CSPP: The Impact on Firms´ Capital Structure

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Dissertation written under the supervision of professor Diana Bonfim

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Abstract:

In 2016, the ECB launched the Corporate Sector Purchase Program with the aim of providing liquidity to firms. This new unconventional monetary policy was implemented from 2016 to 2018. In this thesis we study the effects of this program on firms´ capital structure. By taking a methodological approach similar to Grosse-Rueschkamp (2019), we observe that public companies increased their level of Long-Term Debt-to-Total Assets. Additionally, public companies decreased their level of Short-Term Debt-to-Total Assets. In consideration with private companies, they increased their level of Short-Term Debt-to-Total Assets.

Keywords: Leverage; Short-Term Debt; Monetary Policy; CSPP.

CSPP: Impacto na Estrutura de Capital das Empresas

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Resumo:

Em 2016, o BCE lançou o Corporate Sector Purchase Program com o objetivo de fornecer liquidez às empresas. Esta nova política monetária não convencional foi implementada de 2016 a 2018. Nesta tese estudamos os efeitos deste programa na estrutura de capital das empresas. Ao adotar uma abordagem metodológica semelhante a Grosse-Rueschkamp (2019), observamos que as empresas públicas aumentaram seu nível de Dívida de Longo Prazo sobre o Ativo Total. Adicionalmente, as companhias abertas diminuíram seu nível de Dívida de Curto Prazo sobre Ativos Totais. Em contrapartida com empresas privadas, elas aumentaram seu nível de Dívida de Curto Prazo sobre Ativos Totais.

Palavras-chave: Aproveitar; Dívida de curto prazo; Política monetária; CSPP.

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Lisbon, January 2023

Antonio Jesús González López

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APP – Asset Purchase Program

BOE– Bank of England

BOJ – Bank of Japan

CSPP – Corporate Sector Purchase Program

ECB – European Central Bank

EFSF – European Financial Stability Facility

ESM – European Stability Mechanism

FRFA – Fixed-Rate Full Allotment

HIPC – Harmonized Index of Consumer Prices

LFOs – Longer-Term Refinancing Operations

LTRO – Long term refinancing operations

OMT – Outright Monetary Transaction

PSPP – Public Sector Purchase Program

UK – United Kingdom

US – United States

ZLB – Zero lower bound

1.INTRODUCTION.

The 2007-2008 financial crisis had unimaginable consequences on monetary policy. During the last decade, the central banks of the most important countries or regions of the world started to implement unprecedented unconventional monetary policy tools.

The global financial crisis was originated in the United States (U.S.) with the collapse of the US sub-prime mortgage market, causing a domino effect in the world. In Europe, there was a great number of elements that made us vulnerable. We will highlight some of them such as the unrestricted credit requirements that led to a Real Estate bubble in Europe; the excessive lending that caused a huge fiscal and high public debts in countries like Spain or Italy that impacted on banking industry; the bankruptcy of Lehman Brothers; some problems related to both the interbank market and negative international trade balance; and other short-term funding market.

Although controversial, the ECB took a range of liquidity management tools to address the financial crisis. The ECB followed the so called "separation principle". This consisted of ECB guaranteeing price stability in the medium-term and protecting the transmission of monetary policy from any market turbulence.

By following this separation principle, the ECB is taking a position in accordance with the analysis of Poole (1970). This analysis proposes that the best manner to insulate and protect the economy from financial shocks (Fahr et al, 2011 and ECB, 2008) is to stabilize the short-term interest rate.

The ECB is responsible for keeping prices stables, thereby supporting economic growth and job creation[1]. Nevertheless, price stability depends on the transmission mechanism. The transmission mechanism "describes how changes made by a Central Bank to its monetary policy settings flow through to economic activity and inflation[2]". Because the transmission needs to be done through banks, this relies on how the banking system functions.

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[1]ECB, February 2021: https://european-union.europa.eu/institutions-law-budget/institutions-and-bodies/institutions-and-bodies-profiles/ecb.
[2] RBA, August 2019: https://www.rba.gov.au/education/resources/explainers/the-transmission-of-monetary-policy.html.

In Europe the Great Recession triggered the sovereign debt crisis. Portugal and Greece had no access to financial markets. Also, Spain and Italy were to go through a similar situation, with Ireland being bailed out. This scenario led to the establishment of the European Financial Stability Facility (EFSF) and European Stability Mechanism (ESM).

As previously mentioned, the ECB´s primary objective is to keep price stability, then preserving purchasing power of the euro. In contrast, the commands of the Federal Reserve are to ensure price stability and maximum sustainable employment.

The first sovereign bond purchase program was implemented in May 2010. This program, called Security Market Program, was designed to resolve the malfunctions in securities markets. In addition to this, from 2008 to 2011 the ECB implemented Longer-Term Refinancing Operations (LFOs) and Fixed-Rate Full Allotment (FRFA) to bring inflation to its optimal figure, around and below 2%. In mid-2012, the ECB monetary policies were not obtaining the expected results.

In line with others Central Banks, the ECB announced enhanced quantitative easing measures in order to stimulate the European Economy and calm down the financial markets. The first set of large-scale asset program was the Outright Monetary Transaction (OMT), which intended to alleviate the financial market. Following this program, by August 2014 ECB was to facilitate liquidity by offering cheap loans to banks as well as lowering interest rate. Due to a short period of deflation and remarkably low inflation during 2010-2014, it was feasible to increase monetary mass.

From November 2014 and January 2015, ECB launched the Covered Bond Purchase Program 3 (CBPP3), following its precedents of CBPP1 (from 2009-2010) and CBPP2(from 2011-2012). Their principal goal was to enhance market liquidity in the covered bond market, address bank funding issues, and foster growth. Additionally, Asset-Backed Securities Program (ABSPP) was announced in order to provide credit to banks, enabling them to concede new lending to the real economy.

In January 2015 the Public Sector Purchase Program (PSPP) was announced. According to the ECB, the aim of the program was "to achieve market neutrality in order to avoid interfering with the market price formation mechanism". By implementing it, the ECB acquired marketable debt instruments issued by the central

governments and agencies, keeping their market risk premium artificially low. Additionally, the ECB was not allowed to possess more than 25% of the sovereign debt assets, one year later increasing to 33%.

In March 2016 the ECB announced the Corporate Sector Purchase Program (CSPP). This program was designed to permit ECB to lend money to those corporations that meet some specific requirements. The CSPP functioned as a vehicle to inject liquidity into real economy by ECB acquiring non-financial corporate bonds.

The ultimately goal was to turn investors to riskier assets with higher expected returns. The mechanism proposed an intensive acquisition of non-financial corporate bonds (those eligible following some specific requirements) by ECB, lowering the interest rates of these bonds. With this, corporate sector has had cheap financing condition and investors then shifted to riskier investments.

The CSPP was announced in March 2016 and implemented in June 2016. At the beginning it was supposed to be limited and have a duration within one year. Nevertheless, the program finally terminated in December 2018.

In this study, we will attempt to evaluate the impact of CSPP on the performance of the public and private companies for the period 2010-2019. We will use annual data. For the regression focusing on public companies, we will make use of 2 dummy variables. Referring to the first dummy variable, it will contain pre-CSPP vs post-CSPP. The second dummy variable will be eligible vs non-eligible, following the ECB requirements.

The second regression will focus on private companies. By analyzing the impact on private companies, we aim to measure the effect of CSPP on small and medium companies as well as the changes in their capital structure. This regression will contain one dummy variable, which will correspond to pre-CSPP period vs post-CSPP period.

In the regression for public firms, we will have the following dependent variables: Leverage, which will take the formula Total debt to Total Asset; Short term debt to Total assets; and Long-term debt to Total debt. With these dependent variables, we aim to gauge the change in the capital structure of private and public companies

during the entire decade. We will use short-term debt-to-total assets and long-term debt-to-total assets.

For public companies, a great number of independent variables will be taken with the aim of measuring the impact on short-debt, long-term debt, and leverage. Besides the dummy variable aforementioned, we will select: Taxes, as the effective tax rate; Collateral, as the ratio between fixed assets and total assets; Profitability, as the ratio between EBITDA and total assets; Growth Opportunity, as the ratio between CAPEX and total assets; Firm Size, as the logarithm of total assets; Business Risk, as the Altman Z-Score; Gearing, the debt-to-equity ratio; Dividend Yield; Investments Opportunities, as the market to book value of total assets; and Age, as the age of the company, and Liquidity, as the interest coverage ratio.

For private companies, the dependent variables will be short-term debt-to-total assets and leverage. In regard with independent variables, we will use Collateral, as the ratio between fixed assets and total assets; Profitability, as the ratio between EBITDA and total assets; Growth Opportunity, as the ratio between CAPEX and total assets; Firm Size, as the logarithm of total assets; Business Risk, as the Altman Z-Score; Investments Opportunities, as the market to book value of total assets, and Liquidity as the current ratio, and Gearing as the ratio between Debt and Equity.

We expect different results among private and public companies. Regarding public companies, it is expected that as a consequence of the CSPP these companies decide to reduce their short-term debt. In contrast with private companies, they should increase their short-term debt according to the previous literature.

2.LITERATURE REVIEW

In this section, it will be presented relevant literature and theory with the aim of providing context in this dissertation.

The 2008 financial crisis worldwide signified a great shock. The collapse of the North American Real Estate market combined with the bankruptcy of Lehman Brothers devasted the Worldwide Economy. In 2008, US represented 25% of the Worldwide GDP. That of Europe accounted for almost 25% as well. Those collapses caused a financial crisis in Wall Street that rapidly affect the real economy. Several companies and governments were on the point of collapsing. The treaty of Lisbon mandated that the government debt-to-GDP ratio should be equal or significantly below 60% and for the ratio of the planned or actual government deficit to gross domestic product at market prices should be equal or below 3%. A perfect example was Spain, which had a deficit of 11% in 2009. The common currency was in high risk. In 2010 The ECB was obligated to give a response by introducing a series of unconventional policies that no one could have expected 5 years before.

We will analyze and present Monetary Policy, Quantitative Easing, and Capital Structure.

2.1 Monetary Policy.

The main aim of central banks is to ensure price stability in the short-term and in the long-term. Price stability is an essential objective that helps the GDP to grow as well as make the economy forecastable. The monetary policy is an available tool that Central Banks can make use of in order to solve the issues in the Economy.

According to Galariotis, Makrichoriti and Spyrou (2017), Central Banks should use monetary policy in order to prevent crisis or, at least, mitigate the effects of the crisis.

The monetary policy should be utilized with the aim of providing a steady back-ground for the economy. Also, Central Banks should focus on fighting against inflation or deflation as well as counterbalance the imbalance or disruption in the economy during crisis times (Friedman, 1968).

According to Clarida, Galí and Gertler (1999), "monetary policy significantly influences the short-term course of the real economy".

2.1.1. Conventional Policy.

According to Cúrdia and Woodford (2009), conventional policy should give priority to short-term interest rate. By setting nominal interest rate, the Central Bank can determine the expected inflation, which is crucial for investors. The investments decisions are determined by expected inflation and the cost of debt in the short-term and long-term.

The policy interest rate has a crucial impact on others rates in the economy such as housing loans or interest rates in saving accounts. Central Banks can modify interest rate with the aim of stimulating or depressing the economy. Influencing ultimately people´s decision to invest or consume will have a pivot impact on the economy. By increasing the interest rate, a Central Bank will increase the cost of borrowing, disincentivize consuming good and service, helping to mitigate inflation, though ultimately causing the economy not to fully grow. In contrast, by decreasing interest rate, a Central Bank will make the cost of borrowing cheaper, incentivizing investments and make the economy grow, while boosting prices.

2.1.2 Unconventional Policy.

According to the Reserve Bank of Australia (RBA), one can define it as "Unconventional monetary policy occurs when tools other than changing a policy interest rate are used".

In the context described above, an interest rate close to zero-lower bound (ZLB) was reaching no results. The ZLB is a phenomenon described as when short-term nominal interest rates take values close to zero. When the Central Bank does not intervene, a liquidity trap might occur and be perpetuated in a cycle of deflation (i.e., Japan in 1990).

As its name indicates, unconventional monetary policy is out of the norm and should be used in exceptional circumstances. Their main objective is to fight against deflation by injecting liquidity in the system. The mechanism is based on the intensive acquisition of assets from economics agents. With this, a Central Bank is expanding the monetary base and changing the economic agents´ Fawley & Neely

(2013). In others words, it makes the economy grow artificially by facilitating any type of investment with low return.

Unconventional monetary policy can be an alternative when it is crucial to mitigate the effects of a crisis or offset the disruption in the economy. Alternative tools (RBA) others than interest rate can be classified as:

Forward guidance, which serve to communicate a solid stance of the path of interest rate in the following years; Asset purchase, which refers to the purchase of assets of private companies by Central Banks in order to provide liquidity to the market; Term funding facilities, which consist in a Central Bank providing both low cost and long-term fund to financial institutions with an interest rate below of that of their current loans; Adjustment to market operations, which enables that a Central Bank to make its requirements for market operation more flexible in order to provide liquidity. In others words, a Central Bank transformed illiquid assets into "liquid" assets by expanding liquidity in the market or enlarging the range of collateral acceptable; and Negative interest rate, which signifies that instead of earning money after lending a loan or having a deposit in bank, you are charged by the beneficiary.

As studied by Williams (2011), large-scale asset purchases (LSAPs) are policies tools used by a Central Bank that provide both forward guidance and term-funding facilities. The LSAPs consist in acquiring assets from private and public companies or institutions under some specific requirements. On the other side, the Central Bank increases its reserves.

The first unconventional monetary policy from ECB to intervene the Eurozone market and to bring down sovereign spreads was the Outright Monetary Transactions (OMT) in 2012. Although it was never put in practice, the announcement calmed down the market.

2.2 Quantitative Easing around the World.

According to Van Binsbergen et al. (2019), Quantitative Easing (QE) can be defined as the purchase of long-term bonds from the governments. Several criticisms have been arisen due to the fact that some argue the proceed refers to "printing money". The fact is that in Europe and US have had inflation below their target between 2010-2020.

As pointed out by Daniel Lacalle (2020), "Liquidity only disguises risk; it does not resolve solvency issues driven by collapsing cash flows while costs remain elevated". Trillions in liquidity are giving investors and governments a false sense of security, because yields are low and valuations are high, but it is a mirage driven by central bank purchases that cannot disguise how quickly companies are entering into long-term solvency issues. This is important because soaring bankruptcies and the rise in zombie companies means less employment, less investment, and lower growth in the future"

QE should be employed in exceptional circumstances and always temporarily. If not, it might consolidate structural deficit and postpone the necessary reforms that the governments should take. Also, it is indispensable that a Central Bank shows independency regarding their decision with respect to the political power. By increasing or decreasing short-term interest rate, a Central Bank can boost or destroy a government. This is the reason why a Central Bank should take action in monetary policy trying to fulfill only and strictly its mandate.

According to Fawley and Neely (2013), the QE policy expand the monetary base with a range of asset purchases programs that are implemented with the aim of upgrading the credit rating and then fostering economic growth.

In the next chapter, we will analyze the QE program that the mostly important Central Bank implemented during 2010-2020.

2.2.1 Federal Reserve.

In 2007-2008, the FED made use of its traditional instrument to take the target federal fund rate to zero lower bound (ZLB). Nevertheless, this mechanism did not bring favorable results. As a consequence, the FED implemented a LSAPs with medium and long-term securities. The main aim of this policy was to bring down the interest rate of the cost of borrowing, stimulating the economy and increasing the inflation rate to 2% in the medium-term.

A great range of LSAP´s programs was launched since 2008. On November 2008, the Federal Open Market Committee (FOMC) announced the acquisition of agency mortgage-backed securities (MBS), agency federal debt, and long-term treasury debt.

This program (QE1) amounted $1.75 trillion that were divided into different stages: 1.25 trillion in MBS; 175 billion in agency federal debt; and 300 billion in long-term bond debt.

Despite this ambitious program, the inflation rate was still below 2%. In November 2010 the FOMC announced a second program called QE2, which injected a total purchase of 778 billion in long term Treasuries. This amount was divided into 600 billion in new purchase of assets and 178 billion in reinvested assets from QE1. The QE2 finalized in June 2011 with an injection of 75 billion a month.

On September 2012 the FOMC launched an additional QE3 program that injecting an amount of 40 billion a month in MBS. Additionally, on December 2012 the FOMC added to the existing program a quantity of 45 billion a month in long-term treasuries, making it amount to 85 billion. Nevertheless, the FOMC decided to cut down the per month purchase by a quantity of 10 billion, a decrease of 5 billion in MBS and 5 billion in treasuries, finally accounting for 75 billion a month. The FOMC certified the end of QE3 program on October 2014.

The QE1 and QE2 were well received as a manner to calm down markets and stabilize the economy. However, QE3 has arisen many critics arguing that the FED balance sheet had been expanded excessively.

2.2.2 European Central Bank.

As a response to the financial crisis 2008, the ECB commenced to announce a series of program through the Asset Purchase Program (APP). The first program launched was the Covered Bond Purchase Program (CBPP1), which was implemented in July 2009 and ended in June 2010, injecting 60 billion. The second program Covered Bond Purchase Program (CBPP2) was launched from November 2011 to October 2012, accounting for 16.4 billion.

From May 2010 to September 2012 the ECB launched an important program called Security Market Program (SMP) that aimed to purchase sovereign bonds in order to calm down investors. This program was quite remarkable as it accounted for 210 billion sovereign debts, being hold until maturity. In September 2014, the ECB implemented two additional programs, the Asset-Back Security Program (ABSP) and the Covered Bond Purchase Program (CBPP3).

In January 2015, the ECB expanded the APP program by increasing the injection from 10 billion to 60 billion per month. Moreover, ECB announce the next program, Public Sector Purchase Program (PSPP). In 2016 the recovery of the economy was still slightly weak, with an inflation rate below the target of 2%. This given situation was used by ECB to announce new monetary injections.

In March 2016, the size of APP was incremented to 80 billion per month while the ECB announced the Corporate Sector Purchase Program (CSPP). The composition of the assets (80 billion) at APP was not revealed. The ECB started to implement the CSPP, a component of APP, in June 2016, with a duration for a minimum of one year.

In April 2017, the quantity of APP was reduced, accounting for 60 billion, which was distributed into: 10 billion for ABS and covered bond; 50 billion of PSPP, which 10 billion was for supranational institutions and 44 billion to purchase sovereign debt securities. The ECB had focused on rescuing governments by decreasing their yields with the PSPP.

The APP ended with a figure of 30 billion per month at the termination. The ECB announced the end of the program in December 2018. Nevertheless, at the discretion of ECB, maturating sovereign and corporate bond could still be reinvested.

The impact of the financial crisis was so intensive that the credit spreads of covered bonds went up. The primary market of bond collapsed with a severe shortage of bond issuance, which affected gravely the liquidity in secondary market. The covered bond market is one of the pilar of the European financial markets. This situation described made the ECB launch the CBPP that aimed to: (i) decrease the money market term rates; (ii) facilitate the access to money to financial institutions; (iii) Incentivize credit institutions to keep and expand lending loans to their clients; (iv) Enhance the liquidity market in those debt segments that might incur in insolvency (Beirne et al., 2011).

In March 2016 the announcement made by ECB included an extension of the APP, in which the CSPP was incrusted. The APP contained: (i) CBPP3; (ii) ASBPP; (iii) PSPP; and (iv) CSPP. The CSPP was conceived as enhance the access to liquidity for all economics agents. Indeed, it was provided for big corporations with high credit rating that at the end they would stimulate the real economy. In fact, the program

very early caused a decrease of yields on corporate bonds and decrement in the borrowing cost for those non-financial companies. Additionally, the program pursues to increase the inflation rate up to 2% (Abidi and Miquel-Flores, 2018).

According to Benjamin Grosse-Rueschkamp et Sascha Steffen, (2019), the transmission channel of QE purchases can be classified as: (i) signaling channel; (ii) portfolio rebalancing channel; and (iii) reanchoring channel. The first transmission channel consists in a solid statement released by ECB in which it commits to keep interest rate policy at lower bound rate for a long time. The second refers to the asset valuation channel by which ECB intervened the market to alter the future expected returns. To finish, the third transmission channel refers to ensure certainty and stabilize the market to help going up price level stability to normal level, which means the inflation rate soaring to 2%.

2.2.3 Bank of England (BOE)

The financial crisis in 2008 resulted in a contraction in credit market and money. In March 2009, the Bank of England (BOE) started to implement a QE program. To give a context, the BOE reduce the short-term interest rate from 5% to 0.5% between September 2008 and March 2009. The conventional policy did not have the desirable effects. Indeed, the BOE continued reducing short-term interest rate until 0.25% in August 2016 (Matteo Deleidi, Mariana Mazzucato, 2018).

The QE was conceived to boost the spending and economy growth by increasing the quantity of money in the economy. This resulted in a decrease in medium-term interest rate and a rise of the amounts of reserves retained by banks at BOE (Bedford et al., 2009).

The BOE implemented a program called Asset Purchase Fund (APF), which aimed to purchase corporate bonds, commercial paper, and government bonds. Indeed, the BOE the commercial paper purchase started in February 2009. The quantity accounted for 198 billion in government bonds in February 2010. In February 2012, the BOE had bought 375 billion of assets.

The results of the QE program were: (i) bank lending was barely stimulated because there was an insufficient demand of bank loans; (ii) the decrease in interest rate had little effect in increasing the amount of loans granted to households; (iii) there was a

rise in investments because monetary policy enhanced the expectation of the economy (Matteo Deleidi, Mariana Mazzucato, 2018).

2.2.4 Bank of Japan (BOJ)

Japan is the most indebted country in the World, with a debt that accounts for 257% of its GDP. The Bank of Japan (BOJ) started to implement unconventional policy in the late 1980. The aim was to recapitalize assets as well as stimulate the economy. Nevertheless, we have strong evidence that this resulted in an illusory growth with a consolidation of a stagnant economy. Many authors refer to the 1990s as the so-called "lost decade" (Jun Saito, 2018).

The figures are quite impressive. The money stock grew consistently by 10.5% from 1986 to 1990. The bubble exploded in 1990. As a consequence, the BOJ increased interest rate from 2.5% to 6% from 1988 to 1990. After this, the economy grew slowly. In the past Japan was well-known for having a solid economic growth. Given this situation, the remedy was even worse. Japan turned to Keynesian solutions, implementing a rise in money stock as well as incrementing government deficit. From 1991 to 1995, BOJ had left the discount rate at 0.5%. To sum up the monetary policy, during 1990s it implemented nine stimulus packages that accounted for 1.3 trillion. This was an unprecedent experiment in a developed country. The results of unconventional policy were: (i) preventing market prices from adjusting to a real market, which disguised the risk; (ii) consolidating "zombies companies" by cheap refinancing loans and perpetual debt cycle.

In 1997 Japanese Economy was suffering from low growth rate and low inflation. The BOJ purchased 50.8 trillion in commercial paper between 1997 and 1998. Consequently, in March 2001, the economy growth was low so that the BOJ injected 35.5 trillion in Japanese banks. From 2002 to 2007 the Japanese economy grew at 2%, but the Great Recession interrupted it.

In 2013 the BOJ launched Qualitative and Quantitative Easing (QQE1) as a program to implement an expansionary monetary policy. Nevertheless, this program did not bring the expected results. As a consequence, in 2014 the BOJ announced the QQE2 by which it injected 80 trillion in asset purchase. This program led stock market to soar about 33% during the first year. However, there was no evidence of significant real growth. In January 2016 the BOJ announced negative interest rates.

2.3 Previous research.

Regarding the financial theory, the literature presents a great range of mixed results. A paper regarding the impact of CSPP on firms' capital structure by Grosse-Rueschkamp, Steffen, and Streitz (2019) found that the program has limited effects on investment decisions for those eligible non-financial firms, if any. In fact, CSPP is considered not needed for those eligible firms as they already had access to liquidity market. The paper concluded that their long-term debt tended to increase after the announcement of the CSPP, while the short-term debt tended to decrease. This made banks lend money to more riskier companies, which affected positively the real economy.

Additionally, when it comes to private companies, the paper found that the program enhanced their access to liquidity, which also helped them increase their investments. Private companies have high interest coverage ratios and are profitable.

Bougheas et al. (2006) find that the credit channel is quite important mechanism of transmission of monetary policy. They certified that the capital structure of the non-financial firms is influenced by not only monetary cycle but also their characteristics such as size, age, and riskiness.

Kórab, Mallek, and Dibooglu (2021) recently publish a paper "Effects of quantitative easing on firm performance in the euro area". It found that those firms in the treatment group did not improve the profitability and the turnover due to CSPP. Additionally, CSPP has stronger effects on firms in Germany than on firms in France or others countries.

Similar results we obtained through this paper, "Examining QE's bang for the Buck: Does Quantitative easing reduce credit and liquidity risks and stimulate real economic activity?" by Lior Cohen. It found that the country that most benefited from CSPP was Germany, while Italy benefited the least. Additionally, CSPP raised German and French firms´ dividends and did not stimulate investments. One must acknowledge that an overall increase in dividends may stimulate the real economy, but their effect is limited in comparison with that of investment.

Contrary to these results, this paper, "Has the ECB's monetary policy prompted companies to invest, or pay dividends?" by Marta Gómez-Puig & Simón Sosvilla-

Rivero, reached different conclusions. It found that CSPP boosted debt burden, shareholder distribution, and investments. Moreover, it found that Spanish and French firms are the most influenced by the ECB. It proposed that ECB focus the allocation of funds on the needs of the country rather than country´s size. It assures that ECB policies could have stimulated investment more efficiently if the bank were to follow a strategic allocation in which it prioritizes more sensitive countries. This paper also affirmed that ECB achieved its goal.

Similar to the previous results exposed, we have "Making Room for the Needy: The Credit-Reallocation Effects of the ECB's Corporate QE" by Oscar Arce, Sergio Mayordomo, and Ricardo Gimeno. This paper is focused on the impact of CSPP on Spanish firms. It found evidence that the program caused an important reallocation of the credit from bank of tight liquidity ratios. In fact, the program redirected the credit from bond issuers to non-issuing companies. This reallocation was not accompanied by banks facing a greater exposure to risk. This can be explained by a short-maturity of the credit and the collateralized loans granted. The non-issuing companies were characterized for their low levels of leverage and being profitable. As a result, this paper concluded that CSPP led to increment the real investment of non-issuing firms.

Furthermore, in this thesis we will contrast our results with those aforementioned. We will include some others metrics and ratio in order to deeper our research.

3. CORPORATE SECTOR PURCHASE PROGRAM

This chapter will discuss those aspects of the CSPP related to the purpose, scope, eligibility criteria, and the execution of the CSPP. It is essential to understand this program in order to reach clarifying conclusions.

When the ECB implemented the CSPP, June 2016, the euro area annual Harmonized Index of Consumer Prices (HIPC) was negative and the real GDP growth was quite low. With the aim to stimulate the economy and reach 2% target inflation, the ECB started to purchase Euros denominated bond issued by non-financial firms that were incorporated in the Eurozone. This program has 4 distinguishable stages (De Santis et al. 2018): (i) An important decrease occurred in the deposit facility rate with a reduction from -0.3% to -0.4%; (ii) A number of four Targeted Longer-Term Refinancing Operations (TLTROs), which took place in June 2016 with a maturity of four years; (iii) An important increment in the monthly net asset purchase from 60 billion to 80 billion; (iv) The Corporate Sector Purchase Program itself.

In October 2017 the Governing Council of ECB made the decision of implementing the program until the inflation rate reaches 2%. Moreover, the Eurosystem committed to acquire bond debt under three programs (ABSPP, 3CBPP, CSPP). The volumes of CSPP in ECB accounted for 219.240 billion in June 2020. From this figure, 43.245 billion in the primary market and 169.301 in the secondary market.

The combination of these programs was considered beneficial in order to stimulate the economy. A synergy among different packages can better perform. The CSPP intended to favor positively employment, investments and real GDP growth, facilitate access to credit, and cause inflation rate to return to levels close.

3.1 The implementation of the program.

The ECB announced the program in March 2016 and gave details about it in April 2016. The program commenced its operation in June 2016. The program suffered some modifications through its lifetime, ending in December 2018. Although it was restarted in November 2019.

The program is implemented in a decentralized manner by which a number of National Central Bank (NCBs) take part in. The concept of Eurosystem is the ECB and NBSs of the countries in the Eurozone. Each NCB takes the responsibility for

acquiring a significant number of bond debt in a specific market segment and following the respective jurisdiction.

These NCBs and their market segments can be presented as:

- National Bank of Belgium: Belgium, Slovenia, The Netherlands, Luxembourg, Slovakia, Cyprus, Greece, Portugal, and Malta.
- Banque de France: France
- Banco de España: Spain and The Netherlands
- Bundesbank: Germany and The Netherlands
- Banca d´Italia: Italy and The Netherlands
- Suomen Pankki (Finland): Finland, Lithuania, Latvia, Estonia, Austria, and Ireland.

According to the stats of ECB*, France and Germany accounted for almost 52% of all CSPP holdings. Spain and Italy are 22% of all CSPP holdings. In addition to this, we observe that most eligible bonds are concentrated in the Utilities, Infrastructure, and Automotive Sector. Eligible bonds with credit rating "A" and "BBB" are predominant.
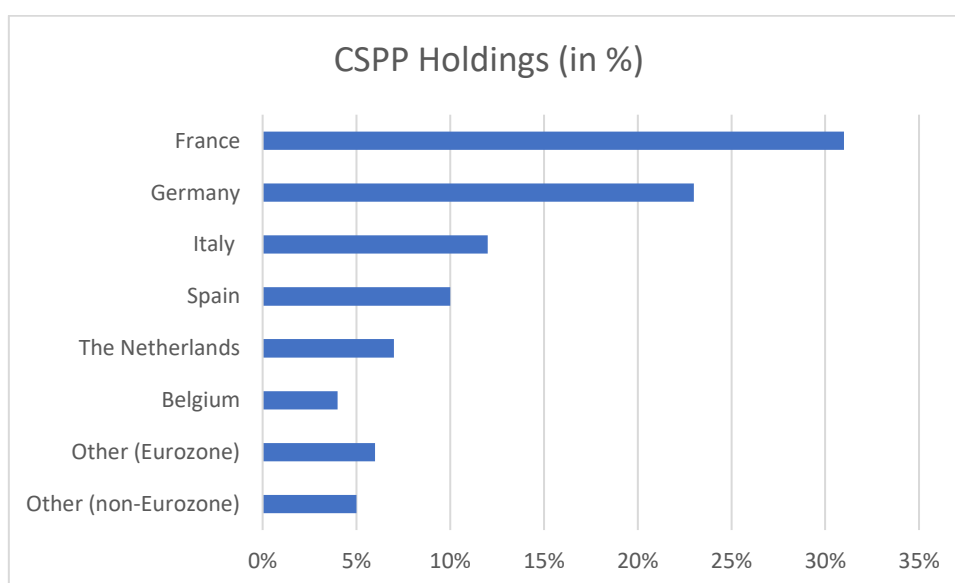
Figure 1: This figure presents the percentage of total holdings under the CSPP, categorized by country over the period from June 2016 till December 2018. Source: ECB (2019).
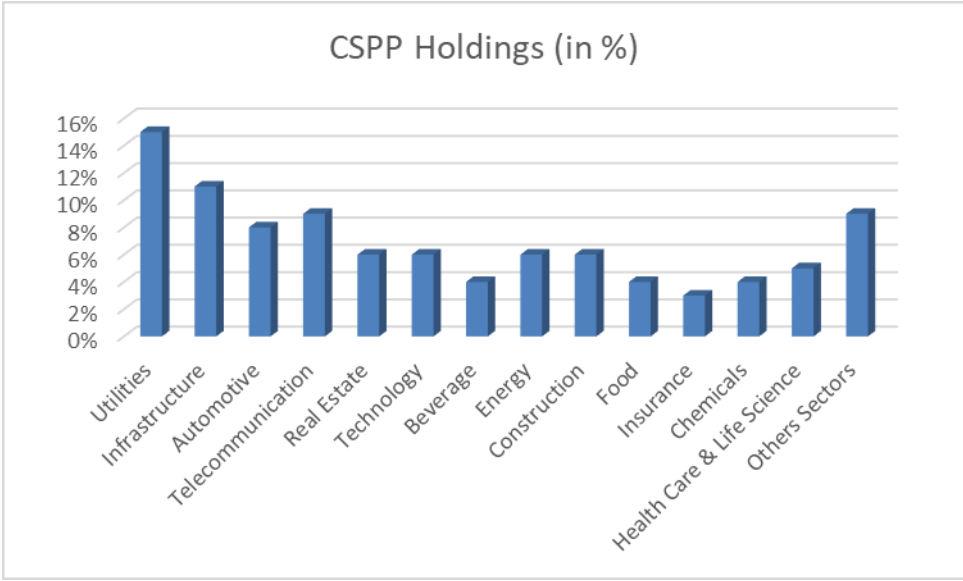
Figure 2: This figure presents the percentage of total holdings under the CSPP, categorized by each industry over the period from June 2016 till December 2018. Source: ECB (2019).
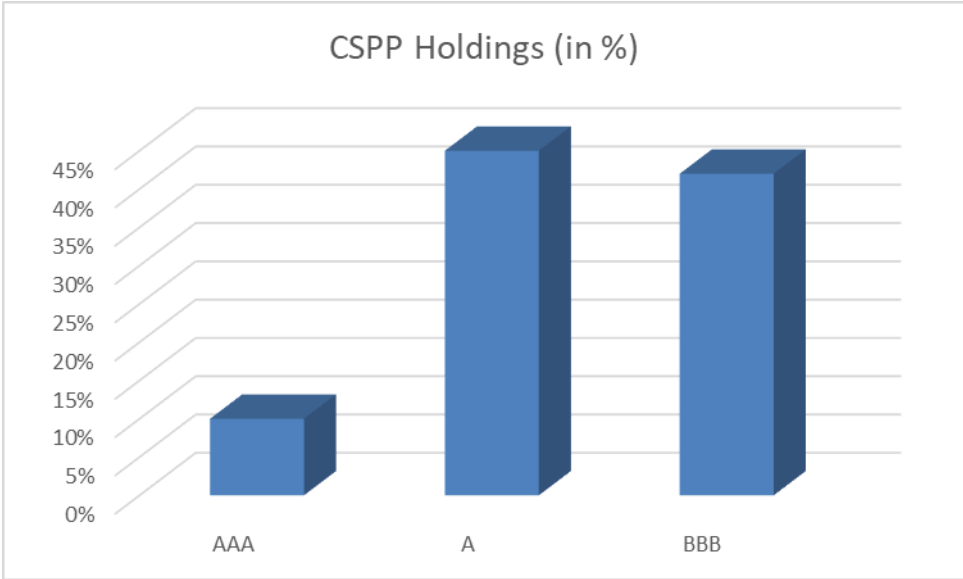
Figure 3: This figure presents the percentage of total holdings under the CSPP, categorized by credit rating over the period from June 2016 till December 2019. Source: ECB (2019).

3.2 The eligibility criteria of the program.

The program presented a range of requirements that need to be followed at both instrument and firm level (Grosse-Rueschkamp et al., 2019). The NCBs are responsible for selecting and acquiring corporate bonds in primary and secondary market. The details of the program were released in April 2016:

i)   The debt instrument must have (1) an initial maturity of 365/366 days or less and a minimum remaining maturity of 28 days at the time they are bought or (2) an initial maturity of 367 days or more, a minimum remaining maturity of six months and a maximum remaining maturity of less than 31 years; Debt instrument will have a minimum maturity of 6 months and a maximum of 30 and 364 days at the time of acquisition;

ii)   The firm needs to be incorporated in the Eurozone;

iii) The debt instrument needs to be denominated in Euros and its yield to maturity larger that the ECB´s deposit facility rate (-0.4% in April 2016);

iv)   The issued debt instrument needs to possess an investment grade bond with a minimum grade of BBB-/Baa3/BBBL from at least one of the following agencies: Standard & Poor´s, Moody´s, DBRS, or Fitch Ratings. In case the agency downgrades the debt instrument after the purchase, the ECB may not sell its holdings;

v)   The location of the issuer´s parent is not considered to be eligible for the program;

vi)   Assets will be held till maturity and the principal will be reinvested;

vii) No minimum issuance volume is required;

viii) The issuer cannot be a financial firm neither a public-undertaking firm;

The program started to be effectively implemented on 8th June 2016. In addition to these minimum requirements, the NCBs have to evaluate a lot of situations considering the negative impact of the program in the market liquidity. Despite that

not minimum issuance volume is required, there is a maximum share limit of 70% per individual. The CSPP NCBs are the maximum authorities to utilize the corporate bonds for securities lending activity. A collateral might be requested for securities lending activities. Additional rules might be required by CSPP NCBs, as they are entitled to set some new specific requirements according to the country.

4. DATA & METHODOLOGY

In this section we will discuss about the data and how it is collected. Moreover, we will give further detail about its treatment and the research methodology.

4.1 Data

We made use of Refinitiv Eikon in order to gather data for our research. To be more precise, we used the Screener application. The dataset contains variables such as Nation, Industry Name, and Company Name. We only consider those non-financial firms. Data follows an annual frequency. The period that was considered was 2010-2019.

We did not take into account 2020 and 2021 as the pandemic would probably distort our results. As the program commenced in 2016 and ended in 2018, we can analyze the performance of the companies before the program, during the program, and one year after the end of the program.

For public companies, we collected 135 companies to be eligible for the program out of 535. As Refinitiv Eikon does not provide credit rating related to all these companies, we retrieved this information manually.

For private companies, we only select those with revenues superior to €1 Million. We obtained 45.568 companies from the most representative countries, which are Germany, France, Spain, Italy, Portugal, The Netherlands, Belgium, Finland, Austria, Luxembourg, Ireland, and Greece.

4.1.1 Dependent Variable

Following a similar approach as Petr Kórab et al. (2021), three different dependent variables were defined: short-term debt over total assets; long-term debt divided into total assets; and leverage, which will be represented as the ratio of total debt to total assets. The first one attempts to measure the relative weight of bank loans as the majority of short-term debt corresponds to bank finance. The second one is targeted to capture bond debt as long-term debt corresponds to bond finance. The last one will gauge the variation over total debt in proportion to total assets as a manner to determine how the performance of the company can be related to this in somehow.

4.1.2 Independent Variable.

Consistent with Petr Kórab (2019) and Grosse-Rueschkamp (2019), we implemented a great number of independent variables in order to obtain significant results.

Taxes

According to DeAngelo and Masulis (1980), Kraus and Litzenberger (1973) and Miller (1977), when corporate tax rate is high, firms will have an incentive to increase their level of debt and then benefit from higher interest tax shield. We directly made use of the variable Effective Tax Rate that Refinitiv Eikon provides. We expect that the correlation between leverage and effective tax rate be positive.

Collateral

Consistent with theories proposed by Harris and Raviv (1991), Myers (1977), and Scott (1977), firms can transform fixed asset into liquidity with a relative easily. The companies can reduce the agency costs with fixed assets. One can expect that tangibility will reduce the level of leverage. This proxy will be represented by the variable ratio fixed assets to total assets. Refinitiv Eikon takes property, plant, and equipment as the entire fixed assets.

Firm Size

According to the previous literature, pecking-order proposes that the larger the firm is, the less debt it will need. Contrary to this, trade-off theory assure that larger firms are more diversified and as a consequence, it will face a lower likelihood of default. There is a debate over the relation between the size and the level of debt. Harris and Raviv (1991) found that this relation is positive. Nevertheless, Frank & Goyal (2007), affirmed that this relation can be positive and negative depending on the sector and others variables.

In this research, we will make use of the logarithm of total assets as a proxy for firm size.

Growth

According to Fama and French (2002), companies that have great growth opportunities tend to possess less level of debt. This is due to two factors: (i) they

instantly reinvest their profits to grow, then avoiding misusing the cash; and they require a high capital expenditure.

In the theory we have diversified literature. For instance, pecking-order proposes that companies with higher expenditure in investments will possess high level of debt. Conversely, trade-off theory affirms that higher growth opportunities will cause less debt level. For this proxy we will use the ratio of Capex to Total assets.

Business Risk

Risk is a measure of the probability of default. Trade-off theory advocates those companies with higher earnings volatility will expect higher financial distress costs. These companies will possess lower leverage. In contrast, pecking order predicts that the riskier a company is, the higher level of debt it will have. In this research we will implement Altman Z-score (Altman, 1968) as the following formula:

$$zScore \ (1) = 1.2 * X_1 + 1.4 * X_2 + 3.3 * X_3 + 0.6 * X_4 + 1.0 * X_5 \qquad (1)$$

$$zScore \ (2) = 0.717* X_1 + 0.847 * X_2 + 3.107*X_3 + 0.42 * X_4´ + 0.998 * X_5 \quad (2)$$

The first formula (1) will be used for public companies whilst the second one (2) will be implemented for private companies. In the formula, X_1 refers to the ratio between working capital and total assets, X_2 is retained earnings divided into total assets, X_3 is the ratio between EBIT and total assets, X_4 is the market value of equity over total liabilities, and X_5 is sales over total assets. Also, $X_4´$ is the book value of equity over total assets. This formula was computed with Refinitiv Eikon data.

Investment

As Myers (1977) pointed out, firms with a higher level of investment opportunities will incur in lower level of debt. For this proxy, it will be implemented the book value of total assets.

Profitability

Fama and French (2002) and pecking order proposed that an increase in profitability cause a decrease in debt. In our research, we will contrast this with ratio EBITDA to total assets as a proxy.

Gearing

This proxy will be aimed to evaluate the level of the indebtedness. The proxy that will be utilized is the ratio of total debt to total equity (D/E).

Dividend yield

As we would like to measure the impact of CSPP on firms´ decisions, we add this proxy to evaluate the firms´ policies regarding dividend yields. There is a great debate as we saw in previous literature, with some researchers arguing over an increase in dividends. We will used dividend yield as a proxy to gauge the relation between this and debt.

Interest Coverage

This proxy will permit us to analyze the ratio of liquidity. With this, we expect to measure how firms increase or decrease the capability of paying interest.

Age

This proxy will be calculated as the difference between the founding year and the current year (2019). This will give the relation between the age and the level of debt. We expect that as the age is higher, the level of debt increases.

Dummy variables

As Grosse-Rueschkamp (2019) did, we will implement the same approach with the following variables that will be categorized as: Post is a dummy variable that equals one if the period is in 2016 or after, zero otherwise; CSPP is a dummy variable that equals one if the company was eligible for the program, zero otherwise.

4.2 Summary Statistics

Below in table 1 and 2 we see the descriptive statistics of those eligible firms and those control firms. We would like to compare the results in order to reach conclusions. First of all, we observe that eligible firms have less risk score that those non-eligible firms. It points out that eligible firms have a tax effective rate, on average, more reduced than those non-eligible firms. Additionally, eligible firms are, on average, bigger and older than non-eligible firms. The average total-debt-to-assets ratio for eligible firms is 32%, with a majority of long-term debt. We observe a less

intensive use of short-term debt with only 13%. The average of leverage for control group is 41%. Control group has, on average, a lower ratio of long term over total assets (13% vs 19%) while their ratio of short-term debt over total assets is bigger (24% vs 13%). Eligible firms are bigger than control firms (ln (Assets) are 23 vs 20).

Considering collateral, we observe that eligible firms have a superior fraction of collateral (fixed assets over total assets of 61% vs 57%). Eligible firms are less profitable than non-eligible firms. On average we see that eligible firms are better considering the ratio of investment. However, non-eligible firms have a better interest coverage.

Table 1 – Summary Statistics

ELIGIBLE FIRMS

Variables	*Unit*	*Obs*	*Mean*	*Std Dev*	*Q25*	*Median*	*Q75*
Risk	score	1310	2.614	4.285	1.290	2.029	2.890
Taxes	%	1310	0.259	0.913	0.151	0.229	0.299
Collateral	pp	1310	0.633	0.511	0.205	0.589	0.922
Firm Size	M€	1310	21.244	1.989	19.624	21.362	22.746
Growth	pp	1310	0.047	0.043	0.018	0.038	0.061
Investment	pp	1310	2.162	2.061	1.041	1.641	2.654
Profitability	pp	1310	0.136	0.593	0.070	0.105	0.152
Gearing	pp	1310	0.826	0.736	0.377	0.657	1.055
Dividend yield	%	1310	0.029	0.022	0.014	0.025	0.042
Interest coverage	pp	1310	42.068	199.298	3.775	7.654	16.113
Fouding Year	years	1310	44.720	36.178	20.000	34.000	67.000
Leverage	pp	1310	0.325	0.580	0.198	0.322	0.466
ST Debt/Total Assets	pp	1310	0.131	0.522	0.051	0.161	0.302
LT Debt/Total Assets	pp	1310	0.190	0.096	0.072	0.127	0.199

<div align="center">Table 2 – Summary Statistics</div>

			CONTROL FIRMS				
Variables	*Unit*	*Obs*	*Mean*	*Std Dev*	*Q25*	*Median*	*Q75*
Risk	score	4470	2.325	7.633	1.495	2.210	3.118
Taxes	%	4470	0.302	0.919	0.177	0.270	0.343
Collateral	pp	4470	0.579	0.474	0.203	0.467	0.860
Firm Size	M€	4470	20.048	1.552	18.890	19.892	21.126
Growth	pp	4470	0.043	0.041	0.016	0.033	0.057
Investment	pp	4470	3.048	17.965	0.961	1.548	2.604
Profitability	pp	4470	0.125	0.327	0.075	0.111	0.150
Gearing	pp	4470	0.870	2.413	0.273	0.581	1.034
Dividend yield	%	4470	0.023	0.025	0.008	0.019	0.032
Interest coverage	pp	4470	46.402	344.557	2.889	7.135	19.668
Fouding Year	years	4470	35.725	98.380	13.000	26.000	40.000
Leverage	pp	4470	0.410	3.775	0.153	0.267	0.397
ST Debt/Total Assets	pp	4470	0.140	3.362	0.040	0.125	0.184
LT Debt/Total Assets	pp	4470	0.190	0.118	0.072	0.162	0.249

<div align="center">Table 3 – Summary Statistics</div>

			PRIVATE COMPANIES				
Variables	*Unit*	*Obs*	*Mean*	*Std Dev*	*Q25*	*Median*	*Q75*
Risk	score	22993	1.194	1.718	0.693	1.301	1.870
Collateral	pp	22993	0.490	0.503	0.105	0.343	0.749
Firm Size	M€	22993	5.331	2.419	3.564	5.130	6.972
Growth	pp	22993	0.038	0.057	0.008	0.024	0.049
Investment	pp	22993	0.391	0.302	0.264	0.407	0.556
Profit	pp	22993	0.054	0.166	0.026	0.078	0.123
Gearing	pp	22993	2.735	55.581	0.674	1.310	2.403
Liquidity	pp	22993	2.184	10.309	0.990	1.394	2.059
Leverage	pp	22993	0.608	0.302	0.444	0.593	0.736
ST debt/total assets	pp	22993	0.329	0.170	0.238	0.324	0.404
LT debt/total assets	pp	22993	0.156	0.080	0.112	0.153	0.191

4.3 Regression

With the aim of responding the research question, we applied a panel regression. To estimate the relation between our 3 dependent variables and the firms´ characteristics we use the following regression:

$$y_{it} = \alpha + X_{it}\beta + \varepsilon_{it} \qquad (3)$$

The term i will refer to the firm and the term t will point to time period, with y_{it} corresponding to dependent variable. The variable X_{it} is referring to the independent variables while ε_{it} is the error term.

We applied in this research the method Difference-in-Difference (DiD) by which we will have two different group: treatment group and control group as the work of Grosse-Rueschkamp (2019). Additionally, we will only apply one dummy variable for the private company regression.

We introduced a number of fixed effects that will be enumerated as: (i) country, in order to know the differences across countries; (ii) industry, with the aim of assessing the effects across industries; country-year (iii) to capture the economy cycle; (iv) and firm id, to have a control over the identification of the firms. We will add fixed effects according to their respective complexity and needs.

A great number of regressions will be run with different combination of firm-specific characteristics in order to better understand separately the impact of these variables on the debt level.

5. RESULTS

In this section, we will present the results considering two main groups: public companies and private companies. First of all, we will study the effect of CSPP on public companies. We will classify public companies into eligible firms and non-eligible firms. Eligible firms will be those with a rating of +/-BBB or Baa3 released by Moody´s, S&P, DBRS, or Fitch, in addition with others requirements published by the ECB.

5.1 Public firms.

We will start with long-term debt as our dependent variable in order to assess the impact of bond debt. In Table 4 we make use of long-term debt/assets. It was followed a model applied by Grosse-Rueschkamp et al. (2019) in order to investigate the effects after CSPP program. Firstly, we do not apply any fixed effects in the first regression (Table 1). The following regressions will contain progressively fixed effects so that we can compare each other. The fixed effects will be firm fixed effects and year fixed effects. The most saturate model shows us that the long-term debt over assets increased by 1.26 pp after CSPP announcement, which is statistically significant.

In table 5 we investigate others models that assess short-term debt and leverage as the dependent variables. We observe that eligible companies tended to decrease the quantity of short-term debt from 2016 to 2019, which is in line with the literature[3]. It was statistically significant.

In table 5, we also analyze total debt/total assets as the dependent variable. It was found that after CSPP announcement, the leverage of eligible firms did not increase considerably relative to non-eligible firms. Also, it is statistically significant

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[3] B. G. Rueschkamp, S.S., D.S. (2019). "A capital structure channel of monetary policy." *Journal of Financial Economics*, 357–378.

Table 4 – Dependent variable: Long-term debt/total assets

	(1)	(2)	(3)	(4)
Post x CSPP	0.014***	0.0109***	0.0125***	0.0126***
	(0.0080)	(0.0045)	(0.0040)	(0.0040)
Post	-0.029***	(omitted)		
	(0.0070)			
CSPP	0.059***	(omitted)		
	(0.008)			
Year FE	no	yes	no	yes
Firm FE	no	no	yes	yes
Observations	5212	5212	5212	5212

Notes: Robust standard errors in parentheses. Asterisks denote statistical significance at the *** 1 percent, ** 5 percent, and * 10 percent level

Table 5 – Dependent variable: Short-term debt/total assets & Leverage

	(1) ST debt/ total assets	(2) ST debt/ total assets	(3) Leverage	(4) Leverage
Post x CSPP	-0.039***	-0.024***	0.008***	0.0070***
	(0.0064)	(0.0055)	(0.015)	(0.015)
Year FE	no	yes	no	yes
Firm FE	yes	yes	yes	yes
Observations	5212	5212	5212	5212

Notes: Robust standard errors in parentheses. Asterisks denote statistical significance at the *** 1 percent, ** 5 percent, and * 10 percent level

In the following table we investigate the variables taxes, firm size, risk, age, and collateral with long-term debt as the dependent variable. We first analyze long-term debt with taxes and firm size as the independent variables. The results show that taxes do not have a positive effect on long-term debt/total assets. According to DeAngelo and Masulis (1980), we should have obtained a positive effect. Conversely, we see that firm size has a positive effect on long-term debt with 1.5 pp.

In consideration with risk, age, and collateral we obtain different results. First, we see that firms with less risk exposure tend to use long term debt more intensively. This is in line with the theory. A potential explanation for this might be that a consolidated firm can be in a better position to access to long-term external financing. Also, we note that the older the firm, the greater is the probability of using

long-term debt. For the proxy collateral, we find that those firms with high ratio of fixed assets have better access to external finance. The reason behind is that fixed assets are easily transformable in liquidity as well as their monetary value is relatively exact and unvaried.

The results are statistically significant and in line with the findings of Bougheas et al. (2006). Although we apply fixed effects, we do not find significant variance.

Table 6 – Dependent variable: Long-term debt/total assets

	(1)	(2)	(3)	(4)
CSPP	0.0139***	0.000***	0.07***	0.19***
	(0.003)	(0.08)	(0.0036)	(0.019)
Taxes	0.0029***	-0.000***		
	(0.002)	(0.0055)		
Size	0.014***	0.1***		
	(0.006)	(0.003)		
Risk			0.008***	0.01***
			(0.0036)	(0.0001)
Age			0.008***	0.007***
			(0.0012)	(0.0010)
Collateral			0.09***	0.049
			(0.0024)	(0.006)
Year FE	no	yes	no	yes
Firm FE	yes	yes	yes	yes
Observations	5212	5212	5212	5212

Notes: Robust standard errors in parentheses. Asterisks denote statistical significance at the *** 1 percent, ** 5 percent, and * 10 percent level

In Table 7 we make use of long term as dependent variable and then add a range of variables in order to evaluate the impact. It was applied the same process with 2 regressions. The first regression consists in 3 independent variables: growth, investment, and profit. We see that growth has a positive relationship with long-term debt, which might imply that firms with high potential growth tend to use long term debt to finance themselves. In the case of investment, we observe that there is not a significant relationship between investment and long-term debt. We expected a negative figure as firms can substitute equity for cheap long-term debt provided by CSPP. The ratio of profitability shows us that there is a positive relationship with long-term debt, implying that firms with higher level of debt tend to increase their profits.

In the second regression we add the variables gearing, dividend yield, and interest coverage. In consideration with gearing, we observe a positive relationship between debt-to-equity and long-term debt. One point standing out is that dividend yield has a positive effect on long-term debt. Some literature argue that firms made use of long-term debt to increase their dividend yields rather than increase investment ratio. A potential explanation for our result might be that firms took advantage of cheap financing condition to make their payout policy more attractive. However, we do not have enough evidence to affirm this. These coefficients are statistically significant. To finish, we see that the coefficient of interest coverage is positive, implying that those companies with high interest coverage ratio tend to use long-term debt. A potential conclusion is that a high interest coverage puts firms in better position to access to long-term debt.

Table 7 – Dependent variable: Long-term debt/total assets

	(1)	(2)	(3)	(4)
CSPP	0.089***	0.20***	0.198***	0.196***
	(0.003)	(0.0019)	(0.019)	(0.019)
Growth	1.21***	0.905		
	(0.03)	(0.0055)		
Investment	0.000	0.000		
	(0.000)	(0.000)		
Profit	0.059***	0.011***		
	(0.0052)	(0.0029)		
Gearing			0.0069***	0.0018***
			(0.000)	(0.0004)
DY			0.16***	0.08
			(0.015)	(0.12)
IC			0.11***	0.000***
			(0.000)	(0.000)
Year FE	no	yes	no	yes
Firm FE	yes	yes	yes	yes
Observations	5212	5212	4810	4810

Notes: Robust standard errors in parentheses. Asterisks denote statistical significance at the *** 1 percent, ** 5 percent, and * 10 percent level

In the following regressions we will analyze the same range of independent variables in consideration with short-term debt/total assets and leverage as dependent variables. This will be split into two tables.

Table 8 presents the results for variables Taxes, Size, Risk, Age, and Collateral. We observed that risk and taxes have a very weak relationship with short-term debt-to-total assets. A potential explanation might be that these firms do not fund themselves through bank loans so that the impact is quite limited. In the following case, we see that the age and collateral have a positive relationship with short-term debt.

For the leverage regression, we would like to point out that taxes and risk do not play a relevant role. This might be explained by the low intensive use of short-term debt. Additionally, firm size, age, and collateral are strongly related to leverage with a positive impact. These coefficients are statistically significant.

Table 8 – Dependent variable: Short-term debt/total assets & Leverage

	(1) ST debt/ total assets	(2) ST debt/ total assets	(3) Leverage	(4) Leverage
CSPP	-0.111	-2.13***	0.278	0.582***
	(0.097)	(0.150)	(0.118)	(0.912)
Taxes	-0.009		0.0002	
	(0.019)		(0.0045)	
Size	0.0225		0.0410***	
	(0.003)		(0.004)	
Risk	-0.00014		-0.004	
	(0.0004)		(0.004)	
Age		0.0133**		0.025***
		(0.003)		(0.0041)
Collateral		0.230***		0.222***
		(0.200)		(0.024)
Year FE	no	yes	no	yes
Firm FE	yes	yes	yes	yes
Observations	5212	5212	5212	5212

Notes: Robust standard errors in parentheses. Asterisks denote statistical significance at the *** 1 percent, ** 5 percent, and * 10 percent level

Table 9 presents the results for the rest of the independent variables: Growth, Investment, Profit, Gearing, Cash, and Interest Coverage. Regarding short-term debt-to-total assets, we would like to highlight that firms do not use short-term debt to improve their growth ratio. In addition, we see that profit ratio has a positive relationship with short-term debt. For leverage, we observe that firms did not use leverage to increase their growth ratio. Previously, we saw that firms made use of

long-term debt to grow. In addition to this, we note that gearing and profit have a positive relationship with leverage.

Table 9 – Dependent variable: Short-term debt/total assets & Leverage

	(1) ST debt/ total assets	(2) ST debt/ total assets	(3) Leverage	(4) Leverage
CSPP	-0.391***	-0.3881***	0.730	0.630**
	(0.0060)	(0.007)	(0.074)	(0.071)
Growth	-0.007***		-0.0505***	
	(0.0021)		(0.132)	
Investment	0.000		0.000*	
	(0.000)		(0.000)	
Profit	0.015		0.013***	
	(0.009)		(0.010)	
Gearing		0.0031*		0.009***
		(0.0012)		(0.0011)
DY		0.015		-0.052
		(0.013)		(0.11)
IC		0.000		0.000
		(0.000)		(0.000)
Year FE	no	yes	no	yes
Firm FE	yes	yes	yes	yes
Observations	5212	5212	5212	5212

Notes: Robust standard errors in parentheses. Asterisks denote statistical significance at the *** 1 percent, ** 5 percent, and * 10 percent level

5.2 Private firms.

In the next regressions we will present the results for private companies. The sample will be much larger. Table 10 presents the results considering Short-Term Debt-to-Total Assets and Leverage as the dependent variables. The regression will include a dummy variable, Post, and Risk, Collateral, Growth, and Firm Size as proxies. First of all, we observe that the ratio of short-term debt, on average, is much larger that of public companies.

We observe that the application of firm fixed effects make no a significant difference on the Post dummy variable. After the announcement of CSPP, we see that private firms increased considerably their ratios for Short-Term Debt/ Total Assets and Leverage.

Table 10 – Dependent variable: Short-term debt/total assets & Leverage

	(1) ST debt/ total assets	(2) ST debt/ total assets	(3) Leverage	(4) Leverage
Post	0.012	0.010	0.045**	0.044**
	(0.013)	(0.013)	(0.235)	(0.237)
Risk	-0.006***	-0.007***	-0.135***	-0.143***
	(0.003)	(0.007)	(0.008)	(0.008)
Collateral	0.030*	0.007	0.079***	0.058***
	(0.19)	(0.015)	(0.017)	(0.017)
Size	0.000	-0.000***	0.052***	0.011***
	(0.0004)	(0.007)	(0.005)	(0.007)
Growth	0.046**	0.130	0.04***	0.082
	(1.15)	(0.190)	(0.225)	(0.225)
Year FE	no	yes	no	yes
Firm FE	yes	yes	yes	yes
Observations	22568	22568	21952	21952

Notes: Robust standard errors in parentheses. Asterisks denote statistical significance at the ***
1 percent, ** 5 percent, and * 10 percent level

In table 11 we present the results for variable Investment, Profitability, Gearing, and Liquidity. The dependent variable will be Short-Term Debt-to-Total Assets and Leverage. In this regression, we see that by applying firm FE and year FE we see that private firms increased their ST Debt/Total Assets considerably less than by applying only year FE.

In case of leverage as dependent variable, we see similar results. In conclusion, we obtain that private firms increased their level of debt significantly after the announcement of the CSPP.

Table 11 – Dependent variable: Short-term debt/total assets & Leverage

	(1) ST debt/ total assets	(2) ST debt/ total assets	(3) Leverage	(4) Leverage
Post	0.022*	0.015*	0.033*	0.018
	(0.013)	(0.013)	(0.20)	(0.204)
Investment	-0.025***	-0.05***	-0.535	-0.452***
	(0.0029)	(0.033)	(0.021)	(0.000)
Profitability	0.170**	0.115***	0.097***	0.008***
	(0.049)	(0.401)	(0.030)	(0.000)
Gearing	0.001***	0.004***	0.014*	0.000
	(0.000)	(0.001)	(0.001)	(0.000)
Liquidity	-0.000	-0.001	0.000***	0.000
	(0.001)	(0.000)	(0.000)	(0.000)
Year FE	no	yes	no	yes
Firm FE	yes	yes	yes	yes
Observations	5212	5212	5212	5212

Notes: Robust standard errors in parentheses. Asterisks denote statistical significance at the ***
1 percent, ** 5 percent, and * 10 percent level

6.CONCLUSIONS.

This study has an extensive range of data considering public and private firms with the aim of providing new evidence about the impact of CSPP implementation. This study supported the idea that eligible firms might have substituted short-term debt for long-term debt, which is in line with Grosse-Rueschkamp et al. (2019). Additionally, we observed that private companies increase their short-term debt ratio. Grosse-Rueschkamp et al (2019) call this phenomena "capital structure channel".

This study found a considerable decrease in the rate of equity over total assets related to increase in short-term debt and leverage after the CSPP announcement. It can imply that companies substituted their level of equity for incurring in short-term debt with cheap financing conditions. This supports the findings of Altavilla et al., 2017, Musso and Gambetti, 2017 and Abidi and Miquel Flores, 2019. They argued that CSPP not only helped public firms to access to cheap funding but also it affected real economy. These authors affirm that CSPP was an important impulse for small and medium firms accessing to bank loans.

The phenomena can be explained as follow: i) the CSPP helped to reduce the spread charged, which caused firms to issue more public debt and benefit from cheap financing conditions; Corporations started to demand less bank loans, a situation that made financial institutions to redirect their loans to small and medium firms.

6.1. Limitation.

This study was done by making use of accounting data from Refinitiv Eikon and Wharton Research Data Service (WRDS) – Compustat Global. From Refinitiv Eikon we collected data from all public firms of eurozone countries whilst from WRDS – Compustat Global we obtained annual accounting data from private companies of twelve eurozone countries. Both datasets had missing values in key proxies that made this dissertation limited. Additionally, we could not have access to key ratios such as bond debt-to-total assets and bank loans-to-total assets so that we used instead long-term debt and short-term debt, respectively.

Another limitation was the business risk proxy that needed a great range of variables for the computation. Due to the missing observations in the key components, we might overvalue or undervalue this proxy. Also, we wanted to apply quarterly data.

Nevertheless, we lament that we found a great number of missing observations regarding quarterly data that made the study unfeasible.

6.2 Further Research.

Firstly, we suggest to compare this study with another one that contains a complete dataset. A comparison between them in order to value the results and find any significant variation. We also expected a positive relationship between level of debt and some variables. With a complete dataset, we could be able to confirm this relationship.

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APPENDIX

Table A – Public Firms by Industry

This table reports the average for the key variables of the dataset considering public firms for the periods between 2010 and 2015 and 2016 and 2019.

PUBLIC COMPANIES

	Risk		Taxes		Collateral		Firm Size		Growth	
	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016
Energy	4.121	5.201	0.307	0.283	0.775	0.842	22.211	22.349	0.057	0.044
Materials	3.013	3.723	0.320	0.195	0.869	0.834	20.694	20.962	0.050	0.053
Capital Good	3.790	3.090	0.348	0.301	0.445	0.427	20.198	20.552	0.035	0.036
Profes. Services	2.641	2.643	0.330	0.277	0.350	0.383	20.365	20.644	0.034	0.033
Transportation	1.904	2.124	0.273	0.239	0.917	0.899	20.659	21.015	0.047	0.057
Automobile	2.483	2.881	0.312	0.267	0.644	0.622	20.775	21.111	0.046	0.046
Tourism	2.297	2.334	0.225	0.256	0.882	0.842	20.227	20.583	0.048	0.070
Retailing	2.444	2.618	0.250	0.187	0.738	0.785	18.948	19.237	0.039	0.043
Food Industry	2.352	2.509	0.290	0.260	0.762	0.782	20.422	20.637	0.055	0.051
Health Care	2.661	5.814	0.276	0.241	0.482	0.508	20.300	20.720	0.047	0.041
I.T.	2.587	3.179	0.269	0.385	0.278	0.304	20.288	20.651	0.031	0.030
Communication	2.330	2.168	0.544	0.217	0.638	0.730	21.219	21.448	0.059	0.056
Utilities	4.858	3.008	0.193	0.211	0.919	0.987	22.977	23.126	0.050	0.040
Real Estate	1.651	1.826	0.250	0.318	0.234	0.247	20.033	20.456	0.029	0.024

Table B – Public Firms by Industry

This table reports the average for the key variables of the dataset considering public firms for the periods between 2010 and 2015 and 2016 and 2019.

PUBLIC COMPANIES

	Investment		Profit		Gearing		Dividend Yield	
	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016
Energy	23.628	23.556	0.129	0.121	0.934	0.931	0.031	0.037
Materials	2.975	3.851	0.117	0.116	0.702	0.661	0.022	0.029
Capital Good	2.151	2.461	0.125	0.120	0.736	0.671	0.018	0.020
Profes. Services	1.914	1.994	0.183	0.123	0.916	1.010	0.025	0.034
Transportation	2.264	2.507	0.122	0.109	1.029	0.915	0.023	0.029
Automobile	2.282	2.482	0.121	0.107	1.097	1.011	0.020	0.024
Tourism	1.760	2.653	0.101	0.098	0.756	0.886	0.016	0.016
Retailing	1.798	1.619	0.107	0.094	0.821	0.623	0.017	0.028
Food Industry	4.281	2.441	0.123	0.115	0.823	1.269	0.021	0.031
Health Care	3.600	6.766	0.131	0.112	0.580	0.698	0.018	0.020
I.T.	1.921	2.977	0.108	0.102	0.933	1.030	0.022	0.026
Communication	2.669	8.298	0.135	0.106	1.252	1.843	0.026	0.037
Utilities	1.412	1.640	0.104	0.108	1.294	1.259	0.039	0.041
Real Estate	1.329	1.408	0.108	0.123	1.447	1.202	0.023	0.024

Table C – Public Firms by Industry

This table reports the average for the key variables of the dataset considering public firms for the periods between 2010 and 2015 and 2016 and 2019.

PUBLIC COMPANIES

	Interest Coverage		Leverage		ST debt/total assets		LT debt/total assets	
	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016
Energy	15.839	15.882	0.390	0.303	0.160	0.116	0.199	0.163
Materials	13.034	21.490	0.344	0.279	0.179	0.139	0.137	0.118
Capital Good	14.505	21.375	0.300	0.225	0.191	0.140	0.085	0.067
Profes. Services	51.736	64.976	1.107	0.290	0.320	0.157	0.698	0.110
Transportation	24.957	30.872	0.419	0.339	0.149	0.150	0.236	0.162
Automobile	59.481	44.397	0.321	0.307	0.179	0.176	0.116	0.106
Tourism	7.826	94.333	0.707	0.359	0.383	0.165	0.268	0.165
Retailing	15.722	34.545	0.388	0.262	0.253	0.185	0.104	0.057
Food Industry	31.442	35.135	0.473	0.296	0.299	0.164	0.136	0.108
Health Care	29.628	136.649	0.455	0.266	0.242	0.121	0.176	0.124
I.T.	30.187	96.053	0.348	0.253	0.213	0.154	0.107	0.078
Communication	119.947	142.146	0.403	0.315	0.180	0.138	0.191	0.152
Utilities	29.596	38.508	0.462	0.343	0.160	0.117	0.265	0.199
Real Estate	12.841	10.262	0.534	0.428	0.177	0.133	0.314	0.261

Table D – Public Firms by Country

This table reports the average for the key variables of the dataset considering public firms for the periods between 2010 and 2015 and 2016 and 2019.

PUBLIC COMPANIES

	Risk		Taxes		Collateral		Firm Size		Growth	
	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016
AUT	2.167	1.956	0.246	0.234	0.619	0.707	20.944	21.194	0.059	0.057
BEL	2.902	2.654	0.202	0.077	0.771	0.710	20.422	20.764	0.054	0.051
DEU	3.239	2.794	0.273	0.328	0.550	0.559	20.119	20.526	0.044	0.042
ESP	1.729	3.705	0.413	0.234	0.703	0.707	21.433	21.629	0.042	0.042
FIN	4.453	3.415	0.354	0.241	0.695	0.663	20.436	20.582	0.041	0.038
FRA	3.142	2.842	0.333	0.272	0.447	0.447	20.610	20.974	0.039	0.038
GRC	2.224	2.066	0.208	0.291	0.829	0.916	19.888	20.142	0.039	0.058
IRL	3.578	4.764	0.098	0.088	0.464	0.418	21.494	22.021	0.031	0.040
ITA	2.466	3.289	0.495	0.334	0.567	0.629	20.776	21.041	0.039	0.042
LUX	4.129	4.630	0.255	0.747	0.591	0.667	21.029	21.146	0.074	0.042
NLD	2.298	1.197	0.218	0.303	0.497	0.511	21.804	21.976	0.042	0.041
PTG	1.856	1.914	0.233	0.256	0.680	0.735	21.164	21.241	0.034	0.036

Table E – Public Firms by Country

This table reports the average for the key variables of the dataset considering public firms for the periods between 2010 and 2015 and 2016 and 2019.

PUBLIC COMPANIES

	Investment		Profit		Gearing		Dividend Yield	
	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016
AUT	2.040	1.886	0.100	0.093	0.914	0.745	0.021	0.029
BEL	2.284	2.710	0.140	0.121	0.846	1.007	0.026	0.029
DEU	3.026	3.688	0.124	0.114	0.830	0.823	0.017	0.021
ESP	5.549	8.549	0.105	0.109	1.294	1.742	0.027	0.033
FIN	2.309	2.871	0.231	0.136	0.602	0.544	0.029	0.039
FRA	1.599	1.959	0.108	0.103	0.730	0.990	0.022	0.025
GRC	1.357	1.599	0.111	0.124	1.034	1.090	0.010	0.019
IRL	3.825	3.111	0.131	0.118	0.851	0.731	0.016	0.019
ITA	2.787	5.355	0.115	0.112	1.105	1.043	0.027	0.027
LUX	2.775	1.090	0.157	0.106	1.120	0.975	0.018	0.030
NLD	1.836	3.237	0.132	0.123	1.159	1.175	0.021	0.030
PTG	1.475	1.647	0.113	0.123	2.233	1.877	0.037	0.059

Table F – Public Firms by Country

This table reports the average for the key variables of the dataset considering public firms for the periods between 2010 and 2015 and 2016 and 2019.

PUBLIC COMPANIES

	Interest Coverage		Leverage		ST debt/total assets		LT debt/total assets	
	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016
AUT	8.173	17.979	0.376	0.290	0.170	0.136	0.176	0.131
BEL	73.457	86.897	0.537	0.337	0.296	0.155	0.198	0.155
DEU	18.683	94.241	0.355	0.277	0.158	0.125	0.169	0.130
ESP	23.253	77.250	0.413	0.316	0.205	0.144	0.175	0.146
FIN	24.550	76.291	1.631	0.248	0.496	0.147	0.180	0.181
FRA	64.412	57.203	0.370	0.285	0.210	0.156	0.130	0.106
GRC	4.060	13.725	0.420	0.344	0.223	0.189	0.163	0.127
IRL	11.312	12.001	0.357	0.281	0.165	0.124	0.163	0.135
ITA	24.522	28.271	0.340	0.316	0.189	0.167	0.124	0.124
LUX	35.867	7.081	0.433	0.319	0.187	0.137	0.212	0.156
NLD	9.829	11.106	0.400	0.281	0.196	0.132	0.172	0.126
PTG	5.724	10.204	0.642	0.370	0.340	0.178	0.250	0.162

Table G – Private Firms by Industry

This table reports the average for the key variables of the dataset considering public firms for the periods between 2010 and 2015 and 2016 and 2019.

PRIVATE COMPANIES

	Risk		Collateral		Firm Size		Growth		Investment		Profit	
	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016
Energy	1.316	1.227	0.564	0.556	9.432	9.449	0.035	0.032	0.442	0.441	0.073	0.074
Materials	1.293	1.336	0.566	0.562	9.350	9.436	0.033	0.033	0.459	0.443	0.071	0.072
Capital Good	1.348	1.290	0.558	0.539	9.367	9.157	0.032	0.032	0.481	0.490	0.072	0.055
Profes. Services	1.379	1.432	0.561	0.590	9.282	9.504	0.033	0.034	0.468	0.433	0.073	0.075
Transportation	1.356	1.434	0.549	0.586	9.411	9.600	0.031	0.033	0.479	0.384	0.071	0.085
Automobile	1.372	1.195	0.567	0.570	9.372	9.311	0.032	0.034	0.474	0.462	0.067	0.071
Tourism	1.334	1.390	0.580	0.614	9.536	9.699	0.035	0.035	0.447	0.425	0.072	0.073
Retailing	1.337	1.262	0.572	0.541	9.592	9.074	0.031	0.032	0.386	0.601	0.069	0.076
Food Industry	1.393	1.377	0.577	0.588	9.442	9.533	0.034	0.034	0.455	0.443	0.075	0.072
Health Care	1.378	1.407	0.571	0.593	9.445	9.516	0.033	0.033	0.464	0.456	0.075	0.073
I.T.	1.400	1.422	0.562	0.580	9.397	9.582	0.032	0.033	0.465	0.445	0.071	0.075
Communication	1.367	1.379	0.544	0.563	9.284	9.466	0.030	0.033	0.468	0.449	0.069	0.070
Utilities	1.102	1.203	0.539	0.619	9.445	9.624	0.030	0.034	0.423	0.416	0.067	0.079
Real Estate	1.476	1.465	0.549	0.583	9.249	9.454	0.030	0.033	0.493	0.471	0.070	0.074

Table H – Private Firms by Industry

This table reports the average for the key variables of the dataset considering public firms for the periods between 2010 and 2015 and 2016 and 2019.

PRIVATE COMPANIES

	Gearing		Liquidity		Leverage		ST debt/total assets		LT debt/total assets	
	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016
Energy	1.665	1.621	0.692	0.670	0.508	0.588	0.352	0.407	0.117	0.135
Materials	1.522	1.626	0.683	0.687	0.474	0.547	0.327	0.379	0.110	0.127
Capital Good	1.415	1.444	0.650	0.642	0.520	0.548	0.350	0.380	0.131	0.126
Profes. Services	1.463	1.570	0.678	0.717	0.514	0.565	0.342	0.392	0.134	0.129
Transportation	1.372	1.898	0.615	0.840	0.504	0.616	0.343	0.409	0.123	0.162
Automobile	1.408	1.540	0.666	0.671	0.493	0.518	0.334	0.354	0.122	0.125
Tourism	1.642	1.592	0.701	0.700	0.510	0.559	0.348	0.383	0.123	0.134
Retailing	1.840	0.923	0.734	0.586	0.476	0.391	0.315	0.272	0.126	0.089
Food	1.489	1.546	0.684	0.696	0.491	0.556	0.335	0.386	0.118	0.128
Health Care	1.502	1.489	0.669	0.669	0.481	0.583	0.331	0.413	0.113	0.124
I.T.	1.481	1.615	0.667	0.691	0.483	0.607	0.329	0.434	0.117	0.124
Communication	1.585	1.578	0.663	0.672	0.496	0.605	0.339	0.446	0.120	0.109
Utilities	1.737	1.716	0.675	0.789	0.536	0.584	0.370	0.387	0.126	0.154
Real Estate	1.482	1.422	0.641	0.663	0.482	0.584	0.334	0.424	0.110	0.113

Table I – Private Firms by Country

This table reports the average for the key variables of the dataset considering public firms for the periods between 2010 and 2015 and 2016 and 2019.

PRIVATE COMPANIES

	Risk		Collateral		Firm Size		Growth		Investment		Profit	
	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016
AUT	1.440	1.370	0.677	0.699	5.739	6.073	0.050	0.050	0.447	0.462	0.083	0.074
BEL	1.180	1.020	0.665	0.682	5.415	5.574	0.044	0.037	0.420	0.430	0.049	0.030
DEU	1.450	1.340	0.528	0.520	4.755	5.125	0.038	0.037	0.448	0.446	0.056	0.051
ESP	0.980	1.087	0.576	0.554	6.177	6.080	0.035	0.043	0.349	0.329	0.068	0.073
FIN	1.610	1.540	0.509	0.421	5.151	4.863	0.042	0.040	0.387	0.430	0.066	0.058
FRA	1.160	0.990	0.367	0.359	4.968	5.068	0.037	0.038	0.400	0.396	0.029	-0.003
GRC	0.790	0.870	0.614	0.715	4.640	4.510	0.026	0.029	0.324	0.296	0.024	0.045
IRL	1.500	0.660	0.402	0.338	5.001	5.041	0.047	0.027	0.518	0.571	0.011	-0.021
ITA	1.130	1.190	0.538	0.366	6.684	5.010	0.057	0.035	0.429	0.361	0.084	0.072
LUX	1.150	1.060	0.537	0.547	6.510	6.965	0.067	0.039	0.457	0.380	0.081	0.088
NLD	1.480	0.980	0.492	0.427	6.281	6.291	0.044	0.035	0.378	0.376	0.077	0.041
PTG	0.820	0.770	0.733	0.720	6.234	5.999	0.027	0.029	0.264	0.296	0.069	0.062

Table J – Private Firms by Country

This table reports the average for the key variables of the dataset considering public firms for the periods between 2010 and 2015 and 2016 and 2019.

PRIVATE COMPANIES

	Gearing		Liquidity		Leverage		ST debt/total assets		LT debt/total assets	
	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016	Pre-2016	Post-2016
AUT	2.03	1.51	10.23	12.41	0.62	0.74	0.40	0.48	0.22	0.26
BEL	1.58	3.25	2.50	2.08	0.65	0.66	0.42	0.43	0.23	0.23
DEU	2.44	3.38	3.54	4.86	0.64	0.65	0.42	0.43	0.22	0.23
ESP	3.20	5.11	1.49	1.55	0.66	0.61	0.43	0.40	0.23	0.21
FIN	1.84	1.51	1.96	2.02	0.68	0.63	0.44	0.41	0.24	0.22
FRA	1.67	1.63	2.12	2.50	0.66	0.64	0.43	0.42	0.23	0.23
GRC	6.32	2.41	1.86	3.75	0.63	0.65	0.41	0.42	0.22	0.23
IRL	2.26	-0.29	3.13	4.25	0.68	0.69	0.44	0.45	0.24	0.24
ITA	4.29	2.58	2.28	6.05	0.65	0.65	0.42	0.42	0.23	0.23
LUX	3.78	5.17	2.63	1.68	0.66	0.65	0.43	0.42	0.23	0.23
NLD	0.53	1.99	1.72	2.33	0.69	0.62	0.45	0.40	0.24	0.22
PTG	5.85	3.04	1.17	1.47	0.65	0.61	0.42	0.40	0.23	0.21

Figure A – Risk

This figure reports the evolution of Risk public firms and private firms for the period between 2010 and 2019.
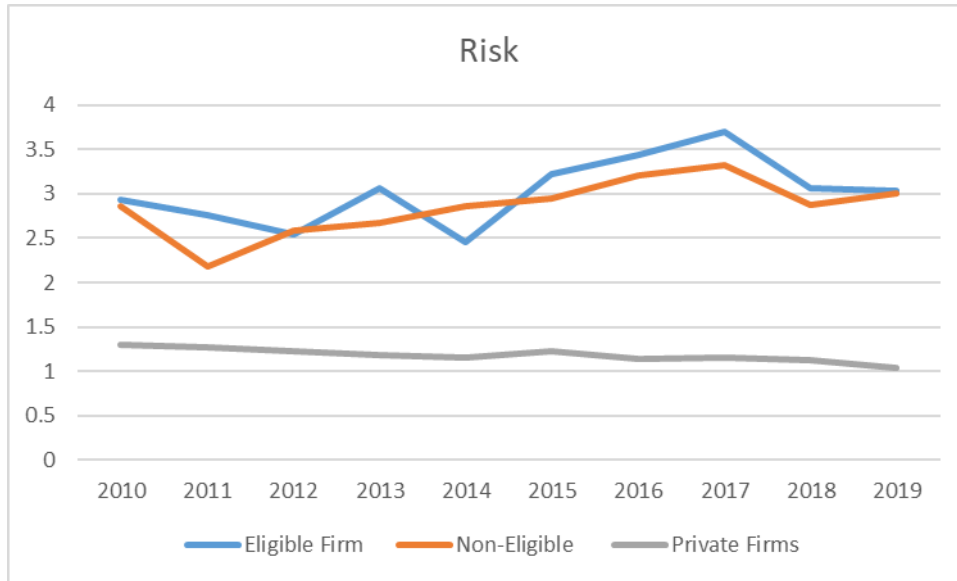

Figure B – Collateral

This figure reports the evolution of Collateral public firms and private firms for the period between 2010 and 2019.
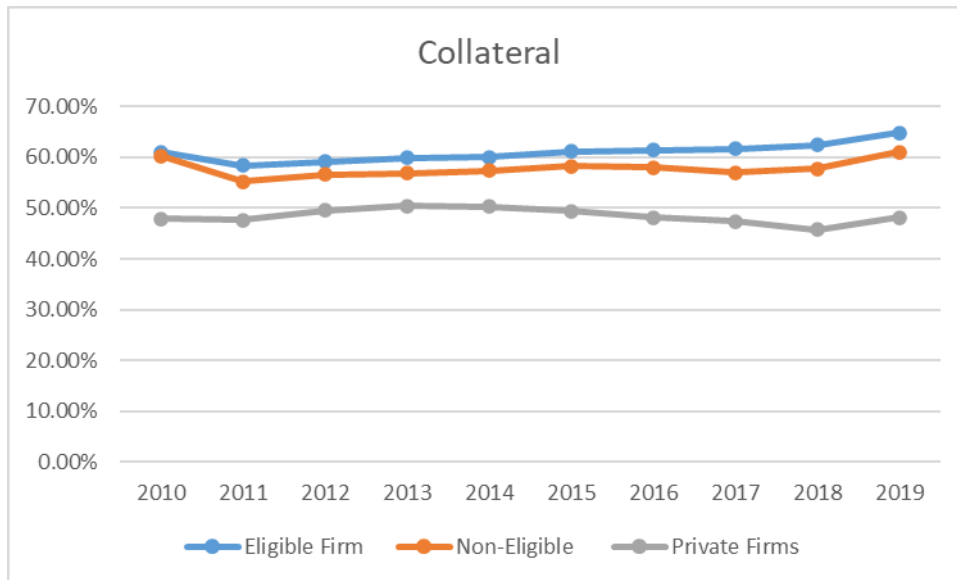
Figure C – Firm Size

This figure reports the evolution of Firm Size public firms and private firms for the period between 2010 and 2019.
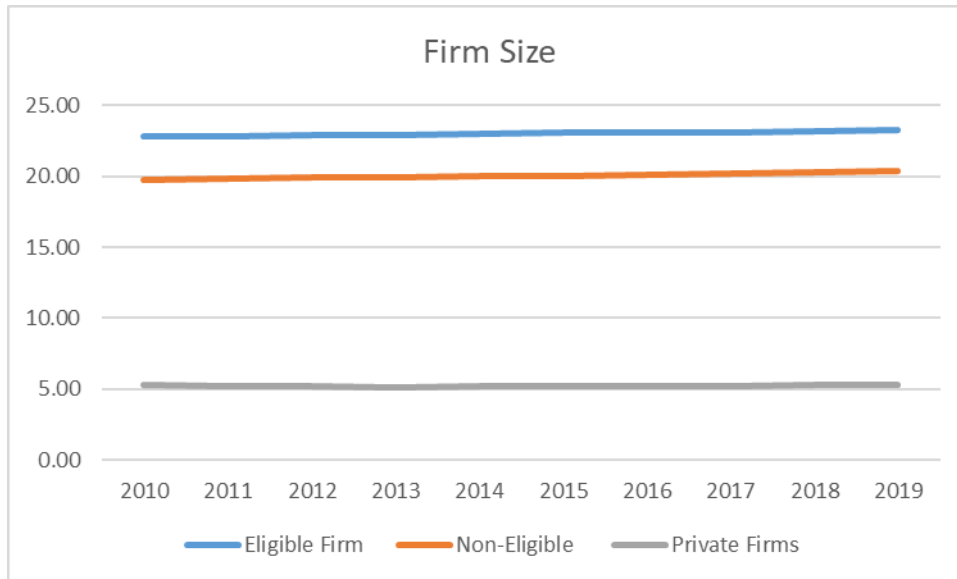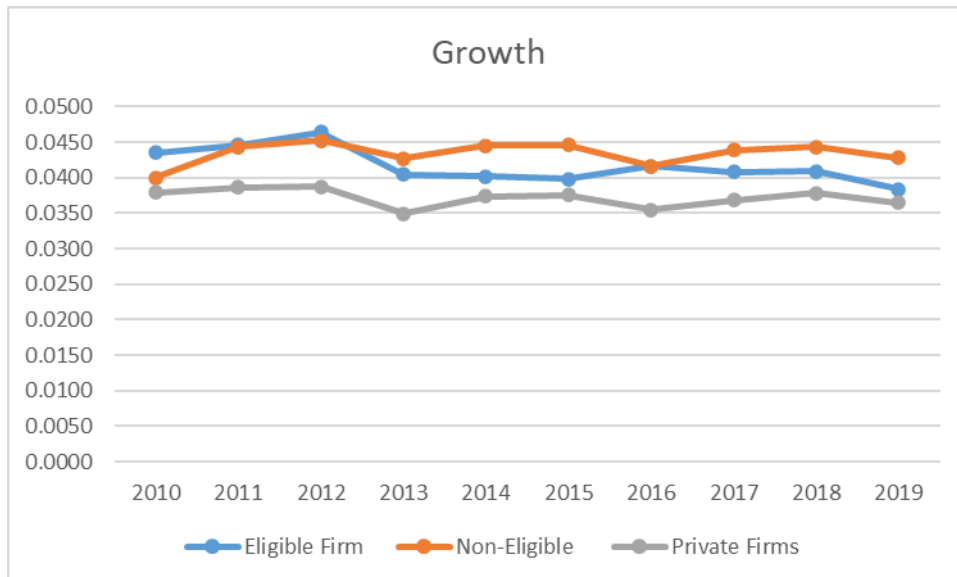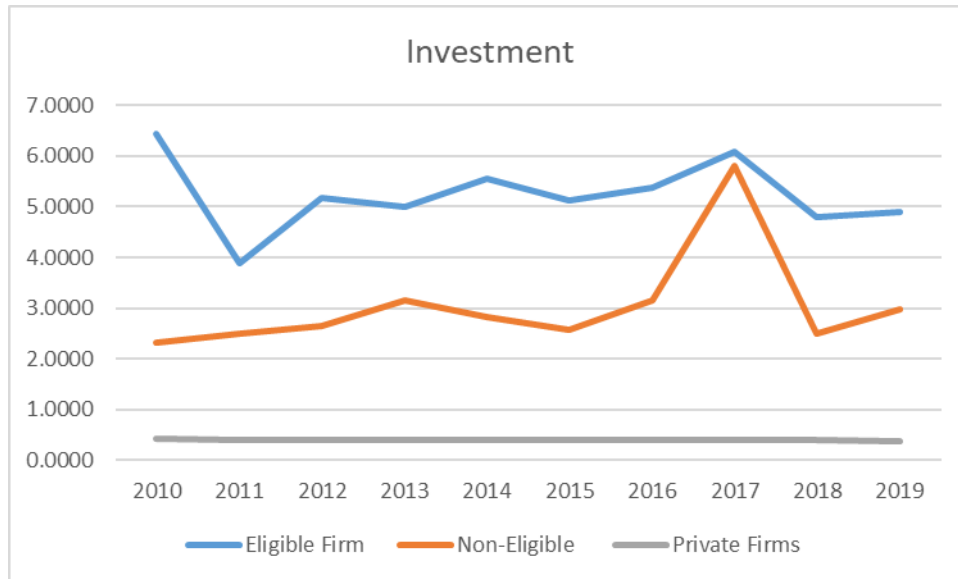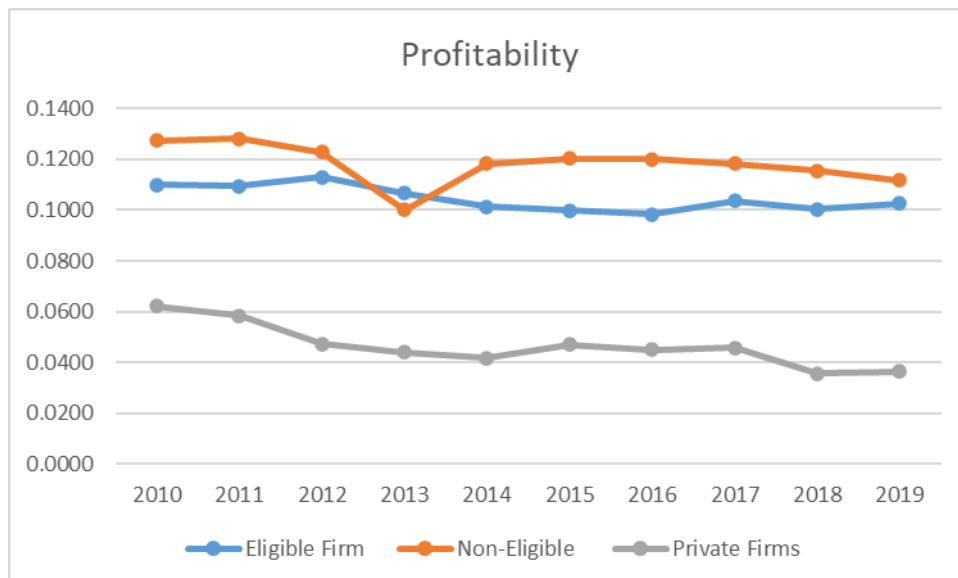

Figure D – Growth

This figure reports the evolution of Growth public firms and private firms for the period between 2010 and 2019.

Figure E – Investment

This figure reports the evolution of Investment public firms and private firms for the period between 2010 and 2019.

Figure F – Profitability

This figure reports the evolution of Profitability public firms and private firms for the period between 2010 and 2019.

Figure G – Gearing

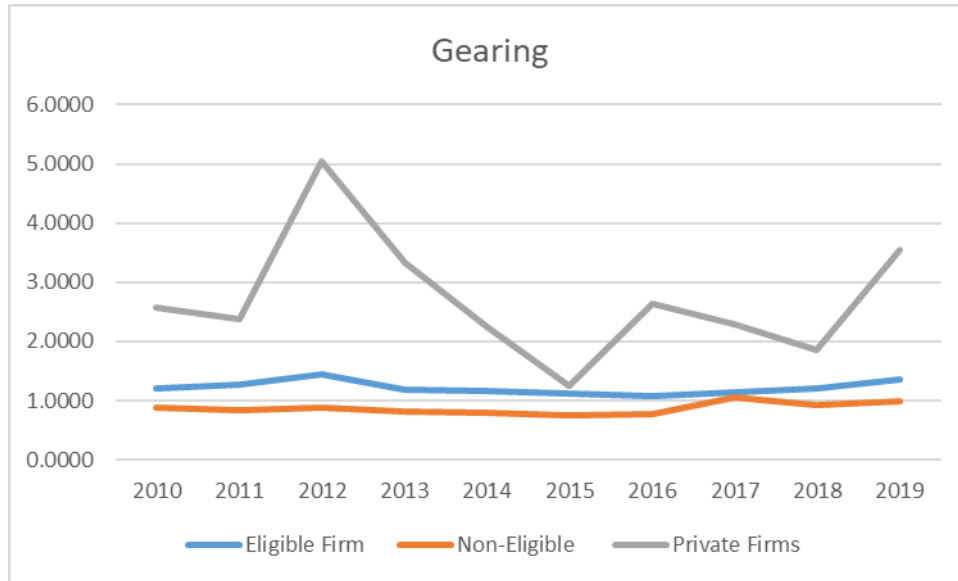This figure reports the evolution of Gearing public firms and private firms for the period between 2010 and 2019.

Figure H – Leverage

This figure reports the evolution of Leverage public firms and private firms for the period between 2010 and 2019.
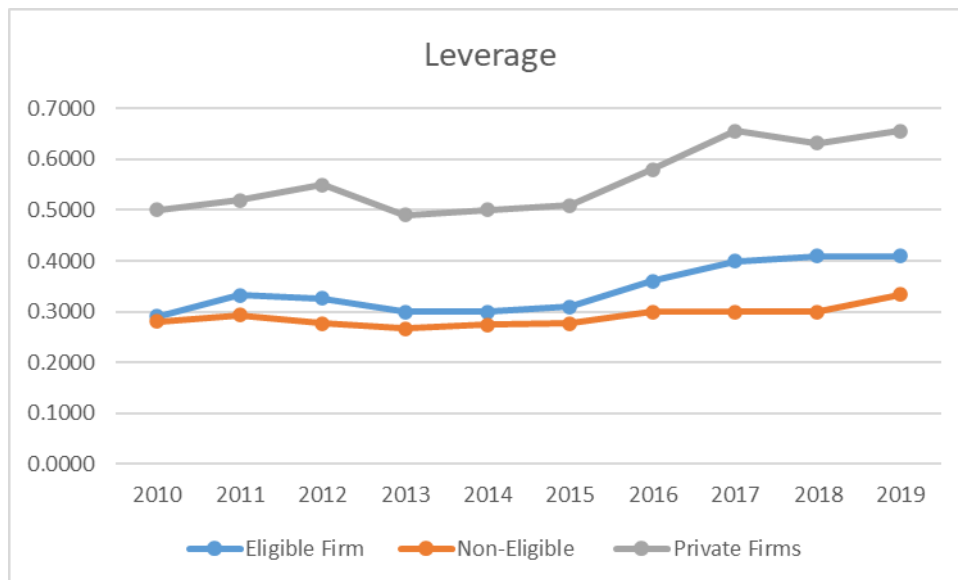
Figure I – Short-Term Debt/ Total Assets

This figure reports the evolution of Short-Term Debt/ Total Assets public firms and private firms for the period between 2010 and 2019.
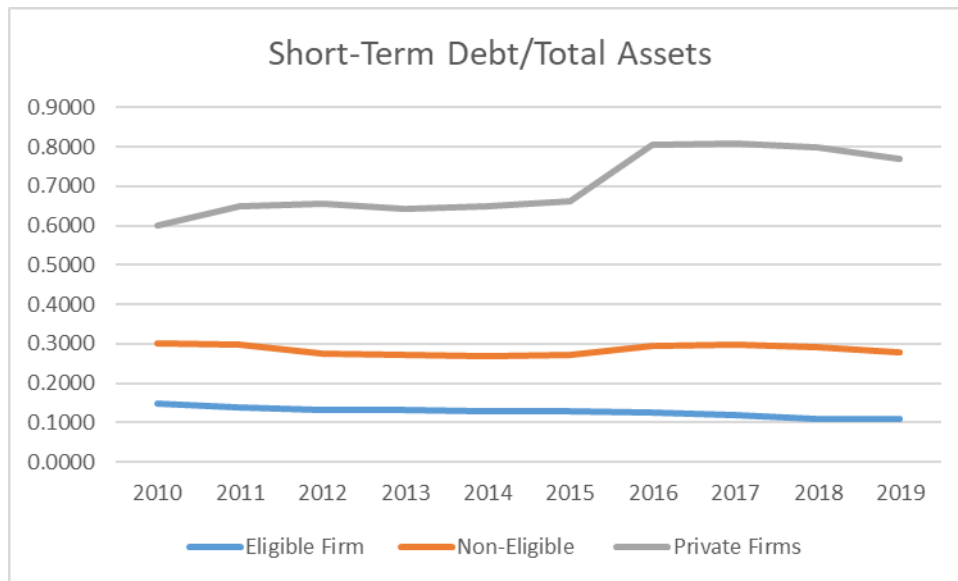

Figure J – Long-Term Debt/ Total Assets

This figure reports the evolution of Long-Term Debt/ Total Assets public firms and private firms for the period between 2010 and 2019.