). The main reason of the decision of using only this amount of firms was that a lot of non-listed firms does not provide all the information to the database and a lot of data needed for the research was not available for the smallest companies. For that reason, we used a filter (all the companies must have in each of the 6 years of study, a value of total assets higher than 3.000.000€) in order to examine a more homogenous group of companies.

All the firm's data used in this study were extracted from SABI Database. Additionally, the information for the variables Industry Conditions and Business Risk was taken from the DAMODARAN Website[23], which provides the metrics and the information for Industry's means. We hand-matched firms with industries by using Industry SIC Code[24].

Since we studied 45,147 firms for 6 years, we apply a panel data sample. We used the SIC Code to separate our sample by 18 different industries. Table 2 shows three columns, where the first gives the SIC Code, the second presents the industry category and the third has a code that we will use further on as Industry Fixed-Effects in our models.

[22] According to SABI database at 29th of December 2018.

[23] Damodaran Website is an online site, created by Aswath Damodaran who is a teacher of corporate finance and valuation at the Stern School of Business at New York University, that among other things, provide to the user information about corporate finance and valuation metrics on industry averages.

[24] SIC Code, Standard Industrial Classification Code, it is a four-digit number created by the United States in order to facilitate the collection, presentation and the analysis of data. This code identifies the core business of any firm and covers all the economic activities.

Sic Code	Industrial Categories	IC
	1. Commercial and Industrial	
<=999	1.1. Agriculture, Forestry and Fishing	1
>=4812 & <=4899	1.2. Communications	2
>=1520 & <=1999	1.3. Construction/Heavy Engineer	3
	1.4. Manufactoring	
>=2800 & <=3099	1.1.1. Chemicals, plastic and rubber	4
>=2000 & <=2099	1.1.2. Food and Beverages	5
>=3510 & <=3872	1.1.3. Machinery and Equipments	6
>=3310 & <=3499	1.1.4. Steel, Aluminum and Other Metals	7
>=2100 & <=2799 >=3100 & <=3299 >=3873 & <=4010	1.1.5. Other	8
>=1000 & <=1310 >=1400 & <=1519	1.5. Mining and Natural Resources	9
>=1311 & <=1389	1.6. Oil and Gas	10
>=6500 & <=6999	1.7. Real Estate	11
>=5200 & <=5999	1.8. Retail Trade	12
>=7000 & <=8879	1.9. Services	13
>=5000 & <=5199	1.10. Wholesale Trade	14
>=4900 & <=4999	2. Utilities	15
>=6000 & <=6499	3. Financial Institutions	16
>=4011 & <=4811	4. Transportation	17
>=8888 & <=9729	5. Pubic Administration/Government	18

Table 2 - Industry categories, corresponding SIC code and its industry code.

4.3. Descriptive Statistics

Table 3 presents the descriptive statistics for the dependent variable Leverage and for the explanatory variables Export Intensity, Taxes, Tangibility, Profitability, Firm Size, Non-Debt Tax Shields, Industry Conditions, Business Risk and Inflation Rate.

From now on the variable Growth Opportunities will not be part of our model since it reduces in a very significant way the number of observations. Besides that, all the statistics in the Table 3 must be read and analyzed as percentages, except the variables Firm Size, Business Risk and Inflation Rate.

Variable	Number of observations	Mean	Median	Standard deviation	Max	Min
Lev	135 105	0,278	0,239	0,240	6,248	0,000
Export Intensity	135 105	0,071	0	0,193	1	0
Taxes	135 105	71,944	0,249	26377,830	9695600	-1479,714
Tangibility	135 105	0,301	0,216	0,286	1,073	-0,100
Profitability	135 105	0,061	0,040	0,092	3,299	-8,548
Firm Size	135 105	4,066	3,916	0,495	7,953	3,477
Growth Opportunities	75 968	-0,031	-0,023	0,086	0,985	-3,038
Non-Debt Tax Shields	135 105	0,026	0,017	0,028	0,887	0,000
Industry Conditions	135 105	0,552	0,386	0,445	5,816	0,159
Business Risk	135 105	18,984	17,140	5,235	93,732	7,677
Inflation Rate	135 105	0,008	0,014	0,012	0,025	-0,005

Table 3 - Descriptive statistics before interval limitations

As present in the Table 3, there are some irregular/abnormal values (for example, the Taxes maximum is 9695600%). So, we create some intervals of values that the variables can assume, in order to overcome this possible problem. The intervals are presented in the Table 4.

Variable	Intervals of values
Leverage	Following Kayhan and Titman (2007) we drop the leverage values which were higher than 1.
Export Intensity	This variable is already well defined, since the values were directly collected from SABI Database and the values can vary from 0% to 100%.
Taxes	In agreement with Frank and Goyal (2003), we have trimmed this variable at top and bottom 1% percentiles.
Tangibility	It is impossible that the value of tangible assets is higher than the total assets, so we will trim our tangibility values outside the interval [0; 1], to eliminate abnormal values.
Profitability	In agreement with Frank and Goyal (2003) we have trimmed this variable at top and bottom 1% percentiles.
Growth	It is not normal a firm having a CAPEX value higher than its Total Assets, so all the observations must be in the interval [-1; 1].
Firm Size	This variable is already well defined, since it is a logarithm value.
Non-Debt Tax Shield	It is not normal to see the value of Depreciations higher than the Total Assets value, therefore the interval will be [0; 1].
Industry Conditions	This variable was collected from the DAMODARAN database. It is the annual Median Leverage average of each industry and does not have abnormal values.
Business Risk	This variable was collected from the DAMODARAN database. It is the annual EBIT Multiple average of each industry and does not have abnormal values.
Inflation Rate	This variable is already well defined, since the values were calculated through the World Bank Group.

Table 4 - Definition of values' intervals that the variables can assume.

After the definition of these intervals, we reached our final table of descriptive statistics (Table 5) that contain information about the Mean, Median, Standard Deviation, Maximum and Minimum of each of our variables. Besides that, in

order to test if the population mean ranks differ significantly between our two different populations (export and non-export firms), we run the Wilcoxon Rank Sum test. Results show that the two populations mean ranks differ significantly at the 1% significance level.

Variable	First Model					Export firms (D_EI = 1)					Non-Export firms (D_EI = 0)					Wilcoxon Test
	Mean	Median	St Deviation	Max	Min	Mean	Median	St deviation	Max	Min	Mean	Median	St deviation	Max	Min	
Lev	0,272	0,222	0,226	1	0,000	0,248	0,224	0,187	0,993	0,000	0,278	0,237	0,235	1	0,000	***
EI	-	-	-	-	-	0,340	0,260	0,296	1	0,01	-	-	-	-	-	-
Taxes	0,205	0,249	0,321	2,826	-3,64	0,205	0,250	0,326	2,804	-3,636	0,205	0,249	0,320	2,826	-3,64	***
Tangibility	0,302	0,218	0,285	1	0,000	0,233	0,200	0,185	0,968	0,000	0,320	0,226	0,304	1	0,000	***
Profitability	0,062	0,050	0,068	0,381	-0,197	0,085	0,072	0,073	0,381	-0,194	0,056	0,034	0,065	0,380	-0,197	***
FS	4,063	3,931	0,493	7,953	3,477	4,300	4,172	0,562	7,700	3,478	4,000	3,868	0,453	7,953	3,477	***
NDTS	0,026	0,018	0,027	0,413	0,000	0,032	0,025	0,027	0,365	0,000	0,024	0,015	0,027	0,413	0,000	***
IC	0,550	0,366	0,442	5,816	0,159	0,359	0,305	0,233	5,816	0,159	0,600	0,428	0,469	5,816	0,159	***
BR	18,968	16,879	5,221	93,732	7,677	16,915	15,905	4,374	93,732	7,677	19,509	19,198	5,291	93,732	7,677	***
IR	0,008	0,014	0,012	0,025	-0,005	0,008	-0,002	0,012	0,025	-0,005	0,009	0,014	0,012	0,025	-0,005	***
Number of observations	131 286					27 368					103 918					

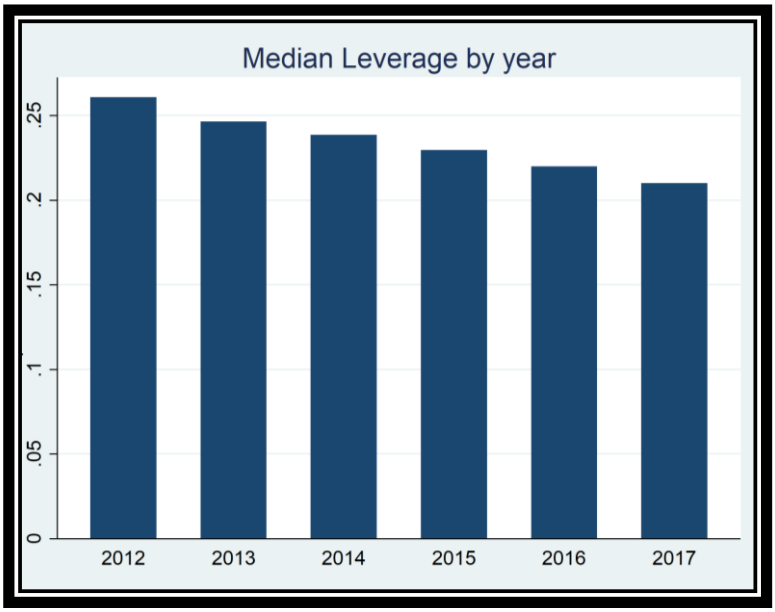
*** indicates that the population mean ranks differ significantly between export and non-export firms at the 1% significance level.

Table 5 - Final table of the variables' descriptive statistics.

4.3.1. Descriptive statistics analysis

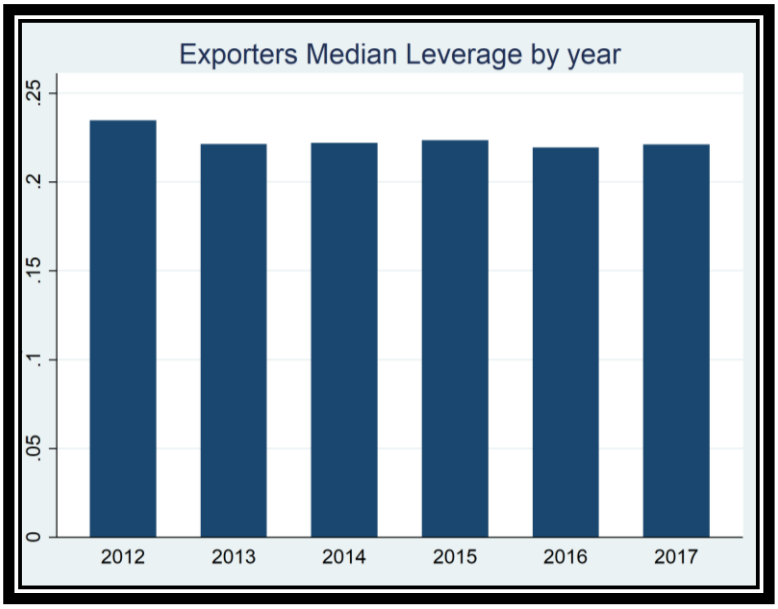
Table 5 shows that export firms have, on average, lower leverage than non-export firms. The mean (median) export firms' leverage of 24,8% (22,4%) is slightly lower than non-export firms' mean (median) leverage of 27,8% (23,7%).

The variable Leverage decreased between 2012 to 2017, starting with a level of leverage of 26% approximately in 2012 and ending with a level of leverage of 20%, as we can see in Graph 6.



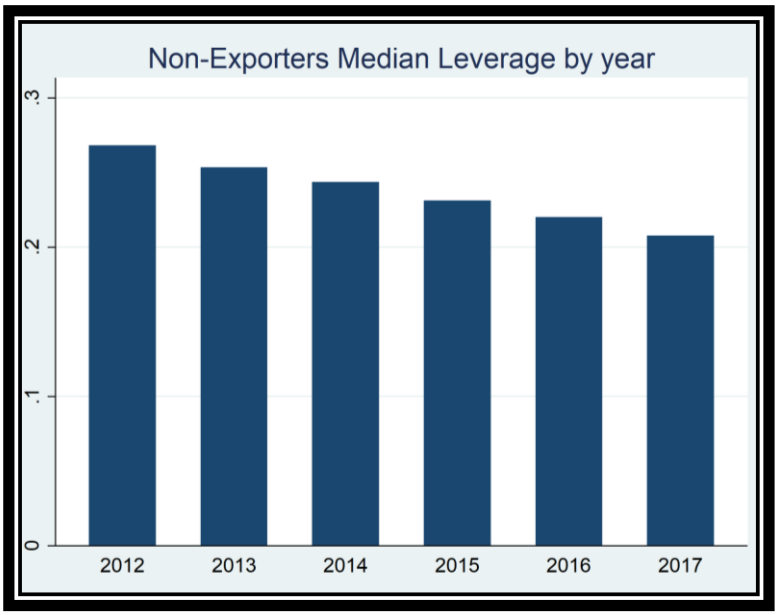
Graph 6 – Median leverage by year for All firms

As we can observe, for the exporter firms, the level of leverage has a slightly decrease during this period, but always with the debt levels rounding the 22%.



Graph 7 – Exporters median leverage by year.

For the Non-Export firms the trend is clearly descendent, with debt levels near 27% in 2012, which decreased for a level slightly above 20%, in 2017.



Graph 8 – Non-exporters firms median leverage by year

We thus can conclude that the debt level reduction was higher in the non-export firms and that in the end of our period (2012-2017), exporter firms rely a little bit more in debt than the non-exporter firms.

According to the Table 5 and Appendix A[25], it is easy to see that only the export firms exhibit export intensity and, on average, they export 34% of their total sales.

Considering now the variable taxes, we can affirm that the results are very similar between the two type of companies, with the mean exporter firm presenting a slightly higher marginal tax-rate than the non-export firm (25% *versus* 24,9%). However, there are different trends between the two group of firms. For the exporter firms the trend is clearly of decrease, while in the non-exporter firms the trend is constant, there isn't any significative difference during the study period.

Tangibility and Profitability have inverse results when analyzed for both types of companies. On average, an export firm has less fixed tangible assets than a non-export firm (23,3% *versus* 32%); while, on average, export firms are more profitable than non-export firms (7,2% *versus* 3,4%). During the study's period the tangibility trend is very similar for both groups; however, as mentioned before, asset tangibility is lower for exporter firms. In terms of the profitability variable, the trend is positive for both groups, however, is a little more pronounced for the exporter firms.

Regarding the Firm Size, export firms tend to be larger, on average, than non-export firms (4,3 *versus* 4). This variable presents a constant trend, across the period of study, for both groups.

The mean (median) export firms' Non-Debt Tax Shields of 3,2% (2,5%) is higher than non-export firms' mean (median) of 2,4% (1,5%). During the period in analysis, for both groups, there is a similar slight descendent trend.

[25] Presents graphs with the evolution of every variables through the 2012-2017 period.

Having in mind that this variable, as well as Business Risk, is analyzed from an industry perspective, the mean (median) export firms' market median leverage (Industry Conditions) of 35,9% (30,5%) is lower than non-export firms' market median leverage of 60% (42,8%). When we analyze the exporter firms graph we cannot reach any trend conclusions, because there are a lot of variations and there are consecutive increases and decreases on the levels of this variable. However, when we look to the non-exporter firms' graph, we can clearly observe a sharply decrease in the industry sector leverage from 60% in 2012 to 30% in 2017.

Similarly, the variable Business Risk presents, on average, a lower value of EBIT multiple (EV/EBIT) for the export firms (16,915), than for the non-export firms (19,509). This means that non-export firms are relatively overvalued. This happens because this EBIT multiple answers to the question "How much is a firm being valued per each euro of EBIT?". For that reason, a company that is "potentially overvalued", in theory, should not attract as many investors as a firm that is "on price" or "undervalued". During the period in analysis, the business risk, have a slightly positive trend for both groups. This trend, have three possible explanations, or the EBIT has been decreasing from year to year which makes the multiple of EBIT higher, or the Enterprise Value has been increasing, or there is a combination of both (decreasing of EBIT and increasing of EV) that may lead to this positive trend.

Finally, results show that Inflation Rate decreased significantly between 2012 and 2014 (from 2,53% in 2012 to -0,153% in 2014), with a slightly decrease in 2015, a slightly increase in 2016, and a huge recover in 2017, with a final Inflation Rate of 1,97%.

4.4. Preliminary Analysis

Table 7 will provide the relationships between the independent variables with leverage. Correlation analysis is the same as covariance analysis, however, the first, will solve the problem of the difficult interpretation of the results, because it will use the ratio between covariance and the standard deviation giving a result inside the interval [-1; 1].

Correlation

Variables	Leverage			
	All Sectors	Export	Non-Export	Expected Relationship
Taxes	0,0128	-0,0183	0,0196	+
Tangibility	0,1895	0,2119	0,1819	+
Profitability	-0,0313	-0,1471	0,0067	-
FS	-0,0374	-0,1171	-0,0013	+
NDTS	0,0916	0,0783	0,1026	-
IC	0,0147	-0,0029	0,0034	+
BR	-0,0344	-0,0080	-0,0530	-
IR	0,0160	0,0020	0,0188	-
EI	-0,0389	-0,0011	-	-

Table 6 - Correlation table and the expected impact on the independent variable for each variable.

Our results show that: (*i*) for export firms, while there is a positive relationship between leverage and Tangibility, NDTS and Inflation Rate; Taxes, Profitability, FS, IC, BR and Export Intensity seem to affect firms' leverage negatively.; and (*ii*) non-export firms' leverage is positively affected by Taxes, Tangibility, Profitability, NDTS, IC and Inflation Rate, while FS and BR affect negatively.

This preliminary analysis is important to understand the relationship between each of the independent/control variables with the dependent variable, however this relationship does not have to do with our final answer to the research question. Pearson's correlation only shows us the independent relation between the variables, does not show us the results whenever all the other variables that explains the dependent variable are correlated with the independent variables. For that reason, we will use a regression analysis in the further chapters.

4.5. Methodology

Our sample comprises a set of 45,147 firms, with data available for the 2012-2017 period (6 years). Although our model is also composed by cross-section and time-series variables, the analysis of the financial decisions will be performed in a panel-data format.

A panel data (or longitudinal data) set consists of a time series for each cross-sectional member in the data set [Wooldridge (2012)]. The panel data analysis allows us to explain the heterogeneity between firms and industries, as well as model the dynamic effects that are not visible when using cross-section [Greene (2012)].

In our model we used industry fixed-effects[26], which emerge from the assumption that there are omitted variables/effects that are correlated with our explanatory variables [Greene (2012)].

[26] Frank and Goyal (2009) say that is important to use fixed-effects in the regression models.

So, the model that will be used to study the Spanish non-listed firms' financing decisions by export and non-export firms, will be the following:

$$Lev_{i,t} = \beta 0 + \beta 1\ DExp_{i,t} + \sum_{j=1}^{17} \gamma j\ Code_{j,i} + \beta 2\ Taxes_{i,t} + \beta 3\ Tangibility_{i,t} + B4\ Profitability_{i,t} + \beta 5\ FS_{i,t} + \beta 6\ NDTS_{i,t} + \beta 7\ IC_{i,t} + \beta 8\ BR_{i,t} + \beta 9\ IR_{t} + \varepsilon_{i,t}$$

Where:

- *i*: firm observation (*i*=1, 2, …,45 147)
- *t*: year observation (*t*=2012, 2013, …, 2017)
- *j*: industry observation (*j*=1, 2, …,18)
- *i, t*: firm-year observation (*i,t*=131 286)
- *j, i*: industry-firm observation (*j,i*=45 147)
- Lev: Leverage
- DExp: Dummy variable set equal to 1 if the observation *i,t* is related to an export firm and 0, otherwise.
- γj Code *j,i*: FE (fixed-effect) estimator which takes the value 1 wherever a firm *i* belongs to the industry *j* and that industry *j* are the same as the γj industry, and 0 otherwise.
- FS: Firm Size
- NDTS: Non-Debt Tax Shields
- IC: Industry Conditions
- BR: Business Risk
- IR: Inflation Rate

Chapter 5

5. Regression results and Deviations from the literature

5.1. Regression Results

Before starting to analyze the regression results, we must check if all the statistic assumptions are in line with our model. According to Greene (2012), multicollinearity[27], endogeneity[28] and heteroskedasticity[29] problems must be verified before any analysis.

Our use of fixed-effects will solve the endogeneity problem, since the purpose of it is to control the omitted variables in the error term that are correlated with the independent variables [Greene (2012)].

In order to test the multicollinearity assumption, we have made the VIF[30] test. According to O'Brien (2007), a common rule says that a VIF higher than 10 is considered high and in those cases, there are multicollinearity. As we can observe in the table 8, there isn't any value higher than 1,46, and for that reason we can assume that there isn´t any multicollinearity problems.

[27] Multicollinearity occurs when the model's explanatory variables are perfectly or almost perfectly colinear with each other.

[28] Endogeneity occurs when one, or more, of the explanatory variables used in the model are correlated with the error term of the model.

[29] Heteroskedasticity occurs when the variance of the error is different across observations, or if the error is correlated across observations.

[30] Variance Inflation Factor, is a test used to detects multicollinearity in regression analysis. The results of this test have a minimum value of 1.

Variable	VIF
EI	1,19
Taxes	1,01
Tangibility	1,18
Profitability	1,35
FS	1,09
NDTS	1,46
IC	1,14
BR	1,12
IR	1,02

Table 7 – VIF test

In order to test the heteroskedasticity assumption, we have estimated the regression model under a robust estimation which will allow us to compute a fixed-effect regression without heteroskedasticity issues [Green (2012)].

After the verification of all the assumptions, we will now analyze the impact of the independent variables in the dependent variable. The Table 9 presents the results of the model estimation.

Variables	Industry fixed-effects		
	First model (1)	Exporters (2)	Non-Exporters (3)
Intercept	0,260 (0,048)	0,390*** (0,042)	0,213*** (0,040)
Exporters	-0,009*** (0,002)		
Export Intensity		0,028*** (0,04)	
Taxes	0,008*** (0,002)	-0,008** (0,003)	0,013*** (0,002)
Tangibility	0,138*** (0,003)	0,226*** (0,008)	0,134*** (0,003)
Profitability	-0,312*** (0,010)	-0,496*** (0,016)	-0,245*** (0,012)
Firm Size	-0,006*** (0,001)	-0,035*** (0,002)	-0,005*** (0,002)
Non-Debt Tax Shield	0,644*** (0,028)	0,236*** (0,055)	0,650*** (0,034)
Industry Conditions	0,032*** (0,003)	-0,007 (0,009)	-0,035*** (0,003)
Business Risk	-0,001*** (0,000)	0,000 (0,000)	-0,001*** (0,000)
Inflation Rate	0,074 (0,052)	-0,228** (0,093)	0,099 (0,062)
Industry Fixed-effects	Yes	Yes	Yes
R squared	0,0597	0,1027	0,0558
Overall F-Test	294,82***	124,72***	224,22***
Number of observations	131 286	27 368	103 918

***, **, * denotes significance levels of 1%, 5% and 10% respectively. Coefficients were estimated based on heteroskedasticity-consistent standard errors using panel data methodology. Model (1) presents the results of the estimation for both types of firms (Exporter and Non-Exporter). Model 2 and 3 presents the results of the estimation for Exporter firms and Non-Exporter firms respectively.

Table 8 – Regression results (obtained by the Stata Software)

Taking into consideration the estimation results presented above, the Industry fixed-effect regression suggest that in case of the Model 1 (both export and non-export firms), the variables Profitability, Firm Size and Business Risk have a negative impact on the dependent variable (Leverage). On the other hand, the variables Taxes, Tangibility, Non-Det Tax Shields and Industry Conditions have a positive impact on the dependent variable. The variable Inflation Rate has an insignificant impact on Leverage. Looking deeply into our dummy variable (Exporters), we are able to draw that, since this variable is a dummy variable, the export firms' leverage is 0,9 percentage points lower, holding all other determinants constant (observed and non-observed), when compared to the non-exporter firms. It is also important to note that the variables Tangibility, Profitability and NDTS are the ones with a higher impact on the Leverage.

However, when we separate the sample between export and non-export firms and analyze their estimation results separately (Model 2 and Model 3), the results that we obtain are slightly different.

In the Model 2 (export firms), the variables Export Intensity, Tangibility and Non-Debt Tax Shields have a positive impact in the dependent variable. On the other hand, the variables Taxes, Profitability, Firm Size and Inflation Rate have a negative impact on Leverage. In this case, Industry Conditions and Business risk have both an insignificant impact on the Leverage. Once again, it is important to notice that, among the exporter firms, the higher the Export Intensity, the higher will be the Leverage level.

In the Model 3 (non-export firms), the variables Taxes, Tangibility and Non-Debt Tax Shields have a positive impact on the dependent variable. In contrast, the variables Profitability, Firm Size, Industry Conditions and Business Risk have a negative impact on the Leverage. Inflation Rate has an insignificant impact on the Leverage. In this Model we do not have estimation results for the

variable Export Intensity, because the Non-export firms does not have export value.

The two main statistics used in order to analyze a regression model's fit are the coefficient of determination and the overall F-test. The coefficient of determination (R^2) is the proportion of the dependent variable explained by the regression model[31], basically it indicates the goodness of fit of the model and can have values between the interval [0;1] [Greene (2012)]. The overall F-test evaluates the power of the regression model. The model will not have any power if the dependent variable is not related to any of the independent/explanatory variables.

The estimation results obtained by our industry fixed-effect regression model, for our three regression models (all sectors, export firms and non-export firms), have explanatory power (the F-test is significant for a significance level of 1%). However, as they do not have a higher R^2, we decided to re-estimate the same model using firm fixed-effects (see Appendix D for more details).

In the firm fixed-effects case, the coefficient of determination becomes very high for the three regression models (all sectors, export firms and non-export firms), approximately 89%, 85% and 90%, respectively, and the model has, once again, explanatory power (the F-test is significant for a significance level of 1%). So, why don't we use only the Firm fixed-effects model if it provides us a more explicative model (higher R^2)? We cannot do that, because since our Export Intensity variable is a Dummy variable which takes the value 0 if it relates to a non-export firm and 1 otherwise, if we have used firm fixed-effects this variable would have to be eliminated[32]. For that reason, we present on Appendix D, only an hypotetical regression of Firm fixed-effects and show that the coefficients that

[31] Mathematically speaking, is the proportion of the total variance of the dependent variable that is explained by the regression model.

[32] since our variable export intensity does not vary between firm observations (one firm will have the same export intensity for the six years in study), and the aim of fixed-effects is to "catch" and solve all the things that are constant, this variable would have been dropped.

we achieve on doing so are very similar to the ones that we achieve when we regress our estimation model through industry fixed-effects.

After the analysis of the hypothetical firm fixed-effects regression model, we can observe that all the estimation results that are statistically significative are the same, except in the Firm Size variable where the three different regression models (all firms, export-firms and non-export-firms) have negative coefficients, while they are positive in the industry fixed-effects models. Besides that, only the variable Industry Conditions for the non-export firms have a different estimation coefficient (-0,035 in the Industry fixed-effects model and 0,035 in the firm fixed-effects model).

From the presented results we can conclude that for the Model(1) and Model(2) two the variable export is statistically significative, however different between them. For the Model(1), the estimation coefficient is (-0,009), presenting a negative relationship between export and firms' leverage, like Chen and Yu (2011) argued. However, when we only look for export companies (Model 2), in line with Silva and Pinto (2018), there is a positive relationship between export intensity and firm's leverage.

5.2. Deviations from the literature

Now that we know the estimation results of our regression model, it is important to analyze and confirm if there are any deviations from the literature. To do so, we will have three tables, one for each model (all firms, export firms and non-export firms), that will be divided by determinants, expeted signal, findings and significance test (if is significanty at the 5% level).

Model	Determinant	Expected signal	Findings	Significance
All firms model (1)	Taxes	+	+	Significant
	Tangibility	+	+	Significant
	Profitability	-	-	Significant
	Firm Size	+	-	Significant
	Non-Debt Tax Shields	-	+	Significant
	Industry Conditions	+	+	Significant
	Business Risk	-	-	Significant
	Inflation Rate	-	+	Insignificant
	Export Intensity	-	-	Significant

Table 9 - Expected signal, findings and individual significance tests for the model (1).

There are only two significant deviations from the existing literature in the first model (All firms model).

The fourth hypothesis, which says that larger firms rely more on debt [Bradley et al. (1984), Long and Malitz (1985), Titman and Wessels (1988), Harris and Raviv (1991) and Frank and Goyal (2009)) is not confirmed in model (1). Moreover, results do not corroborate the fifth hypothesis, which says that firms with higher non-debt tax shields have less leverage [DeAngelo and Masulis (1980), Harris and Raviv (1991) and Frank and Goyal (2009)]. In addition, as we find an insignifincat relationship between inflation rate and leverage, results do not seem to corroborate ninth hypothesis.

Model	Determinant	Expected signal	Findings	Significance
Export firms model (2)	Taxes	+	-	Significant
	Tangibility	+	+	Significant
	Profitability	-	-	Significant
	Firm Size	+	-	Significant
	Non-Debt Tax Shields	-	+	Significant
	Industry Conditions	+	-	Insignificant
	Business Risk	-	+	Insignificant
	Inflation Rate	-	-	Significant
	Export Intensity	-	+	Significant

Table 10 - Expected signal, findings and individual significance tests for the model (2).

In this model, there are four significant deviations from the literature.

The first hypothesis, which says that there is a positive relation between corporate taxes and leverage [Modigliani and Miller (1963), Baxter (1967), Kraus and Litzenberger (1973) and Gungoraydinoglu and Öztekin (2011)], is not confirmed by the model (2). The fourth and the fifth hypothesis are also not confirmed by the model (2). Lastly, the tenth hypothesis, which says that there is a negative relation between export intensity and leverage [Chen and Yu (2011)], is not confirmed by the model (2), however, is in line with Silva and Pinto (2018).

Model	Determinant	Expected signal	Findings	Significance
Non-export firms model (3)	Taxes	+	+	Significant
	Tangibility	+	+	Significant
	Profitability	-	-	Significant
	Firm Size	+	-	Significant
	Non-Debt Tax Shields	-	+	Significant
	Industry Conditions	+	-	Significant
	Business Risk	-	-	Significant
	Inflation Rate	-	+	Insignificant

Table 11 - Expected signal, findings and individual significance tests for the model (3).

In this model, there are three significant deviations from the existent literature.

The fourth and fifth hypothesis, once again, are not confirmed by the model (3). The sixth hypothesis, which says that there is a positive relation between industry leverage and firm's leverage [Hovakimian (2001), Flannery and Ragan (2006) and Frank and Goyal (2009)], is also not confirmed by the model (3). In addition, as we find an insignifincat relationship between inflation rate and leverage, results do not seem to corroborate ninth hypothesis.

There are three possible reasons that may have led to these deviations in the results. First, we studied unlisted firms, when most of the studies are performed through listed firms. Secondly, our study period can be considered a recovery period from the financial and European sovereign debt crisis, which may lead to some deviations in the normal forms of corporate action. Third, we use some determinant proxies that were not in the literature, due to the differences of the Spanish accountability and the difficulty in finding the same accounting items that the authors use and it may have lead to different findings.

5.3. Model with Growth Opportunities

Table 13 will present the estimation results if the Growth Opportunities variable would had been included in our model. This variable was not included in the baseline model, because it would sharply decrease our number of observations.

Variables	Model in study plus GO		
	First model (4)	Exporters (5)	Non-Exporters (6)
Intercept	0,299***	0,219***	0,243***
	(0,041)	(0,027)	(0,041)
Exporters	-0,005***		
	(0,002)		
Export Intensity		0,034***	
		(0,004)	
Taxes	0,007***	-0,008**	0,013***
	(0,002)	(0,004)	(0,003)
Tangibility	0,147***	0,198***	0,142***
	(0,004)	(0,009)	(0,004)
Profitability	-0,399***	-0,521***	-0,344***
	(0,012)	(0,017)	(0,016)
Growth Opportunities	0,077***	0,225***	0,027*
	(0,012)	(0,025)	(0,014)
Firm Size	-0,012***	-0,038***	-0,000
	(0,002)	(0,002)	(0,002)
Non-Debt Tax Shield	0,677***	0,642***	0,608***
	(0,039)	(0,072)	(0,047)
Industry Conditions	0,020***	0,000	0,022***
	(0,005)	(0,009)	(0,005)
Business Risk	-0,001***	0,000	-0,001***
	(0,000)	(0,000)	(0,000)
Inflation Rate	0,019	-0,217**	0,074
	(0,065)	(0,101)	(0,083)
Industry Fixed-effects	Yes	Yes	Yes

R squared	0,0644	0,1095	0,0549
Overall F-Test	182,02***	105,43***	112,02***
Number of observations	73 837	22 408	51 429

Table 12 - Regression results with the inclusion of the variable Growth Opportunities (obtained by the Stata software).

***, **, * denotes significance levels of 10%, 5% and 1% respectively. Coefficients were estimated based on heteroskedasticity-consistent standard errors using panel data methodology. Model (1) presents the results of the estimation, plus the variable Growth Opportunities, for both types of firms (Exporter and Non-Exporter). Model 2 and 3 presents the results of the estimation, also plus the variable Growth Opportunities, for Exporter firms and Non-Exporter firms respectively.

It is possible to conclude that the inclusion of the Growth Opportunities did not change our results, because none of the statistically significant variables changed their estimation results. We add an independent/explanatory variable to our regression model and still the estimation results are the same, which means that our regression model is solid and consistent.

Conclusion

The main purpose of this study is to answer to the following research questions: (i) What are the differences in the financing decisions between non-listed Spanish exporter and non-exporter firms? (ii) What is the impact of Export Intensity in the non-listed Spanish firms' leverage?

To answer our research questions, was collected data for 45 147 unlisted Spanish firms belonging to export and non-export sectors during the 2012-2017 period. We use a panel data econometric model to answer to these questions.

According to the extant literature, nine determinants were used: Taxes, Tangibility, Profitability, Firm Size, Non-Debt Tax Shields, Industry Conditions, Business Risk, Inflation Rate and Export Intensity. Then we performed a robustness check by adding the Growth Opportunities to our model, because the inclusion of this variable would drastically decrease our number of observations.

The regression results show differences between the export and non-export firms, and for that reason we can conclude that the factors that influence non-listed Spanish export and non-export firms' leverage are different.

According to the results, in the first model (All firms), the effect of Taxes, Tangibility and Industry Conditions are in line with the extant literature, with a positive relationship with Leverage. Also, the impact of Profitability, Business Risk and Export Intensity on leverage level is in line with the literature, presenting a negative impact. Contrary to previous empirical literature, Firm Size presents a negative impact, while Non-Debt Tax Shields presents a positive impact. Inflation Rate is not significant in this model.

According to the results for Export firms only, the impact of Tangibility, Profitability and Inflation Rate on leverage is in line with the literature, with a positive relationship between Tangibility and Leverage, and a negative relationship between Profitability and Inflation Rate and Leverage. The

remaining are not in line with the extant literature, being the impact of both Industry Conditions and Business Risk insignificant.

In the third model (Non-export firms), the effect of Taxes, Tangibility, Profitability and Business Risk on leverage level is in line with the extant literature, with the first two having a positive relationship with leverage and the other two a negative relationship. Firm Size, Non-Debt Tax Shields and Industry Conditions have different results from what we expected from the extant literature and Inflation Rate is not significant.

In the model with Growth Opportunities, the results are the same for all the variables, which show that our model is robust.

Regarding our both research questions, we find that export firms have a lower leverage level than non-export firms. In addition, export intensity affects positively a firm's leverage.

During this study there were a lot of challenges faced and successfully overtake. The differences between Spain accountability and the financial items used by extant literature was one of them. Furthermore, the fact that we studied unlisted firms, made it more difficult to obtain financial data, since the firms in study are private, and for that reason, the available information led to a huge drop in the initial observations.

Our sample begins in a year in which Spain was helped by the International Monetary Fund with 100 thousand million euros, due to the financial crisis. This fact may have dissembled the firm's behavior, mainly when we are talking about financing decisions. In the future, it would be interesting if a resembling study it is done for a period without the financial crisis factor in order to see if the results are similar. Extend this study to more countries in Europe, namely France and Germany, would create a very strong empiric basis regarding the study of the differences in financing decisions between export and non-export firms.

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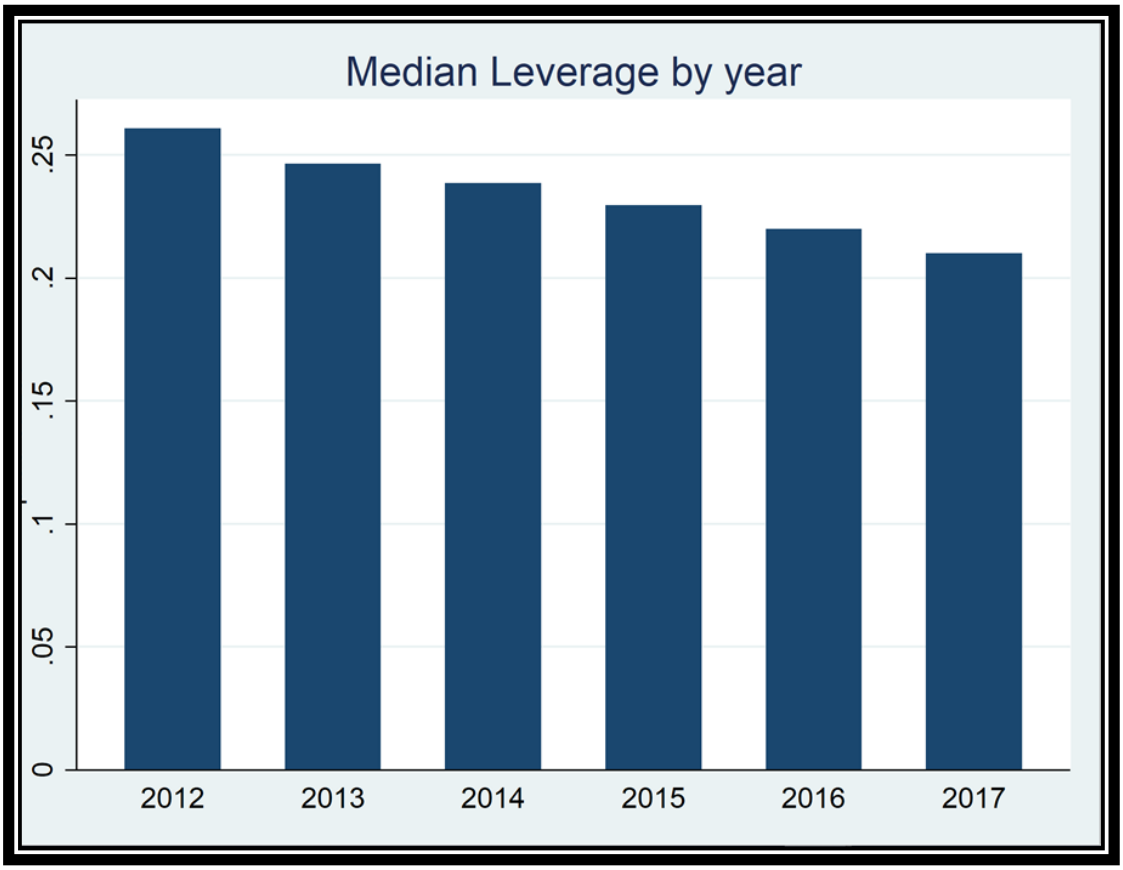
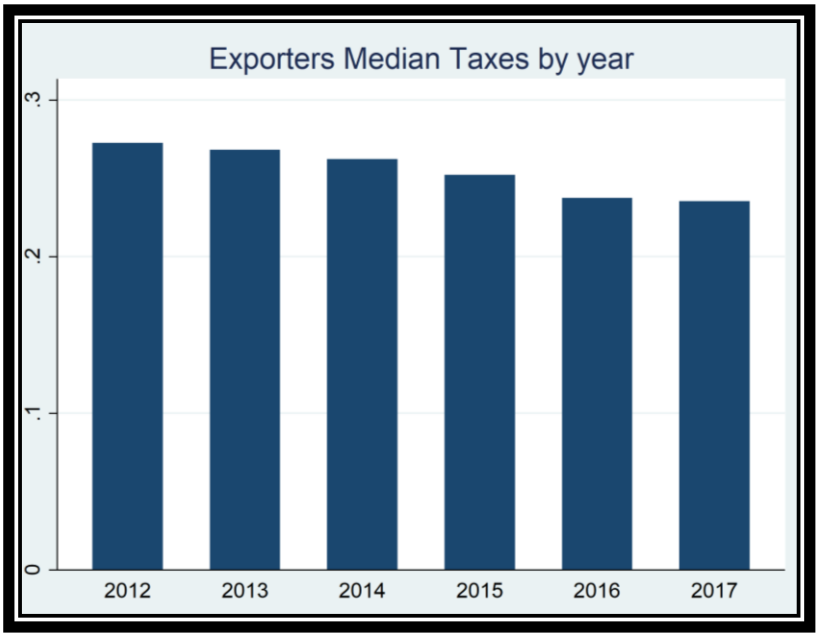
Appendices

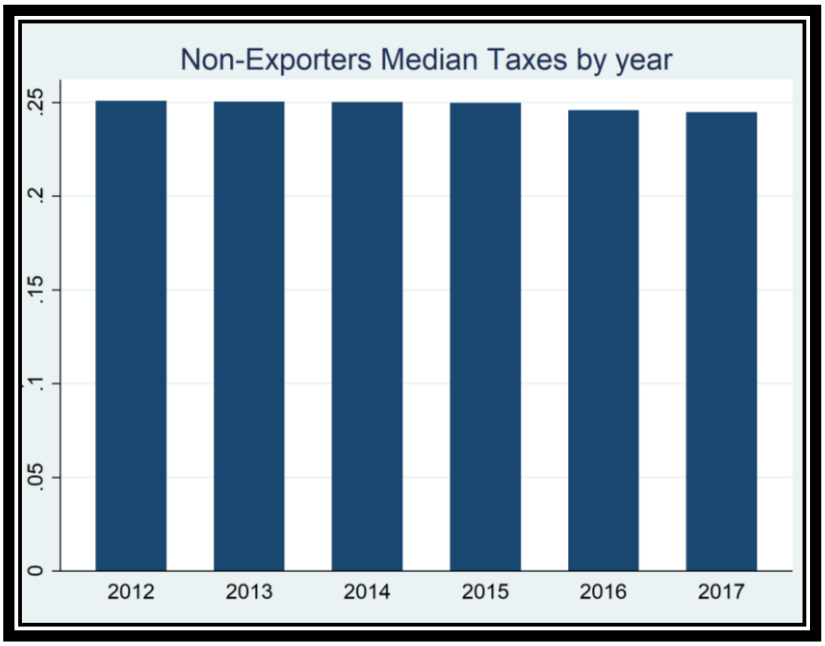
Appendix A - Median evolution of all independent variables during the 2012-2017 period



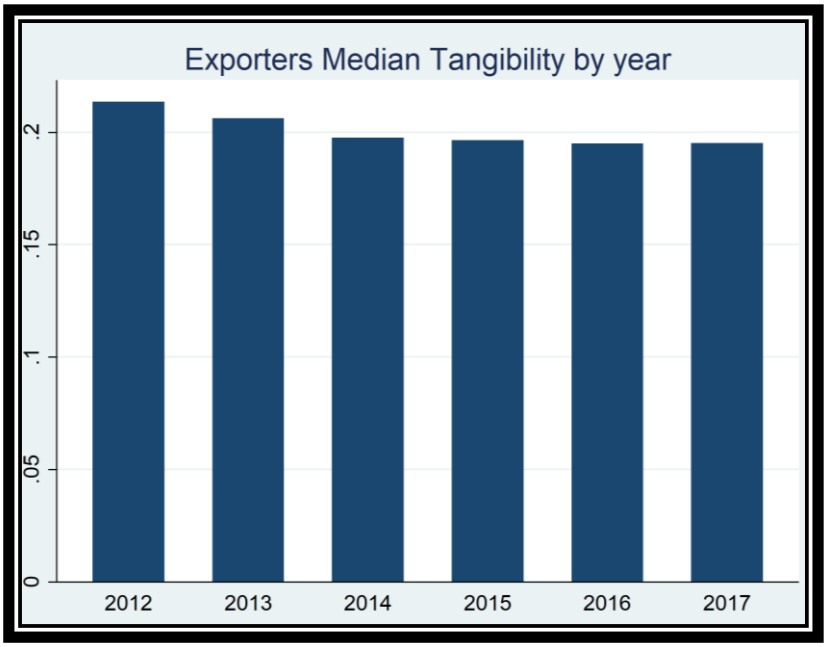
Output: Stata software. Note that the graph above is only for the export firms, since the non-export firms do not have Export Intensity.



Output: Stata software

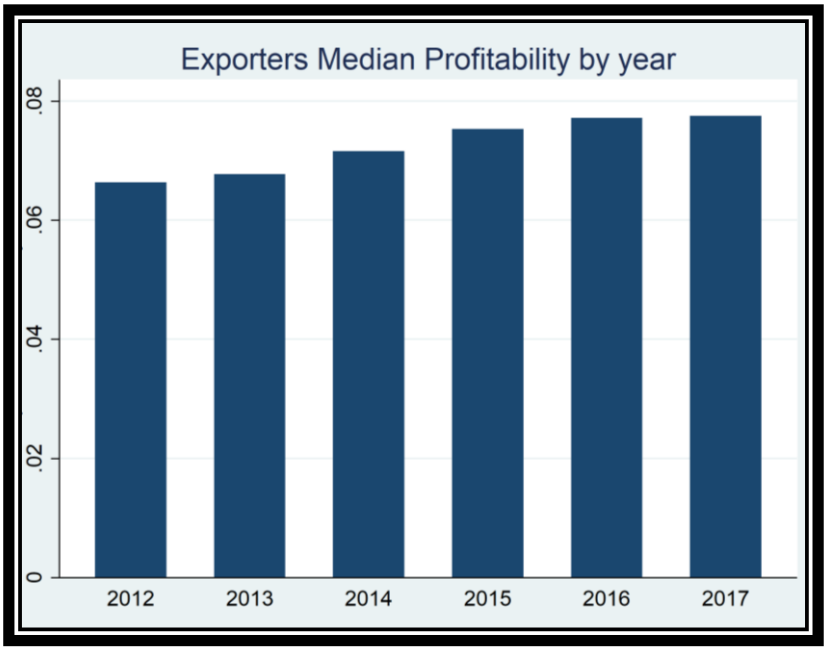


Output: Stata software



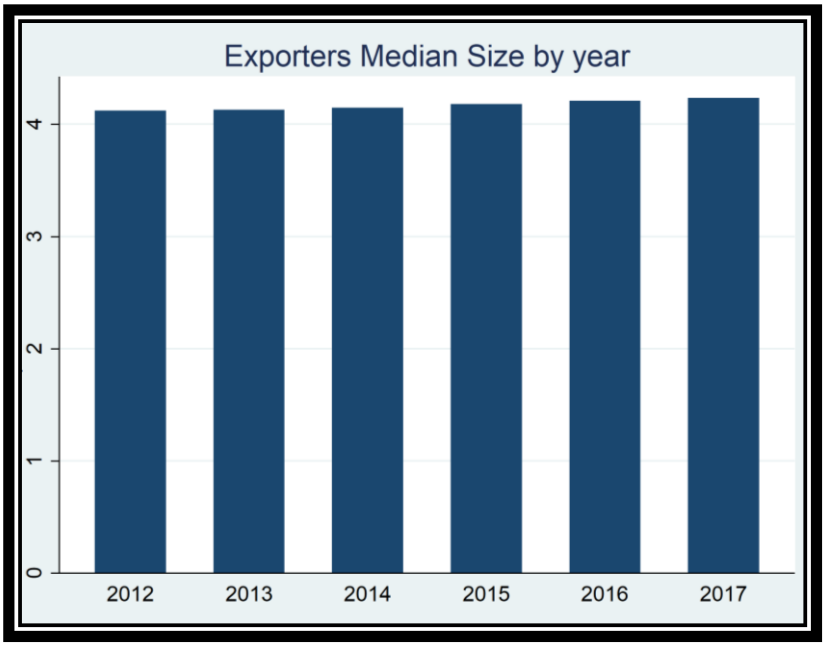
Output: Stata software

Output: Stata software



Output: Stata software

Output: Stata software



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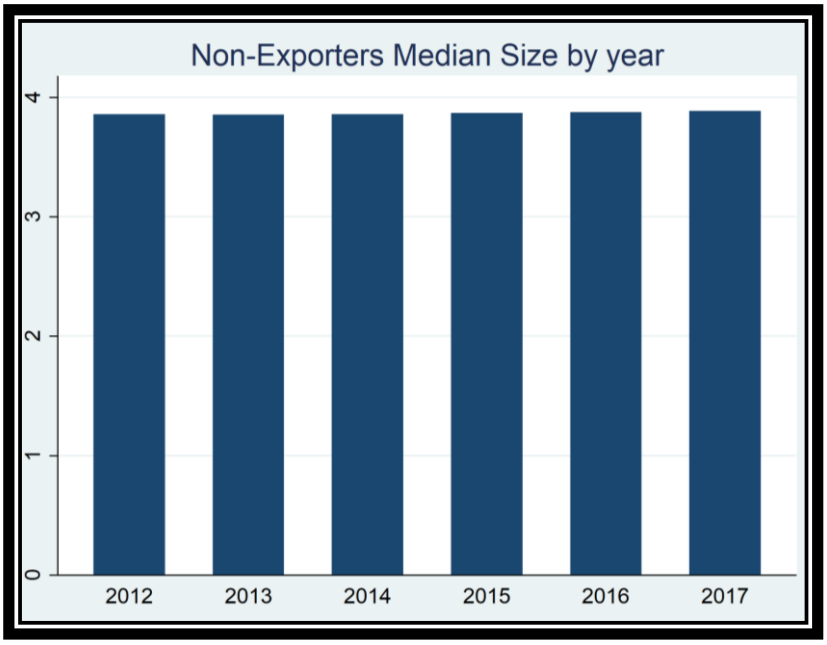
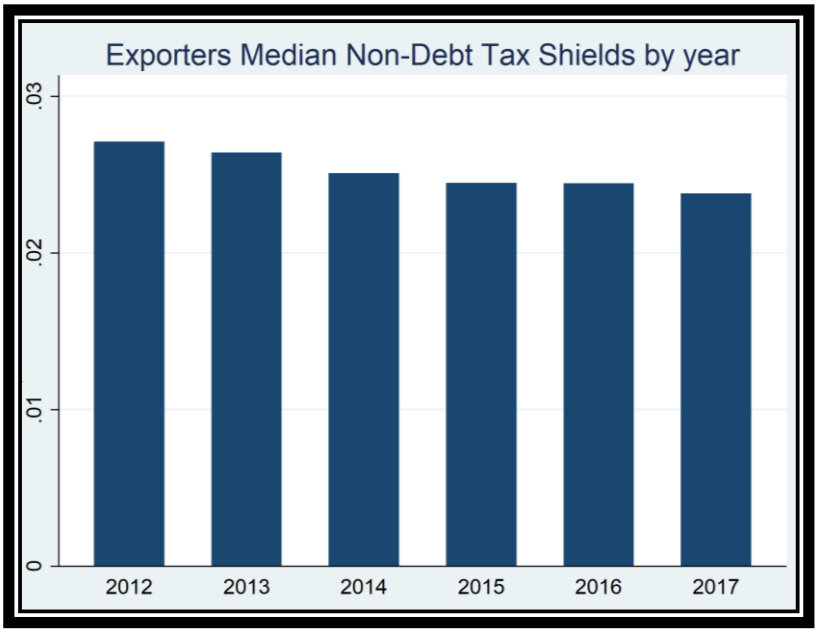
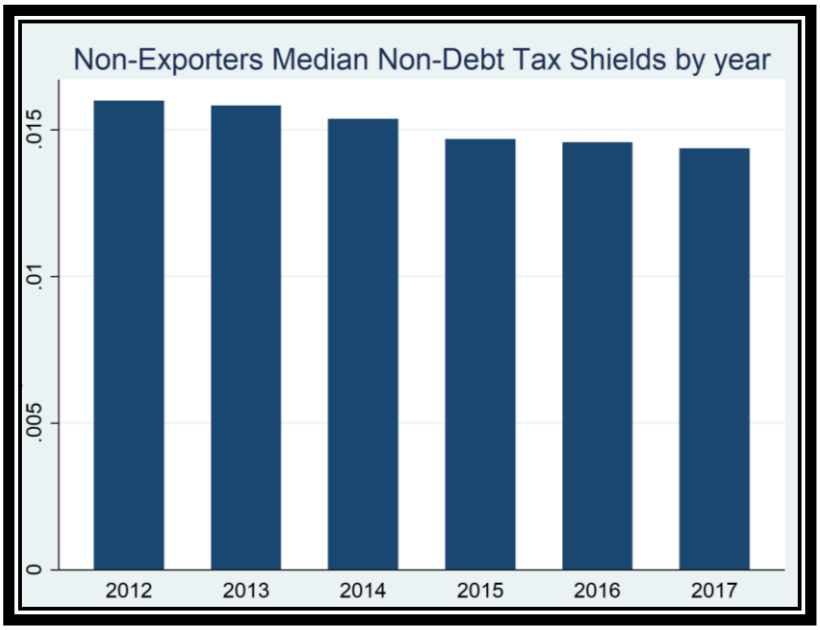


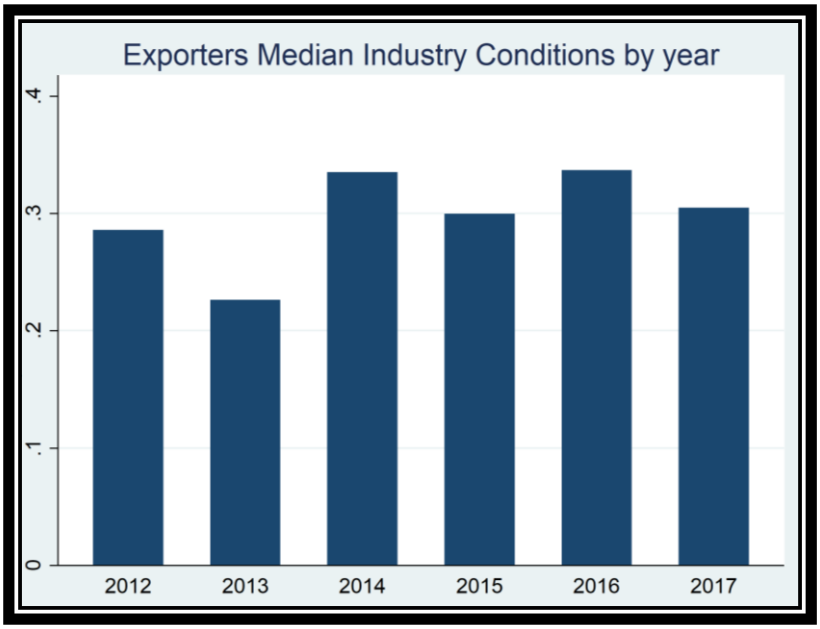
Output: Stata software



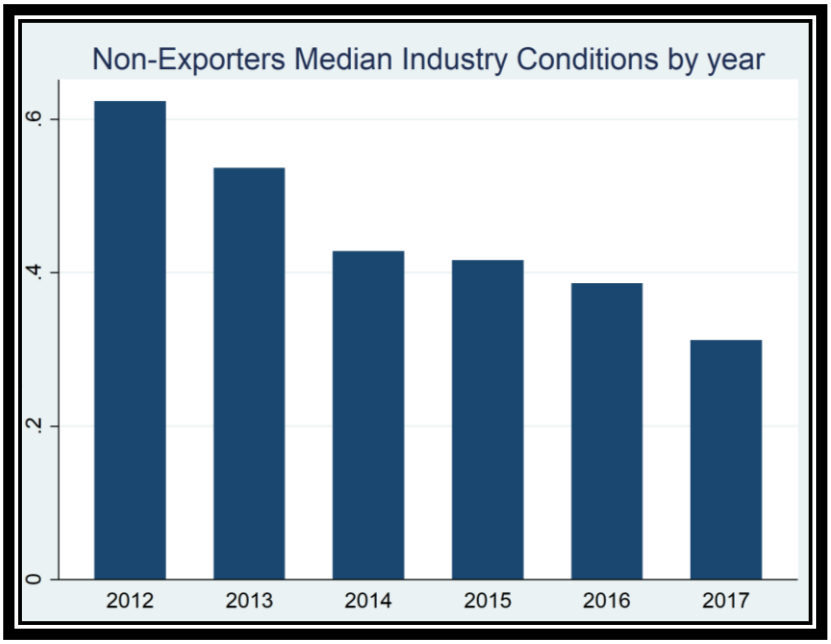
Output: Stata software



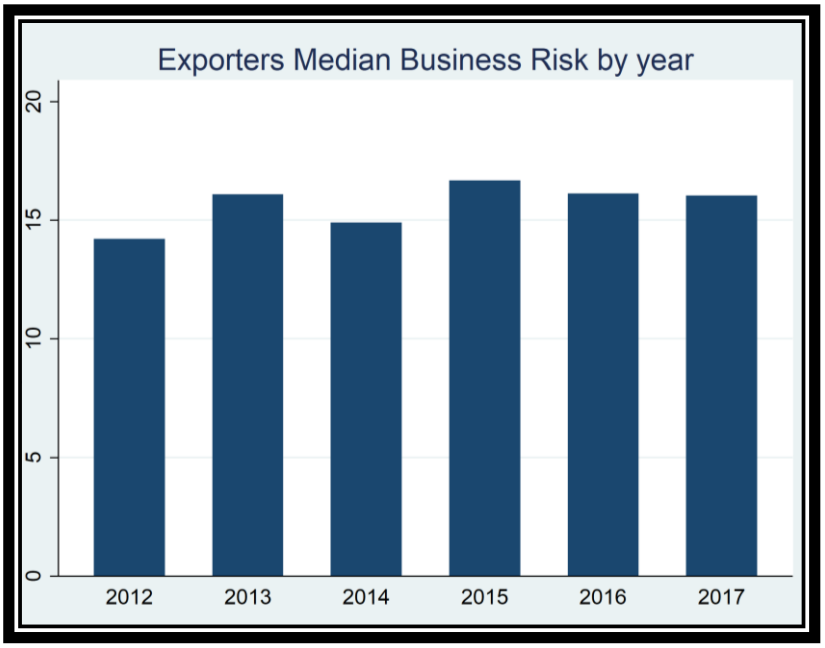
Output: Stata software



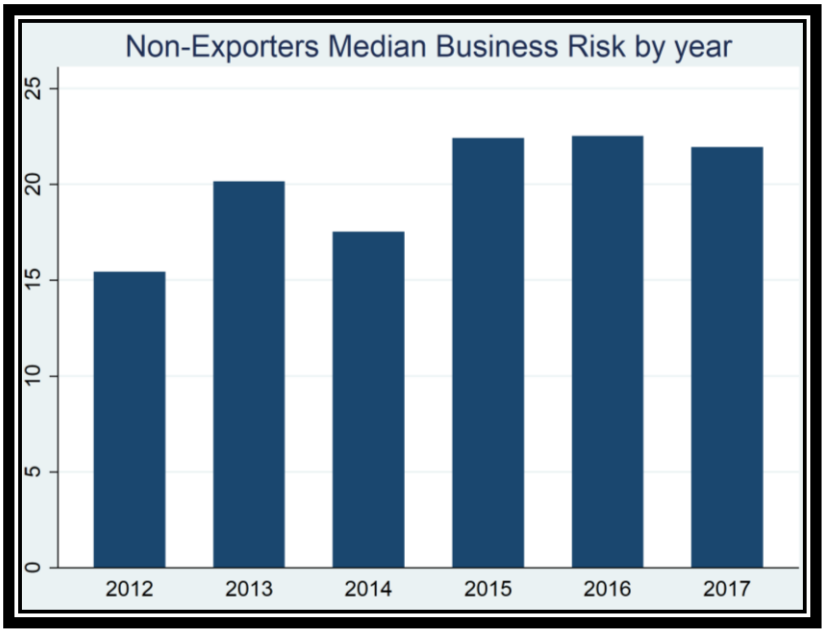
Output: Stata software



Output: Stata software



Output: Stata software



Output: Stata software

Appendix B – Correlation Tables

Correlation for the first model (all firms model)

Variables	Lev	EI	Taxes	Tangibility	Profitability	FS	NDTS	IC	BR	IR
Lev	1,000									
EI	-0,0389	1,000								
Taxes	0,0128	-0,0101	1,000							
Tangibility	0,1895	-0,0830	0,0166	1,000						
Profitability	-0,0313	0,1486	0,0446	0,1438	1,000					
FS	-0,0374	0,2163	-0,0474	-0,1464	0,0220	1,000				
NDTS	0,0916	0,0899	-0,0035	0,3325	0,4862	-0,0082	1,000			
IC	0,0147	-0,1594	-0,0065	0,0311	-0,1371	0,0160	-0,1155	1,000		
BR	-0,0344	-0,1451	-0,0315	0,0767	-0,0546	-0,0049	-0,0499	0,2629	1,000	
IR	0,0160	-0,0012	0,0092	0,0112	-0,0196	-0,0055	0,0153	0,0844	-0,0789	1,000

Correlation for the second model (export firms' model)

Variables	Lev	EI	Taxes	Tangibility	Profitability	FS	NDTS	IC	BR	IR
Lev	1,000									
EI	-0,0011	1,000								
Taxes	-0,0183	-0,0319	1,000							
Tangibility	0,2119	0,0234	-0,0117	1,000						
Profitability	-0,1471	0,0754	0,0448	0,1579	1,000					
FS	-0,1171	0,1089	-0,0449	-0,0843	-0,0500	1,000				
NDTS	0,0783	0,0453	-0,0316	0,5240	0,3292	-0,0670	1,000			
IC	-0,0029	-0,0019	-0,0140	0,0109	-0,0297	0,0844	0,0176	1,000		
BR	-0,0080	-0,0025	-0,0188	-0,0676	-0,0128	0,0716	0,0269	0,0474	1,000	
IR	0,0020	0,0040	-0,0016	0,0216	-0,0154	-0,0154	0,0231	-0,0827	-0,0581	1,000

Correlation for the third model (non-export firms' model)

Variables	Lev	EI	Taxes	Tangibility	Profitability	FS	NDTS	IC	BR	IR
Lev	1,000									
EI										
Taxes	0,0196		1,000							
Tangibility	0,1819		0,0218	1,000						
Profitability	0,0067		0,0454	0,1754	1,000					
FS	-0,0013		-0,0506	-0,1332	-0,0109	1,000				
NDTS	0,1026		0,0039	0,3282	0,5222	-0,0256	1,000			
IC	0,0034		-0,0059	0,0034	-0,1183	0,0781	-0,1123	1,000		
BR	-0,0530		-0,0351	0,0697	-0,0229	-0,0417	-0,0417	0,2508	1,000	
IR	0,0188		0,0121	0,0093	-0,0118	-0,0013	0,0139	0,1103	-0,0866	1,000

Appendix C – Regression results for the same model, however computed through firm fixed-effects instead of industry fixed-effects

Variables	Firm Fixed-effects		
	First model (4)	Exporters (5)	Non-Exporters (6)
Intercept	-0,475***	-0,451***	-0,487***
	(0,022)	(0,038)	(0,027)
Taxes	0,001	0,000	0,001
	(0,001)	(0,002)	(0,001)
Tangibility	0,132***	0,240***	0,114***
	(0,006)	(0,014)	(0,006)
Profitability	-0,306***	-0,337***	-0,289***
	(0,008)	(0,015)	(0,010)
Firm Size	0,179***	0,157***	0,188***
	(0,005)	(0,009)	(0,007)
Non-Debt Tax Shield	0,186***	0,162**	0,162***
	(0,035)	(0,066)	(0,042)
MDE	0,032***	-0,002	0,035***
	(0,001)	(0,004)	(0,001)
EVE	-0,001***	-0,001***	-0,002***
	(0,000)	(0,000)	(0,000)
Inflation Rate	0,185***	0,041	0,182***
	(0,020)	(0,042)	(0,027)
Firm Fixed-effects	Yes	Yes	Yes
Adjusted R squared	0,8911	0,8496	0,8981
Overall F-Test	487,27***	137,52***	371,24***
Number of observations	131 286	27 368	103 918

***, **, * denotes significance levels of 10%, 5% and 1% respectively. Coefficients were estimated based on heteroskedasticity-consistent standard errors using panel data methodology.