Universidad de Valladolid

PROGRAMA DE DOCTORADO EN ECONOMÍA DE LA EMPRESA

TESIS DOCTORAL:

Macroeconomic environment and corporate finance: the role of monetary policy, labour markets and economic uncertainty

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para optar al grado de Doctor por la Universidad de Valladolid

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1. ACKNOWLEDGMENTS

Al terminar esta tesis, son muchas las personas a las que quiero expresar mi agradecimiento.

A mis directores, Dr. Félix Javier López Iturriaga y Dr. Juan Antonio Rodríguez Sanz, Catedráticos de la Universidad de Valladolid, por su afecto, dirección y dedicación. He tenido la gran suerte de trabajar con ellos y aprender mucho durante estos años. Me siento afortunado de haber podido finalizar esta tesis con éxito y por ello les estaré siempre muy agradecido.

Al profesor Dr. Jorge Bento Farinha, por su inestimable acogida en la Facultad de Economía de la Universidad de Oporto.

A los compañeros del Departamento de Economía de la Empresa de esta Facultad. En especial, doy las gracias a mis profesores y a aquellos con los que he compartido docencia.

A los compañeros de máster y doctorado, por todo el tiempo, viajes, y experiencias que hemos vivido juntos.

A mi familia y a las personas más allegadas. Dedico esta tesis a mi hijo de tres años, Marco, para que un día se sienta orgulloso del trabajo que hizo su padre mientras le ayudaba a descubrir el mundo. También doy las gracias a su madre y mi pareja, Carmen, por su apoyo. Y a mis padres, Pedro y Amalia, y a mi hermana, Rebeca.

"El patrimonio es blando; la deuda dura. El patrimonio perdona, la deuda apremia. El patrimonio es una almohada; la deuda, una espada."

(Stewart y Glassman, 1988)

2. INTRODUCTION

Sixty-five years ago, Modigliani and Miller laid the foundations of capital structure in the context of perfect capital markets, placing the value of the firm at the centre of their analysis. Since then, research in finance has studied the determinants of corporate debt and this has given rise to a rich literature on the determinants of capital structure.

A review of this literature suggests a small number of theories that have contributed notably to explain the determinants of capital structure. According to the trade-off theory, the firm pursues an optimal capital structure, i.e., the best combination of debt and equity considering the tax savings and bankruptcy costs of debt. The pecking order states that firms establish a hierarchy of financing to address the asymmetric information problems between insiders and capital markets. Agency theory underlines the role of financial funds (both debt and equity) to alleviate the conflicts of interest between different stakeholders in the firm. Later, the Law and Finance approach extended the framework to include country-level factors, showing that countries' institutions related to culture and legal issues affect firms' capital structure. Recently, the behavioural finance approach has amended the rationality assumptions and introduced the investors' and managers' biases, such as market timing approach, which refers to take advantage of securities mispricing, or managerial optimism and overconfidence, which leads to a preference for internal financing.

In recent years, the financial crisis and subsequent recession of 2008, the COVID-19 pandemic and the war in Europe unequivocally confirm the importance of macroeconomic environment to understand corporate financial decisions. In this context, the firm is seen as an alternative entity to the market operating in an uncertain environment governed by forces from

the monetary and real economy domains, raising new questions about the capital structure decision. Therefore, firms' financial strategies must respond to a wide variety of factors of different nature that shape the macroeconomic environment with the aim of adapting to it, which creates new research opportunities that complement the previous literature on the determinants of capital structure.

The motivation of this dissertation relies, firstly, on analysing the influence of monetary policy on capital structure throughout the business cycle after the financial crisis of 2008, given the major role that central banks (European and England Central Banks mainly) played in the corporate debt overhang that took place before the crisis and the severe financial difficulties that firms faced afterwards. Secondly, this crisis revealed that countries' labour market affects the resilience of their firms to face adverse situations. Therefore, it is interesting to study how labour market conditions impact the indirect costs of financial distress that affect companies' flexibility to cope with the environment and, thus, their bankruptcy risk. Finally, the crisis increased the uncertainty and the information gap between economic agents. Our study analyses how economic policy uncertainty -a market imperfection that exacerbates asymmetric information and opportunism- affects the capital structure, and how countries' institutions and firms' strategies can act as shields to alleviate these problems.

The outbreak of the 2008 crisis brings together a number of peculiarities in the monetary and real economy that are worth analysing. The monetary policy of low interest rates and large liquidity overstimulated the economy. The subsequent overheating of the economy brought to the surface some inefficient investments made before and led to a period of recession and job destruction. However, the crisis did not affect all the countries in the same way since the conditions of their labour markets endowed them with different

levels of resilience to overcome the crisis. In addition, the financial crisis and the subsequent sovereign debt crisis have resulted in a period of growing uncertainty in the macroeconomic environment in which companies operate, exacerbated by events such as Brexit, the health crisis and the war in Ukraine.

The latest financial crisis has shed light on one of the most controversial issues in economics: whether money is neutral in affecting real economics. Although the trade-off theory tells us that firms pursue a target leverage ratio, a recent strand of literature evidences its volatility over time. Prior papers investigating how firms' financing decisions are affected by volatility in macroeconomic variables over time, have assumed or shown no role for fluctuations in the price and supply of money, whereas others present counter-evidence, especially when bank credit is one of the economy's most prevalent funding sources.

In this vein, the first study, published in the *Spanish Journal of Finance and Accounting*, analyses the influence of monetary policy on the capital structure decision taken by a panel of listed European firms (from Germany, Spain, France, Italy and UK) throughout the business cycle. The results confirm the positive relationship between leverage and the short- and long-term interest rates in contrast to the negative influence of the term spread in both phases of the business cycle. The ratio of narrow to broad money is found to have a negative impact on leverage, while the velocity of money affects it positively in both growth and recession scenarios. The speed of adjustment to the target debt ratio is faster during periods of expansion. In addition, we show that the effect of monetary variables is attenuated under market-based financial systems.

This initial study contributes to capital structure literature in several ways. Firstly, prior research has explored the relationship between macroeconomic variables and financing decisions using long sample periods

including both real and financial crises with different economic foundations. Other studies focus on a single country, which constitutes a particular case of the effect of the financial crisis. Our sample represents the European business environment during a particular business cycle (2003 to 2013) and a specific type of crisis, that is, a financial crisis of monetary origin. Secondly, our study contributes by developing a theoretical framework linking economic theory and business theory to support our results, since prior research does not include any deep separate analysis of the different economic reasons for the influence of money on the financing decision in each phase of the cycle. Thirdly, previous studies focus on the effect of interest rates on firms' financing decisions. Our study incorporates the unexplored effect on the corporate financing decision of European firms of two monetary variables: liquidity and the velocity of money. Finally, unlike prior studies, which analyse the relationship between monetary variables and financing decisions under a specific type of financial system, ours goes a step further by considering differences due to country-specific financial systems, thus enabling us to test the relevance of interest rates on capital structure.

During the crisis, the destruction of employment differed between countries and revealed that labour markets affect financial flexibility to cope with the environment. However, there is not a unifying theoretical framework on how different labour market conditions affect the capital structure of firms. In fact, by the 1980s, the debate between labour market conditions intensified due to the low unemployment rate in the USA which contrasted with the higher rate in Europe, who enforced more stringent labour regulations. Nowadays, within Europe there also are important differences that allow to analyse the impact of labour markets on capital structure.

We therefore carry out a second study, recently published in *Research in International Business and Finance*, which examines the influence of labour

market conditions on corporate capital structure in a sample of 2,892 listed firms from France, Germany, Italy, Spain, and the UK. After considering the unemployment and inflation, we analyse the effect of two market imperfections: employees' rights and downward wage rigidity. Results indicate that financial leverage responds to changes in unemployment and inflation. We also find that the influence of employees' rights is non-linear, whereas the negative effect of downward wage rigidity is moderated by firms' market power. Taken together, our results show that corporate financial decisions are conditioned not only by firm-level issues but also by a country's labour market.

This study contributes to previous literature on the corporate financing decision and goes a step further by exploring the relationship between capital structure and a country's labour conditions in two ways. First, we reconcile previous contradictory results about the effect of employees' rights on capital structure. By combining different theoretical approaches, we detect an inverted U-shaped relationship between employees' labour rights and leverage. We explain this relationship from an agency theory perspective in the case of direct rights, while the opportunity cost of leisure perspective provides the theoretical justification for the influence of indirect rights. Second, we address the question concerning how downward wage rigidity affects the corporate financing decision, to which very little attention has previously been paid. Wages stickiness theories allow us to explain this influence and to analyse the moderating role of market power from a microeconomic theory perspective. The results confirm that market labour conditions exert a decisive influence on firms' capital structure, thereby providing academia and managers with new insights into this relationship.

The negative effects of monetary policy excess and the relevance of labour market conditions are not the only features of the macroeconomic

environment whose importance was highlighted by the 2008 financial crisis. That recession and the subsequent sovereign debt crisis were characterised by unprecedented levels of economic uncertainty that have continued to increase to the present day, making business decisions more difficult by increasing informational asymmetries and agency conflicts between economic agents.

In this vein, we carry out a third study focusing on how economic policy uncertainty -a market imperfection that exacerbates asymmetric information and opportunism- affects capital structure and how countries' institutions and corporate diversification moderate this relationship. Using a sample of 3,175 firms from eleven European countries, we find that financial leverage is positively related to economic policy uncertainty, with this relationship being moderated by country uncertainty avoidance, institutional quality, and financial development. We also find that corporate diversification is positively related to corporate debt. This relationship is stronger for unrelated diversification. In addition to the direct effect, both types of diversification indirectly moderate the positive influence of uncertainty on leverage, with this effect being stronger for unrelated diversification. Our results show that debt and institutional conditions work as substitute mechanisms to alleviate agency conflicts caused by uncertainty and that, in a similar way, corporate diversification attenuates the positive relation between economic policy uncertainty and financial leverage.

The contribution of this third analysis is twofold. First, most previous literature on the determinants of corporate finance has generally either ignored environmental uncertainty or shown contradictory results. We shed light on this topic by analyzing the influence of economic policy uncertainty on capital structure. Additionally, we argue that countries' institutions not only affect firms' capital structure, but can also moderate the influence of

environmental uncertainty. Consequently, we make a novel contribution and address this influence by focusing on the moderating role in times of uncertainty of three relevant institutions: uncertainty avoidance, institutional quality, and financial development. Second, little research has addressed the influence of corporate diversification on capital structure. In addition, this prior literature is inconclusive and has tended to focus on a single country, such as the US, Spain, Singapore, China, France, or Italy. We shed light on this topic and draw on a large international dataset over a long period of time. Furthermore, previous studies show that diversification can be used to cope with the environment, yet they fail to address the moderating role of corporate diversification as a shield against the effect of uncertainty on capital structure. As a result, we go a step further by exploring this relationship.

The remainder of this thesis is organized as follows. In section 3, we present the literature review. The fourth section based on this theoretical background and proposes the hypotheses to be tested empirically. In section 5 we describe our method, sample, and variables. The results of this empirical analysis are presented and discussed in chapter 6. In the final section we draw the conclusions to emerge from our study and suggest some directions for future research. We also include some methodological appendices with the definitions of the variables and the bibliometric information of the two papers that contain partial results of this PhD essay.

3. LITERATURE REVIEW

The aim of this section is to review the literature on capital structure literature accordingly to the subsequent empirical analysis. Firstly, we compile the studies on interest rates and liquidity in the economy, also paying attention to the interest rate spread and money velocity. Secondly, we analyse market labour conditions, considering the influence of unemployment, inflation, employees' rights, and downward wages rigidity. Finally, we study the literature on economic policy uncertainty and the relevant influence of institutional conditions and corporate diversification. This research drives to a number of hypotheses that are stated in section four.

3.1. Interest rates, liquidity, and the corporate financing decision throughout the business cycle: A European analysis

Three popular theories have largely contributed to explain firms' capital structure. The pecking order theory establishes that firms only issue debt when there is a deficit between internal funds and investment (Shyam-Sunder & Myers, 1999). The capital structure does not imply achieving an optimum, but rather meeting the firm's financial needs (Frank & Goyal, 2009). When obtaining new funds, firms face an asymmetric information problem between investors and managers, which forces firms to follow a pecking order: internally generated funds, debt and, finally, equity. The second theoretical approach is the market timing theory, which stresses the right moment of the equity market (market-timing), such that firms issue shares when their price is high and repurchase them when the price falls. A complementary explanation is given by the trade-off theory. According to this theory, the optimal capital structure leads to a balance between the costs and benefits of debt (the static theory of trade-off). Later, this argument was reinforced with the idea that debt also disciplines managerial discretionary

behaviour by reducing free cash flow, discouraging suboptimal investment policies, and limiting the consumption of perquisites (Jensen, 1986; Jensen & Meckling, 1976). However, debt can also increase the agency cost arising from conflicts between shareholders and debtholders, and high levels of leverage can lead to underinvestment problems (Barnea et al., 1985; Berger and Bonaccorsi di Patti, 2006; Myers, 1977; Myers & Majluf, 1984; Stulz, 1990). All these arguments suggest an optimum or target level of capital structure which the firm would reach in the absence of adjustment costs. Nevertheless, in the real world firms pursue this target over time, partially adjusting the leverage in each period (Flannery & Rangan, 2006). This partial-adjustment model allows the static trade-off theory to be transformed into a dynamic model, as we describe in the methodology section.

However, recent studies show that optimal capital structure fluctuates over time (Akhtar, 2011; Campbell & Rogers, 2018; DeAngelo & Roll, 2015). Exploring this idea further, later literature addresses the impact of macroeconomic factors, usually of a monetary nature, which fluctuate over the business cycle and condition capital structure dynamics (Chang et al., 2019; Cook & Tang, 2010; Daskalakis et al., 2017). In this vein, our first study analyses the effect of monetary variables on capital structure.

The following subsections provide a theoretical rationale for the effect of interest rates and liquidity on the capital structure of listed European firms throughout the business cycle. We will focus on the effect of long- and short-term interest rates, spread, and liquidity as reflected in the supply and velocity of money. Additionally, we pay attention to the speed of adjustment of capital structure to its target rate in the different phases of the business cycle.

3.1.1. Interest rates and spread

To better understand the relevance of interest rates, it should be borne in mind that the monetary policy objective set by central banks – in our case the European Central Bank and the Bank of England – focuses on price stability. Our study period is no exception; however, the outbreak of the 2008 crisis brings together a series of peculiarities worth mentioning. The low-interest monetary policy in force prior to the crisis served to over-stimulate the economy. Overheating of economic activity, uncertainty and high interest rates at the end of the period brought to light the bad investments made in the previous period and triggered a drop in real activity. Governments took over from the private sector to boost the economy, generating high public deficit and sovereign debt which threatened their placement in the financial markets.

Even after the outbreak of the crisis, monetary policy continued to play an important role (Gerdesmeier, 2010) as the interest rates on credit facilities and the minimum reserve ratio were reduced. However, the post-crisis period revealed the ineffectiveness of traditional monetary policy tools in stimulating the economy due to the malfunctioning of the interbank market and the difficulty of using official rates at levels close to zero. This led central banks to devise unconventional monetary policies with the aim of expanding the monetary base and the money in circulation, and thus reactivating the economy[1]. One of the most popular measures in this regard was the introduction of asset purchase programmes, generally of public and private debt, which ran in the UK and the European Union from 2009, continuing, albeit less formally, in the latter until 2015[2]. Finally, an episode of sovereign

[1] See, in this regard, Banco de España, Economic Bulletin, January 2013: *The ECB's unconventional monetary policy measures throughout the crisis.*

[2] Such programmes include the Covered Bonds Purchase (CBPP) or the Outright Monetary Transactions Programme (OMT), the European Financial Stability Facility (ESFF) and the European Financial Stability

crisis debt took place during the recession period, although it was more of a threat than a reality for our sample countries, which were cushioned by various measures, such as the European Financial Stability Facility (EFSF) or Mario Draghi's announcement of support for the Euro currency, which led to the sovereign debt purchase programs. The most badly affected countries were Greece, which had to be rescued, and Ireland and Portugal, whereas, in our sample, Spain[3] and Italy[4] experienced a very limited impact.

The influence of interest rates on the cost of debt and their role as a channel for the transmission of monetary policy to the real economy is widely studied in the financial and macroeconomic literature (Taylor, 1995). Interest rates effects are likely to condition firms' investment opportunities and debt financing decisions; and there is, in fact, abundant empirical evidence of a relationship between capital structure and interest rates (Chang et al., 2019; Daskalakis et al., 2017; Frank & Goyal, 2004; Karpavičius & Yu, 2017). Karpavičius & Yu (2017), find evidence based on a US sample of firms during the period 1975–2014, suggesting that the impact of interest rates on firms' leverage is economically insignificant and that adjustments to capital structure are not made on the basis of interest rates. Other studies, such as Daskalakis et al. (2017), or Kajurová & Linnertová (2018), undertaken in a European Union context and amid the recent financial crisis of 2008, find clear evidence to the contrary. Ippolito et al. (2018) and Ciccarelli et al. (2015) state, furthermore, that this influence is even more pronounced in

Mechanism (EFSM). In 2015, the Asset Purchase Programme (APP) was developed for the acquisition of sovereign bonds, securities issued by supranational European institutions, corporate bonds, asset-backed securities and covered bonds.

[3] The yield on Spanish sovereign bonds was never higher than 7%, which was considered by analysts to be the red line above which debt is not placed on the financial markets, as happened in the cases of Greece, Ireland and Portugal, which had to be bailed out (Moody & Mackenzie, 2011).

[4] Italian sovereign debt has a longer than usual maturity which makes the country more resilient to a financial shock (Schmieding et al., 2011).

scenarios with a strong presence of bank debt, such as the European economies.

According to Cook & Tang (2010), one particularly interesting feature of the interest rates pattern, which is considered an indicator of the business cycle phase, is the term spread; that is, the difference between long-term and short-term interest rates. Recently, Chang et al. (2019) have established that, at the beginning of the growth phase, when inflation is still low, the term spread is wide, but that it begins to narrow, towards the end, when the climate turns inflationary. This is the result of asymmetric movement in interest rates, with short-term interest rates increasing more rapidly for several reasons. One is that they are used as a key monetary policy tool for curbing rising inflation (Taylor, 1993). Another is that firms whose cash flow forecasts have failed due to overconfidence may begin seeking short-term refinancing to pay debt maturities (Minsky, 2008). However, as the crisis approaches, savers' short-term expectations fade, their willingness to lend funds in the short-term subsides and interest rates rise. Finally, investment in capital goods leads to an autonomous demand for further capital goods to complement those already produced, and this, when the crisis looms close, encourages firms to demand new short-term finance to complete investment projects into which they have poured significant volumes of resources during the growth phase (Gerald et al., 2009; Huerta De Soto, 2009).

3.1.2. Liquidity preference and velocity of money

Although GDP fluctuations are the traditional business cycle indicators, liquidity is another good business cycle predictor because agents tend to weaken their liquidity position in times of economic expansion and strengthen it in times of crisis. Liquidity influences financing both by lowering the price of money and by increasing its availability. Thus, liquidity is directly linked to another powerful channel of monetary policy transmission: the bank

credit channel, which operates through financial frictions in credit markets (Bernanke & Gertler, 1995; Kashyap & Stein, 2000; Kiyotaki & Moore, 1997; Korajczyk & Levy, 2003; Pindado et al., 2020). Banks play a key role in the financial system because they are particularly effective in solving asymmetric information problems between borrowers and lenders (Fernández et al., 2013; Mishkin, 2017). Also, bank financing can offer greater flexibility when renegotiating credit terms, because banks have more capacity to monitor firms and greater access to private information about them (Boot, 2000; David et al., 2008; Pindado et al., 2017).

Bank credit has a particularly strong influence on the financing decisions of European firms. In what follows, we propose two variables for capturing the power of bank lending as a channel for monetary policy transmission and state our hypothesis for each of them.

By analysing money supply, we are able to study the liquidity of economic agents in relative terms; that is, not by the stock of money on their balance sheets, but by how easily their assets and liabilities can be converted into cash. We propose that a monetary transmission mechanism operates through changes in the liquidity preference of economic agents, which can be measured indirectly through changes in their ratios of monetary aggregates, which include assets with different degrees of liquidity. Thus, our proxy for the liquidity preference of economic agents will be the ratio of more liquid assets (M1 or narrow money) to total monetary aggregates (M3 or broad money) in their balance sheet structure.

The velocity of money is the number of times it moves from one economic agent to another through transactions. Thus, it enables us to measure liquidity in absolute terms, because it represents the number of transactions per unit of currency and unit of time and is inversely related to the average level of cash holdings on the balance sheets of economic agents

per unit of time (Cannan, 1921; Selgin, 2011). The velocity of money increases during economic growth periods (Leao, 2005; Mishkin, 2017), because a monetary policy characterised by low interest rates and a greater stock of money available for lending makes it easier to launch new investment projects and increases the number of transactions in the economy.

3.1.3. Speed of capital structure adjustment

Although the main purpose of this first study is to analyse the relationship between debt levels, macroeconomic variables and business cycles, we must not lose sight of one of the most interesting issues surrounding the capital structure theory in recent years: the speed of adjustment of capital structure to its target rate (Rubio & Sogorb-Mira, 2012), and how it varies between recessions and growth periods.

3.2. Labour market conditions and the corporate financing decision: A European analysis

In the second study, we focus on one of the most important markets for firms: the labour market. At the firm level, previous research has analysed the relationship between firm leverage and labour demand (Funke et al., 1999; Basu, 2015) or employee treatment (Bae et al., 2011). Nevertheless, we still lack a unifying framework that evidences how labour market conditions might affect corporate capital structure. We therefore posit that capital structure theories must be extended to take account of the labour market features in which the firm operates (Aubert et al., 2017). In this way, we respond to the demands made in recent studies, such as Matsa (2018), calling for empirical analyses of how a company's workforce affects its corporate financing decision.

Our second research is related to the extended trade-off theory in the sense that we analyse the relevance of certain indirect costs of financial

distress, related to the labour market, that influence firms' leverage flexibility and bankruptcy risk (Kahl et al., 2014; Serfling, 2016; Chen & Matousek, 2020). The literature has proposed three groups of financial distress indicators (Habib et al., 2020). The first is related to firms' characteristics, the second refers to corporate governance, and the last one includes some country factors such as labour market conditions. The following subsections provide a theoretical rationale together with some specific explanations about the effect of the labour market on capital structure in the context of European listed firms.

3.2.1. Unemployment and inflation

As shown by the Phillips curve, unemployment and inflation are two of the most relevant macroeconomic factors and are related to each other in the short-term (Phillips, 1958; Blanchard, 2017). However, despite the salient role of unemployment and inflation in the labour market, there is still no conclusive evidence regarding their influence on firms' financing decision (Camara, 2012; Mokhova & Zinecker, 2014). Akyol & Verwijmeren (2013) find a positive relationship between financial leverage and wages, and between wages and unemployment, both in the United States and in the Netherlands, whereas Mokhova & Zinecker (2014) conclude that this relationship can be either positive or negative for a sample from seven European countries.

As far as inflation is concerned, the evidence is not conclusive. Whereas some papers report that inflation does not exert a significant influence on leverage (Bastos et al., 2009; Daskalakis, 2017), other authors control for inflation when studying firms' debt ratios (Antoniou et al., 2008). Some authors have shown a positive relationship between leverage and inflation, although the significance depends on the model specifications (Hanousek & Shamshur, 2011; Zhou et al., 2016; Huong, 2018). In contrast, other papers

report a negative relationship as a result of inflation uncertainty, which increases business risk (Aggarwal & Kyaw, 2006), or even a sign-changing relationship depending on the country analysed (Skulanova, 2019).

3.2.2. Labour market imperfections: employees' rights

In addition to the above-mentioned factors, there are also some imperfections in the labour market that can cause serious adjustment problems between labour supply and demand and which, in turn, can have a significant impact on firms' financing decision. We focus on two of these imperfections: employees' legal protection and downward wage rigidity.

As regards employees' rights, we can distinguish between direct rights (i.e., those that increase employee power during negotiations) and indirect rights (those that enhance employee power not to reach an agreement and to remain unemployed). In any case, the sign of the final impact on capital structure is unclear since there are arguments to support both a positive and a negative relationship with corporate financial leverage.

Direct labour rights can be positively related to financial leverage for two main reasons. First, when employees are endowed with more legal protection and feel safer, they might reduce their demands on the firm, and firms might take advantage of this lower pressure in order to increase financial leverage. The literature has shown that higher firing costs reduce the dismissal risk and the premium wage that employees demand to make up for it, allowing higher leverage (Agrawal & Matsa, 2013; Serfling, 2016). Additionally, debt can be used as a strategic tool to strengthen firms' bargaining power with employees and to fight their demands (Hennessy & Livdan, 2009; Serfling, 2013; Matsa, 2010; 2018; Ellul & Pagano, 2019).

There may also be a positive relationship between indirect labour rights and financial leverage. When the perceived risk of unemployment is high,

workers will demand better salary conditions, which increases the operational risk and should have a negative impact on a firm's financial leverage. Consequently, unemployment risk and the compensation that employees demand may be reduced if firms maintain conservative financial policies that reduce leverage and financial distress (Sharpe, 1994; Hanka, 1998; Falato & Liang, 2015). Nevertheless, if unemployment insurance laws are strong, firms react to this lower unemployment risk with more levered capital structures (Agrawal & Matsa, 2013; Brown & Matsa, 2016). Indeed, Ben-Nasr (2019) recently found evidence that unemployment insurance benefits in the USA have reduced unemployment risk and have led to an increase in bank debt.

However, the relationship between direct labour rights and leverage might also be negative. Some research shows that better legal protection could increase operational fixed costs, hinder workforce adjustments, and increase the likelihood of financial distress (MacKay, 2003; Serfling, 2013; Simintzi et al., 2015; Serfling, 2016; Suzuki & Zushi, 2020). Hiring and firing costs as well as unions are good examples of these direct labour rights that have an effect on workforce adjustment and on operating leverage (Kuzmina, 2013; Simintzi et al., 2015; Woods et al., 2019). In order to face up to this risk, firms might decrease their financial leverage (Dugan et al., 1994; Mauer & Triantis, 1994). Gustafson & Kotter (2018) provide evidence that the financial leverage of US labour intensive firms decreases in response to a federal rise in the minimum wage. In the same vein, Bell & Machin (2018) find that after the minimum wage announcement in 2015 in the UK, expected profits fell significantly, causing a rise in the probability of financial distress.

The negative relationship between employees' indirect labour rights and leverage is also possible. Insofar as employees must allocate their time between work and leisure, wages can be seen as the opportunity cost of free

time (Becker, 1965). Thus, if unemployment insurance benefits were to increase, the opportunity cost of leisure would be diluted, and employees would have less incentive to work. In these conditions, since the firm's bankruptcy is less harmful to employees, they might be willing to negotiate better conditions, and firms will have to accept higher wages in order to keep employees or attract new ones. Jayadev (2007); Onaran (2009) and Stockhammer (2017) find a positive relationship between the size of the welfare state -measured through government social spending- and wages, which proves that a greater welfare state implies greater employee bargaining power. In such conditions, firms could try to alleviate labour pressure by reducing the debt burden.

3.2.3. Labour market imperfections: downward wage rigidity

Broadly speaking, sticky wages prevent firms from adapting to changes in the economic environment and can impact firms' financial solvency as well as their flexibility to deal with new situations. There are three main theories related to the causes of this stickiness. The first argument lies in the so-called menu cost or cost of communicating new prices, which discourages price changes (Mankiw & Reis, 2006). In addition, employers can pay efficiency wages that exceed the average market wage in an attempt to encourage employees to make an optimal effort and to generate an opportunity cost, should they fail to make such an effort and be fired (Shapiro & Stiglitz, 1984). According to the insider-outsider theory (Lindbeck & Snower, 1988), current workers —insiders— can push their wages up because employers prefer not to hire new workers —outsiders— at a lower wage because of the recruitment and training costs and the possible lack of incumbent cooperation with the new workers.

3.3. Shields against uncertainty and capital structure: The role of institutions and corporate diversification in Europe

Despite a longstanding history, traditional financial theories have underestimated the effect of the macroeconomic and institutional environment and corporate strategy on firms' capital structure (Alves & Francisco, 2015; Cappa et al., 2020). In our third study we address this topic by focusing on how economic policy uncertainty - a market imperfection that exacerbates asymmetric information and opportunism - affects capital structure and how countries' institutions and corporate diversification moderate this relationship (You et al., 2018).

The main purpose of our third work is to analyze the relationship between capital structure, economic policy uncertainty, institutional conditions, and corporate diversification. Since there may be interactions among these factors, we first explore how economic policy uncertainty influences capital structure and whether some types of country institutions moderate this relationship. Second, we analyze the effect of corporate diversification, making a distinction between related and unrelated diversification. Finally, we study the moderating role of diversification in the relationship between economic policy uncertainty and capital structure.

3.3.1. Economic policy uncertainty

Uncertainty can be seen as a market imperfection that exacerbates asymmetric information problems and, therefore, the agency conflicts between economic agents. In uncertain environments, debt can alleviate such problems by enhancing a more efficient allocation of resources (Asongu et al., 2017). Empirical literature has analyzed different proxies and kinds of uncertainty, yet without reaching any conclusive findings. One stream – mostly centered on the US market – proposes that uncertainty increases

bankruptcy risks, generating a preference for internal funds and provides evidence of a negative relationship between uncertainty and financial leverage. Measures of uncertainty are stock return volatility (Dierker et al., 2019), asset volatility (Im et al., 2020), and economic policy uncertainty measure (Li & Qiu, 2021; Su et al., 2021; Tran & Phan, 2022). Similar results hold in the Chinese market (Khan et al., 2020) or in international samples (Gungoraydinoglu et al., 2017; Tabash et al., 2022).

However, the relationship between economic policy uncertainty and leverage might also be positive. Harris & Roark (2019) and Ulupinar & Camyar (2020) support this view in the US by analyzing the effect of cash flow volatility and policy uncertainty. In a European context, Moradi & Paulet (2019) find that earnings volatility is positively related to leverage. Similar results are provided by Schwarz & Dalmácio (2020) for Brazilian, and Bajaj et al. (2021) for Indian firms, respectively.

3.3.2. Country shields against uncertainty: institutional conditions

Irrespective of the form, the relationship between uncertainty and financial leverage can be moderated by countries' institutions and culture since they could act as shields to protect firms against market frictions (Hofstede, 2001; Karoly, 2016). In this paper, we focus on three institutions that may in some way impact an uncertain environment: uncertainty avoidance, institutional quality, and financial development.

Uncertainty avoidance shows society's efforts to avoid ambiguity and anxiety when managing life (Hofstede, 1997 and 2001). Rashid et al. (2020) and Zhen *et al.* (2012) report that countries with less uncertainty avoidance exhibit a preference for long-term debt, and Orlova & Harper (2021) find that uncertainty avoidance results in faster debt speed of adjustment.

In addition to cultural factors, countries' institutional characteristics are likely to moderate the uncertainty-capital structure relationship. For instance, Özer & Çam (2021) show that as the institutional environment strengthens, firms decrease their leverage. In the same way, countries' financial development narrows the information gap between firms and investors and is among the most robust determinants of firms' leverage (Graham et al., 2015). Despite this salient role, the direct effect on leverage may be negative (Almeida, Campello, & Weisbach, 2011) or positive (Huang & Shen, 2015; Yarba & Güner, 2020).

3.3.3. Diversification as a strategic firm shield against uncertainty

The empirical evidence on the relationship between diversification and financial leverage is far from unanimous: whereas a positive relationship has been found among US (Chkir & Cosset, 2001; Singh et al., 2003) and Italian (Cappa et al., 2020; La Rocca et al., 2009) firms, other studies report a negative relationship for Singapore firms (Lim et al., 2009) or no significant relationship among Spanish (Menéndez-Alonso; 2003) and French (Jouida, 2018) firms.

Three main theories have largely contributed to explain the influence of corporate diversification on firms' capital structure. The co-insurance effect theory (Kim & McConnell, 1977; Lewellen, 1971) establishes that diversification reduces bankruptcy risk and facilitates debt issuance by combining investment projects whose earnings are not perfectly correlated, which reduces the volatility of firms' profits. The co-insurance effect therefore suggests a positive relationship between the degree of firm diversification and leverage, which may be more intense in the case of unrelated diversification strategies. In this vein, Shleifer & Vishny (1992) argue that optimal debt levels are limited by the risk of asset illiquidity and find that conglomerates and multidivisional firms have a higher optimal debt level.

The second theoretical approach is the transaction cost theory (Williamson, 1988). According to this theory, non-specific assets facilitate leverage because they retain their value in the case of default or liquidation, providing security for debtholders and reducing the cost of capital. Transaction cost theory thus predicts a positive relationship between leverage and the degree of firm diversification. Since related diversification would be carried out mainly through specific assets, while unrelated diversification would be useful when a large amount of non-specific assets exist, the transaction cost theory suggests that the diversification effect of a firm's leverage will be greater in the case of unrelated diversification.

Finally, agency theory suggests that the expected effect of diversification on agency costs is unclear. On the one hand, it can exacerbate shareholder-manager conflicts by increasing the company resources under discretional managerial control, enabling sub-optimal risk policies, or using inefficient business units for cross-subsidization (Fuente & Velasco, 2020; He, 2012; Lamont & Polk, 2001; Meyer et al., 1992; Rajan et al., 2000; Scharfstein & Stein, 2000). On the other hand, diversification lowers cash flow volatility and improves investment efficiency via internal capital markets (Matsusaka & Nanda, 2002; Stein, 1997).

4. HYPOTHESES

Following the literature review, in this section we summarize the theoretical arguments that lead us to establish the hypotheses that we will empirically test. As the previous section, it is organised following the empirical analysis. After developing the hypotheses related to interest rates and liquidity, we propose the ones on the labour market literature and finally those associated with economic policy uncertainty.

4.1. Interest rates, liquidity and the corporate financing decision throughout the business cycle: A European analysis

4.1.1. Interest rates and spread

Economic growth is usually accompanied by a monetary policy under which low interest rates encourage credit usage (Beck et al., 2017), thereby causing an increase in corporate indebtedness. Nevertheless, we observe a positive relationship between interest rates and leverage throughout the business cycle (Daskalakis et al., 2017; Kajurová & Linnertová, 2018). The reason for this apparent contradiction is that debt remains attractive as long as the increasing interest rates of the growth phase do not surpass the expected profit margin on new projects. In the early stages of the growth phase, interest rates are lowered to bolster the economy, but firms need time to reduce their debt overhang from the preceding recession. Once bankruptcy costs drop to a tolerable level, low interest rates spur firms to debt-finance new profitable investments. However, excessively low interest rates encourage firms to make new, very long-term investments and to neglect present consumption needs (Garrison, 2001; Rothbard, 2004), which results in overinvestment in projects involving future consumption and underinvestment in those involving current consumption. Such overinvestment in the growth phase is frequently linked by researchers to

events in the subsequent recession (Barro, 2006; Reinhart & Rogoff, 2009). The market compensates for this current goods supply shortage by upwardly adjusting current and expected inflation rates; this being reflected in initially low but rising interest rates that eventually freeze investment and credit. In the growth phase, therefore, the relationship between interest rates and leverage is positive.

Additionally, the growth phase starts with a wide spread, inherited from the end of the previous recession phase, in the anticipation of investment opportunities (Cook & Tang, 2010; Estrella & Mishkin, 1996, 1998; Korajczyk & Levy, 2003) and the desire for increased leverage in a context of low interest rates. However, as the growth phase nears its end, disparately increasing long and short-term interest rates cause a narrowing of the spread and, thereby, a reduction in investment opportunities while leverage continues to grow, albeit at lower rates. In the growth phase, therefore, the relationship between spread and leverage is negative

The recession phase of the cycle, meanwhile, is characterised by widespread liquidation of bad investments undertaken during the growth phase; because many businesses cease to be profitable as inflation drives up interest rates (Hayek, 1931). In this situation, although monetary authorities reduce interest rates to revive the economy, businesses cannot immediately take advantage of the lower financing costs. The main strategic objective of businesses is not to grow, but to achieve financial security by reducing bankruptcy risk and shrinking the indebtedness hanging over from the growth phase. The term spread increases with the recession, because interest rates start to drop; but, despite having shown a sharper rise during the growth phase, the short-term rate now drops more heavily than the long-term rate, because it is more sensitive to the phase of the business cycle for the reasons given in the previous paragraph. That is, a broad term spread

indicates low investment opportunities and high bankruptcy costs (Cook & Tang, 2010). During the recession, therefore, leverage is positively related with interest rates and negatively related with the term spread. The above reasons lead to the following research hypotheses:

H1: The relationship between leverage and the long-term interest rate is positive.

H2: The relationship between leverage and the short-term interest rate is positive.

H3: The relationship between leverage and term spread is negative.

4.1.2. Liquidity preference and velocity of money

During the growth phase, the ratio of narrow to broad money decreases, thereby reflecting a tendency on the part of economic agents, encouraged by a relaxed monetary policy, to shift towards less liquid balance sheet compositions. This global degradation in the degree of relative liquidity leads to higher illiquidity risk, which is fostered by the bank system in two ways. Firstly, the monetary authority reduces interest rates (Taylor, 1995), especially short-term rates, thereby cutting the cost of debt. Furthermore, given the information asymmetry between lenders and borrowers, the bank credit channel enables an increase in the stock of bank deposits available for lending (Bernanke & Gertler, 1995), especially in the short term. Secondly, during the growth phase, banks perform uncoordinated credit expansion (Hayek, 1931; Huerta De Soto, 2009; Mises, 1912) by transforming cheap short-term deposits into cheap long-term financing, thus increasing the amount of profitable long-term investments financed with debt. In this way, firms not only reduce the liquidity of their assets, but also go deeper into debt, thus increasing their illiquidity risk and bankruptcy costs. Under recessions, on the other hand, the ratio of narrow to broad money grows, reflecting a move among economic agents towards more liquid balance sheet structures

looking for financial security. On the credit supply side of the economy during the recession period that concerns us, despite banks obtaining credit from the central bank, it was some time before bank loans to firms were resumed. Banks feared non-recovery of loans granted during the growth phase and therefore replaced their demand for credit from the central bank with a demand for liquidity while waiting for companies to recover financially and reorient their productive system towards new profitable investments, thus preventing a zombification of the economy. Meanwhile, on the credit demand side, amid declining profitability and the lack of good investment opportunities, firms increased their liquidity demand in order to reduce potential bankruptcy costs. This process enables bank systems to increase their money reserves by reducing their business debt collection rights, while firms improve their liquidity by reducing their payment obligations to banks. This alleviates the illiquidity risk incurred by firms during the growth phase due to bank loans backed by investment projects with excessive insolvency risk. The above leads us to consider the following hypothesis:

H4: The relationship between leverage and the ratio of narrow to broad money is negative.

Higher velocity implies lower average corporate cash holdings and less likelihood of the discretionary use of resources by managers facing free cash flow problems (Jensen, 1986). Thus, conflicts due to information asymmetry between shareholders and debt holders are mitigated and firms have easier access to credit markets. When a recession looms, the liquidation of investments hatched in the heat of an excessive reduction of interest rates reduces the volume of economic transactions, slowing down the velocity of money and encouraging firms to build up their cash reserves. This cash boost increases adverse selection and moral hazard problems between the firm and its lenders. In these circumstances, firms' access to credit is more likely to be

hampered by the discretionary use of resources by managers. Based on these arguments, we posit the following hypothesis:

H5: The relationship between leverage and the velocity of money is positive.

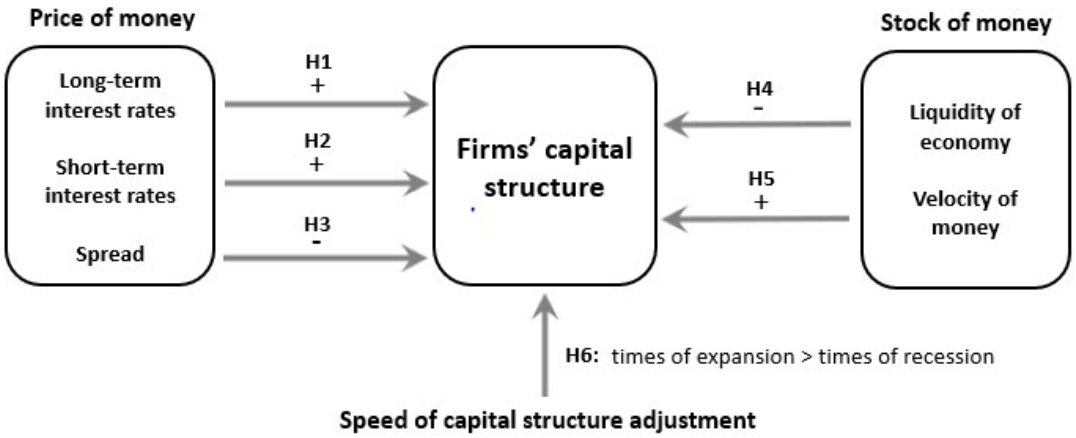
4.1.3. Speed of capital structure adjustment

According to theory, capital structure adjusts more quickly to its target ratio during good times than bad. Easier access to capital markets during economic growth periods provides greater scope for debt adjustments (Cook & Tang, 2010; Hackbarth et al., 2006). Recessions, however, lead to greater bankruptcy risk and information asymmetry, making it difficult to issue securities, limiting the supply of capital and slowing the capital structure adjustment process (Drobetz et al., 2015; Halling et al., 2016). This insistence of the last decade of financial literature on a pro-cyclical relationship between the speed of adjustment and the macro economy leads us to this simple research hypothesis:

H6: Capital structure adjustment is faster in times of expansion than in times of recession.

The hypotheses are summarized in Figure 1:

Figure 1. Monetary policy and capital structure in Europe



4.2. Labour market conditions and the corporate financing decision: A European analysis

4.2.1. Unemployment and inflation

During the expansive phase of the business cycle, the decreasing unemployment rate is likely to have a positive relationship with financial leverage for two reasons. First, higher employee consumption resulting from low unemployment improves firms' cash flows, thereby easing access to external funds (Mishkin, 2017). Second, employees require less additional compensation for the unemployment risk (Graham et al., 2016), which increases firms' financial performance and reduces bankruptcy costs. The opposite occurs in the contractive phase of the business cycle. Thus, we could expect a negative relationship between unemployment rates and financial leverage, such that we state our first hypothesis as follows:

H7: Unemployment is negatively related to corporate financial leverage.

During the expansive phase of the business cycle, inflation usually increases, which enhances firms' financial leverage for two reasons (Chang et al., 2019); firstly, because it alleviates pressure on real wages (Keynes, 1936; Olivera, 1964; Tobin, 1972; Akerlof et al., 1996; Elsby, 2009) and thus reduces operational leverage, and secondly because the real or current value of debt decreases. In the contractive phase, there is a deflationary climate that increases the pressure on real wages and on the real value of debt. This pressure hampers firms' leverage due to rising bankruptcy costs. Consequently, we state our second hypothesis as follows:

H8: The relationship between corporate leverage and inflation is positive.

4.2.2. Labour market imperfections: employees' rights

We propose a non-linear relationship between (direct or indirect) labour rights and financial leverage. In the initial stage, when these rights grow but are still low, employees' bargaining power remains weak, and firms are able to increase their leverage. In contrast, when labour rights are high, employees' bargaining power will be strong, and firms will alleviate this pressure by decreasing leverage. The above reasons lead to the following hypothesis:

H9: The relationship between leverage and employees' labour rights is an inverted U-shape: positive for low levels of rights and negative for high levels of rights.

4.2.3. Labour market imperfections: downward wage rigidity

The literature has repeatedly found that firms are reluctant to cut wages even during downturns (Dickens et al., 2007; Bertola et al., 2012). Park & Shin (2019) have even found the degree of downward nominal wage rigidity to be countercyclical in the Korean labour market, and that this relationship becomes stronger during a deflationary recession. Schoefer (2015) and Matsa (2018) report that the burden associated with rigid wages increases firms' operating leverage, causes bankruptcies and leads to a reduction in firms' optimal financial leverage. As a consequence, we can expect a negative relationship between downward wage rigidity and leverage. Nevertheless, the competition level of the goods and services market in which firms operate could moderate this negative relationship. If markets are imperfect, firms can set a price equal to the marginal cost plus a price-cost margin that depends on firms' market power (Blanchard, 2017). Thus, in a non-competitive industry, when firms have a certain degree of monopoly power, they can set price-cost mark-ups and alleviate their downward labour cost rigidity. Based

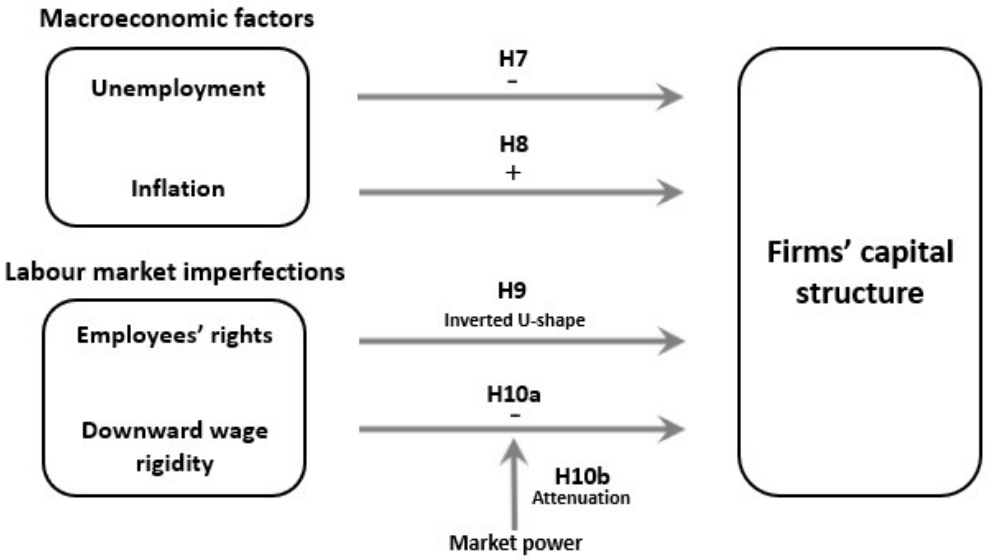
on these arguments, the hypothesis for the relationship between downward wage rigidity and leverage is twofold:

H10a: The relationship between leverage and downward wage rigidity is negative.

H10b: The firm's market power attenuates the negative relationship between leverage and downward wage rigidity.

The hypotheses are summarized in Figure 2:

Figure 2. Labour market and capital structure in Europe



4.3. Shields against uncertainty and capital structure: The role of institutions and corporate diversification in Europe

4.3.1. Economic policy uncertainty

We use a complementary theoretical approach to suggest a positive relationship between economic policy uncertainty and financial leverage. According to the agency theory, uncertainty exacerbates principal-agent problems. We argue that economic policy uncertainty widens the informational gap between firm insiders and outside investors, making

managerial opportunism more likely to occur. Since debt is a mechanism to align the interests of managers and owners, financial leverage can be seen as a way that firms choose to cope with conflicts of interests. The above reasons lead to the following hypothesis:

H11: The relationship between leverage and economic policy uncertainty is positive.

4.3.2. Country shields against uncertainty: institutional conditions

Uncertainty adverse economic agents prefer uniformity and less unstable, volatile, and uncertain sources of funding, such as corporate debt (Mogha & Williams, 2021). In turn, uncertainty avoidance should be positively related to corporate debt. At the same time, we argue that uncertainty avoidance promotes ethical behaviour. Scholtens & Dam (2007) show that uncertainty avoidance is positively associated with a firm's ethical policies. Managerial uncertainty aversion leads them to reduce their opportunism for fear of being caught. Consequently, less pressure can be put on uncertainty averse managers, such that debt is not as necessary as a monitoring mechanism. The above reasons lead to the following pair of hypotheses:

H12a: The relationship between leverage and uncertainty avoidance is positive.

H12b: The relationship between leverage and economic policy uncertainty is negatively moderated by uncertainty avoidance.

Consistent with Özer & Çam (2021), we posit that debt should play a less relevant role as a control mechanism in contexts where there is better institutional quality (Karpavicius & Yu, 2017). Besides, by decreasing the informational frictions in capital markets (Graham et al., 2015), financial

development replaces corporate debt as a governance mechanism. The above reasons lead to the following hypotheses:

H12c: The relationship between leverage and economic policy uncertainty is negatively moderated by institutional quality.

H12d: The relationship between leverage and economic policy uncertainty is negatively moderated by financial development.

4.3.3. Diversification as a strategic firm shield against uncertainty

We posit that corporate diversification reduces bankruptcy risk and facilitates borrowing since the beneficial effects of corporate diversification dominate the dubious increase in agency costs for the reasons mentioned in the literature review section (Aivazian et al., 2015; Bielstein et al. 2018). Furthermore, there could be different effects depending on the type of diversification. According to this view, and by pursuing financial rather than productive synergies, unrelated diversification implies a higher co-insurance effect and lower asset specificity, which proves to be more influential in reducing the risk of failure. As a consequence, we propose the following hypotheses:

H13a: The relationship between leverage and corporate diversification is positive.

H13b: The relationship between leverage and corporate diversification is stronger for unrelated than for related diversification.

Corporate diversification is not only the result of firm-level factors but can be related to environment characteristics (Ashraf et al. 2016; Boubakri et al. 2017; Campa & Kedia 2002). Given the coinsurance channel and the predictions of the classical financial portfolio theory, diversified firms might be less risky and, in turn, less vulnerable to economic policy uncertainty

(Hund et al., 2013; Mammen et al., 2021). Hoang et al. (2021) prove that diversified firms benefit during the economic uncertainty. Economic uncertainty could increase the corporate risk such that firms get diversified as a response to the rising risk. This fact is consistent with the idea that diversification attenuates the risk impact.

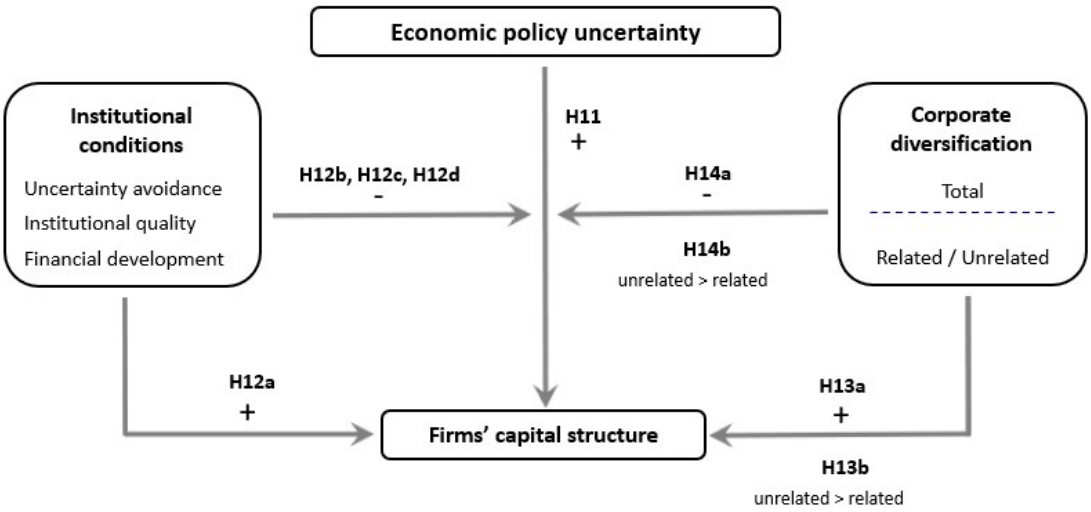
Since we consider corporate leverage as a disciplinary mechanism to reduce the managerial discretionary behaviour enabled by an uncertain economic environment, it follows that debt is less necessary when the corporate diversification weakens the influence of economic policy uncertainty. In turn, we posit a moderating role of corporate diversification on the relationship between economic policy uncertainty and leverage. Although this holds for both types of diversification, the coinsurance effect enabled by unrelated diversification is more intense than by the related one. In turn, we put forward the following hypotheses:

H14a: Corporate diversification reduces the positive influence of economic policy uncertainty on leverage.

H14b: The moderating effect of unrelated diversification on the relationship between economic policy uncertainty and leverage is stronger than that of related diversification.

The hypotheses are summarized in Figure 3:

Figure 3. Economic policy uncertainty and capital structure in Europe



5. EMPIRICAL DESIGN

In this section we describe the empirical research. The definition of all the variables used is summarized in Appendix A. We follow the same structure as in previous sections.

5.1. Interest rates, liquidity and the corporate financing decision throughout the business cycle: A European analysis

5.1.1. Sample and method

The sample includes all the non-financial listed firms from five European Union countries (Germany, Spain, France, Italy, and the United Kingdom) covered in the ORBIS database by Bureau van Dijk. The macroeconomic data on interest rates and monetary supply for each country were obtained from the Thomson and Eurostat databases. We removed those observations with negative equity or missing values for the variables considered in our estimation models. Although the initial sample comprises 2,892 nonfinancial firms, the application of these filters left us without full firm/year data. This resulted in an unbalanced panel with 15,335 firm-year observations of 2,193 firms from different sectors for the period 2003 to 2013[5]. To avoid distortion from outliers, all variables are winsorised at the 2% level.

The distribution of the sample (firms and observations) by country of origin is given in Table 1, which shows that Germany and the UK have a higher representation in the sample (23% and 33%) than the lower percentages of Spain and Italy (5% and 9%, respectively).

[5] Although data are available from 2002, the final sample period covers the period 2003–2013 since some of the variables used in our estimates are lagged.

Table 1. Distribution of the sample by countries

Countries	Companies	%	Observations	%
Germany	503	22.94%	3,600	23.48%
Spain	106	4.83%	800	5.22%
France	614	28.00%	4,505	29.38%
Italy	184	8.39%	1,433	9.34%
U.K.	786	35.84%	4,997	32.59%
Total	2,193	100%	15,335	100%

The empirical analysis includes a descriptive analysis of the main characteristics of the sample. We then check our hypotheses with the subsequent explanatory analysis. To address the endogeneity problem which automatically arises when the lagged dependent variable (leverage) is used as an explanatory variable. One of the most recommended ways of addressing this issue and avoiding inconsistent estimates is by means of generalised method of moments (GMM) estimation (Arellano & Bond, 1991). In this particular case, the system estimator version of GMM (Blundell & Bond, 1998) is applied. This not only corrects problems of simultaneity and observational errors, but also allows for the estimation of robust standard errors by helping to prevent heteroscedasticity and autocorrelation problems.

5.1.2. Model and variables

Based on the fact that firms pursue a target leverage ratio ($LEV_{i,t}^{*}$), the method involves a two-stage, dynamic partial adjustment model (Hovakimian et al., 2001; Flannery & Rangan, 2006; Cook & Tang, 2010; Smith et al., 2014) allowing target debt ratios to vary by firm and time.

In the first stage, the target leverage ratio $LEV_{i,t}^{*}$ is regressed (e.g. Fama & French, 2002; Kayhan & Titman, 2007) against the set of microeconomic (MIC) and macroeconomic (MAC) variables described in section 3.1.

$$\mathrm{LEV}^{*}_{\mathrm{i,t}} = \beta^{0} + \sum_{\mathrm{j}=1}^{5} \beta^{\mathrm{j}} \mathrm{MIC}^{\mathrm{j}}_{\mathrm{i,t}} + \sum_{\mathrm{k}=1}^{5} \gamma^{\mathrm{k}} \mathrm{MAC}^{\mathrm{k}}_{\mathrm{i,t}} + \delta COUNTRY_{\mathrm{i,t}} + \eta_{\mathrm{i}} + \varepsilon_{\mathrm{i,t}} \quad (1)$$

where sub-index i identifies each firm, and sub-index t indicates the observation year. *COUNTRY* is a set of country dummy variables. The second stage considers the fact that high transaction costs can prevent firms from adjusting rapidly from their current leverage $LEV_{i,t}$ to the target $LEV^{*}_{i,t}$. This can lead to a process of partial adjustment (De Miguel & Pindado, 2001) which can be described through the following equation:

$$\mathrm{LEV}_{\mathrm{i,t}} - \mathrm{LEV}_{\mathrm{i,t-1}} = \alpha \left(\mathrm{LEV}^{*}_{\mathrm{i,t}} - \mathrm{LEV}_{\mathrm{i,t-1}}\right) \quad 0 < \alpha < 1 \quad (2)$$

where $LEV_{i,t}$ and $LEV_{i,t-1}$ are current and lagged leverage, respectively, and $LEV^{*}_{i,t}$ is target leverage, regardless of transaction costs.

The coefficient α denotes transaction costs, which, if equal to zero, *i.e.,* $\alpha = 1$, then $LEV_{i,t} = LEV^{*}_{i,t}$ and the firm automatically adjusts to its target leverage. Conversely, if $\alpha = 0$, *then* $LEV_{i,t} = LEV_{i,t-1}$, which implies that the transaction costs are so high that the firm makes no leverage adjustment at all, but remains at the previous level. In intermediate situations, where the value of α is between 0 and 1, firms adjust their leverage in inverse proportion to transaction costs.

Clearing current leverage $LEV_{i,t}$ from equation (2), gives a third equation:

$$\mathrm{LEV}_{\mathrm{i,t}} = \alpha\, \mathrm{LEV}^{*}_{\mathrm{i,t}} + (1 - \alpha)\mathrm{LEV}_{\mathrm{i,t-1}} \quad (3)$$

Finally, by incorporating equation (1) into equation (3) and taking into account that the estimates were obtained from panel data, we obtain the equation for the econometric model that is used to test the proposed hypotheses:

$$\mathrm{LEV_{i,t}} = \alpha\beta^0 + (1-\alpha)\mathrm{LEV_{i,t-1}} + \sum_{j=1}^{5} \alpha\beta^j \mathrm{MIC_{i,t}^j} + \sum_{k=1}^{5} \alpha\gamma^k \mathrm{MAC_{i,t}^k} + \alpha\delta COUNTRY_{i,t} + \alpha\eta_i + \alpha\varepsilon_{i,t} \quad (4)$$

where $\alpha\eta_i$ is the fixed effect of firm i and $\alpha\varepsilon_{i,t}$ is a random disturbance which follows a white noise process.

The reason for the inclusion in the estimation model of so-called fixed effects, that is, the usual firm-specific effects or influences (η_i) usually included in the explanation of capital structure, is to capture so-called 'constant unobservable heterogeneity', for which panel data methodology is recommended.

The dependent variable is the leverage ratio (*LEV1*) of firm i at the end of period t:

$$LEV1_{i,t} = \frac{LTD_{i,t} + STD_{i,t}}{TA_{i,t}}$$

where $LTD_{i,t}$ is the firm's long-term debt excluding risk and pension provisions, deferred taxes and deferred income, $STD_{i,t}$ is its short term debt, and $TA_{i,t}$ is its total assets.

The following is the set of explanatory or independent variables included in the equation to be estimated. A group of six independent variables is used to capture the main microeconomic factors with the potential to explain the leverage ratio:

(1) leverage in the previous period ($LEV1_{t-1}$).

(2) growth opportunities (*MTB*) measured as the sum of the market value of shares plus total debt over total assets. On the one hand, a higher *MTB* ratio reflects valuable growth options, which are better protected by avoiding debt financing (e.g., Flannery & Rangan, 2006; Hovakimian et al., 2004). The pecking order theory, meanwhile, indicates that debt increases when

investment needs exceed retained earnings (Drobetz & Wanzenried, 2006), thus suggesting a positive relationship between the two variables.

(3) profitability (*ROA*) measured as the ratio of profits before interest and taxes (*EBIT*) to total assets. The pecking order theory posits that internal funds are preferred to external ones, such that more profitable firms are less inclined towards debt financing. The trade-off theory, however, argues for a positive relationship whereby the lower bankruptcy risk of profitable firms enables them to handle debt financing more easily.

(4) tax shields (*NDTS*) measured as the ratio of depreciation expenses to total assets. Depreciation is an alternative to debt-service expenses as a means to reduce taxation. An inverse relationship between tax shields and debt is therefore expected (Barton et al., 1989; Prowse, 1990).

(5) tangibility (*TANG*) measured as the percentage of tangible assets over total assets. A higher share of tangible assets reduces the risk of bankruptcy costs and, thus, enables more flexible debt management (Hovakimian et al., 2004; Titman & Wessels, 1988).

(6) firm size (*SIZE*) measured as the natural logarithm of its total assets. Larger firms usually have lower cash-flow volatility, which reduces information asymmetry between management and investors, thus enhancing access to credit (Hovakimian et al., 2004; Rajan & Zingales, 1995).

A second group of five independent variables is included to measure various macroeconomic and business-cycle effects:

(1) long-term interest rates (*LIR*) measured through the ten-year sovereign bond yield;

(2) short-term interest rates (*SIR*) measured through the two-year sovereign bond yield; and

(3) the interest rates spread (*SPR*) measured as the difference between LIR and SIR.

The last two relate to liquidity:

(1) the narrow to broad money ratio (*NBR*) measured as the ratio of M1 to M3 monetary aggregates, and

(2) the velocity of money (*VOM*) measured as the ratio of the nominal GDP to M1 money supply.

The two main components of money supply are money in the broad sense, also termed 'broad money', denoted by M3, which includes time deposits; and money in the strict sense, also termed 'narrow money', denoted by M1, which is the fully liquid part of M3, and includes coins, notes and overnight deposits. Therefore, the narrow to broad money ratio (*NBR*) captures the most liquid portion of M3 and is calculated as follows:

$$NBR = M1/M3$$

The velocity of money (VOM) is obtained through the application of Fisher's quantity theory of money (Fisher, 1911), which is given by the following accounting identity:

$$M1\ x\ VOM = P\ x\ Y$$

where M1 is broad money supply; VOM is the velocity of money in circulation or the number of times that money changes hands; P is the average price level within the economy; and Y is real GDP. Based on the above, the velocity of money (*VOM*) is calculated as:

$$VOM = (PxY)/M1$$

5.2. Labour market conditions and the corporate financing decision: A European analysis

5.2.1. Sample and method

The sample includes all the non-financial listed firms from five European Union countries (Germany, Spain, France, Italy, and the United Kingdom) and is made up of 26,295 firm-year observations from 2,892 firms from different sectors for 2003–2015. Firms' financial information was collected from the Osiris and Orbis databases (Bureau van Dijk). Each country's macroeconomic data are taken from Eurostat, the Organization for Economic Co-operation and Development (OECD), and the International Labor Organization (ILO) databases. Given the heterogeneity in labour laws and reforms across countries we rely on these objective and quantifiable datasets.

The distribution of the sample (countries, firms, and observations) can be seen in Table 2.

Table 2. Distribution of the sample by countries

	Firms	%	Observations	%
Germany	605	20.9%	5,837	22.2%
Spain	130	4.5%	1,122	4.3%
France	718	24.8%	6,854	26.0%
Italy	242	8.4%	2,119	8.1%
U.K.	1,197	41.4%	10,363	39.4%
Total	**2,892**	**100%**	**26,295**	**100%**

Our empirical study includes both a descriptive and an explanatory analysis to check whether labour market conditions affect capital structure. We estimate the model through the dynamic panel data method using the Generalized Method of Moments (GMM), which deals with the individual effects and endogeneity problems to arise from the use of leverage lagged as

an independent variable (Arellano & Bond, 1991). In this particular case, the system estimator version of GMM (Blundell & Bond, 1998) is applied.

5.2.2. Model and variables

Our method is based on the theory of dynamic adjustment of capital structure, according to which firms pursue a target level of financial leverage. We use a dynamic model of partial adjustment in two stages that allows target debt ratios to vary for each firm and over time (Hovakimian et al., 2001).

Our baseline model is as follows:

$$\mathrm{LEV_{i,t}} = \alpha\beta^{0} + (1-\alpha)\mathrm{LEV_{i,t-1}} + \sum_{j=1}^{5} \alpha\beta^{j}\mathrm{MIC_{i,t}^{j}} + \sum_{k=1}^{6} \alpha\gamma^{k}\mathrm{MAC_{i,t}^{k}} + \alpha\delta COUNTRY_{i,t} + \alpha\eta_{i} + \alpha\varepsilon_{i,t}$$

Where sub-index i identifies each firm and sub-index t indicates the observation year. $LEV_{i,t}$ and $LEV_{i,t-1}$ are current and previous leverage, respectively. Our dependent (*LEV*) is regressed against the set of microeconomic (*MIC*) and macroeconomic (*MAC*) variables. *COUNTRY* is a set of country dummy variables. Transaction costs are introduced through the coefficient α. Finally, $\alpha\eta_i$ is the fixed effect of firm i and $\alpha\varepsilon_{i,t}$ is the random disturbance.

Our dependent variable is the leverage ratio (*LEV1*) of firm i at the end of period t:

$$LEV1_{i,t} = \frac{LTD_{i,t} + STD_{i,t}}{TA_{i,t}}$$

where $LTD_{i,t}$ is the firm's long-term debt excluding risk and pension provisions, deferred taxes and deferred income, $STD_{i,t}$ is its short term debt, and $TA_{i,t}$ is its total assets.

Among the independent variables, there is a group of six variables which aim to capture the firm-level characteristics traditionally seen as determinants of leverage (Titman & Wessels, 1988; Rajan & Zingales, 1995; Flannery & Rangan, 2006; Daskalakis et al., 2017; Moradi & Paulet, 2019): 1) Leverage of the previous period ($LEV1_{t-1}$), so as to take into account the partial adjustment to the target leverage as described in more detail in the empirical model section; 2) Growth opportunities (*MTB*), measured as the sum of the equity market value plus total debt scaled by total assets. Myers (1977) predicts an inverse relationship between growth opportunities and leverage as a result of the transfer of wealth to shareholders from creditors; 3) Profitability (*ROA*), measured as the ratio of earnings before interest and taxes (*EBIT*) to total assets. The pecking order theory predicts a negative relationship because of the preference for retained earnings rather than external funds; 4) Non-debt tax shields (*NDTS*), measured as the ratio of depreciation expenses to total assets. Tax deductions might act as a substitute of interest tax shields and decrease leverage; 5) Tangibility (*TANG*), measured as tangible assets to total assets. The more tangible the assets, the more collateral and the greater the ability to alleviate the agency cost of debt; and 6) the size of the firm (*SIZE*), measured as a natural logarithm of total assets. Large firms are usually more diversified and have less cash flow volatility and default probability.

Second, we also include a group of six independent variables that are designed to measure the macroeconomic and institutional environment:

1) the unemployment rate (*UNE*), measured as the number of unemployed people as a percentage of the labour force;

2) the inflation rate (*INF*) is defined as the annual rate of change in the consumer price index;

3) employees' direct rights are measured through three metrics: collective bargaining coverage (*CBC*), defined as the proportion of employees influenced by collective negotiation (Woods et al. 2019); trade union density (*TUD*), defined as the proportion of employees that are trade union members (Matsa, 2010), and the ratio of minimum wages to median wages (Gustafson & Kotter, 2018), (*MWM*);

4) employees' indirect rights are measured with the unemployment protection ratio (*UNP*), defined as the ratio of public spending on unemployment, i.e., expenditure on cash benefits to GDP for people in order to compensate for unemployment. It includes expenditure on different public programmes such as out-of-work income maintenance and support, training, and employment or start-up incentives; and

5) downward wage rigidity (*DWR*) is measured as the wage share, i.e. the proportion of wages to GDP, and is based on the bargaining power theory (Blanchard & Giavazzi, 2003; Stockhammer, 2017);

6) market power is the ability to alter prices relative to levels of competition, for their own benefit (Stoft, 2002). The risk of exercising market power is associated with market concentration (Besanko et al., 2012).[6] We use two measures to quantify market power: the Herfindahl Hirschman index (2-digit SIC level) (*MPH*), which is the sum of the squared percentages of participation of each firm in the market; and market share (2-digit SIC level) (*MPS*), which is the percentage or market share corresponding to each firm.

[6] However, incentives are needed to exert market power since there may be concentrated markets where companies set competitive prices, as the theory of contestable markets points out, given the threat of new competitors (Baumol et al., 1982).

5.3. Shields against uncertainty and capital structure: The role of institutions and corporate diversification in Europe

5.3.1. Sample and method

We study an initial sample that included all the 3,795 non-financial listed firms for the period 2000 to 2019[7] from eleven European Union countries (Germany, Spain, France, Italy, the United Kingdom, Belgium, Netherlands, Sweden, Greece, Ireland, and Croatia) covered in the *Refinitiv Eikon* (formerly Thomson Reuters) database. Countries were chosen on the basis of their representativeness in terms of GDP. Macroeconomic data on economic policy uncertainty were obtained through the *EPU* index[8], uncertainty avoidance is a Hofstede's index, institutional quality was built through four World Bank indicators, and financial development is an International Monetary Financial (IMF) index. These sources of data were also used by Özer & Çam (2021). We removed observations with negative equity or with missing values for the variables included in our models. This resulted in a final sample of 29,760 firm-year observations from 3,175 firms. To avoid outlier distortion, all variables are winsorized at the 2% level.

The distribution of the sample (firms and observations) by country of origin is given in Table 3a. It can be seen that the UK, France, and Sweden have the highest weight in the sample, whereas Croatia and Ireland are the least represented countries. Additionally, Table 3b summarizes the distribution of our sample by diversification status and year. Over one third of the

[7] Although data were retrieved from 2000, the final sample period covers the period 2001-2019 since some of the variables used in our estimates are lagged.

[8] The economic policy uncertainty index was developed by Baker, Bloom, and Davis (2016) and is given full credit in numerous academic studies (Al-Thaqeb and Algharabali, 2019; Perić and Sorić, 2018; Su et al., 2020). The source of data is Baker, Bloom, and Davis's website (http://www.policyuncertainty.com/index.html).

observations (9,117, i.e., 37.72% of the sample) are diversified firms, and 62.28% are unisegment firms.

Table 3a. Distribution of the sample by countries

	Firms	%	Observations	%
Germany	410	12.91%	3,774	12.68%
Spain	136	4.28%	1,325	4.45%
France	518	16.31%	5,006	16.82%
Italy	256	8.06%	2,073	6.97%
UK	1,013	31.91%	10,988	36.92%
Belgium	87	2.74%	1,083	3.64%
Netherlands	81	2.55%	869	2.92%
Sweden	490	15.43%	3,169	10.65%
Greece	117	3.69%	926	3.11%
Ireland	29	0.91%	321	1.08%
Croatia	38	1.20%	226	0.76%
Total	**3,175**	**100%**	**29,760**	**100%**

Table 3b. Distribution of firm year observations by year and diversification status

	Undiversified firms		Diversified firms		
Year	**n**	**%**	**n**	**%**	**Total**
2001	364	71.94%	142	28.06%	506
2002	403	71.45%	161	28.55%	564
2003	440	69.18%	196	30.82%	636
2004	472	66.39%	239	33.61%	711
2005	483	61.06%	308	38.94%	791
2006	539	58.59%	381	41.41%	920
2007	572	56.86%	434	43.14%	1,006
2008	638	56.61%	489	43.39%	1,127
2009	688	56.12%	538	43.88%	1,226
2010	728	55.03%	595	44.97%	1,323
2011	763	53.54%	662	46.46%	1,425
2012	855	58.84%	598	41.16%	1,453
2013	1,047	65.48%	552	34.52%	1,599
2014	1,124	65.96%	580	34.04%	1,704
2015	1,106	66.03%	569	33.97%	1,675
2016	1,131	66.77%	563	33.23%	1,694
2017	1,184	66.78%	589	33.22%	1,773
2018	1,236	63.29%	717	36.71%	1,953
2019	1,277	61.36%	804	38.64%	2,081
Total	**15,050**	**62.28%**	**9,117**	**37.72%**	**24,167**

The empirical analysis includes a descriptive analysis of the main characteristics of the sample. We then check our hypotheses with the subsequent explanatory analysis under a panel data approach (Arellano & Bond, 1991). This methodology allows for firms' fixed effects while also addressing possible endogeneity problems that arise from the use of leverage lagged as an independent variable (Arellano & Bond, 1991). In this particular case, the system estimator version of GMM (Blundell & Bond, 1998) is applied.

5.3.2. Model and variables

Our method is based on the theory of dynamic adjustment of capital structure, according to which firms pursue a target level of financial leverage. We use a dynamic model of partial adjustment in two stages that allows target debt ratios to vary for each firm and over time (Hovakimian et al., 2001).

The main empirical model is presented in the following equation:

$$LEV_{i,t} = \alpha\beta_0 + (1-\alpha)LEV_{i,t-1} + \alpha\beta_1 EPU_{i,t} + \alpha\beta_2 INS_{i,t} + \alpha\beta_3 DIV_{i,t} + \\ + \sum_{n=1}^{5} \alpha\gamma_n CON_{i,t}^{n} + \alpha\delta COUNTRY_{i,t} + \alpha\eta_i + \alpha\varepsilon_{i,t}$$

Where sub-index i identifies each firm and sub-index t indicates the observation year. $LEV_{i,t}$ and $LEV_{i,t-1}$ are current and previous leverage, respectively. Our dependent (*LEV*) is regressed against the set of explanatory (*EPU*: economic policy uncertainty, *INS*: institutional conditions, *DIV*: diversification) and control (*CON*) variables. *COUNTRY* is a set of country dummy variables. Transaction costs are introduced through the coefficient α. Finally, $\alpha\eta_i$ is the fixed effect of firm i and $\alpha\varepsilon_{i,t}$ is the random disturbance.

Our dependent variable is the leverage ratio (*LEV1*) of firm i at the end of period t defined as:

$$LEV1_{i,t} = \frac{LTD_{i,t} + STD_{i,t}}{TA_{i,t}}$$

where $LTD_{i,t}$ is the long-term debt of firm i at the end of period t, $STD_{i,t}$ is the short-term debt, and $TA_{i,t}$ are the total assets.

We use four independent variables to gauge country-level factors. We measure economic policy uncertainty through the EPU index in each country and year. This index is based on the press coverage of policy-related economic uncertainty by the main newspapers in each country. Gulen et al. (2016) indicate that *EPU* refers to the difficulty for economic agents of predicting changes in current economic policy, which leads to economic fluctuations in the economic environment. Because the EPU index is reported monthly, we convert it into annual data to match our data structure using the natural logarithm of the yearly arithmetic average (*EPU*) (Xu, 2020; He et al., 2020). Uncertainty avoidance is measured through the natural logarithm of Hofstede's (2001) uncertainty avoidance index (*UAV*), which indicates the degree to which cultures adapt to changes and cope with uncertain situations. Institutional quality (*INSQ*) is the normalized sum (between 0 and 1, with 1 being the highest quality and 0 the lowest) of four World Bank Worldwide Governance Indicators in each country and year: government effectiveness, regulatory quality, rule of law, and control of corruption (Ellahie & Kaplan, 2021). Financial development is measured through the Financial Development Index[9] (*FDEV*) in each country and year, and ranges between 0 and 1, with 1 being the highest development level and 0 the lowest.

Corporate diversification is measured through three metrics based on entropy indicators that take into account the amount of sales in each business

[9] The index is developed by Svirydzenka (2016) and has been used in recent academic studies**.** It summarizes how developed financial institutions and markets are in terms of depth, access, and efficiency. The source of data for this variable is the IMF website

segment (Jackemin & Berry, 1979). The total level of diversification (*TDIV*) is calculated as $\sum_{j=1}^{n} \mathrm{Pj} * \ln\left(\frac{1}{\mathrm{Pj}}\right)$, where n is the number of a firm's segments (at the 4-digit SIC code level), Pj refers to the proportion of sales in business segment j, and ln(1/Pj) is the weight of the segment. Unlike the Herfindahl index, this variable has the advantage of being divisible into the related and unrelated component of diversification through the Standard Industrial Codes (SIC). The related diversification index (*RDIV*) results from businesses in different four-digit segments, within a two-digit industry group. The unrelated diversification index (*UDIV*) is the result of businesses in different two-digit industry groups.

To enhance the comparability of our results, we use six firm-level control variables that are widely accepted as possible determinants of capital structure. As regards firm-level factors, we control for leverage in the previous period ($LEV1_{t-1}$). Growth opportunities (*MTB*) are measured as the sum of the equity market value plus debt book value over total assets. On the one hand, as stated by the pecking order theory, growth opportunities should be positively related to financial leverage, since debt is the preferred source of funds for new investments when retained earnings are exhausted (Drobetz & Wanzenried, 2006). On the other hand, firms tend to protect future growth options by limiting their leverage (Hovakimian et al., 2004; Flannery & Rangan, 2006). Assets tangibility (*TANG*) is the proportion of tangible assets over total assets. The higher this proportion, the lower the bankruptcy costs and, in turn, the more the advantages of debt (Hovakimian et al., 2004). Firm size (*SIZE*) is measured as the log of total assets. Cash flow volatility is usually lower in larger firms, which reduces credit risks and eases access to credit (Rajan & Zingales, 1995).

Firm performance is measured through *ROA* (return on assets), defined as the ratio of earnings before interest and taxes (*EBIT*) to total assets. The

trade-off theory supports a positive relationship whereby the lower bankruptcy risk of profitable firms decreases the cost of debt. In contrast, the pecking order theory posits that internal funds are preferred to external ones, such that more profitable firms rely on debt to a lesser degree. Non-debt tax shields (*NDTS*) are measured as the ratio of depreciation expenses to total assets. This variable aims to account for means of reducing taxation other than debt-service expenses. Consequently, an inverse relationship between tax shields and debt is expected (Barton et al., 1989; Prowse, 1990).

6. RESULTS

In this section, we show the results of the empirical analyses. For each study, we include a descriptive analysis and the results of the regressions in the explicative analysis, supporting or refusing the hypothesis stated in section 4.

6.1. Interest rates, liquidity and the corporate financing decision throughout the business cycle: A European analysis

6.1.1. Descriptive analysis

Table 4 shows the correlations between the model variables, none of which is high enough to cause collinearity. The exceptions are the macroeconomic variables, which are entered separately.

Table 4. Correlation matrix of the variables

	LEV1	MTB	TANG	SIZE	ROA	NDTS	LIR	SIR	SPR	NBR	VOM
LEV1	1.0000										
MTB	0.0258	1.0000									
TANG	-0.0770	-0.1819	1.0000								
SIZE	0.1066	-0.2222	0.3163	1.0000							
ROA	-0.1113	-0.1924	0.0686	0.3364	1.0000						
NDTS	0.0847	0.0346	0.0827	-0.1095	-0.2765	1.0000					
LIR	0.1017	-0.0395	-0.0051	0.0885	0.0403	-0.0110	1.0000				
SIR	0.0608	0.0129	-0.0261	0.0541	0.0530	-0.0146	0.8575	1.0000			
SPR	0.0012	-0.0638	0.0386	0.0026	-0.0500	0.0128	-0.4503	-0.8446	1.0000		
NBR	-0.1303	0.1085	0.0554	-0.0992	-0.0311	0.0289	-0.4277	-0.1901	-0.1161	1.0000	
VOM	0.0288	0.0497	-0.1162	-0.0265	0.0587	0.0017	0.3733	0.5987	-0.6482	0.1449	1.0000

Correlation coefficients. LEV1: the ratio of long and short term debt to total assets; MTB: the sum of the equity market value plus debt book value over total assets; TANG: the ratio of tangible assets to total assets; SIZE: the natural logarithm of total assets; ROA: the return on assets; NDTS: the ratio of amortization to total assets; LIR: the 10-year sovereign bond interest rate; SIR: the 2-year sovereign bond interest rate; SPR: the difference between the 10- and 2-year sovereign bond interest rates; NBR: the narrow to broad money ratio; VOM: the velocity of money.

Table 5 shows the mean, standard deviation, minimum, maximum and median values of the dependent variable, i.e., the leverage ratio (*LEV1*), and

the two groups of explanatory variables mentioned in the theory and methodology sections, i.e., firm characteristics and macroeconomic variables.

Table 5. Descriptive statistics of the variables for the whole sample

Variable	Obs.	Mean	Std. Dev.	Min.	Max.	Median
LEV1	20,069	.4897	.1972	.0792	.9897	.4945
MTB	19,885	1.6719	1.3349	.5275	7.7122	1.2318
TANG	25,012	.4986	.2602	.0108	.9673	.4968
SIZE	25,012	11.9760	2.4697	6.8491	17.5790	11.7060
ROA	24,778	-.0071	.2253	-1.027	.3009	.0453
NDTS	24,378	.0432	.0460	0	.2411	.0320
LIR	25,178	.0359	.0098	.0160	.0590	.0360
SIR	25,178	.0235	.0174	.0010	.0590	.0230
SPR	25,178	.0126	.0103	-.0150	.0270	.0160
NBR	25,178	.4364	.1243	.0060	.6240	.4710
VOM	25,178	2.678	.7186	1.661	4.310	2.557

Mean, standard deviation, percentiles 25, 50 and 75 of the dependent and independent variables. LEV1: the ratio of long and short term debt to total assets; MTB: the sum of the equity market value plus debt book value over total assets; TANG: the ratio of tangible assets to total assets; SIZE: the natural logarithm of total assets; ROA: the return on assets; NDTS: the ratio of amortization to total assets; LIR: the 10-year sovereign bond interest rate; SIR: the 2-year sovereign bond interest rate; SPR: the difference between the 10- and 2-year sovereign bond interest rates; NBR: the narrow to broad money ratio; VOM: the velocity of money.

Table 6 reports on a means comparison test of the variables between pre- and post-crisis periods.

Among other things, it is worth noting the value of the dependent variable, *LEV1*, which, at around 0.5, is significantly higher in the pre-crisis period, thereafter trending very smoothly towards deleveraging in the recession period. Other mean values of interest are an *MTB* of 1.68 for the whole sample, this being the only variable with no significant differences between the pre- and post-crisis periods. Average profitability, on the other hand, is practically zero, and shows clearly negative values in the recession phase. Tangibility and depreciation expenses account for 50% and 4% of total

assets, respectively, although the trend in their respective values between phases of the cycle, increasing in the first and decreasing in the second.

As for the macro variables, the downward path of interest rates is evident both in the short (2 years) and long term (10 years) with significantly lower values in the post-crisis period, although the spread is higher. Relative liquidity, expressed as the ratio of narrow to broad money, shows that economic agents seek financial security through higher liquidity in times of recession. Moreover, the speed with which money changes hands is significantly slower in this period, indicating less inclination on the part of economic agents to use money in transactions in times of crisis. Finally, the post-crisis period shows significantly lower values in terms of profitability and firm size, albeit with higher tangible asset ratios.

Table 6. Mean comparison

Variable	Pre-crisis	Post-crisis	P-value
LEV1	0.4980	0.4818	0.000***
MTB	1.6824	1.6637	0.326
TANG	0.4799	0.5155	0.000***
SIZE	12.048	11.910	0.000***
ASSETS	1,597,373	1,561,135	0.404
ROA	0.0076	-0.0202	0.000***
NDTS	0.0442	0.0423	0.002***
LIR	0.0426	0.0304	0.000***
SIR	0.0389	0.0101	0.000***
SPR	0.0037	0.0205	0.000***
NBR	0.4231	0.4460	0.000***
VOM	3.2527	2.1895	0.000***

Means for subsamples by first impact of 2008 Crisis. Pre-crisis and Post-crisis columns capture mean values for observations in the pre-crisis period (2003–2008) and the post-crisis period (2009–2013). P-value for t test of mean differences is reported. ASSETS are expressed in millions of US dollars.

Table 7 shows the variables grouped by country. Among other things, it is worth noting the value of the dependent variable, *LEV1*, which is around 0.5, with German firms showing the lowest debt ratio during the sample period and Spanish firms the highest. With respect to growth opportunities

(*MTB*), UK firms have the highest average value, (1.9154), while Italian firms have the lowest, (1.3025). It must also be emphasised, however, that both the Spanish and Italian firms surpass those of the UK in terms of *ROA*.

With respect to the macroeconomic variables for the study period, Spain and Italy have the widest term spreads (*SPR*), while the UK and Germany stand out in terms of the narrow to broad money ratio (*NBR*). The velocity of money (*VOM*) is greatest in France and the UK.

Table 7. Mean values of the variables by country

Variable	Germany	Spain	France	Italy	U.K.	Total
LEV1	.4558	.5492	.5275	.5496	.5363	.4897
MTB	1.629	1.4706	1.5421	1.3025	1.9154	1.6719
TANG	.4797	.5601	.4384	.5171	.5350	.4986
SIZE	11.892	13.610	11.997	13.184	11.599	11.976
ROA	.0150	.0383	.0326	.0327	-.0446	-.0071
NDTS	.0475	.0356	.0402	.0440	.0435	.0432
LIR	.0312	.0447	.0345	.0446	.0366	.0359
SIR	.0185	.0284	.0198	.0283	.0269	.0235
SPR	.0127	.0164	.0151	.0164	.0098	.0126
NBR	.4969	.4587	.3831	.0630	.5029	.4364
VOM	2.700	2.3257	2.9395	1.8757	2.6931	2.6782

Mean of the dependent and independent variables by country. LEV1: the ratio of long and short term debt to total assets; MTB: the sum of the equity market value plus debt book value over total assets; TANG: the ratio of tangible assets to total assets; SIZE: the natural logarithm of total assets; ROA: the return on assets; NDTS: the ratio of amortization to total assets; LIR: the 10-year sovereign bond interest rate; SIR: the 2-year sovereign bond interest rate; SPR: the difference between the 10- and 2-year sovereign bond interest rates; NBR: the narrow to broad money ratio; VOM: the velocity of money.

6.1.2. Explicative analysis

The most relevant results of the explanatory stage of the empirical analysis, that is, the system GMM estimation of the proposed models, are given separately for each phase of the business cycle. Although business cycles neither begin nor end on the same day for all countries, we follow other authors (Bournakis & Mallick, 2018; Daskalakis et al., 2017), by using 2009

as the joint cut-off year. There are several reasons for this decision. Firstly, 2009 was the first year in which the effects of the crisis were felt; GDP growth rate being substantially negative in Europe (−4.30%) and in all the European countries included in our sample[10]. In 2008, the GDP growth rate had been positive in Europe (+0.48%) and in all our sample countries, except the UK and Italy[11]. Secondly, 2009 was the first year marked by massive job destruction in Europe, and the unemployment rate grew by almost 2% despite having decreased the previous year. The exception was Germany, thanks to the flexibility of its labour market (Boysen-Hogrefe & Groll, 2010).

We place the end of the financial crisis in Europe at about the year 2014, when significant GDP growth (+1.75%) and job creation began. This came in contrast to 2013 when the GDP growth rate was close to zero in Europe (+0.29%) and still accompanied by job destruction. Thus, we consider the years 2003 to 2008 as the economic expansion phase and 2009 to 2013 the recession phase. Five different estimations are performed in each phase. In each regression, the same six microeconomic variables are jointly tested, whereas the five macroeconomic variables of interest are introduced one by one.

In Table 8 we show how lagged leverage ($LEV1_{t-1}$) exerts a significant and positive influence in all regressions, indicating a trend of partial adjustment of capital structure to target. There are no substantial differences between estimations in the SOA, which oscillates between 14% and 27%. Both long- and short-term interest rates (*LIR* and *SIR*) have a positive influence on leverage, thus providing support for hypotheses H1 and H2. For

[10] In 2009, the growth rates in GDP were −2.90% in France, −3.80% in Spain, −4.20% in the UK, −5.30% in Italy, and −5.70% in Germany (Data from OCDE and Eurostat, 2020). UK and Italy had positive and negative growth during the different quarters of 2008 with a small and insignificant effect on unemployment (Data from OCDE and Eurostat, 2020).

[11] UK and Italy had positive and negative growth rates during the different quarters of 2008 with a small and insignificant effect on unemployment (Data from OCDE and Eurostat, 2020).

example, a 1% (100 basic points) increase in long-term and short-term interest rates would mean increases of 0.69% and 0.94% in corporate indebtedness in times of recession and expansion, respectively[12]. These results conflict with those obtained by Karpavičius & Yu (2017) using US data for a more extended sample period but fall in line with those of Daskalakis et al. (2017) and Kajurová & Linnertová (2018). The positive sign is a clear indication of the fact that debt remains attractive throughout the growth phase, as long as initially low but rising interest rates do not surpass the expected profit margin on the new investments.

The term spread (*SPR*), meanwhile, has a significant negative influence, confirming the sign of the relationship predicted by hypothesis H3. This phase begins with a wide spread indicating good investment opportunities, which are exploited by resorting to debt financing enabled by an environment of low interest rates. As the cycle runs its course, however, the spread starts to narrow whereas leverage continues to grow.

The estimation results shown in the last two columns confirm the key role played by liquidity as a determinant of capital structure. The negative sign of *NBR* evidences the fact that the increase in the available stock of money, driven by the monetary authority, causes a reduction in the cost of debt, an increase in debt financing and a lowering of the liquidity preference, thus providing support for hypothesis H4. The velocity of money (*VOM*) also has explanatory power to confirm hypothesis H5. New investments increase the speed of money circulation and lead to a reduction in information asymmetry between firms and lenders. Thus, bank borrowing is stimulated and firms gain easier access to debt funding.

[12] Further interpretation of the coefficient, leading to similar conclusions, is omitted for the sake of brevity.

Although the main focus of this study is on the influence of macroeconomic variables, it also concerns itself with the microeconomic determinants typically featured in the financial literature. However, for the sake of brevity and simplicity, a short summary of the results for said variables is given at the end of the report on each business cycle phase.

The results for the effects of the microeconomic variables on the capital structure of the sample firms during the growth phase reveal some fairly stable relationships. Worth mentioning are the negative sign shown by economic profitability (*ROA*) and the positive sign by non-debt tax shields (*NDTS*). The negative link with *ROA* is a manifestation of the pecking order theory described by Myers & Majluf (1984), whereby firms generating internal resources tend to elude debt financing. The positive sign of the *NDTS* provides no support for the fiscal theory on the use of debt; and the use of amortisation expenses exemplifies resorting to fixed assets as collateral to enable further borrowing (DeAngelo & Masulis, 1980). Size (*SIZE*), on the other hand, is significant (and positive) only in the first and last regression, while growth opportunities (*MTB*) behave as predicted by agency theory, showing negative significance in four of the estimations. Finally, the tangibility (*TANG*) coefficient is positive in the fourth regression, as predicted, but shows a negative sign in the last column.

Finally, a couple of clarifications to the above are worth making. Firstly, note that it is clearly indicated in Table 8 when, as in this first regression, the country dummies included in the estimation are not jointly significant. The significance (non-significance) of the country dummies in the remaining regressions will be indicated by YES (NO). The AR2 and Hansen statistics, in all cases, show the expected values. The p-value of second order correlation between the residuals indicates the absence of serial correlation, while the p-

value for the Hansen statistic indicates the absence of any significant correlation between the instruments and the residuals.

Table 8. Growth phase of the business cycle

	(1)	(2)	(3)	(4)	(5)
$LEV1_{t-1}$	0.7481***	0.7861***	0.7335***	0.7494***	0.8652***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
MTB	-0.0114**	-0.0137*	-0.0386***	0.0254*	-0.0053**
	(0.0115)	(0.0815)	(0.0000)	(0.0680)	(0.0218)
TANG	-0.0855	-0.0917	-0.1158	0.4741**	-0.0666***
	(0.1054)	(0.4296)	(0.3505)	(0.0143)	(0.0003)
SIZE	0.0178**	0.0059	-0.0022	-0.0093	0.0145***
	(0.0126)	(0.5979)	(0.8433)	(0.5494)	(0.0008)
ROA	-0.1330***	-0.1089**	-0.0119	-0.0470	-0.1633***
	(0.0008)	(0.0306)	(0.7927)	(0.4563)	(0.0076)
NDTS	0.9042**	0.5159**	0.4574**	0.8464**	1.1104***
	(0.0107)	(0.0173)	(0.0325)	(0.0500)	(0.0004)
LIR	0.6916*				
	(0.0750)				
SIR		0.9417**			
		(0.0342)			
SPR			-2.1894***		
			(0.0039)		
NBR				-0.4518***	
				(0.0081)	
VOM					0.0245*
					(0.0518)
Country dummies	NO	NO	NO	YES	YES
Observations	6,656	6,656	6,656	6,656	6,656
Wald test	773.7***	759.5***	151.4***	283.8***	513.1***
AR1	-5.594***	-6.268***	-8.005***	-8.105***	-5.841***
AR2	1.821	1.406	1.349	1.696	1.797
Hansen test	21.46	20.08	21.50	20.47	14.87

Estimated coefficients (p-values) of the GMM estimation. The dependent variable $LEV1_t$ is defined as the ratio of long-term debt excluding provision, pension fund provisions, deferred taxes and deferred income and short term debt to total assets at the end of period t; $LEV1_{t-1}$: debt ratio at time t-1; MTB: growth opportunities; TANG: tangibility of assets; SIZE: natural logarithm of the total volume of assets; ROA: EBIT/total assets; NDTS: amortisation over total assets; LIR: the 10-year sovereign bond interest rate; SIR: the 2-year sovereign bond interest rate; SPR: the difference between the 10- and 2-year sovereign bond interest rates; NBR: narrow to broad money ratio; VOM: velocity of money. Country dummies for firms' country of origin: Germany, France, Spain, Italy, or the United Kingdom. Estimated coefficients and p-values (P>|z|) in parentheses. The joint significance of the explanatory variables is tested by the Wald test. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients and tests the validity of the instruments. ***, **, * denote statistical significance at the 1%, 5% and 10% level.

Although Table 4 suggests no significant correlation between independent variables, the values of a subsequent VIF analysis (Table 9) are well below 10, thereby indicating the absence of multicollinearity. Significant correlations observed with the joint introduction of the macro variables led us to make estimates in separate columns. The remaining VIF analyses, which, in any case, yield similar values to those reflected in Table 9, are omitted for the sake of brevity.

Table 9. VIF analysis

Variable	VIF	1/VIF
$LEV1_{t-1}$	1.05	0.9512
MTB	1.26	0.7925
TANG	1.13	0.8843
SIZE	1.16	0.8584
ROA	1.26	0.7942
NDTS	1.01	0.9919
LIR	1.04	0.9645
NDTS	1.07	0.9350

Variance inflation factor. LEV1: the ratio of long and short term debt to total assets; MTB: the sum of the equity market value plus debt book value over total assets; TANG: the ratio of tangible assets to total assets; SIZE: the natural logarithm of total assets; ROA: the return on assets; NDTS: the ratio of amortization to total assets; LIR: the 10-year sovereign bond interest rate; SIR: the 2-year sovereign bond interest rate; SPR: the difference between the 10- and 2-year sovereign bond interest rates; NBR: the narrow to broad money ratio; VOM: the velocity of money.

Table 10 shows how leverage (*LEV1*) is explained by lagged leverage ($LEV1_{t-1}$), microeconomic variables and macroeconomic variables in the recession phase. In the five estimates reported in the columns of Table 10, lagged leverage exerts a positive and significant influence on the dependent variable. In all of them we can verify that the adjustment speed adopts similar values, but these are lower than the growth phase estimates given in Table 8.

With respect to the macroeconomic variables, long-term interest rates (*LIR*) and short-term interest rates (*SIR*) have a positive influence on the firm's level of indebtedness, thus confirming the positive relationship outlined in hypotheses H1 and H2. For example, a 1% (100 basic points)

increase in long-term and short-term interest rates would mean increases of 7.80% and 1.51% in corporate indebtedness, respectively. In the same vein, the term spread (*SPR*) has a significant and negative influence on leverage, thereby validating H3 in this phase. The positive impact of interest rates on the debt rate in this phase of the cycle shows how the low interest rate policy implemented by the monetary authority focuses on revitalising economic activity and investment but has no effect on firm leverage. The cost of debt, proxied by interest rates, decreases, and investment opportunities increase as a result of a growing spread. However, the prevailing climate of uncertainty prevents firms from taking immediate advantage of these circumstances and turns their strategic focus towards achieving financial security by reducing their debt hangover from the growth years.

The hypotheses relating to liquidity (H4 and H5) are also confirmed in the recession period after 2008. Firms try to improve their balance structures by increasing their liquidity positions and lowering their leverage, which ultimately leads to a negative relationship between the narrow-to-broad money ratio (*NBR*) and debt. At the same time, the lower volume of transactions carried out during this phase reduces the velocity of money (*VOM*), thereby increasing information asymmetry between firms and their lenders and discouraging borrowing from banks.

Table 10. Recession phase of the business cycle

	(1)	(2)	(3)	(4)	(5)
$LEV1_{t-1}$	0.9033***	0.7851***	0.8623***	0.8131**	0.8782***
	(0.0000)	(0.0000)	(0.0000)	(0.0122)	(0.0000)
MTB	0.0613***	-0.0005	-0.0124**	0.0682	0.0022***
	(0.0023)	(0.4684)	(0.0451)	(0.3257)	(0.0005)
TANG	0.0525	-0.0027	-0.0072	-1.8007**	0.0524
	(0.8497)	(0.9338)	(0.7048)	(0.0425)	(0.1511)
SIZE	0.0725***	0.0070***	0.0054	0.1032*	0.0203**
	(0.0043)	(0.0000)	(0.4711)	(0.0948)	(0.0300)
ROA	0.0128***	0.0023	-0.1381***	0.0070	-0.0072***
	(0.0086)	(0.5886)	(0.0087)	(0.7897)	(0.0006)
NDTS	-1.3983*	0.2076**	-0.0375	14.0337**	0.1409***
	(0.0810)	(0.0107)	(0.8487)	(0.0379)	(0.0003)
LIR	7.8038***				
	(0.0000)				
SIR		1.5065***			
		(0.0000)			
SPR			-1.9557***		
			(0.0000)		
NBR				-1.9923**	
				(0.0262)	
VOM					0.1171***
					(0.0000)
Country dummies	NO	NO	NO	NO	YES
Observations	8,679	8,679	8,679	8,679	8,679
Wald test	126.3***	1867***	2954***	18.14***	237.5***
AR1	-2.257***	-11.41***	-10.06***	-2.184***	-8.651***
AR2	-1.527	0.224	0.009	-1.466	0.0548
Hansen test	9.352	50.26	32.93	0.946	14.07

Estimated coefficients (p-values) of the GMM estimation. The dependent variable $LEV1_t$ is defined as the ratio of long-term debt excluding provision, pension fund provisions, deferred taxes and deferred income and short term debt to total assets at the end of period t; $LEV1_{t-1}$: debt ratio at time t-1; MTB: growth opportunities; TANG: tangibility of assets; SIZE: natural logarithm of the total volume of assets; ROA: EBIT/total assets; NDTS: amortisation over total assets; LIR: the 10-year sovereign bond interest rate; SIR: the 2-year sovereign bond interest rate; SPR: the difference between the 10- and 2-year sovereign bond interest rates; NBR: narrow to broad money ratio; VOM: velocity of money. Country dummies for firms' country of origin: Germany, France, Spain, Italy, or the United Kingdom. Estimated coefficients and p-values (P>|z|) in parentheses. The Wald test contrasts the joint significance of the explanatory variables. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients and tests the validity of the instruments. ***, **, * denote statistical significance at the 1%, 5% and 10% level.

Turning to the results for the recession years, a couple of points are worth mentioning in relation to the microeconomic variables. One is that, in general terms, *NDTS*, *SIZE* and *ROA* maintain the same sign as in the growth phase. The influence of *SIZE* is unsurprising, since their greater knowledge of the market makes large firms more prone to use debt, especially during weaker economic conditions. The other notable findings are the changes in the Market-to-Book (*MTB*) ratio estimates during recessions; this variable loses significance and changes its sign from negative to positive in two of the estimates. Finally, tangibility (*TANG*) plays a testimonial role, showing a negative influence only in the fourth estimation. In this case, a higher proportion of fixed assets or collateral does not imply an increase in firms' indebtedness.

A final comment remains to be made with respect to hypothesis H6, which deals with the speed of adjustment to the target debt ratio in the different phases of the cycle. The first thing to be noted is the consistency of this parameter throughout the different regressions, with values oscillating between 10% and 27%. The average speed values are 22.35% for the growth phase and 15.16% for the recession phase, which validates a pro- cyclical relationship between the speed of adjustment and the macro economy.

6.1.3. Robustness analysis

In order to test the consistency of our results, we now perform some robustness analyses using a different measure of the dependent variable (*LEV2*):

$$LEV2_{i,t} = \frac{TLD_{i,t}}{TA_{i,t}}$$

where $TLD_{i,t}$ is the total liabilities and debt of firm i at the end of period t, and $TA_{i,t}$ are the total assets of firm i at the end of period t.

In Table 11, we examine the influence of macroeconomic variables on capital structure in the growth and recession phases (panel A and panel B). In the first two columns of each panel, interest rates (*LIR* and *SIR*) continue to show a significant and positive impact on capital structure, once again confirming hypotheses H1 and H2, although the spread term retains significance only for the recession phase. This may indicate that total leverage increases in the growth phase as a first response to the monetary policy incentive at the beginning of the cycle, but the growth of leverage slows as interest rates start to rise. Columns 4 and 5 confirm the influence of liquidity variables on long term indebtedness with the same signs as for total leverage in the previous estimations reported in Tables 8 and 10.

Table 11. Robustness: monetary macroeconomic variables

	Panel A: Growth phase of the business cycle					Panel B: Recession phase of the business cycle				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
$LEV2_{t-1}$	0.8498***	0.8112***	0.7582***	0.7462***	0.8491***	0.9015***	0.8875***	0.7925***	0.8220***	0.8914***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
MTB	0.0002	-0.0006*	-0.0004	0.0000	-0.0004	-0.0031	0.0000	0.0000	0.0003**	-0.0001
	(0.8465)	(0.0752)	(0.2508)	(0.8284)	(0.1700)	(0.3201)	(0.9988)	(0.8092)	(0.0358)	(0.7043)
TANG	0.2286*	0.1151**	-0.0471*	0.3564**	0.2597**	-0.6098*	0.1396***	0.0685***	0.0447	-0.3714**
	(0.0659)	(0.0402)	(0.0586)	(0.0121)	(0.0205)	(0.0882)	(0.0008)	(0.0000)	(0.8893)	(0.0483)
SIZE	0.0148*	-0.0015	0.0369***	-0.0088	-0.0068	0.0315***	-0.0063**	-0.0124***	0.0625**	0.0172***
	(0.0802)	(0.8486)	(0.0000)	(0.4418)	(0.6710)	(0.0053)	(0.0375)	(0.0000)	(0.0162)	(0.0071)
ROA	0.0164	0.0479	-0.4852***	0.0665*	-0.2342**	0.0238	0.0018	0.0001	0.0009	-0.0053
	(0.7038)	(0.1073)	(0.0000)	(0.0987)	(0.0207)	(0.2326)	(0.7756)	(0.9742)	(0.6899)	(0.5327)
NDTS	1.3934***	1.3935***	2.9205***	0.5831***	1.3066***	2.2456***	0.2171*	-0.2485	2.1212**	0.6383*
	(0.0000)	(0.0000)	(0.0005)	(0.0000)	(0.0000)	(0.0000)	(0.0816)	(0.1045)	(0.0107)	(0.0745)
LIR	1.3853**					2.6139*				
	(0.0402)					(0.0619)				
SIR		1.2303**					1.5786***			
		(0.0256)					(0.0000)			
SPR			-1.0376					-1.9811***		
			(0.4105)					(0.0000)		
NBR				-0.5269***					-0.5210***	
				(0.0000)					(0.0021)	
VOM					0.0227**					0.0788***
					(0.0123)					(0.0000)
Country dummies	NO	NO	NO	NO	YES	YES	NO	YES	YES	YES

Observations	8,211	8,211	8,211	8,211	8,211	10,885	10,885	10,885	10,885	10,885
Wald test	370.2***	1293***	438.8***	463.8***	188.3***	368.7***	1157***	5869***	586***	3426***
AR1	-5.636***	-6.481***	-5.400***	-7.117***	-5.643***	-2.012***	-10.60***	-8.201***	-1.869***	-3.184***
AR2	0.337	0.331	2.638	0.758	0.625	-0.0899	0.628	0.201	-0.433	0.404
Hansen test	10.21	24.01	8.55	26.67	12.03	12.68	31.78	22.73	3.104	14.43

Estimated coefficients (p-values) of the GMM estimation. The dependent variable $LEV2_t$ is defined as total liabilities and debt to total assets at the end of period t; $LEV2_{t-1}$: debt ratio at time t-1; MTB: growth opportunities; TANG: tangibility of assets; SIZE: natural logarithm of the total volume of assets; ROA: EBIT/total assets; NDTS: amortisation over total assets; LIR: the 10-year sovereign bond interest rate; SIR: the 2-year sovereign bond interest rate; SPR: the difference between the 10- and 2-year sovereign bond interest rate; NBR: narrow to broad money ratio; VOM: velocity of money. Country dummies for firms' country of origin: Germany, France, Spain, Italy, or the United Kingdom. Estimated coefficients and p-values (P>|z|) in parentheses. The joint significance of the explanatory variables is tested by the Wald test. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients and tests the validity of the instruments. ***, **, * denote statistical significance at the 1%, 5% and 10% level.

The speed of adjustment to the target debt ratio oscillates between 15% and 25% in the growth phase, with an average value of 19.71%, whereas in the recession phase it ranges between 10% and 20% (average value 14.10%). Results confirm higher speeds in the growth phase in all estimations, as predicted by H6.

At this point, it is worth noting the different numbers of observations in the results tables, which are due to several factors: 1) the number of years across the subsamples is different; 2) the available data are lower for the earlier expansion phase than for the later recession phase; 3) the numerators and numbers of missing observations in the leverage measures (*LEV1* and *LEV2*) are different.

In a second robustness analysis, we study the potential influence of the legal and institutional setting on the results obtained. There is some empirical evidence to suggest that the results in Civil Law Continental settings, traditionally characterised by a bank- based financial system (i.e., Daskalakis et al., 2017), might differ with respect to those obtained in Common Law, or Anglo-Saxon market-based settings (i.e., Karpavičius & Yu, 2017). Given that our sample includes the UK, a genuine example of the 'Anglo Saxon' system, we analyse the influence of the macroeconomic variables on the dependent variable (*LEV1*) taking into account the effect of a dummy variable (*dum*UK), which equals 1 for the UK, and 0 otherwise. In Table 12, this UK dummy is interacted with macroeconomic variables in order to test their influence during growth and recession phases (panels A and B).

Table 12. Robustness: legal and institutional setting

	Panel A: Growth phase of the business cycle					Panel B: Recession phase of the business cycle				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
$LEV1_{t-1}$	0.8035***	0.7631***	0.7579***	0.7531***	0.8457***	0.8867***	0.8966***	0.7596***	0.9062***	0.9315***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0009)	(0.0000)
MTB	-0.0030	-0.0066*	-0.0204***	0.0236	-0.0014*	0.0374**	0.0019**	-0.0005	0.0620*	0.0020***
	(0.5866)	(0.0929)	(0.0079)	(0.1212)	(0.0676)	(0.0112)	(0.0259)	(0.3022)	(0.0914)	(0.0021)
TANG	-0.0251	0.0291	-0.0876	0.4643**	-0.0505***	-0.1106	0.0559*	-0.0319***	-1.4657*	-0.2162
	(0.6864)	(0.6655)	(0.2724)	(0.0181)	(0.0071)	(0.5412)	(0.0926)	(0.0011)	(0.0624)	(0.1515)
SIZE	-0.0173**	0.0180***	-0.0022	-0.0088	0.0142***	0.0613***	0.0028	0.0101***	0.0617	0.0245***
	(0.0208)	(0.0004)	(0.8009)	(0.5728)	(0.0007)	(0.0032)	(0.3447)	(0.0000)	(0.3330)	(0.0084)
ROA	0.0312	-0.0320	-0.0270	-0.0483	-0.1143**	0.0066*	-0.0020	-0.0052	0.0070	-0.0064***
	(0.4562)	(0.2054)	(0.3964)	(0.4456)	(0.0435)	(0.0755)	(0.8068)	(0.6463)	(0.7783)	(0.0035)
NDTS	0.2637	0.7528***	0.5057***	0.8209*	1.0932***	-1.3913*	0.2083**	0.3521*	10.3960*	0.1358***
	(0.1256)	(0.0000)	(0.0001)	(0.0623)	(0.0004)	(0.0552)	(0.0124)	(0.0597)	(0.0865)	(0.0004)
LIR	1.1907**					5.8693***				
	(0.0104)					(0.0000)				
LIR x dumUK	-0.4612***					1.9373*				
	(0.0037)					(0.0674)				
SIR		0.9272**					1.4852***			
		(0.0105)					(0.0000)			
SIR x dumUK		-0.6802					0.4795			
		(0.2266)					(0.1496)			
SPR			-2.1117***					-2.3642***		
			(0.0009)					(0.0000)		
SPR x dumUK			17.972					1.2515		
			(0.1033)					(0.2328)		

NBR			-0.4489***						-1.9620***	
			(0.0087)						(0.0008)	
NBR x dumUK			0.0405						0.6656	
			(0.7669)						(0.2956)	
VOM				0.0380*						0.1118***
				(0.0902)						(0.0000)
VOM x dumUK				-0.0153						-0.0051
				(0.1846)						(0.8429)
Country dummies	NO	NO	NO	YES	YES	NO	YES	NO	NO	YES
Observations	6,656	6,656	6,656	6,656	6,656	8,679	8,679	8,679	8,679	8,679
Wald test	588.8***	1083***	222***	293.5***	740.3***	214.7***	2829***	2998***	30.15***	261.3***
AR1	-8.019***	-7.438***	-7.135***	-8.069***	-5.892***	-3.777***	-11.28***	-10.79***	-1.975***	-8.541***
AR2	1.306	1.061	1.305	1.691	1.680	-1.828	0.239	0.214	-1.315	-0.0891
Hansen test	21.60	42.36	32.36	20.35	17.45	15.03	44.31	24.96	0.736	12.30

Estimated coefficients (p-values) of the GMM estimation. The dependent variable $LEV1_t$ is defined as the ratio of long-term debt excluding provision, pension fund provisions, deferred taxes and deferred income and short term debt to total assets at the end of period t; LEV1t-1: debt ratio at time $_{t-1}$; MTB: growth opportunities; TANG: tangibility of assets; SIZE: natural logarithm of the total volume of assets; ROA: EBIT/total assets; NDTS: amortisation over total assets; LIR: the 10-year sovereign bond interest rate; SIR: the 2-year sovereign bond interest rates; SPR: the difference between the 10- and 2-year sovereign bond interest rates; NBR: narrow to broad money ratio; VOM: velocity of money. The UK origin is approximated by dumUK (a dummy which equals 1 if country origin is UK, and null otherwise). Country dummies for firms' country of origin: Germany, France, Spain, Italy, or the United Kingdom. Estimated coefficients and p-values (P>|z|) in parentheses. The joint significance of the explanatory variables is tested by the Wald test. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients and tests the validity of the instruments. ***, **, * denote statistical significance at the 1%, 5% and 10% level.

The results show that the monetary variables evaluated in our study, which relate to the price and supply of money, have greater impact in bank-based financial systems than in market-based ones. Karpavičius & Yu (2017) analyse the US market, an 'Anglo-Saxon', market-oriented financial system, and their results show how interest rates have little or no effect on leverage. The results presented in Table 12 reflect some loss in the significance of interest rates in the UK, when compared to their impact in the bank-based financial systems included in our sample, this last result being very similar to that reported by Daskalakis et al. (2017) for Greece. In particular, the negative effect of the interactive term *LIRxdumUK* on leverage in the growth phase indicates that UK firms looked to long term investments, taking advantage of their greater growth options (*MTB*), and financing them with more equity and lower leverages. In a very similar vein, and despite a lack of statistical significance and the impossibility of direct comparison with other studies, the results in all cases show that liquidity had the opposite effect on leverage for UK firms.

The results for SOA show values very close to those obtained in the baseline model, being higher in the expansion phase (average 21,53%) than in the recession (average 12,38%).

The removal of the UK companies to test the robustness of the findings indicates that the results are not driven by the UK subsample. The results, which show no significant variation, particularly with respect to the macroeconomic variables, are available upon request.

In Table 13 we broaden the robustness analysis by introducing a dummy variable discriminating between expansion (Crisis = 0) and recession (Crisis = 1) periods, which we interact with macroeconomic variables. The dummy equals 1 for the period 2009–2013 in panel A and for 2009–2015 in panel B, and 0 otherwise. In the estimation of panel B, the aim was to obtain a fuller

picture of the prevailing complexity of the European economy (sovereign debt crisis) and add robustness to our findings by increasing the number of years. However, these additional years are not included in our original study or in panel A because of the reasons given at the beginning of section 6.1.2 (Explicative analyses), they do not strictly form part of the post-crisis recession period. The results do not differ substantially from those previously obtained in the separate estimates for the growth and recession phases.

Finally, although use is made in the capital structure literature of both lagged and current firm-level observations, we tried an alternative option, regressing on the first lag of the set of microeconomic (*MIC*) variables, which led to similar results.

Table 13. Robustness: dummy variable for expansion and recession

	Panel A: 2003-2013					Panel B: 2003-2015				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
LEV_{t-1}	0.7228***	0.8165***	0.8837***	0.8940***	0.9524***	0.8020***	0.8380***	0.8767***	0.9031***	0.9217***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
MTB	-0.0039***	-0.0093**	-0.0069*	0.008	-0.0035	0.0432	-0.0177***	-0.0175***	0.0303	-0.0439***
	(0.0001)	(0.0272)	(0.0616)	(0.4364)	(0.9041)	(0.1488)	(0.0001)	(0.0001)	(0.1248)	(0.0044)
TANG	0.0779***	-0.0336	0.0169	0.1994*	-0.284	-0.072	-0.0272	-0.1549*	-0.0304	-0.8496**
	(0.0073)	(0.5362)	(0.2585)	(0.0607)	(0.5215)	(0.9016)	(0.6387)	(0.0856)	(0.5343)	(0.0360)
SIZE	0.0119***	0.0072	-0.0047	-0.0049	0.0178	0.0422*	0.002	0.0057	0.0157*	0.0368
	(0.0002)	(0.1727)	(0.3419)	(0.2778)	(0.5771)	(0.0599)	(0.6689)	(0.3610)	(0.0637)	(0.1309)
ROA	-0.0271	-0.0656**	-0.0163*	0.0046	-0.4177***	-0.6960*	-0.0788**	-0.1010**	-0.3196	-0.1978***
	(0.4183)	(0.0383)	(0.0617)	(0.9457)	(0.0012)	(0.0862)	(0.0411)	(0.0208)	(0.3559)	(0.0036)
NDTS	0.3335**	0.7114***	0.4579***	0.1012**	1.7910*	-0.0466	-0.0039	1.2057***	0.4032	1.8916*
	(0.0222)	(0.0006)	(0.0017)	(0.0139)	(0.0900)	(0.9712)	(0.9628)	(0.0001)	(0.3682)	(0.0745)
LIR	1.2331***					3.6870**				
	.0.00					(0.0153)				
LIR x dumCRI	-0.7205***					-0.2733				
	(0.0000)					(0.2730)				
SIR		0.9301***					1.0453***			
		(0.0000)					(0.0000)			
SIR x dumCRI		-0.7904***					-0.4562***			
		(0.0000)					(0.0041)			

SPR			-0.9419*					-2.3251***		
			(0.0760)					(0.0000)		
SPR x dumCRI			-0.8641*					0.5691***		
			(0.0607)					(0.0011)		
NBR				-0.1897**					-0.3611*	
				(0.0169)					(0.0570)	
NBR x dumCRI				-0.0987***					-0.0432**	
				(0.0000)					(0.0289)	
VOM					0.0598*					0.0538**
					(0.0753)					(0.0109)
VOM x dumCRI					-0.0145**					-0.0031
					(0.0393)					(0.2824)
Country dummies	NO	NO	YES	NO	YES	NO	NO	NO	NO	YES
Observations	15,335	15,335	15,335	15,335	15,335	19,153	19,153	19,153	19,153	19,153
Wald test	2705***	837.8***	5322***	881.1***	7945***	36579***	913.8***	4240***	170291***	6910***
AR1	-8.577***	-11.59***	-6.499***	-12.53***	-1.134***	-1.058***	-13.11***	-12.60***	-5.224***	-1.123***
AR2	0.331	0.934	0.124	0.451	1.087	1.132	0.105	0.0514	0.361	1.239
Hansen test	50.25	66.23	55.4	13.09	6.43	25.61	68.25	38.68	15.45	18.84

Estimated coefficients (p-values) of the GMM estimation. The dependent variable $LEV1_t$ is defined as the ratio of long-term debt excluding provision, pension fund provisions, deferred taxes and deferred income and short term debt to total assets at the end of period t; $LEV1_{t-1}$: debt ratio at time t-1; MTB: growth opportunities; TANG: tangibility of assets; SIZE: natural logarithm of the total volume of assets; ROA: EBIT/total assets; NDTS: amortisation over total assets; LIR: the 10-year sovereign bond interest rate; SIR: the 2-year sovereign bond interest rate; SPR: the difference between the 10- and 2-year sovereign bond interest rates; NBR: narrow to broad money ratio; VOM: velocity of money. The crisis period is approximated by dumCRI (a dummy which equals 1 for the 2009–2013 in panel A or 2009–2015 in panel B, and 0 otherwise). Country dummies for firms' country of origin: Germany, France, Spain, Italy, or the United Kingdom. Estimated coefficients and p-values (P>|z|) in parentheses. The joint significance of the explanatory variables is tested by the Wald test. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients and tests the validity of the instruments. ***, **, * denote statistical significance at the 1%, 5% and 10% level.

6.2. Labour market conditions and the corporate financing decision: A European analysis

6.2.1. Descriptive analysis

The empirical analysis consists of two stages. Firstly, the sample under study is described through some descriptive statistics. Table 14 shows the correlation matrix among the independent variables. The correlations are low enough to rule out the possibility of multicollinearity. The exceptions are some labour market variables which enter the model estimation separately.

Table 14. Correlation matrix of the variables

	LEV1	MTB	TANG	SIZE	ROA	NDTS	UNE	INF	CBC	TUD	UNP	MWC	DWR	MPH
MTB	0.9930	1												
TANG	-0.0017	-0.0150	1											
SIZE	-0.0449	-0.0627	0.3598	1										
ROA	-0.4637	-0.4652	0.0150	0.0588	1									
NDTS	0.0045	0.0057	0.0084	-0.0993	-0.0767	1								
UNE	0.0043	-0.0028	-0.0248	0.1135	0.0013	-0.0387	1							
INF	-0.0013	-0.0021	0.0604	-0.0042	0.0021	-0.0012	-0.1618	1						
CBC	0.0132	0.0037	-0.2352	0.0270	-0.0042	-0.0579	0.4444	-0.2784	1					
TUD	-0.0126	-0.0044	0.2172	-0.0159	0.0042	0.0514	-0.3342	0.3389	-0.9181	1				
UNP	0.0128	0.035	-0.1806	0.0699	-0.0040	-0.0550	0.6895	-0.3230	0.8929	-0.7958	1			
MWC	0.0116	0.0086	-0.1528	-0.0833	-0.0077	-0.0235	-0.2278	-0.2519	0.5414	-0.6069	0.2783	1		
DWR	0.0007	0.0052	0.1294	-0.0549	-0.0069	0.0299	-0.1957	0.1628	-0.4713	0.4471	-0.3953	-0.0198	1	
MPH	0.0120	0.0049	0.0962	0.0913	-0.0077	0.0103	0.1310	-0.0561	0.2363	-0.2355	0.2282	0.1010	-0.1204	1
MPS	-0.0028	-0.0058	0.0723	0.2980	0.0091	-0.0113	-0.0046	-0.0210	-0.0073	-0.0040	-0.0109	0.0154	0.0094	0.2062

Correlation coefficients. LEV1: the ratio of long and short term debt to total assets; MTB: the sum of the equity market value plus debt book value over total assets; TANG: the ratio of tangible assets to total assets; SIZE: the natural logarithm of total assets; ROA: the return on assets; NDTS: the ratio of amortization to total assets; UNE: the unemployment rate; INF: the inflation rate; CBC: proportion of employees influenced by collective negotiation; UNP: public spending on unemployment or expenditure on cash benefits for people to compensate for unemployment by GDP; TUD: proportion of employees that are trade union members; MWM: the ratio of minimum wages to median wages; DWR: wage share; MPH: Herfindahl Hirschman index; MPS: market share.

Table 15 shows the mean, standard deviation, minimum, maximum, and median value of the dependent variable as well as the explanatory variables at both firm and labour market level. In addition, Table 16 reports the mean value of the variables across countries.

The mean value of the dependent variable *LEV1* is around 0.5, with some minor differences across countries: German firms have the lowest debt ratio,

whereas Spanish ones are the most leveraged. There are also some differences in terms of growth opportunities (*MTB*) and performance (*ROA*), with British firms having the most growth opportunities but the lowest (negative) *ROA*. In contrast, Italian firms exhibit the lowest *MTB* value and the highest *ROA* value. As regards the macroeconomic variables, the unemployment rate (*UNE*) is especially high in Spain. There are also substantial differences in collective bargaining coverage (*CBC*) and trade union power (*TUD*), with France and Italy standing out, respectively. Other important international imbalances concern minimum wages (*MWM*), and the level of market power (*MPH*).

Table 15. Descriptive statistics of the variables for the whole sample

	Variables	Obs.	Mean	Std. Dev.	Min.	Max.	Median
Firm level	LEV1	26,033	0.500	0.200	0.150	0.890	0.500
	MTB	26,295	1.580	0.950	0.680	4.370	1.230
	TANG	32,639	0.500	0.260	0.060	0.930	0.500
	SIZE	32,639	11.95	2.370	7.930	16.470	11.820
	ROA	32,392	0.002	0.162	-0.480	0.210	0.040
	NDTS	31,793	0.041	0.040	0	0.140	0.032
Labour market	UNE	46,890	0.079	0.032	0.040	0.260	0.080
	INF	46,890	0.018	0.010	-0.010	0.040	0.030
	CBC	46,890	0.600	0.270	0.260	0.990	0.300
	TUD	46,890	0.196	0.097	0	0.300	0.200
	MWM	46,890	0.375	0.237	0	0.670	0.460
	UNP	46,890	0.008	0.009	0	0.030	0.010
	DWR	46,890	0.571	0.018	0.520	0.600	0.570
	MPH	46,890	0.499	0.500	0	1	0
	MPS	31,831	0.002	0.010	0	0.526	0

Mean, standard deviation, percentiles 25, 50 and 75 of the dependent and independent variables. LEV1: the ratio of long and short term debt to total assets; MTB: the sum of the equity market value plus debt book value over total assets; TANG: the ratio of tangible assets to total assets; SIZE: the natural logarithm of total assets; ROA: the return on assets; NDTS: the ratio of amortization to total assets; UNE: the unemployment rate; INF: the inflation rate; CBC: proportion of employees influenced by collective negotiation; UNP: public spending on unemployment or expenditure on cash benefits for people to compensate for unemployment by GDP; TUD: proportion of employees that are trade union members; MWM: the ratio of minimum wages to median wages; DWR: wage share; MPH: Herfindahl Hirschman index; MPS: market share.

Table 16. Mean values of the variables by country

		Germany	Spain	France	Italy	U.K.	Total
Firm level	LEV1	0.4631	0.5566	0.5390	0.5543	0.4750	0.5015
	MTB	1.5428	1.3948	1.4523	1.3163	1.7643	1.5820
	TANG	0.4843	0.5663	0.4385	0.5139	0.5383	0.5017
	SIZE	11.8900	13.3500	11.9500	13.0300	11.6300	11.9500
	ROA	0.0178	0.0336	0.0167	0.0340	-0.0229	0.0022
	NDTS	0.0448	0.0356	0.0380	0.0425	0.0405	0.0407
Labour market	UNE	0.0740	0.1633	0.0913	0.0906	0.0613	0.0792
	INF	0.0153	0.0200	0.0153	0.0180	0.0213	0.0183
	CBC	0.6140	0.7750	0.9760	0.8000	0.3193	0.5995
	TUD	0.1900	0.1486	0.0746	0.3233	0.2493	0.1955
	MWM	0.0630	0.3740	0.6330	0	0.4600	0.3750
	UNP	0.0130	0.0230	0.0170	0.0050	0	0.0082
	DWR	0.5630	0.5640	0.5720	0.5290	0.5820	0.5710
	MPH	0.5830	0.5670	0.5670	0.6020	0.3890	0.4990
	MPS	0.0026	0.0020	0.0028	0.0027	0.0021	0.0024

Mean of the dependent and independent variables by country. LEV1: the ratio of long and short term debt to total assets; MTB: the sum of the equity market value plus debt book value over total assets; TANG: the ratio of tangible assets to total assets; SIZE: the natural logarithm of total assets; ROA: the return on assets; NDTS: the ratio of amortization to total assets; UNE: the unemployment rate; INF: the inflation rate; CBC: proportion of employees influenced by collective negotiation; UNP: public spending on unemployment or expenditure on cash benefits for people to compensate for unemployment by GDP; TUD: proportion of employees that are trade union members; MWM: the ratio of minimum wages to median wages; DWR: wage share; MPH: Herfindahl Hirschman index; MPS: market share.

6.2.2. Explicative analysis

The results of the explanatory analysis are shown in Tables 17–19. In Table 17, we report the estimates of the relationship with unemployment and inflation, in Table 18 those reflecting employees' rights, and in Table 19 those dealing with downward wage rigidity. In each table there are different columns which are conditional on the characteristics of the labour market under study.

In Table 17, current financial leverage is a function of previous leverage, firm-level variables, the unemployment rate, and the inflation rate. It can be seen that the lagged leverage ($LEV1_{t-1}$) is positively related to the current one. This result confirms the existence of a target capital structure, with a speed of adjustment between 0.45 and 0.55. Similar results have been found by Gonzalez & Gonzalez

(2008) and Cook & Tang (2010). In the first column, the coefficient of the *SIZE* variable is positive, consistent with the trade-off theory of capital structure, and the negative estimate of profitability (*ROA*) can be explained by the pecking order theory. These results are in line with those of Drobetz et al. (2015); Flannery & Rangan (2006); Frank & Goyal (2009) and Halling et al. (2016). In contrast, the tax shield alternative to debt (*NDTS*) in the second column is positive. Although this result contradicts the trade-off theory, a number of studies have found the same result (Antoniou et al., 2008; Frank & Goyal, 2009; Mao, 2003; Titman & Wessels, 1988), which could be possible when the depreciation of tangible assets is the major component of non-debt tax shields. In addition, depreciation is likely to be correlated with fixed assets, which act as collateral and enhance financial leverage (DeAngelo & Masulis, 1980).

More importantly, the unemployment rate (*UNE*) is negatively and significantly related to leverage (Column 1 in Table 17), and the coefficient of the inflation rate (*INF*) is positive and significant (Column 2). Both results confirm our first two hypotheses concerning the relationship between unemployment (H7), inflation (H8), and capital structure. The AR2 and the Hansen tests show that there are no concerns vis-a-vis second-order serial correlation and the validity of the instrumental variables.

Table 17. Unemployment and inflation

	(1)	(2)
$LEV1_{t-1}$	0.4494***	0.5456***
	(0.0000)	(0.0000)
MTB	-0.0025	0.0134
	(0.7780)	(0.4391)
TANG	-0.0905	-0.0223
	(0.5965)	(0.8805)
SIZE	0.0571***	-0.0079
	(0.0003)	(0.6401)
ROA	-0.4148***	0.2993
	(0.0000)	(0.1692)
NDTS	0.0876	2.5057***
	(0.8798)	(0.0004)
UNE	-1.4875***	
	(0.0000)	
INF		0.6021**
		(0.0129)
Observations	16,746	18,548
Wald test	217.1***	349.9***
AR1	-7.145***	-5.142***
AR2	0.379	-1.405
Hansen test	20.80	8.850

Estimated coefficients (p-values) of the GMM estimation. The dependent variable $LEV1_t$ is defined as the ratio of long-term debt excluding provision, pension fund provisions, deferred taxes and deferred income and short term debt to total assets at the end of period t; $LEV1_{t-1}$: debt ratio at time t-1; MTB is the equity market-to-book ratio opportunities; TANG: tangible assets to total assets; SIZE: the natural logarithm of total assets; ROA: return on assets; NDTS: amortization to total assets; UNE: the unemployment rate; INF: the inflation rate. Estimated coefficients and p-values (P>|z|) in parentheses. The Wald test contrasts the joint significance of the explanatory variables. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients and tests the validity of the instruments. ***, **, *: statistical significance at the 1%, 5% and 10% level.

Table 18 reports the relationship between capital structure and employees' rights. Since there are both direct and indirect rights, we run separate regressions for each. In columns 1 and 2, we check for a possible non-linear relationship with collective bargaining coverage (*CBC*) and unemployment protection (*UNP*). In both cases, our results support hypothesis H9, according to which the initial positive relationship for low levels of employees' rights turns negative after a given threshold. According to our calculations, the inflection point would be around 56 % of collective bargaining coverage and 1.1 % of unemployment protection. Both figures are consistent with the descriptive statistics reported in Table 15.

Furthermore, as can be seen in Table 16, the average value of *CBC* for the UK is under the 56 % threshold, whereas the average value in the other four continental countries is above this threshold. To some extent, it seems that collective bargaining coverage displays an asymmetric relationship with financial leverage in "Anglo-Saxon" vs. continental European countries.

In columns 3 and 4, we check for the relationship between capital structure and two other measures of direct employees' rights: trade union density (*TUD*) and the ratio of minimum wages to median wages (*MWM*). Once again, we find a non-linear relationship, and the inflection points (11.8 % and 27.2 %) are consistent with our descriptive statistics.

As regards the control variables, in addition to the lagged financial leverage, growth opportunities (*MTB*) have a negative coefficient (as expected, according to the pecking order theory), whereas non-debt tax shields (*NDTS*) have a positive coefficient, as explained previously.

Table 18. Labour market imperfections: employees' rights

	(1)	(2)	(3)	(4)
$LEV1_{t-1}$	0.2659*	0.5699***	0.7756***	0.7104***
	(0.0841)	(0.0000)	(0.0000)	(0.0000)
MTB	-0.0593***	-0.0335***	-0.0185	-0.0407***
	(0.0000)	(0.0013)	(0.3698)	(0.0005)
TANG	-0.8524***	-0,2914	-0.6448***	-1.1763***
	(0.0004)	(0.1314)	(0.0039)	(0.0000)
SIZE	0.0070	0,0265	0.0306	0.0460**
	(0.8327)	(0.1796)	(0.1289)	(0.0117)
ROA	0.0181	0,0042	-0.1050**	0.1462***
	(0.1260)	(0.6507)	(0.0110)	(0.0020)
NDTS	0.5775**	0.4837**	0.3232***	0.6764**
	(0.0342)	(0.031)	(0.0057)	(0.0385)
CBC	2.2259**			
	(0.0137)			
CBC^2	-1.9901***			
	(0.0091)			
UNP		9.4855**		
		(0.0189)		
UNP^2		-410.8269***		
		(0.0022)		
TUD			1.6383**	
			(0.0233)	
TUD^2			-6.9644**	
			(0.0244)	
MWM				0.8280**
				(0.0115)
MWM^2				-1.5215**
				(0.0200)
Observations	19,370	19,370	18,933	19,370
Wald test	129.9***	219.9***	158.1***	61.01***
AR1	-1.894**	-3.999***	-5.149***	-1.342***
AR2	1.638	0.802	-0.748	-1.156
Hansen test	11.99	12.02	10.06	18.68

Estimated coefficients (p-values) of the GMM estimation. The dependent variable $LEV1_t$ is defined as the ratio of long-term debt excluding provision, pension fund provisions, deferred taxes and deferred income and short term debt to total assets at the end of period t; $LEV1_{t-1}$: debt ratio at time t-1; MTB: growth opportunities; TANG: tangibility of assets; SIZE: the natural logarithm of the total volume of assets; ROA: EBIT/total assets; NDTS: amortization between total assets; CBC: proportion of employees influenced by collective negotiation; UNP: public spending on unemployment or expenditure on cash benefits for people to compensate for unemployment by GDP; TUD: proportion of employees that are trade union members; MWM: ratio of minimum wages to median wages. Estimated coefficients and p-values (P>|z|) in parentheses. The Wald test contrasts the joint significance of the explanatory variables. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients. ***, **, *: statistical significance at the 1%, 5% and 10% level.

In Table 19, we report the effect of downward wage rigidity and market power (H10a and H10b). First, the downward wage rigidity (*DWR*) variable has a negative and significant coefficient (Column 1), thus confirming H10a. In addition, the positive estimate of the interaction with market concentration index (*MPH*) suggests that the negative relationship is attenuated by market power (Hypothesis 10b) to the extent that the coefficient of the interacted variable is positive. The signs and significance of the control variables (*MTB, SIZE,* and *NDTS*) are in line with previous estimates. The results remain the same when we measure market power with the firm's market share (*MPS*), as shown in Column 3.

These empirical findings lend support to the theoretical framework and indicate that lower unemployment (*UNP*) improves firms' cash flows and reduces employees' claims for additional compensation for unemployment risk, which increases earnings and reduces bankruptcy costs. Inflation (*INF*) alleviates the pressure on real wages and reduces the real value of debt, which reduces operational leverage and bankruptcy costs. A low level of employees' rights (*CBC* and *UNP*) implies weak bargaining power and less operational leverage, such that firms have a margin to increase their indebtedness. Conversely, when labour rights levels are high, employees' bargaining power will be strong, and firms will alleviate this pressure by decreasing leverage. Downward wage rigidity (*DWR*) prevents the firm from adapting to changes and has detrimental effects on financial solvency. However, when firms have a certain degree of monopoly power (*MPH*), they can set price-cost mark-ups in order to alleviate their downward wage rigidity.

Table 19. Labour market imperfections: downward wage rigidity

	(1)	(2)	(3)
$LEV1_{t-1}$	0.5674***	0.3937***	0.5951***
	(0.0013)	(0.0000)	(0.0000)
MTB	-0.0296***	-0.0123	-0.0580***
	(0.0073)	(0.1117)	(0.0021)
TANG	-0.0842	0.1609	0.2399**
	(0.6591)	(0.3638)	(0.0500)
SIZE	0.0144	0.0520***	-0.1514**
	(0.4561)	(0.0000)	(0.0343)
ROA	0.0042	-0.2206***	-0.6694***
	(0.9866)	(0.0000)	(0.0017)
NDTS	1.2478*	0.0863	-1.8969**
	(0.0917)	(0.3512)	(0.0423)
DWR	-0.8155**	-4.7215***	-2.6401***
	(0.0138)	(0.0029)	(0.0011)
MPH		-4.3186**	
		(0.0103)	
DWR x MPH		7.5384**	
		(0.0106)	
MPS			-15.206
			(0.2210)
DWR x MPS			2.0908**
			(0.0273)
Observations	18,548	18,619	18,870
Wald test	142.1***	225.2***	62.03***
AR1	-2.962***	-6.196***	-2.919***
AR2	-0.737	-0.706	-0.232
Hansen test	9.230	24.95	10.09

Estimated coefficients (p-values) of the GMM estimation. The dependent variable $LEV1_t$ is defined as the ratio of long-term debt excluding provision, pension fund provisions, deferred taxes and deferred income and short term debt to total assets at the end of period t; $LEV1_{t-1}$: debt ratio at time t-1; MTB: growth opportunities; TANG: tangibility of assets; SIZE: the natural logarithm of the total volume of assets; ROA: EBIT/total assets; NDTS: amortization between total assets; DWR: wage share; MPH: Herfindahl Hirschman index; MPS: market share. Estimated coefficients and p-values (P>|z|) in parentheses. The Wald test contrasts the joint significance of the explanatory variables. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients. ***, **, *: statistical significance at the 1%, 5% and 10% level.

As far as the control variables are concerned, firms use less debt when they have more growth opportunities (*MTB*) or when they generate internal resources, which is consistent with the postulates of the pecking order theory. According to the pecking order theory, the negative sign of *ROA* indicates that firms prefer to retain earnings. The positive sign of *SIZE* suggests that larger firms are less subject

to asymmetric information problems and can afford a higher level of leverage. Finally, the positive sign of *NDTS* does not support the prediction of the trade-off theory.

6.2.3. Robustness analysis

In order to test the consistency of our results, we now perform some robustness analyses using a different measure of the dependent variable (*LEV2*):

$$LEV2_{i,t} = \frac{TLD_{i,t}}{TA_{i,t}}$$

where $TLD_{i,t}$ is the total liabilities and debt of firm i at the end of period t, and $TA_{i,t}$ are the total assets of firm i at the end of period t.

In Table 20, we examine how unemployment and inflation influence capital structure. As can be seen in the first column, the unemployment rate (*UNE*) has a significant and negative impact. The inflation rate (*INF*) also has a positive and significant influence (Column 2). These estimates confirm our baseline results reported in Table 17.

Table 20. Robustness: unemployment and inflation

	(1)	(2)
$LEV2_{t-1}$	0.4997***	0.7742***
	(0.0000)	(0.0000)
MTB	-0.0307**	-0.0012
	(0.0372)	(0.3022)
TANG	-0.1550	-1.1734***
	(0.4026)	(0.0000)
SIZE	0.0092	0.0521***
	(0.5848)	(0.0078)
ROA	0.0037	-0.5066***
	(0.8334)	(0.0034)
NDTS	0.5906*	1.9959***
	(0.0743)	(0.0039)
UNE	-0.5450**	
	(0.0147)	
INF		0.6567***
		(0.0000)
Observations	24,382	24,382
Wald test	168.3***	749.5***
AR1	-3.299***	-8.945***
AR2	-0.478	-1.072
Hansen test	12.47	15.16

Estimated coefficients (p-values) of the GMM estimation. The dependent variable $LEV2_t$ is defined as total liabilities and debt to total assets at the end of period t; $LEV2_{t-1}$: debt ratio at time t-1; MTB is the equity market-to-book ratio opportunities; TANG: tangible assets to total assets; SIZE: the natural logarithm of total assets; ROA: return on assets; NDTS: amortization to total assets; UNE: the unemployment rate; INF: the inflation rate. Estimated coefficients and p-values (P>|z|) in parentheses. The Wald test contrasts the joint significance of the explanatory variables. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients and tests the validity of the instruments. ***, **, *: statistical significance at the 1%, 5% and 10% level.

In Table 21, we analyse how the new measure of leverage (*LEV2)* is explained by microeconomic variables and employees' rights. In columns 1 and 2, we test for a possible non-linear relationship with collective bargaining coverage (*CBC*) and unemployment protection (*UNP*). In both cases, these variables are initially positively related, and after a given inflection point, the relationship becomes negative, thus confirming hypothesis H9. In columns 3 and 4, we see that union density (*TUD*) and the ratio of minimum wages to median wages (*MWM*) display

a similar behaviour to the above-mentioned results: an inverted U-shaped quadratic relationship, which is initially positive and then turns negative.

Table 21. Robustness: employees' rights

	(1)	(2)	(3)	(4)
$LEV2_{t-1}$	0.6556***	0.8834***	0.7938***	0.6095***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
MTB	-0.0652***	-0.0504***	0.0006	-0.0905***
	(0.0031)	(0.0000)	(0.3496)	(0.0081)
TANG	-0.3586***	-0.0823	-0.4040*	0.1022
	(0.0024)	(0.4719)	(0.0508)	(0.6235)
SIZE	0.0021	0.0332***	0.0071	0.0287
	(0.9165)	(0.0036)	(0.6164)	(0.3115)
ROA	-0.0091	-0.3917***	-0.0015	-0.7330**
	(0.6029)	(0.0027)	(0.7577)	(0.0129)
NDTS	0.6797*	-0.4356	0.1566	-0.3963
	(0.0977)	(0.5604)	(0.2826)	(0.7658)
CBC	2.3261**			
	(0.0164)			
CBC^2	-1.6681**			
	(0.0355)			
UNP		7.0073*		
		(0.0780)		
UNP^2		-380.3141***		
		(0.0065)		
TUD			4.9838**	
			(0.0293)	
TUD^2			-13.3282**	
			(0.0211)	
MWM				1.5921*
				(0.0630)
MWM^2				-4.8991***
				(0.0092)
Observations	24,382	24,312	24,382	24,382
Wald test	2224***	510.7***	625.5***	286.4***
AR1	-1.614***	-12.46***	-11.04***	-5.250***
AR2	1.296	0.994	0.440	-0.518
Hansen test	18.80	32.31	14.91	34.64

Estimated coefficients (p-values) of the GMM estimation. The dependent variable $LEV2_t$ is defined as total liabilities and debt to total assets at the end of period t; $LEV2_{t-1}$: debt ratio at time t-1; MTB: growth opportunities; TANG: tangibility of assets; SIZE: the natural logarithm of the total volume of assets; ROA: EBIT/ total assets; NDTS: amortization between total assets; CBC: proportion of employees influenced by collective negotiation; UNP: public spending on unemployment or expenditure on cash benefits for people to compensate for unemployment by GDP; TUD: proportion of employees that are trade union members; MWM: the ratio of minimum wages to median wages. Estimated coefficients and p-values (P>|z|) in parentheses. The Wald test contrasts the joint significance of the explanatory variables. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients. ***, **, *: statistical significance at the 1%, 5% and 10% level.

Finally, in Table 22 we explore the effect of downward wage rigidity and market power on capital structure (H10a and H10b). First, the downward wage rigidity (*DWR*) variable exhibits a negative and significant coefficient (Column 1), thereby confirming H10a. In addition, we find that the effect of downward wage rigidity (*DWR*) is attenuated by market power (Hypothesis 10b) measured with the market concentration index (*MPH*) in column 2 and with the firm's market share (*MPS*) in column 3. In short, all these results confirm hypotheses 9 and 10 and evidence the robustness of our findings.

The results of the firm-level variables are also similar, once again highlighting the negative relationship of growth opportunities and profitability with the debt rate, in line with the postulates of the pecking order, the negative relationship with the degree of tangibility, and the positive one with non-debt tax shields.

Table 22. Robustness: downward wage rigidity

	(1)	(2)	(3)
$LEV2_{t-1}$	0.9250***	0.6355***	0.7440***
	(0.0000)	(0.0000)	(0.0000)
MTB	-0.0391***	0.0003	-0.0022
	(0.0000)	(0.6292)	(0.1363)
TANG	-0.1338	0.1365	0.2331
	(0.4253)	(0.3045)	(0.1368)
SIZE	0.0251	0.0185***	-0.0222
	(0.1092)	(0.0003)	(0.1846)
ROA	0.2500	-0.1969**	-0.4899***
	(0.1368)	(0.0225)	(0.0003)
NDTS	1.9551***	0.9477***	0.7610***
	(0.0010)	(0.0000)	(0.0009)
DWR	-0.8162***	-3.5011***	-1.5841***
	(0.0003)	(0.0036)	(0.0000)
MPH		-2.9693**	
		(0.0229)	
DWR x MPH		5.1886**	
		(0.0231)	
MPS			-12.976
			(0.8261)
DWR x MPS			0.4565*
			(0.0519)
Observations	22,774	24,382	23,916
Wald test	862.3***	1401***	401.4***
AR1	-4.348***	-4.570***	-4.798***
AR2	-1.608	-0.739	-1.163
Hansen test	5.688	22.84	19.36

Estimated coefficients (p-values) of the GMM estimation. The dependent variable $LEV2_t$ is defined as total liabilities and debt to total assets at the end of period t; $LEV2_{t-1}$: debt ratio at time t-1; MTB: growth opportunities; TANG: tangibility of assets; SIZE: the natural logarithm of the total volume of assets; ROA: EBIT/ total assets; NDTS: amortization between total assets; DWR: wage share; MPH: Herfindahl Hirschman index; MPS: market share. Estimated coefficients and p-values (P>|z|) in parentheses. The Wald test contrasts the joint significance of the explanatory variables. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients. ***, **, *: statistical significance at the 1%, 5% and 10% level.

6.3. Shields against uncertainty and capital structure: The role of institutions and corporate diversification in Europe

6.3.1. Descriptive analysis

The empirical analysis consists of two stages. First, we provide some descriptive statistics of our sample, and then report the results of the explanatory analysis. Table 23 shows the correlation matrix among the independent variables. The correlations are low enough to rule out the possibility of multicollinearity. The obvious exceptions are the diversification variables, which enter the model estimation separately: first, the total level of diversification (*TDIV*), and then the two types of diversification together (*RDIV, UDIV*), which are poorly correlated. Despite this lack of significant correlation between the independent variables, we run a variance inflation factor (VIF) test to verify the absence of multicollinearity (Table 24). All the values are well below 10, thereby ruling out the possibility that multicollinearity is an issue.

Table 23. Correlation matrix of the variables

	LEV1	EPU	UAV	INSQ	FDEV	TDIV	RDIV	UDIV	MTB	TANG	SIZE	ROA
EPU	-0.0004											
UAV	0.0177	-0.1210										
INSQ	-0.0194	0.0951	-0.6617									
FDEV	-0.0117	0.3053	-0.6133	0.4192								
TDIV	0.0011	-0.0899	0.1219	-0.0809	-0.1372							
RDIV	-0.0014	-0.0617	0.0490	-0.0290	-0.0711	0.5665						
UDIV	0.0023	-0.0640	0.1120	-0.0768	-0.1144	0.7987	-0.0434					
MTB	0.0745	0.0247	-0.1628	0.1499	0.1162	-0.1120	-0.0559	-0.0949				
TANG	0.0403	-0.0631	0.0847	-0.1147	-0.0867	0.0422	0.0160	0.0394	-0.1734			
SIZE	0.0020	-0.0540	0.1786	-0.1212	-0.1257	0.3267	0.2051	0.2464	-0.2170	0.2455		
ROA	-0.0366	-0.0660	0.0584	-0.0343	-0.0626	0.1274	0.0802	0.0959	-0.0853	0.0856	0.3177	
NDTS	0.0050	0.0147	0.0046	0.0275	-0.0110	-0.0019	0.0136	-0.0123	0.0510	0.1705	-0.1058	-0.0780

Correlation coefficients. LEV1: the ratio of long and short term debt to total assets; MTB: the sum of the equity market value plus debt book value over total assets; TANG: the ratio of tangible assets to total assets; SIZE: the natural logarithm of total assets; ROA: the return on assets; NDTS: the ratio of amortization to total assets; EPU: the natural logarithm of the yearly arithmetic average of the EPU index, UAV: the natural logarithm of Hofstede's (2001) uncertainty avoidance index; INSQ: the normalized sum of four World Bank Worldwide Governance Indicators (government effectiveness, regulatory quality, rule of law, and control of corruption); FDEV: the Financial Development Index of the International Monetary Fund; TDIV: total diversification taking into account the amount of sales in each business segment; RDIV: the related diversification index resulting from businesses that are different at the four-digit segment, within a two-digit industry group; UDIV: the unrelated diversification index resulting from businesses in different two-digit industry groups.

Table 24. VIF analysis

Variable	VIF	1/VIF
$LEV1_{t-1}$	1.17	0.8515
EPU	1.13	0.8853
UAV	1.41	0.7092
INSQ	1.78	0.5616
FDEV	1.77	0.5649
TDIV	1.14	0.8784
MTB	1.1	0.9108
TANG	1.2	0.8304
SIZE	1.42	0.7063
ROA	1.12	0.8965
NDTS	1.07	0.9350

Variance inflation factor. $LEV1_{t-1}$ is the ratio of long and short term debt to total assets at time t-1; MTB is the sum of the equity market value plus debt book value over total assets; TANG is the ratio of tangible assets to total assets; SIZE is the natural logarithm of total assets; ROA is the return on assets; NDTS is the ratio of amortization to total assets; EPU is the natural logarithm of the yearly arithmetic average of the EPU index; UAV is the natural logarithm of Hofstede's (2001) uncertainty avoidance index; INSQ is the normalized sum of four World Bank Worldwide Governance Indicators (government effectiveness, regulatory quality, rule of law, and control of corruption); FDEV is the Financial Development Index of the International Monetary Fund; and TDIV is total diversification taking into account the amount of sales in each business segment.

Table 25 shows the mean, standard deviation, and percentiles 25, 50 and 75 of the dependent and independent variables. In addition, Table 26 reports the mean value of variables across countries.

Table 25. Descriptive statistics of the variables for the whole sample

	Nº. of obs.	Mean	Std. Dev.	p25	p50	p75
LEV1	29,760	0.1737	0.1660	0.0234	0.1414	0.2706
EPU	29,760	2.2006	0.2418	2.0150	2.1540	2.3640
UAV	29,760	3.9452	0.4391	3.5553	3.9703	4.4543
INSQ	29,760	0.7997	0.0858	0.7750	0.8330	0.8520
FDEV	29,760	0.7944	0.0911	0.7360	0.7900	0.8720
TDIV	24,167	0.3866	0.4118	0.0000	0.2853	0.6821
RDIV	24,167	0.1270	0.2486	0.0000	0.0000	0.0580
UDIV	24,167	0.2596	0.3399	0.0000	0.0141	0.5401
MTB	29,760	1.7464	1.4108	0.9800	1.2850	1.9125
TANG	29,760	0.2295	0.2275	0.0440	0.1590	0.3410
SIZE	29,760	5.3929	1.1059	4.6130	5.3360	6.1745
ROA	29,760	0.0197	0.2062	0.0000	0.0650	0.1150
NDTS	29,760	0.0423	0.0347	0.0200	0.0350	0.0550

Mean, standard deviation, percentiles 25, 50 and 75 of the dependent and independent variables. LEV1 is the ratio of long and short term debt to total assets; MTB is the sum of the equity market value plus debt book value over total assets; TANG is the ratio of tangible assets to total assets;

SIZE is the natural logarithm of total assets; ROA is the return on assets; NDTS is the ratio of amortization to total assets; EPU is the natural logarithm of the yearly arithmetic average of the EPU index; UAV is the natural logarithm of Hofstede's (2001) uncertainty avoidance index; INSQ is the normalized sum of four World Bank Worldwide Governance Indicators (government effectiveness, regulatory quality, rule of law, and control of corruption); FDEV is the Financial Development Index of the International Monetary Fund; and TDIV is total diversification taking into account the amount of sales in each business segment; RDIV is the related diversification index resulting from businesses that are different at the four-digit segment, within a two-digit industry group; and UDIV is the unrelated diversification index resulting from businesses in different two-digit industry groups.

Table 26. Mean values of the variables by country

	Germany	Spain	France	Italy	U.K.	Belgium	Netherlands	Sweden	Greece	Ireland	Croatia
LEV1	0.1480	0.2453	0.1908	0.2176	0.1464	0.2239	0.2052	0.1487	0.2870	0.1521	0.2075
EPU	2.1160	2.0351	2.1964	2.0269	2.2152	1.9821	1.9532	1.9542	1.9939	2.0561	1.9328
UAV	4.1744	4.4543	4.4543	4.3175	3.5553	4.5433	3.9703	3.3673	4.6052	3.5553	4.3820
INSQ	0.8379	0.7050	0.7735	0.5973	0.8427	0.7867	0.8741	0.8832	0.5744	0.8189	0.5723
FDEV	0.7231	0.8515	0.7705	0.7572	0.8842	0.6590	0.7569	0.7688	0.5436	0.6906	0.4832
TDIV	0.4211	0.4894	0.3848	0.4990	0.2924	0.3897	0.3969	0.3725	0.3696	0.3534	0.5100
RDIV	0.1525	0.1314	0.1209	0.1761	0.0965	0.1017	0.1571	0.1173	0.0840	0.1798	0.2084
UDIV	0.2686	0.3580	0.2639	0.3229	0.1959	0.2880	0.2398	0.2552	0.2857	0.1735	0.3016
MTB	1.6937	1.5635	1.5275	1.2802	1.9743	1.5254	1.6965	2.0794	1.1626	1.7776	1.0874
TANG	0.2076	0.3125	0.1806	0.2144	0.2177	0.3164	0.2223	0.1389	0.3688	0.2691	0.5113
SIZE	5.2636	5.7693	5.2185	5.5598	4.9967	5.5194	5.6006	4.6801	4.9579	5.4160	5.1607
ROA	0.0367	0.0659	0.0315	0.0595	-0.0161	0.0430	0.0417	-0.0380	0.0528	0.0445	0.0515
NDTS	0.0482	0.0431	0.0423	0.0444	0.0393	0.0446	0.0481	0.0449	0.0334	0.0278	0.0437

Mean of the dependent and independent variables by country. LEV1 is the ratio of long and short term debt to total assets; MTB is the sum of the equity market value plus debt book value over total assets; TANG is the ratio of tangible assets to total assets; SIZE is the natural logarithm of total assets; ROA is the return on assets; NDTS is the ratio of amortization to total assets; EPU is the natural logarithm of the yearly arithmetic average of the EPU index; UAV is the natural logarithm of Hofstede's (2001) uncertainty avoidance index; INSQ is the normalized sum of four World Bank Worldwide Governance Indicators (government effectiveness, regulatory quality, rule of law, and control of corruption); FDEV is the Financial Development Index of the International Monetary Fund; and TDIV is total diversification taking into account the amount of sales in each business segment; RDIV is the related diversification index resulting from businesses that are different at the four-digit segment, within a two-digit industry group; and UDIV is the unrelated diversification index resulting from businesses in different two-digit industry groups.

The mean value of the dependent variable *LEV1* is around 0.17, with some minor differences across countries: UK firms have the lowest debt ratio, whereas Greek firms are the most leveraged. These data are consistent with those of Fan *et al.* (2012). There are also some differences in terms of growth opportunities (*MTB*) and performance (*ROA*), with Swedish firms having the highest growth opportunities but the lowest (negative) *ROA*. In contrast, Croatian firms exhibit the lowest *MTB* value, and Spanish firms the highest *ROA* value.

As regards the macroeconomic variables, economic policy uncertainty (*EPU*) is especially high in the UK and France, while the lowest values correspond to Croatia and the Netherlands. Uncertainty avoidance (*UAV*) is particularly low in Sweden, Ireland, and the UK. Institutional quality (*INSQ*) is prominent in Sweden and the Netherlands while the highest values of financial development (*FDEV*) are in the UK and Spain. Finally, other important international differences concern the diversification variables: Croatia, Italy, Spain, and Germany stand out for their high total diversification (*TDIV*), while Croatia and Ireland (Spain and Italy) have the highest (un)related diversification (*RDIV* and *UDIV*).

6.3.2. Explanatory analysis

The results of the explanatory analysis are shown in Tables 27 and 28. In Table 27, we report the estimates of the relationship of leverage with economic policy uncertainty and institutional conditions, and in Table 28 we show those reflecting the different types of corporate diversification, and those dealing with the moderating role of the types of corporate diversification -total, related and unrelated-.

In Table 27, current financial leverage is a function of previous leverage, firm-level variables, economic policy uncertainty (*EPU*), institutional quality (*INSQ*), financial development (*FDEV*), and uncertainty avoidance (*UAV*). It can be seen that the lagged leverage ($LEV1_{t-1}$) is positively related to the current one. This result confirms the existence of a target capital structure, with a speed of adjustment of between 0.32 and 0.50. Similar results have been found by Gonzalez and González (2008) and Cook and Tang (2010).

Table 27. Economic policy uncertainty and institutional conditions

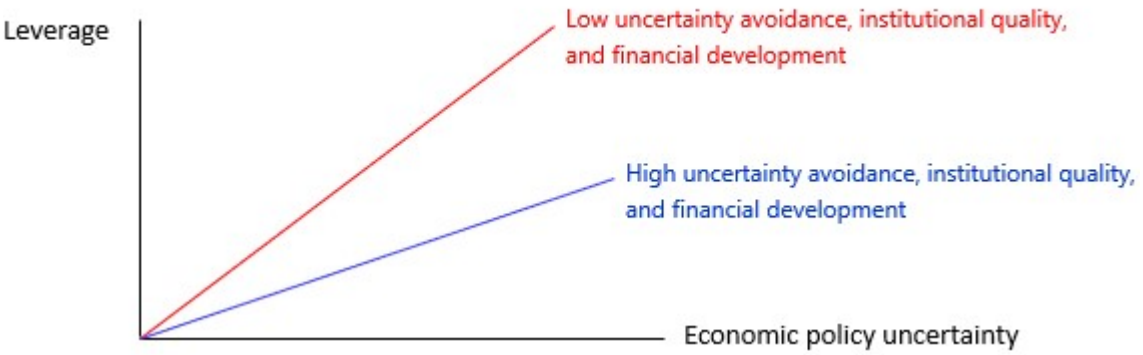
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$LEV1_{t-1}$	0.4942***	0.6717***	0.5308***	0.5167***	0.4957***	0.5872***	0.5348***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
EPU	0.0351**		0.0305*	0.0399***	0.0596***	0.0361**	0.0649***
	(0.0183)		(0.0552)	(0.0052)	(0.0003)	(0.0128)	(0.0000)
UAV		0.0361***			0.2720***		
		(0.0057)			(0.0001)		
INSQ			0.2188***			0.3269***	
			(0.0019)			(0.0006)	
FDEV				0.2822***			0.3571***
				(0.0000)			(0.0000)
EPU x dumUAV					-0.1422***		
					(0.0002)		
EPU x dumINSQ						-0.0081**	
						(0.0118)	
EPU x dumFDEV							-0.0173***
							(0.0015)
MTB	-0.0009	0.0183	-0.0124	-0.0211**	0.0019	-0.0123	-0.0119
	(0.1541)	(0.1944)	(0.1039)	(0.0189)	(0.8212)	(0.1447)	(0.1914)
TANG	0.8814***	0.1260***	1.1423***	1.2252***	0.9730***	1.0673***	1.0937***
	(0.0000)	(0.0011)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
SIZE	0.0747**	-0.0191	0.0840***	0.1040***	0.0681***	0.0714***	0.0837***
	(0.0177)	(0.1277)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ROA	-0.0336*	-0.0017	-0.0100***	-0.0138***	0.0014	-0.0093***	-0.0140***
	(0.0923)	(0.6529)	(0.0000)	(0.0000)	(0.6793)	(0.0001)	(0.0000)
NDTS	-0.8713**	-0.2898***	-3.2042***	-2.8184***	-0.9462**	-3.3419***	-2.6299***
	(0.0359)	(0.0020)	(0.0000)	(0.0000)	(0.0243)	(0.0000)	(0.0000)
Obs.	29,760	29,760	29,760	29,760	29,760	29,760	29,760
Wald test	9070***	9821***	10299***	9457***	10280***	10752***	9608***
AR1	-3.93***	-3.95***	-8.85***	-9.10***	-9.29***	-9.84***	-9.26***
AR2	0.48	1.53	1.02	0.36	0.47	1.08	0.60
Hansen test	40.97	42.73	40.94	42.82	44.92	41.90	42.53

Estimated coefficients (p-values) of the GMM estimation. The dependent variable ($LEV1_t$) is the ratio of long and short term debt to total assets at the end of period t, $LEV1_{t-1}$ is the debt ratio at time t-1; EPU is the natural logarithm of the yearly arithmetic average of the EPU index; UAV is the natural logarithm of Hofstede's (2001) uncertainty avoidance index; INSQ is the normalized sum of four World Bank Worldwide Governance Indicators (government effectiveness, regulatory quality, rule of law, and control of corruption); FDEV is the Financial Development Index of the International Monetary Fund; dumUAV is a dummy variable which equals 1 if UAV is above the yearly sample median, and zero otherwise; dumINSQ is a dummy variable which equals 1 if INSQ is above the yearly sample median, and zero otherwise; dumFDEV is a dummy variable which equals 1 if FDEV is above the yearly sample median, and zero otherwise; MTB is the sum of the equity market value plus debt book value over total assets; TANG is the ratio of tangible assets to total assets; SIZE is the natural logarithm of total assets; ROA is the return on assets; and NDTS is the ratio of amortization to total assets. All the models include country dummy variables. The Wald test contrasts the joint significance of the explanatory variables. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients, and tests the validity of the instruments. ***, **, *: for statistical significance at the 1%, 5% and 10% level.

Economic policy uncertainty (*EPU*), uncertainty avoidance (*UAV*), institutional quality (*INSQ*), and financial development (*FDEV*) are positively and significantly related to leverage (Columns 1 to 4 in Table 27). These results confirm our first two hypotheses concerning the relationship between economic policy uncertainty (H11), uncertainty avoidance (H12a), and capital structure. In addition, the negative coefficients of the interactions of economic policy uncertainty with uncertainty avoidance (*EPUxdumUAV*) (Column 5), institutional quality (*EPUxdumINSQ*) (Column 6), and financial development (*EPUxdumFDEV*) (Column 7) suggest that the positive relationship is attenuated by these three country institutions (Hypotheses 12b, 12c, 12d).

These results indicate that economic policy uncertainty increases the asymmetric information problem between firms and their funders, making debt a more adequate source of funding than equity to solve this problem, and leading to higher leverage. Additionally, this relationship is negatively moderated by institutional conditions, as shown in Figure 4. Uncertainty avoidance makes managers take fewer risks and reduces their opportunistic behaviour for fear of the discretionary allocation of resources being punished, while institutional quality and financial development work as substitute mechanisms for debt to narrow the asymmetric information gap due to economic policy uncertainty.

Figure 4. Leverage, economic policy uncertainty, and country institutions in Europe



The negative coefficient of growth opportunities (*MTB*) means that firms avoid debt financing when they have such growth options, which is in line with the

agency theory. The positive influence of tangibility (*TANG*) and size is consistent with the reduction in bankruptcy risk proposed by the trade-off theory. The negative estimate of profitability (*ROA*) is explained by the pecking order theory, while the negative sign of *NDTS* is also as suggested by the trade-off theory. Taken together, our results are in line with those of Flannery and Rangan (2006); Frank and Goyal (2009); Drobetz *et al.* (2015); Halling *et al.* (2016). The AR2 and Hansen tests show there are no concerns vis-à-vis second-order serial correlation and instrument validity.

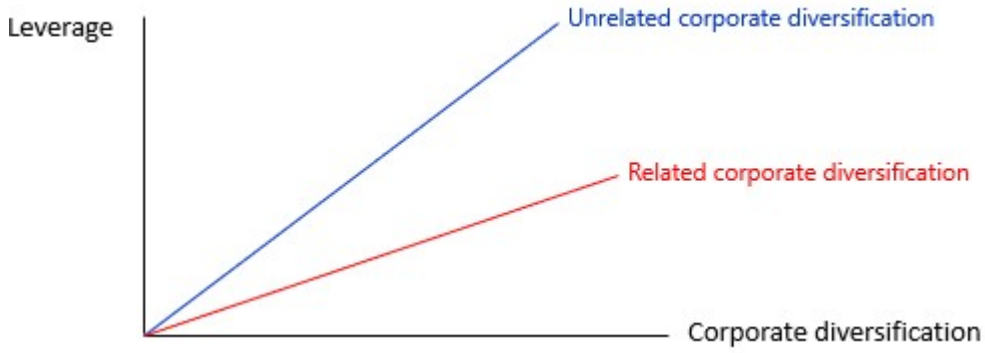
Table 28 reports the relationship between capital structure and corporate diversification. We run separate regressions for total diversification (*TDIV*) as well as for related (*RDIV*) and unrelated diversification (*UDIV*). In all cases, our results support hypothesis H13a, according to which business diversification exerts a positive influence on leverage since it reduces risk. The results in column 2 suggest that, as stated in H13b, this influence is stronger for unrelated diversification due to a higher co-insurance effect and lower asset specificity. For example, a one standard deviation increase in unrelated diversification increases the firm's debt ratio by 1.63% percentage points, whereas a one standard deviation increase in related diversification results in the firm's debt ratio rising by 1.15% percentage points. In turn, risk decreases due to a higher co-insurance effect, with lower asset specificity more than making up for potential managerial opportunism, as Figure 5 shows.

Table 28. Economic policy uncertainty and corporate diversification

	(1)	(2)	(3)	(4)
$LEV1_{t-1}$	0.4763***	0.5285***	0.6312***	0.7848***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
EPU			0.1717***	0.2685***
			(0.0080)	(0.0006)
TDIV	0.0423***		0.4123**	
	(0.0022)		(0.0370)	
RDIV		0.0464***		0.9875**
		(0.0024)		(0.0412)
UDIV		0.0479***		1.0413***
		(0.0002)		(0.0046)
EPU x dumTDIV			-0.2070**	
			(0.0306)	
EPU x dumRDIV				-0.2841**
				(0.0471)
EPU x dumUDIV				-0.2677**
				(0.0139)
MTB	-0.0171***	-0.0126*	0.0014	-0.0143
	(0.0002)	(0.0652)	(0.7214)	(0.3940)
TANG	0.4300***	0.2165***	0.8505***	0.1344
	(0.0008)	(0.0000)	(0.0040)	(0.3472)
SIZE	-0.0304	-0.0289	0.0958	0.0502
	(0.1089)	(0.1024)	(0.1408)	(0.3836)
ROA	-0.1880***	-0.2024***	-0.0235	0.0039
	(0.0000)	(0.0001)	(0.1614)	(0.5132)
NDTS	-1.1976***	-1.7365***	-1.6844*	0.8795
	(0.0000)	(0.0000)	(0.0918)	(0.1564)
Obs.	24,167	24,167	24,167	24,167
Wald test	471***	1127***	364.4***	320.6***
AR1	-3.15***	-3.20***	-5.18***	-4.57***
AR2	1.77***	1.93***	-0.52***	-1.14***
Hansen test	54.32	53.94	25.22	19.84

Estimated coefficients (p-values) of the GMM estimation. The dependent variable ($LEV1_t$) is the ratio of long and short term debt to total assets at the end of period t, $LEV1_{t-1}$ is the debt ratio at time t-1; EPU is the natural logarithm of the yearly arithmetic average of the EPU index; TDIV is total diversification taking into account the amount of sales in each business segment; RDIV is the related diversification index resulting from businesses that are different at the four-digit segment, within a two-digit industry group; UDIV is the unrelated diversification index resulting from businesses in different two-digit industry groups; dumTDIV is a dummy variable which equals 1 if TDIV is above the yearly sample median, and zero otherwise; dumRDIV is a dummy variable which equals 1 if RDIV is above the yearly sample median, and zero otherwise; dumUDIV is a dummy variable which equals 1 if UDIV is above the yearly sample median, and zero otherwise; MTB is the sum of the equity market value plus debt book value over total assets; TANG is the ratio of tangible assets to total assets; SIZE is the natural logarithm of total assets; ROA is the return on assets; and NDTS is the ratio of amortization to total assets. All the models include country dummy variables. The Wald test contrasts the joint significance of the explanatory variables. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients and tests the validity of the instruments. ***, **, *: for statistical significance at the 1%, 5% and 10% level.

Figure 5. Leverage and corporate diversification in Europe

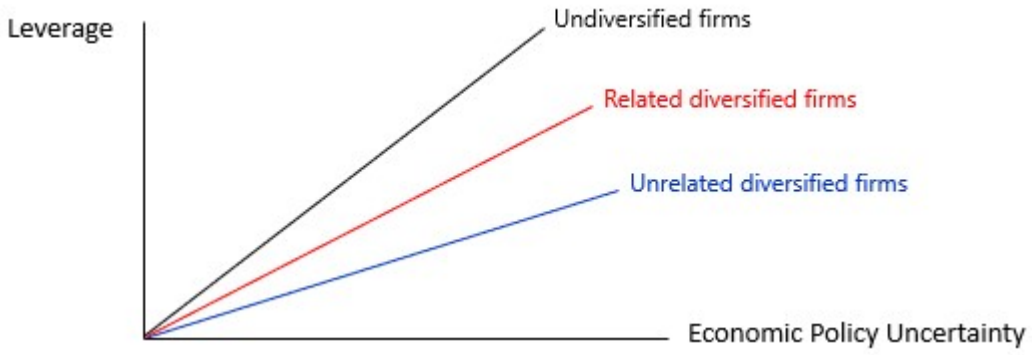


In columns 3 and 4 of Table 28, we test the moderating role of corporate diversification -total, related and unrelated- on the relationship between economic policy uncertainty and leverage (Hypotheses 14a and 14b). As expected, there is a positive relationship between capital structure and economic policy uncertainty – consistent with the results reported in Table 27 – and with all types of corporate diversification -in line with columns 1 and 2 in Table 28-. More importantly, the interaction of the economic policy uncertainty indicator with all the types of diversification has a significant and negative impact on the relationship. At the same time, the moderating effect of unrelated diversification is stronger than that of related diversification: a one standard deviation increase in unrelated diversification attenuates the influence of *EPU* in a firm's debt ratio by 9.09%, whereas a one standard deviation increase in related diversification attenuates the influence of *EPU* in a firm's debt ratio by 7.06%. These results confirm our last pair of hypotheses, such that all the types of corporate diversification moderate the positive influence of economic policy uncertainty on leverage (H14a), with this moderation being stronger for unrelated diversification (H14b). The coefficients and signs of the control variables are similar to those mentioned in Table 27.

These estimates support the idea that corporate diversification lessens, as opposed to a unisegment business, the impact that economic policy uncertainty has on leverage through the coinsurance effect between multiple business segments. Nevertheless, this moderating effect is smaller for related diversification

because its coinsurance channel is weaker than in the unrelated diversification, as Figure 6 shows.

Figure 6. Leverage, economic policy uncertainty, and corporate diversification in Europe



6.3.3. Robustness analysis

We run some additional analyses in order to check the robustness of our results. Specifically, we re-estimate the model using a different measure of leverage. We calculate a new measure of financial leverage (*LEV2*), defined as follows:

$$LEV2_{i,t} = \frac{LTD_{i,t}}{TA_{i,t}}$$

where $LTD_{i,t}$ is long-term debt of firm i at the end of period t, and $TA_{i,t}$ is the total assets of firm i at the end of period t (Ahmed & Hla, 2019).

The new results are reported in Table 29. In the first two columns, we examine how economic policy uncertainty, and uncertainty avoidance directly influence capital structure. It can be seen how economic policy uncertainty (*EPU*), and uncertainty avoidance *(UAV*) continue to exert a significant and positive impact on leverage, in line with hypotheses H11 and H12a. As reported in columns 5, 6 and 7, the relationship between economic policy uncertainty and capital structure is moderated by uncertainty avoidance (*UAV*), institutional quality (*INSQ*), and financial development (*FDEV*), as stated in hypothesis H12b, H12c, H12d.

Table 29. Robustness: institutional conditions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$LEV2_{t-1}$	0.6866***	0.7297***	0.6756***	0.5709***	0.6754***	0.7174***	0.5565***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
EPU	0.0174***			0.0668***	0.0991***	0.0325***	0.0876***
	(0.0000)			(0.0000)	(0.0000)	(0.0000)	(0.0000)
UAV		0.0431***			0.6256***		
		(0.0046)			(0.0000)		
INSQ			0.2452***				
			(0.0000)				
FDEV				0.0399**			0.0949***
				(0.0405)			(0.0000)
EPU x dumUAV					-0.2653***		
					(0.0000)		
EPU x dumINSQ						-0.0104***	
						(0.0006)	
EPU x dumFDEV							-0.0180**
							(0.0270)
MTB	-0.0027***	-0.0042***	0.0004	-0.0005	-0.0001***	0.0015	-0.0739***
	(0.0000)	(0.0000)	(0.8676)	(0.8491)	(0.0000)	(0.7239)	(0.0000)
TANG	0.1492	0.1298**	0.4196***	0.0615**	0.0873	0.1991**	-0.0031
	(0.2456)	(0.0312)	(0.0000)	(0.0483)	(0.4756)	(0.0479)	(0.9800)
SIZE	0.0463	-0.0158	0.0540***	0.0594***	-0.0542	0.0098	0.0158**
	(0.1472)	(0.1160)	(0.0000)	(0.0000)	(0.1495)	(0.2299)	(0.0335)
ROA	-0.1877***	-0.1314***	0.0005	0.0045	-0.0096***	-0.0034***	0.0052
	(0.0000)	(0.0000)	(0.4501)	(0.6818)	(0.0000)	(0.0005)	(0.8452)
NDTS	-0.0556***	0.3557	-0.2839***	0.031	0.4868	-0.6122	0.1331
	(0.0004)	(0.4695)	(0.0001)	(0.8683)	(0.3537)	(0.1645)	(0.7934)
Obs.	45,138	45,138	45,138	45,138	45,138	45,138	45,138
Wald test	7696***	2782***	6926***	9551***	1123***	3303***	4849***
AR1	-5.60***	-11.47***	-11.77***	-5.28***	-6.55***	-11.34***	-6.37***
AR2	1.17***	0.44***	0.68***	-1.90***	-0.88***	-1.51***	-1.63***
Hansen test	22.10	25.70	39.33	42.22	25.62	37.40	31.62

Estimated coefficients (p-values) of the GMM estimation. The dependent variable ($LEV2_t$) is the ratio of long term debt to total assets at the end of period t, $LEV2_{t-1}$ is the debt ratio at time t-1; EPU is the natural logarithm of the yearly arithmetic average of the EPU index; UAV is the natural logarithm of Hofstede's (2001) uncertainty avoidance index; INSQ is the normalized sum of four World Bank Worldwide Governance Indicators (government effectiveness, regulatory quality, rule of law, and control of corruption); FDEV is the Financial Development Index of the International Monetary Fund; dumUAV is a dummy variable which equals 1 if UAV is above the yearly sample median, and zero otherwise; dumINSQ is a dummy variable which equals 1 if INSQ is above the yearly sample median, and zero otherwise; dumFDEV is a dummy variable which equals 1 if FDEV is above the yearly sample median, and zero otherwise; MTB is the sum of the equity market value plus debt book value over total assets; TANG is the ratio of tangible assets to total assets; SIZE is the natural logarithm of total assets; ROA is the return on assets; and NDTS is the ratio of amortization to total assets. All the models include country dummy variables. The Wald test contrasts the joint significance of the explanatory variables. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients, and tests the validity of the instruments. ***, **, *: for statistical significance at the 1%, 5% and 10% level.

In Table 30, we test the robustness of the results concerning corporate diversification (H13a and H13b) and its moderating effect on uncertainty (H14a and H14b). In columns 1 and 2, we show that both types of corporate diversification are positively related to financial leverage, but that the relationship is stronger for unrelated diversification (H13a and H13b). In columns 3 and 4, we test the moderating effect of business diversification on the relationship between economic policy uncertainty and leverage (H14a and H14b). Results show that corporate diversification attenuates the relationship, with this moderating effect being stronger for unrelated diversification. In short, all these results corroborate the robustness of our findings.

Table 30. Robustness: corporate diversification

	(1)	(2)	(3)	(4)
$LEV2_{t-1}$	0.6974***	0.4738***	0.6727***	0.7169***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
EPU			0.1087*	0.1318***
			(0.0658)	(0.0000)
TDIV	0.0591*		0.3479*	
	(0.0741)		(0.0722)	
RDIV		0.0686*		0.4351**
		(0.0855)		(0.0368)
UDIV		0.1046**		0.3605***
		(0.0119)		(0.0018)
EPU x dumTDIV			-0.1554*	
			(0.0777)	
EPU x dumRDIV				-0.1316**
				(0.0342)
EPU x dumUDIV				-0.1519***
				(0.0000)
MTB	-0.0397***	-0.0007	0.0008	-0.0124**
	(0.0015)	(0.4436)	(0.3729)	(0.0225)
TANG	-0.1497	0.134	0.0888	-0.0064
	(0.6545)	(0.1402)	(0.7255)	(0.8866)
SIZE	-0.0362	-0.0059	0.0564	0.0207
	(0.3515)	(0.8190)	(0.2577)	(0.1127)
ROA	-0.0315	-0.0243*	-0.0091	-0.0048
	(0.2530)	(0.0585)	(0.6865)	(0.1423)
NDTS	0.3469	0.8806	0.3051	0.4765
	(0.6441)	(0.1165)	(0.3771)	(0.1168)
Obs.	34,998	34,998	34,998	34,998
Wald test	386.3***	352***	366.6***	1442***
AR1	-7.19***	-1.81***	-6.40***	-8.14***
AR2	0.73	0.34	0.27	1.07
Hansen test	17.44	19.88	27.20	81.02

Estimated coefficients (p-values) of the GMM estimation. The dependent variable ($LEV2_t$) is the ratio long of term debt to total assets at the end of period t, $LEV2_{t-1}$ is the debt ratio at time t-1; EPU is the natural logarithm of the yearly arithmetic average of the EPU index; TDIV is total diversification taking into account the amount of sales in each business segment; RDIV is the related diversification index resulting from businesses that are different at the four-digit segment, within a two-digit industry group; UDIV is the unrelated diversification index resulting from businesses in different two-digit industry groups; dumTDIV is a dummy variable which equals 1 if TDIV is above the yearly sample median, and zero otherwise; dumRDIV is a dummy variable which equals 1 if RDIV is above the yearly sample median, and zero otherwise; dumUDIV is a dummy variable which equals 1 if UDIV is above the yearly sample median, and zero otherwise; MTB is the sum of the equity market value plus debt book value over total assets; TANG is the ratio of tangible assets to total assets; SIZE is the natural logarithm of total assets; ROA is the return on assets; and NDTS is the ratio of amortization to total assets. All the models include country dummy variables. The Wald test contrasts the joint significance of the explanatory variables. AR1 and AR2 are first and second order serial correlation statistics. The Hansen test is distributed as a $\chi 2$ with degrees of freedom equal to the number of estimated coefficients, and tests the validity of the instruments. ***, **, *: for statistical significance at the 1%, 5% and 10% level.

7. CONCLUSIONS

Traditional financial theories have focused firm-specific characteristics as determinants of corporate financial decisions and have underestimated the importance of the macroeconomic environment. However, recent events such as the worldwide recession of 2008, the COVID-19 Pandemic Recession and even the current war in Ukraine have confirmed the growing importance of the macroeconomic environment in understanding business decision-making. In this vein, the motivation of this dissertation relies on the interest in analysing how the introduction of the monetary and real spheres of the economy improves the traditional explanations of the determinants of corporate finance. We, therefore, posit that capital structure theories must be extended to take into account the macroeconomic environment in which the firm operates.

Our study is developed in three lines. We initially analyse whether monetary policy affects the way in which companies obtain their financial resources. This issue can be especially relevant in in bank-oriented financial systems in which banks act as a transmission mechanism between the central bank and economic agents. Prior to the 2008 crisis, low interest rates and a large stock of money as a result of central bank policies led to excessive leverage in companies, households and governments. In the subsequent recession period, firms were insensitive to expansive low interest rate policies because their main objective was to achieve financial health and reduce their leverage. Another example of macroeconomic influence on capital structure that this dissertation address is the labour market. Rigid labour conditions prevent firms from adapting to changes in the macroeconomic environment, resulting in higher bankruptcy costs that discourage firms from borrowing and, in the worst case, lead to further job destruction. Lastly, our work explores the ability of debt to reduce opportunism in a framework of economic policy uncertainty. In this setting, we should keep in mind that the institutional conditions of the country in which the firm operates and the corporate

diversification strategy could moderate the relation between capital structure and economic public uncertainty.

As far as the impact of monetary policy is concerned, we shed some light on this question by exploring the effect of two key variables: the interest rates or money price (interest rate channel) and the liquidity or money supply in the economy (bank lending channel) throughout the business cycle. To this purpose, we use a sample of listed non-financial firms from Germany, Spain, France, Italy, and the United Kingdom between 2003 and 2013.

Consistently with previous studies, we show that the growth phase of the cycle begins with a drop in liquidity due to an increasing preference for investment and debt. This is accompanied by low interest rates and a wide spread between short and long term rates which reflects good investment opportunities and increases the propensity to overinvestment and over-indebtedness. The velocity of money grows in parallel to deal with the higher transaction volume associated with new investments, which, in turn, increases firms' leverage. The recession phase is marked by a decline in interest rates, a narrow but growing spread, and rising liquidity. However, firms do not take advantage of these circumstances, as in a climate of uncertainty they prioritise solvency and reduce the leverage. Meanwhile, the velocity of money slows down due to low transaction volume. All this results in more information asymmetry with potential lenders and more difficult borrowing for firms. Additionally, we find an asymmetric speed of adjustment to the target debt ratio, being faster in the expansion phase.

Concerning the labour market, our second area of interest, we explore the effect of two key macroeconomic variables related to the labour market: unemployment and inflation rates. We then examine how labour market imperfections might affect firms' capital structure through employees' rights and downward wage rigidity in a sample of almost 3,000 non-financial listed firms from the same countries between 2003 and 2015.

As expected, our results confirm that labour market conditions influence firms' capital structure. We initially find that the unemployment ratio results in additional compensation for unemployment risk, which has a negative impact on financial leverage. On the contrary, inflation reduces employees' real wages and drive upwards the financial leverage. Our results also suggest a non-linear relationship with employees' labour rights: positive for low levels of labour rights and negative for high levels. This relationship is explained from the perspective of agency theory in the case of direct rights, while the opportunity cost of leisure provides the theoretical justification for the influence of indirect rights. Our last contribution in this area is the negative relationship with downward wage rigidity because it increases the firm's operating leverage and, therefore, the risk of bankruptcy. However, in a non-competitive industry this effect is moderated by firms' market power, as it enhances price-cost mark-ups that counterbalance the labour cost rigidities.

We also contribute to the literature in our third area of interest, the economic policy uncertainty. In this field, we study how such uncertainty -a market imperfection that exacerbates asymmetric information and opportunism- affects corporate capital structure, and whether institutional conditions and corporate diversification moderate this relationship. To this end, we analyse a sample of 3,175 non-financial listed firms from eleven European Union countries (Germany, Spain, France, Italy, the United Kingdom, Belgium, Netherlands, Sweden, Greece, Ireland, and Croatia) for the period 2000 to 2019.

Our results are in line with previous studies and confirm that economic policy uncertainty is positively related to financial leverage, since debt works as a mechanism to alleviate the asymmetric information problems raised by uncertainty. One derived consequence is the reduced need to monitor managerial discretionary behaviour in certain environments such as those characterized by a greater uncertainty avoidance, higher institutional quality or a more developed financial system. We also find a positive relationship between leverage and

corporate diversification. Coinsurance between business segments and the lower asset specificity prevail over the unclear increase in agency costs associated with corporate diversification, with this effect being stronger for unrelated than for related diversification. Furthermore, corporate diversification attenuates the positive effect of economic policy uncertainty on financial leverage. Although this holds for both types of diversification, the coinsurance channel enabled by unrelated diversification is more intense than by related diversification.

Our research has implications for practitioners, policymakers and academia. Managers could improve their financial decisions and their firm's capital structure by analysing trends in long- and short-term interest rates, spread rates, and liquidity, particularly in bank-based financial systems. Firms operating in market-based economies, however, need to pay special attention to key real macroeconomic variables, such as the productivity and flexibility of the labour market, technological innovation, or the degree of economic freedom. Our research also underlines that firms should make decisions taking into account not only their specific financial characteristics, but also the labour market conditions in which they operate. In turn, in order to achieve the optimal financial structure, managers should not focus on financial issues but keep in mind unemployment and inflation conditions, employees' bargaining power, the level of downward wage rigidity, and firms' market power. Moreover, managers should also take into account the relevant role played by the economic policy uncertainty and the institutional conditions. Additionally, financial strategy emerges as part of the global company strategy, such that it interacts with diversification strategy when dealing with uncertain environments. Thus, incumbents (managers, shareholders and debtholders) should balance the pros and cons of the institutional conditions and the different types of corporate diversification in order to deal with economic policy uncertainty.

Our research also has useful implications for policymakers. A country's financial stability depends largely on its monetary policy and there are several key

factors that Central Banks should consider. One of them is the excess of liquidity, which can unnecessarily increase credit risk if poor-quality financial assets have been used to finance risky investments with low profitability. Another factor strongly linked to the previous one is the interest rates, which can increase asset price risk and hinder cash flow forecasts. Additionally, our results remind the policymakers of the multifaceted implications of countries' labour markets and that the interests of employees and firms must be balanced in order to assure firms' financial stability and stimulate economic growth. Finally, we underline that economic policy uncertainty is strongly related to firms' financial leverage and, ultimately, to countries financial stability. In times of high political and economic uncertainty, this implication is especially relevant, since we show that the effect of uncertainty is highly dependent on the institutional environment, such that the effectiveness of policy measures is not universal.

Our research is not without limitations. In spite of being representative of the largest European countries, it could be expanded to other key non-European countries with different institutional and cultural frameworks or firm-level characteristics. Tax reforms, for instance, is a good example of an institutional variable that could be introduced in further analyses. Tax reforms modify employees' net income and, in turn, may alter the demand for labour rights to maintain the same opportunity cost of leisure, thus influencing the company's borrowing capacity.

Furthermore, our empirical study opens some interesting possibilities for future research. It might be worth analysing the influence of other monetary channels such as the unanticipated inflation channel, and giving more explicit consideration to size segmentation or to country-specific legal and institutional factors and their interaction with firm characteristics and macroeconomic variables. A further avenue of research in the current scenario created by the consequences of COVID-19 pandemic and the war in Europe could be to explore the moderating role of unconventional monetary channels (such as forward

guidance) or the use of diversified sources of debt (not only bank or market debt) to mitigate the effect of the present climate of uncertainty.

Regarding labour markets, future research could also address the role of labour productivity, which increases employees' bargaining power and leads them to obtain better conditions in their individual employment contracts. In addition, our research raises some labour market issues that call for new analyses, such as employees' equity ownership. In the modern knowledge economy, a new avenue of research to be explored might be the link between investments in specific human capital and corporate finance. Moreover, it could be a topic of interest to study the effect of intellectual property on capital structure as a governance mechanism to protect firms from the loss of talented employees.

Finally, there are some corporate governance issues that call for a fresh inquiry, such as the role played by dividend policy or the effect of managerial ownership and compensation to alleviate agency problems caused by economic policy uncertainty. The uncertainty generated by the armed conflict in Ukraine and the change in unconventional monetary policy open a new avenue of research on the relationship between environmental (not only economic policy) uncertainty, business diversification and new sources of funds provided by public authorities.

8. APPENDIX A. Variables definition

8.1. Interest rates, liquidity and the corporate financing decision throughout the business cycle: A European analysis

Variable	Definition	Source
LEV1	Sum of the firms' long-term debt excluding risk and pension provisions, deferred taxes and deferred income, plus its short-term debt over total assets.	Orbis
$LEV1_{t-1}$	Leverage in the previous period.	Orbis
LIR	Ten-year sovereign bond yield.	Eikon
SIR	Two-year sovereign bond yield.	Eikon
SPR	Difference between the two above.	Eikon
NBR	Ratio of M1 to M3 monetary aggregates.	Eikon
VOM	Ratio of the nominal GDP to M1 money supply.	Eikon
MTB	Sum of the market value of shares plus total debt over total assets.	Orbis
TANG	Percentage of tangible assets over total assets.	Orbis
SIZE	Natural logarithm of its total assets.	Orbis
ROA	Ratio of profits before interest and taxes (EBIT) to total assets.	Orbis
NDTS	Ratio of depreciation expenses to total assets.	Orbis

8.2. Labour market conditions and the corporate financing decision: A European analysis

Variable	Definition	Source
LEV1	Sum of the firms' long-term debt excluding risk and pension provisions, deferred taxes and deferred income, plus its short-term debt over total assets.	Orbis
$LEV1_{t-1}$	Leverage in the previous period.	Orbis
UNE	Number of unemployed people as a percentage of the labour forcé.	OECD and ILO
INF	Annual rate of change in the consumer price index.	OECD and ILO
CBC	Proportion of employees influenced by collective negotiation.	OECD and ILO
TUD	Proportion of employees that are trade union members.	OECD and ILO
MWM	Ratio of minimum wages to median wages.	OECD and ILO
UNP	Ratio of public spending on unemployment, i.e., expenditure on cash benefits to GDP for people in order to compensate for unemployment.	OECD and ILO
DWR	Proportion of wages to GDP.	OECD and ILO
MPH	Herfindahl Hirschman index (2-digit SIC level).	Orbis
MPS	Market share (2-digit SIC level).	Orbis
MTB	Sum of the market value of shares plus total debt over total assets.	Orbis
TANG	Percentage of tangible assets over total assets.	Orbis
SIZE	Natural logarithm of its total assets.	Orbis
ROA	Ratio of profits before interest and taxes (EBIT) to total assets.	Orbis
NDTS	Ratio of depreciation expenses to total assets.	Orbis

8.3. Shields against uncertainty and capital structure: The role of institutions and corporate diversification in Europe

Variable	Definition	Source
LEV1	Sum of the firms' long-term debt excluding risk and pension provisions, deferred taxes and deferred income, plus its short-term debt over total assets.	Eikon
$LEV1_{t-1}$	Leverage in the previous period.	Eikon
EPU	EPU index. This index is based on the press coverage of policy-related economic uncertainty by the main newspapers in each country. It is reported monthly, we convert it into annual data to match our data structure using the natural logarithm of the yearly arithmetic average.	Baker, Bloom, and Davis's website
UAV	Natural logarithm of Hofstede's (2001) uncertainty avoidance index.	World Bank
INSQ	Normalized sum (between 0 and 1, with 1 being the highest quality and 0 the lowest) of four World Bank Worldwide Governance Indicators in each country and year: government effectiveness, regulatory quality, rule of law, and control of corruption.	World Bank
FDEV	Financial Development Index in each country and year. It ranges between 0 and 1, with 1 being the highest development level and 0 the lowest.	International Monetary Found
TDIV	Total level of diversification is calculated as $\sum_{j=1}^{n} Pj * \ln\left(\frac{1}{Pj}\right)$, where n is the number of a firm's segments (at the 4-digit SIC code level), Pj refers to the proportion of sales in business segment j, and ln(1/Pj) is the weight of the segment.	Eikon
RDIV	The related diversification index results from businesses in different four-digit segments, within a two-digit industry group.	Eikon
UDIV	The unrelated diversification index is the result of businesses in different two-digit industry groups.	Eikon
MTB	Sum of the market value of shares plus total debt over total assets.	Eikon
TANG	Percentage of tangible assets over total assets.	Eikon
SIZE	Natural logarithm of its total assets.	Eikon
ROA	Ratio of profits before interest and taxes (EBIT) to total assets.	Eikon
NDTS	Ratio of depreciation expenses to total assets.	Eikon

9. APPENDIX B. Bibliometrics

9.1. Interest rates, liquidity and the corporate financing decision throughout the business cycle: A European analysis

XXIX
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2019 A CORUÑA

"Globalización en entornos de complejidad e incertidumbre"

CERTIFICADO

La comunicación titulada:

DETERMINANTES MONETARIOS DE LA ESTRUCTURA DE CAPITAL DE LA EMPRESA A LO LARGO DEL CICLO ECONÓMICO: TIPOS DE INTERÉS Y MERCADO DE DINERO

de la que es/son autor/es:

RODRÍGUEZ SANZ JUAN ANTONIO; VEGA GUTIÉRREZ PEDRO LUIS

Ha sido presentada en formato **COMUNICACIÓN ORAL** durante el **XXIX CONGRESO DE ACEDE**, celebrado en A Coruña los días 16, 17 y 18 de junio de 2019.

Rafael García Rodríguez
Presidente Comité Organizador
XXIX Congreso ACEDE

Spanish Journal of Finance and Accounting / Revista Española de Financiación y Contabilidad ›

Volume 51, 2022 - Issue 2

Routledge
Taylor & Francis Group

Research Article

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Pages 232-262 | Received 15 Aug 2020, Accepted 05 Apr 2021, Published online: 24 Jul 2021

Download citation https://doi.org/10.1080/02102412.2021.1914388 Check for updates

InCites Journal Citation Reports — Clarivate

Spanish Journal of Finance and Accounting-Revista Espanola de Financiacion y Contabilidad

0210-2412

2332-0753

SPAN J FINANC ACCOUN

Span. J. Financ. Account.

Journal information

Social Sciences Citation Index (SSCI)

BUSINESS, FINANCE - SSCI

Spanish | SPAIN | 2014

Publisher information

ROUTLEDGE JOURNALS, TAYLOR & FRANCIS LTD | 2-4 PARK SQUARE, MILTON PARK, ABINGDON OX14 4RN, OXON, ENGLAND | 4 issues/year

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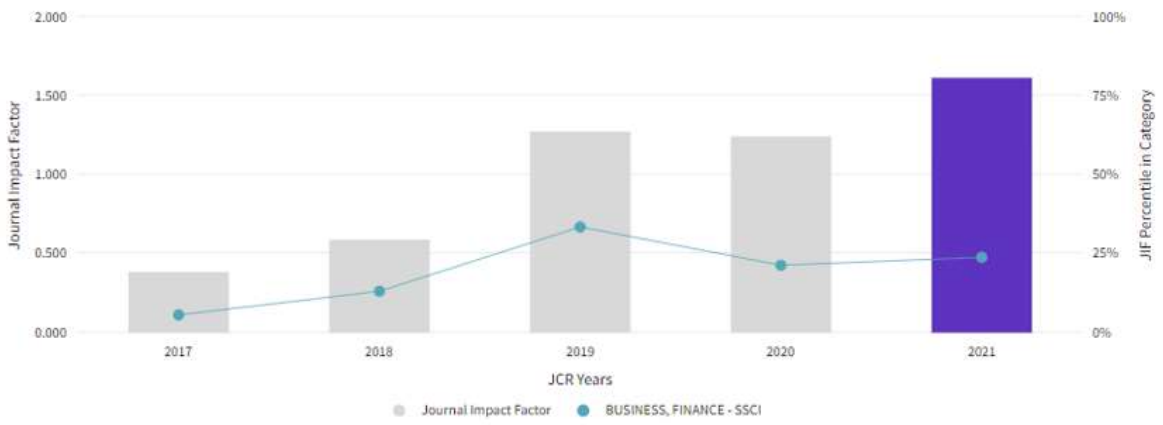

9.2. Labour market conditions and the corporate financing decision: A European analysis

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authored by

Pedro Luis Vega Gutiérrez
Félix Javier López Iturriaga
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Research in International Business and Finance 58 (2021) 101431

Contents lists available at ScienceDirect

Research in International Business and Finance

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Full length Article

Labour market conditions and the corporate financing decision: A European analysis☆

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Research in International Business and Finance

0275-5319

1878-3384

RES INT BUS FINANC

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Journal information

Social Sciences Citation Index (SSCI)

BUSINESS, FINANCE - SSCI

English | NETHERLANDS | 2018

Publisher information

ELSEVIER | RADARWEG 29, 1043 NX AMSTERDAM, NETHERLANDS | 4 issues/year

2021 JOURNAL IMPACT FACTOR

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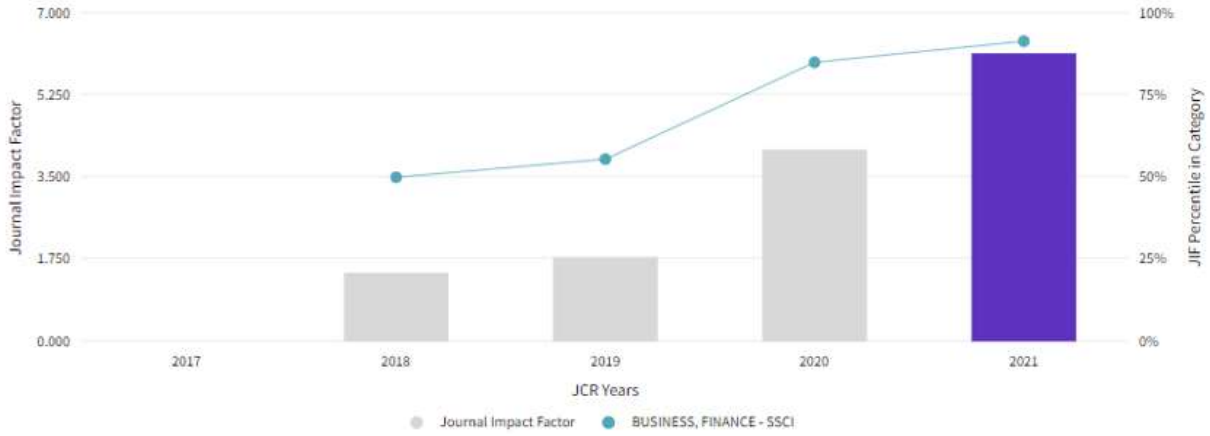

9.3. Shields against uncertainty and capital structure: The role of institutions and corporate diversification in Europe

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Corporate diversification and capital structure in uncertain times: A European analysis
Autor(es): Vega Gutiérrez, Pedro Luis; López Iturriaga, Félix J.; Rodríguez Sanz, Juan Antonio
Grupo de trabajo/Tipo de contribución: Paper (oral session)
Relator: González Méndez, Víctor M.

DEBT, EFFICIENCY AND PRIVATE FUNDING IN NONPROFIT ORGANIZATIONS
Autor(es): Elvira-Lorilla, Teresa; Garcia-Rodriguez, Inigo; Romero-Merino, M. Elena
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10. REFERENCES

Agrawal, A.K., Matsa, D.A. (2013). Labor unemployment risk and corporate financing decisions. *J. Financ. Econ., 108*, 449–470. DOI:10.1016/j. jfineco.2012.11.006.

Ahmed, Z., & Hla, D.T. (2019). Stock return volatility and capital structure measures of nonfinancial firms in a dynamic panel model: Evidence from Pakistan. *International Journal of Finance and Economics, 24*(1), 604-628. DOI: 10.1002/ijfe.1682

Aivazian, V.A., Qiu, J., Rahaman, M.M. (2015). Bank loan contracting and corporate diversification: does organizational structure matter to lenders? *Journal of Financial Intermediation, 24*(2), 252-282. DOI: 10.1016/j.jfi.2015.02.002.

Akerlof, G.A.W., Dickens, W.T., Perry, G.L., Gordon, R.J., Mankiw, N.G. (1996). The macroeconomics of low inflation. *Brook. Pap. Econ. Act. Microecon., 27* (1), 1–76. https://www.jstor.org/stable/2534646.

Akhtar, S. (2011). Capital structure and business cycles. *Accounting & Finance, 52*(s1), 25–48. DOI: 10.1111/j.1467-629X.2011.00425.x.

Akyol, A.C., Verwijmeren, P. (2013). Human capital costs, firm leverage, and unemployment rates. *J. Financ. Intermediation, 22*(3), 464–481. DOI: 10.1016/j.jfi.2013.04.003.

Almeida, H, Campello, M., Weisbach, M.S. (2011). Corporate financial and investment policies when future financing is not frictionless. *Journal of Corporate Finance, 17*(3), 675-693. DOI: 10.1016/j.jcorpfin.2009.04.001.

Altman, R.C. (2009). *The Great Crash, 2008: A Geopolitical Setback for the West*. Foreign Affairs 88, 2-14.

Alves, P., & Francisco, P. (2015). The impact of institutional environment on the capital structure of firms during recent financial crises. *The Quarterly Review of Economics and Finance, 57*, 129-146. DOI: 10.1016/j.qref.2014.12.001

Antoniou, A., Guney, Y., Paudyal, K. (2008). The determinants of capital structure: capital market-oriented versus bank-oriented institutions. *J. Financ. Quant. Anal., 43* (1), 59–92. DOI: 10.1017/S0022109000002751.

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies, 58*, 277–297. DOI: 10.2307/2297968.

Ashraf, B.N., Zheng, C., Arshad, S. (2016). Effects of national culture on bank risk-taking behavior. *Research in International Business and Finance, 37*, 309-326. DOI: 10.1016/j.ribaf.2016.01.015.

Asongu, S.A., Koomson, I., Tchamyou, V.S. (2017). Financial globalisation uncertainty/instability is good for financial development. *Research in International Business and Finance, 41*, 280-291. DOI: 10.1016/j.ribaf.2017.04.042.

Aubert, N., Kern, A., Hollandts, X. (2017). Employee stock ownership and the cost of capital. *Res. Int. Bus. Financ,. 41*, 67–78. DOI: 10.1016/j. ribaf.2017.04.007.

Bae, K.-H., Kang, J.-K., Wang, J. (2011). Employee treatment and firm leverage: a test of the stakeholder theory of capital structure. *J. financ. econ., 100*(1), 130–153. DOI: 10.1016/j.jfineco.2010.10.019.

Bajaj, Y., Kashiramka, S., Singh, S. (2021). Economic policy uncertainty and leverage dynamics: Evidence from an emerging economy. *International Review of Financial Analysis, 77*, 101836. DOI: 10.1016/j.irfa.2021.101836.

Barnea, A., Haugen, R.A., Senbet, L.W. (1985). *Agency problems and financial contracting*. Prentice Hall.

Barro, R. J. (2006). Rare disasters and asset markets in the twentieth century. *Quarterly Journal of Economics, 121*(3), 823–866. DOI: 10.2307/3665696.

Barton, S. L., Hill, C. H., Sundaram, S. (1989). An empirical test of stakeholder theory predictions of capital structure. *Financial Management, 18*(1), 36–44. DOI: 10.2307/ 3665696.

Bastos, D.D., Nakamura, W.T., Basso, L.F.C. (2009). Determinants of capital structure of publicly-traded companies in Latin America: the role of institutional and macroeconomic factors. *J. Int. Financ. Econ., 9*(3), 24–39. DOI: 10.2139/ssrn.1365987.

Basu, K. (2015). Market imperfections and optimal capital structure: evidence from indian panel data. *Glob. Bus. Rev., 16*(1), 61–83. DOI: 10.1177/ 0972150914553509.

Beck, T., Degryse, H., De Haas, R., Van Horen, N. (2017). When arm's length is too far. Relationship banking over the business cycle. *Journal of Financial Economics, 127*(1), 174–196. DOI: 10.1016/j.jfineco.2017.11.007.

Becker, G.S. (1965). A theory of the allocation of time. *Econ. J., 299*(77), 493–517. DOI: 10.1111/ecoj.12157.

Bell, B., Machin, S. (2018). Minimum wages and firm value. *J. Labor Econ., 36*(1), 159–195. https://www.jstor.org/stable/2228949.

Ben-Nasr, H. (2019). Do unemployment benefits affect the choice of debt source? *J. Corp. Financ. 56*, 88–107. DOI: 10.1016/j.jcorpfin.2019.01.006.

Berger, A.N., Bonaccorsi di Patti, E. (2006). Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *J. Banking Finance, 30*(4), 1065–1102. DOI:10.1016/j.jbankfin.2005.05.015.

Bernanke, B., & Gertler, M. (1995). Inside the black box: The credit channel of monetary policy transmission. *Journal of Economic Perspectives, 9*(4), 27–48. DOI:10.1257/jep.9.4.27.

Bertola, G., Dabusinskas, A., Hoeberichts, M., Izquierdo, M., Kwapil, C., Montorn`es, J., Radowski, D. (2012). Price, wage and employment response to shocks: evidence from the WDN survey. *Labour Econ., 19*(5), 783–791. DOI: 10.1016/j.labeco.2012.03.008.

Besanko, D., Dranove, D., Shanley, M., Schaefer, S. (2012). *Economics of Strategy*. Wiley, New York.

Betcherman, G. (2014). Labor market regulations: what do we know about their impacts in developing countries? *World Bank Res. Obs., 30*(1), 124–153. DOI: 10.1093/wbro/lku005.

Bielstein, P., Fischer, M., Kaserer, C. (2018). The cost of capital effect of M&A transactions:Disentangling coinsurance from the diversification discount. *European Financial Management, 24*(4), 650-679. DOI: 10.1111/eufm.12177.

Blanchard, O., Giavazzi, F. (2003). Macroeconomic effects of regulation and deregulation in goods and labor markets. *Q. J. Econ., 188*, 879–907. DOI: 10.1162/00335530360698450.

Blanchard, O. (2017). *Macroeconomía*. Pearson, Madrid.

Blundell, R., & S. Bond. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics, 87*(1), 115-143. DOI: 10.1016/S0304-4076(98)00009-8.

Brown, J., & Matsa, D.A. (2016). Boarding a sinking ship? An investigation of job applications to distressed firms. *J. Finance, 71*(2), 507–550. DOI: 10.1111/ jofi.12367.

Boeri, T. (2011). *Institutional reforms and dualism in European labor markets*. Chapter 13 in *Handbook of labor economics*. Elsevier, Amsterdam.

Boot, A. (2000). Relationship banking: What do we know? *Journal of Financial Intermediation, 9*(1), 7–25. DOI: 10.1006/jfin.2000.0282.

Borio, C. (2011). Rediscovering the macroeconomic roots of financial stability policy: Journey, challenges and a way forward. *Annual Review of Financial Economics, 3*(1), 87–117. DOI:10.1146/annurev-financial-102710-144819.

Boubakri, N., Mirzaei, A., Samet, A. (2017). National culture and bank performance: Evidence from the recent financial crisis. *Journal of Financial Stability, 29*, 36-56. DOI: 10.1016/j.jfs.2017.02.003.

Bournakis, I., & Mallick, S. (2018). TFP estimation at firm level: The fiscal aspect of productivity convergence in the UK. *Economic Modelling, 70*(April), 579-590. DOI: 10.1016/j. econmod.2017.11.021.

Boysen-Hogrefe, J., & Groll, D. (2010). The German Labour Market Miracle. *National Institute Economic Review, 214*(1), 38. DOI: 10.1177/0027950110389760.

Camara, O. (2012). Capital structure adjustment speed and macroeconomic conditions: U.S. MNCs and DCs. *Int. Res. J. Finance and Econ., 84*, 106–120. DOI: 10.1016/j.mulfin.2012.10.001.

Campa, M., & Kedia, S. (2002). Explaining the diversification discount. *Journal of Finance, 57*(4), 1731-62. DOI: 10.1111/1540-6261.00476.

Campbell, G., & Rogers, M. (2018). Capital structure volatility in Europe. *International Review of Financial Analysis, 55*(January), 128–139. DOI: 10.1016/j.irfa.2017.11.008.

Cannan, E. (1921). The meaning of bank deposits. *Economica, 1*(1), 28–36. DOI: 10. 2307/2548502.

Cappa, F., Cetrini, G., Oriani, R. (2020).The impact of corporate strategy on capital structure: evidence from Italian listed firms. *Quarterly Review of Economics and Finance, 76*, 379-385. DOI: 10.1016/j.qref.2019.09.005.

Chang, X., Chen, Y., & Dasgupta, S. (2019). Macroeconomic conditions, financial constraints,and firm's financing decisions. *Journal of Banking and Finance, 101*(April), 242–255. DOI: 10.1016/j.jbankfin.2018.10.016.

Chen, M., Matousek, R.(2020). Do productive firms get external finance? Evidence from Chinese listed manufacturing firms. *Int. Rev. Financ. Anal.,* 67:101422 DOI:10.1016/j.irfa.2019.101422.

Chkir, I. E., & Cosset, J.C. (2001). Diversification strategy and capital structure of multinational corporations. Journal of *Multinational Financial Management, 11*(1), 17–37. DOI: 10.1016/S1042-444X(00)00040-2.

Ciccarelli, M., Maddaloni, A., Peydró, J. L. (2015). Trusting the bankers: A new look at the credit channel of monetary policy. *Review of Economic Dynamics, 18*(4), 979–1002. DOI: 10. 1016/j.red.2014.11.002.

Cook, D., & Tang, T. (2010). Macroeconomic conditions and capital structure adjustment speed. *Journal of Corporate Finance, 16*(1), 73–87. DOI: 10.1016/j.jcorpfin.2009.02.003.

Daskalakis, N., Balios, D., Dalla, V. (2017). The behaviour of SMEs' capital structure determinants in different macroeconomic states. *Journal of Corporate Finance, 246*(October), 248–260. DOI: 10.1016/j.jcorpfin.2017.07.005.

David, P., O'Brien, J., Yoshikawa, T. (2008). The implications of debt heterogeneity for R&D investment and firm performance. *Academy of Management Journal, 51*(1), 165–181. DOI: 10.5465/amj.2008.30772877.

De Miguel, A., & Pindado, J. (2001). Determinants of the capital structure: New evidence from Spanish data. *Journal of Corporate Finance, 7*(1), 77–99. DOI: 10.1016/S0929-1199(00) 00020-1.

DeAngelo, H., & Roll, R. (2015). How stable are corporate capital structures? *Journal of Finance, 70*(1), 373–418. DOI: 10.1111/jofi.12163.

DeAngelo, H., & Masulis, R. W. (1980). Leverage and dividend irrelevancy under corporate and personal taxation. *Journal of Finance, 35*(2), 453–464. DOI: 10.2307/2327405 .

Dickens, W.T., Goette, L., Groshen, E.L., Holden, S., Messina, J., et al.(2007). How wages change: micro evidence from the International Wage Flexibility Project. *J. Econ. Perspect., 21*(2), 195–214. DOI: 10.1257/jep.21.2.195.

Dierker, M., Lee, I., Seo, S.W. (2019). Risk changes and external financing activities: Tests of the dynamic trade-off theory of capital structure. *Journal of Empirical Finance, 52*,178-200. DOI: 10.1016/j.jempfin.2019.03.004.

Drobetz, W., & Wanzenried, G. (2006). What determines the speed of adjustment to the target capital structure? *Applied Financial Economics, 16*(13), 941–961. DOI: 10.1080/ 09603100500426358.

Drobetz, W., Schilling, D.C., Schröder, H. (2015). Heterogeneity in the speed of capital structure adjustment across countries and over the business cycle. *Eur. Financ. Manag., 21*(5), 936–973. DOI: 10.1111/eufm.12048.

Dugan, M.T., Minyard, D.H., Shriver, K.A. (1994). A Re-Examination of the operating leverage-financial leverage tradeoff hypothesis. *Q. Rev. Econ. Financ.,34*(3),327–334. https://EconPapers.repec.org/RePEc:eee:quaeco:v:34:y:1994:i:3:p:327-334.

Ellahie, A., & Kaplan, Z. (2021). Show Me the Money! Dividend Policy in Countries with Weak Institutions. *Journal of Accounting Research, 59*(2), 613-65. DOI: 10.1111/1475-679X.12363.

Ellul, A., Pagano, M. (2019). Corporate leverage and employees' rights in bankruptcy. *J. Financ. Econ., 133*(3), 685–707. DOI: 10.1016/j. jfineco.2019.05.002.

Elsby, M. (2009). Evaluating the economic significance of downward nominal wage rigidity. *J. Monet. Econ., 56*(2), 154–169. DOI: 10.1016/j. jmoneco.2008.12.003

Estrella, A., & Mishkin, F. S. (1996). The yield curve as a predictor of U.S. recessions. *Current Issues in Economics and Finance, 2*(7), 1–6. DOI:10.2139/ssrn.1001228.

Estrella, A., & Mishkin, F. S. (1998). Predicting U.S. recessions: Financial variables as leading indicators. *Review of Economics and Statistics, 80*(1), 45–61. DOI: 10.1162/ 003465398557320.

Falato, A., Liang, N. (2015). Do creditor rights increase employment risk? Evidence from loan covenants. *J. Finance, 71*(6), 2545–2590. DOI: 10.1111/ jofi.12435.

Fama, E., & French, K. (2002). Testing tradeoff and pecking order predictions about dividends and debt. *The Review of Financial Studies, 15*(1), 1–33. DOI: 10.2139/ssrn.199431.

Fan, J.P.H., Titman, S., Twite, G. (2012). An international comparison of capital structure and debt maturity choices. *Journal of Financial and Quantitative Analysis, 47*(1), 23-56. DOI: 10.1017/S0022109011000597.

Fernández, A. I., González, F., Suárez, N. (2013). Banking crises and the lending channel: Evidence from industrial firms in developing countries. *Spanish Journal of Finance and Accounting, 42*(158), 137–166. DOI: 10.1080/02102412.2013.10779743.

Fisher, I. (1911). *The purchasing power of money, its determination and relation to credit, interest and crises*. McMillan.

Flannery, M., Rangan, K. (2006). Partial adjustment toward target capital structures. *J. Financ. Econ., 79*, 469–506. DOI: 10.1016/j.jfineco.2005.03.004.

Frank, M. Z., & Goyal, V. K. (2004). The effect of market conditions on capital structure adjustment. *Finance Research Letters, 1*(1), 47–55. DOI: 10.1016/S1544-6123(03) 00005-9.

Frank, M. Z., & Goyal, V. K. (2009). Capital structure decisions: Which factors are reliably important? *Financial Management, 38*(1), 1–37. DOI: 10.1111/j.1755-053X.2009. 01026.x.

Fuente, G.D.L., & Velasco, P. (2020). Capital structure and corporate diversification: Is debt a panacea for the diversification discount? *Journal of Banking and Finance 111*,105728. DOI: 10.1016/j.jbankfin.2019.105728.

Funke, M., Maurer, W., Strulik, H. (1999). Capital structure and labour demand: investigations using german Micro data. *Oxf. Bull. Econ. Stat*., *61*(2), 199–215. DOI:10.1111/1468-0084.00125.

Garrison, R. W. (2001). *Time and money: The macroeconomics of capital structure*. Routledge.

Gerald, P., O'Driscoll, J., & Rizzo, M. J. (2009). *La economía del tiempo y de la ignorancia*. Unión Editorial.

Gerdesmeier, D. (2010). La respuesta del BCE a la crisis financiera. Boletín mensual del BCE. Banco de España. Retrieved January 15, 2021, from www.bde.es/f/webbde/SES/Secciones/Publicaciones/PublicacionesBCE/BoletinMensualBCE/10/Fich/bm1010-3.pdf.

Gonzalez, V.M., González, F. (2008). Influence of bank concentration and institutions on capital structure: new international evidence. *J. Corp. Financ., 14*(4), 363–375. DOI: 10.1016/j.jcorpfin.2008.03.010.

Graham, J. R., Leary, M. T., Roberts, M. R. (2015). A century of capital structure: The leveraging of corporate America. *Journal of Financial Economics, 118*(3), 658-683. DOI: 10.1016/j.jfineco.2014.08.005.

Graham, J.R., Kim, H., Li, S., Qiu, J. (2016). Employee Costs of Corporate Bankruptcy. Working Paper. Duke University, Durham, NC.

Grosse-Rueschkamp, B., Sascha, S., Streiz., D. (2020). A capital structure channel of monetary policy. *Journal of Financial Economics, 133*(2), 357–378. DOI: 10.1016/j.jfineco.2019. 03.006.

Gulen, H., & Ion, M. (2016). Policy uncertainty and corporate investment. *Review of Financial Studies, 29*(3), 523–564. DOI: 10.1093/rfs/hhv050.

Gungoraydinoglu, A., Çolak, G., Öztekin, Ö. (2017). Political environment, financial intermediation costs, and financing patterns. *Journal of Corporate Finance, 44,* 167-192. DOI: 10.1016/j.jcorpfin.2017.03.007.

Gustafson, M., Kotter, J.D. (2018). *Minimum Wage and Corporate Policy*. Work. Pap. Pa. State Univ., State College.

Habib, A., Costa, M.D., Huang, H.J., Bhuiyan, M.B.U., Sun, L. (2020). Determinants and consequences of financial distress: review of the empirical literature. *Account. Financ., 60*, 1023–1075. DOI: 10.1111/acfi.12400.

Hackbarth, D., Miao, J., Morellec, E. (2006). Capital structure, credit risk, and macroeconomic conditions. *Journal of Financial Economics, 82*(3), 519–550. DOI: 10.1016/j.jfineco. 2005.10.003.

Halling, M., Yu, J., Zechner, J. (2016). Leverage dynamics over the business cycle. *Journal of Financial Economics, 122*(1), 21–41. DOI: 10.1016/j.jfineco.2016.07.001.

Hanka, G. (1998). Debt and the terms of employment. *J. Financ. Econ., 48*, 245–282. DOI:10.1016/S0304-405X(98)00012-9.

Hanousek, J., Shamshur, A. (2011). A stubborn persistence: is the stability of leverage ratios determined by the stability of the economy? *J. Corp. Financ., 17*(5), 1360–1376. DOI: 10.1016/j.jcorpfin.2011.07.004.

Harris, C., & Roark, S. (2019). Cash flow risk and capital structure decisions. *Finance Research Letters, 29*, 393-397. DOI: 10.1016/j.frl.2018.09.005.

Hayek, F. A. (1931). *Prices and production*. Routledge and Sons.

Hayter, S. (2011). *The Role of Collective Bargaining in the Global Economy: Negotiating for Social Justice*. Edward Elgar Publishing, Northampton.

He, X. (2012). Two sides of a coin: Endogenous and exogenous effects of corporate diversification on firm value. *International Review of Finance, 12*(4), 375-397. DOI: 10.1111/j.1468-2443.2012.01158.x.

He, F., Ma, Y., Zhang, X. (2020). How does economic policy uncertainty affect corporate Innovation? Evidence from China listed companies. *International*

Review of Economics and Finance, 67, 225–239. DOI: 10.1016/j.iref.2020.01.006.

Hennessy, C.A., Livdan, D. (2009). Debt, bargaining, and credibility in firm-supplier relationships. *J. Financ. Econ., 93*(3), 382–399. DOI:10.1016/j.jfineco.2008.05.006.

Hoang, K., Nguyen, C., Zhang, H. (2021). How does economic policy uncertainty affect corporate diversification? *International Review of Economics & Finance 72*, 254-269. DOI: 10.1016/j.iref.2020.11.008.

Hofstede, G. (1997). Cultures and Organizations: Software of the Mind, New York: McGraw- Hill.

Hofstede, G. (2001). Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations. Thousand Oaks, California: Sage Publications.

Hovakimian, A., Opler, T., Titman, S. (2001). The debt–equity choice: an analysis of issuing companies. *Journal of Financial and Quantitative Analysis, 36*, 1–24. DOI: 10.2307/2676195.

Hovakimian, A., Hovakimian, G., Tehranian, H. (2004). Determinants of target capital structure: The case of dual debt and equity issues. *Journal of Financial Economics, 71*(3), 517–540. DOI: 10.1016/S0304-405X(03)00181-8.

Huang, Y. L., & Shen, C.H. (2016). Cross-country variations in capital structure adjustment-The role of credit ratings. *International Review of Economics and Finance,* 39, 277-294. DOI:10.1016/j.iref.2015.04.011.

Huerta De Soto, J. (2009). *Money, Bank Credit and Economic Cycles*. Ludwig von Mises Institute.

Hund, J.; Monk, D.,Tice, S. (2010). Uncertainty about average profitability and the diversification discount. *Journal of Financial Economics, 96*(3), 463-484. DOI:10.1016/j.jfineco.2010.02.006.

Huong, P.T.Q. (2018). Macroeconomic factors and corporate capital structure: evidence from listed joint stock companies in Vietnam. *Int. J. Financ. Res., 9*(1), 31–40. DOI: 10.5430/ijfr.v9n1p31.

Im, H.J., Kang, Y., Shon, J. (2020). How does uncertainty influence target capital structure? *Journal of Corporate Finance, 64*, 101642. DOI: 10.1016/j.jcorpfin.2020.101642.

Ippolito, F., Ozdagli, A., Perez-Orive, A. (2018). The transmission of monetary policy through bank lending: The floating rate channel. *Journal of Monetary Economics, 95*(May), 49–71. DOI: 10.1016/j.jmoneco.2018.02.001.

Istiak, K., & Sertelis, A. (2020). Risk, uncertainty, and leverage. *Economic Modelling, 91*, 257-273. DOI: 10.1016/j.econmod.2020.06.010.

Jacquemin, A., & C. Berry. (1979). Entropy measure of diversification and Corporate growth. *Journal of Industrial Economics, 27*, 359–369. DOI: 10.2307/2097958.

Jayadev, A. (2007). Capital account openness and the labour share of income. *Cambridge J. Econ., 31*, 423–443. DOI: 10.1093/cje/bel037.

Jensen, M.C. (1986). Agency costs of free cash flow, corporate finance and takeovers. *Am. Econ. Rev., 76*(2), 323–329. https://www.jstor.org/stable/1818789.

Jensen, M.C., & Meckling, W. (1976). Theory of the firm: managerial behaviour, agency cost and ownership structure. *J. Financ. Econ., 3*(4), 305–360. DOI: 10.1016/0304-405X(76)90026-X.

Jouida, S. (2018). Diversification, capital structure and profitability: A panel VAR approach. *Research in International Business and Finance, 45*, 243–256. DOI: 10.1016/J.RIBAF.2017.07.155.

Jouida, S., & Hellara, S. (2018). Diversification and target leverage of financial institutions. *Journal of Multination Financial Management, 46*, 11-35. DOI:10.1016/j.mulfin.2018.06.001.

Kahl, M., Lunn, J., Nilsson, M. (2014). *Operating Leverage and Corporate Financial Policies*. Working Paper. University of Colorado.

Kajurová, V., & Linnertová, D. (2018). The effects of single monetary policy on financial position of firms in the Slovak Republic. *Ekonomickycasopis, 66*(7), 681–702. DOI:10.2478/ revecp-2018-0019.

Karolyi, G. A. (2016). The gravity of culture for finance. *Journal of Corporate Finance, 41*, 610- 625. DOI: 10.1016/j.jcorpfin.2016.07.003.

Karpavičius, S., & Yu, F. (2017). The impact of interest rates on companies' financing policies. *Journal of Corporate Finance, 45*(August), 262–293. DOI: 10.1016/j.jcorpfin.2017.05. 007.

Kashyap, A. K., & Stein, J. C. (2000). What do a million observations on banks say about the transmission of monetary policy? *American Economic Review, 90*(3), 407–428. DOI: 10.1257/aer.90.3.407.

Kayhan, A., & Titman, S. (2007). Companies' histories and their capital structure. *Journal of Financial Economics, 83*(1), 1–32. DOI: 10.1016/j.jfineco.2005.10.007.

Keynes, J. (1936). *The General Theory of Employment, Interest and Money*. Macmillan Cambridge University Press, Cambridge.

Khan, M.A., Quin, X., Jebran, K. (2020). Uncertainty and leverage nexus: does trade credit matter? *Eurasian Business Review, 10*(3), 355-389. DOI: 10.1007/s40821-020-00159-5.

Kim, E., & McConnell, J. (1977). Corporate mergers and the coinsurance of corporate debt. *Journal of Finance, 32*(2), 349–365. DOI: 10.1111/j.1540-6261.1977.tb03275.x.

Kiyotaki, N., & Moore, J. (1997). Credit cycles. *Journal of Political Economy, 105*(2), 211–248. DOI: 10.1086/262072.

Korajczyk, R. A., & Levy, A. (2003). Capital structure choice: Macroeconomic conditions and financial constraints. *Journal of Financial Economics, 68*(1), 75–109. DOI: 10.1016/ S0304-405X(02)00249-0.

Kuzmina, O. (2013). Operating flexibility and capital structure: evidence from a natural experiment. *Columbia Business School Res*. *Pape*r, No. 13–69.

Lallement, M. (2011). Europe and the economic crisis: forms of labour market adjustment and varieties of capitalism. *Work. Employ. Soc., 25*(4), 627–641. DOI:10.1177/0950017011419717.

Lamont, O., & Polk, C. (2001). The Diversification Discount: Cash Flows vs. Returns. *Journal of Finance, 56*, 1693-1721. DOI: 10.1111/0022-1082.00386.

La Rocca, M., La Rocca, T., Gerace, D., Smark, C. (2009). Effect of diversification on capital structure. *Accounting and Finance, 49*(4), 799-826. DOI: 10.1111/j.1467-629X.2009.00304.x.

Leao, P. (2005). Why does the velocity of money move pro-cyclically? *International Review of Applied Economics, 19*(1), 119–135. DOI: 10.1080/0269217042000312641.

Lewellen, W. G. (1971). A Pure Financial Rationale for the Conglomerate Merger. *Journal of Finance, 26*(2), 521-537. DOI: 10.1111/j.1540-6261.1971.tb00912.x.

Li, X., & Qiu, M. (2021). The joint effects of economic policy uncertainty and firm characteristics on capital structure: Evidence from US firms. *Journal of International Money and Finance, 110*, 102279. DOI:10.1016/j.jimonfin.2020.102279.

Lim, E. N. K., Das, S. S., Das, A. (2009). Diversification strategy, capital structure, and the Asian financial crisis (1997-1998): evidence from Singapore firms. *Strategic Management Journal, 30*(6), 577-594. DOI: 10.1002/smj.

Lindbeck, A., Snower, D. (1988). *The Insider-Outsider Theory of Employment and Unemployment*. MIT Press, Cambridge, MA.

MacKay, P. (2003). Real flexibility and financial structure: an empirical analysis. Rev. Financ. Stud., *16*(4), 1131–1165. DOI: 10.1093/rfs/hhg022.

Mammen, J.; Alessandri, T.M., Weiss, M. (2021). The risk implications of diversification: Integrating the effects of product and geographic diversification. *Long Range Planning, 54*(1), 101942. DOI: 10.1016/j.lrp.2019.101942.

Mankiw, N.G., Reis, R. (2006). Pervasive stickiness. *Am. Econ. Rev., 96*(2), 164–169. DOI:10.1257/000282806777211937.

Mao, C.X. (2003). Interaction of debt agency problems and optimal capital structure: theory and evidence. *J. Financ. Quant. Anal., 38*(2), 399–423. DOI: 10.2307/4126757.

Matsa, D.A. (2010). Capital structure as a strategic variable: evidence from collective bargaining. *J. Finance, 65*, 1197–1232. DOI: 10.1111/j.1540-6261.2010.01565.x.

Matsa, D.A.(2018). Capital structure and a firm's workforce. *Annu. Rev. Financ. Econ., 10*, 387–412. DOI: 10.1146/annurev-financial-110716-032519.

Matsusaka, J., & Nanda, V. (2002). Internal Capital Markets and Corporate Refocusing. *Journal of Financial Intermediation, 11*(2), 176-211. DOI: 10.1006/jfin.2001.0333.

Mauer, D.C., Triantis, A.J. (1994). Interactions of corporate financing and investment decisions: a dynamic framework. *J. Finance, 49*(4), 1253–1277. DOI: 10.1111/j.1540-6261.1994.tb02453.x.

Menéndez-Alonso, E. J. (2003). Does diversification strategy matter in explaining capital structure? Some evidence from Spain. *Applied Financial Economics, 13*(6), 427–430. DOI: 10.1080/09603100210150930.

Meyer, M., Milgrom, P., Roberts, J. (1992). Organizational prospects, influence costs, and ownership changes. *Journal of Economics and Management Strategy, 1*, 9-35. DOI: 10.1111/j.1430-9134.1992.00009.x.

Minsky, H. (2008). *Stabilizing an unstable economy*. McGraw-Hill.

Mises, L. (1912). *Theorie des Geldes und der Umlausfsmittel*. Duncker and Humblot.

Mishkin, F. S. (2017). *The economics of money, banking and financial markets*. Pearson.

Modigliani, F. & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *American Economic Review, 48*(3), 261–297. https://links.jstor.org/sici?sici=0002-8282%28195806%2948%3A3%3C261%3ATCOCCF%3E2.0.CO%3B2–3.

Mogha, V., & Williams, B. (2021). Culture and capital structure: What else to the puzzle? *International Review of Financial Analysis, 73*, 101614. DOI: 10.1016/j.irfa.2020.101614.

Mokhova, N., & Zinecker, M. (2014). Macroeconomic factors and corporate capital structure. *Procedia-Social and Behavioral Sciences, 110*(24), 530–540. DOI: 10.1016/j.sbspro. 2013.12.897.

Moody, B., & Mackenzie, J. (2011, November 8). Berlusconi-to-resign-after-parliamentary-setback. elEconomista.es: Mercados y Cotizaciones. elEconomista.es. Retrieved December 20, 2020, from https://www.eleconomista.es/mercadoscotizaciones/noticias/3515930/11/11/Berlusconi-to-resign-after-parliamentary-setback.html.

Moradi, A., & Paulet, E. (2019). The firm-specific determinants of capital structure – An empirical analysis of firms before and during the Euro Crisis. *Research in International Business and Finance, 47*, 150-161. DOI: 10.1016/j.ribaf.2018.07.007.

Myers, S.C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics, 5*, 147–175. DOI: 10.1016/0304-405X(77)90015-0.

Myers, S.C., & Majluf, N.S. (1984). Corporate financing and investment decisions when companies have information that investors do not have. *J. Financ. Econ., 13*(2), 187–221. DOI: 10.1016/0304-405X(84)90023-0.

Olivera, J. (1964). On structural inflation and latin-american 'Structuralism'. Oxf. *Econ. Pap., 16*, 321–332. https://www.jstor.org/stable/2662572.

Onaran, O. (2009). Wage share, globalization, and crisis: the case of manufacturing industry in Korea, Mexico, and Turkey. *Int. Rev. Appl. Econ., 23*, 113–134. DOI:10.1080/02692170802700435.

Orlova, S., & Harper, G. (2021). National culture and leverage adjustments. *Review of Behavioral Finance*, article in press. DOI: 10.1108/RBF-09-2020-0229.

Özer, G., & Çam, I. (2021). Financing decisions of firms: the roles of legal systems, shareholder rights and creditor rights. *Accounting and Finance, 61*(2), 2717-2757. DOI: 10.1111/acfi.12681.

Öztekin, Ö. (2015). Capital structure decisions around the world: which factors are reliably important? *Journal of Financial and Quantitative Analysis, 50*(3), 301-323. DOI: 10.1017/S0022109014000660.

Park, S., Shin, D. (2019). Inflation and wage rigidity/flexibility in the short run. *Econ. Inq., 57*(3), 1675–1697. DOI: 10.1111/ecin.12786.

Phillips, A.W.H.(1958). The relation between unemployment and the rate of change of money wage rates in the United Kingdom. *Economica, 25*(100), 1861–1957. DOI: 10.1111/j.1468-0335.1958.tb00003.x.

Pindado, J., Requejo, I., Rivera, J. C. (2017). Economic forecast and corporate leverage choices: The role of the institutional environment. *International Review of Economics and Finance, 51*(September), 121–144. DOI: 10.1016/j.iref.2017.05.006.

Pindado, J., Requejo, I., Rivera, J. C. (2020). Does monetary supply shape corporate capital structure? International evidence from a panel data analysis. *European Journal of Finance, 26*(6), 554–584. DOI: 10.1080/1351847X.2019.1695645.

Prowse, S. D. (1990). Institutional investment patterns and corporate financial behavior in the US and Japan. *Journal of Financial Economics, 27*(1), 43–66. DOI: 10.1016/0304-405X(90) 90020-Z.

Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence form international data. *Journal of Finance, 50*(5), 1421–1461. DOI: 10.1111/j.1540-6261. 1995.tb05184.x.

Rajan, R., Servaes, H., Zingales, L. (2000). The Cost of Diversity: The Diversification Discount and Inefficient Investment. *Journal of Finance, 55*, 35-80. DOI: 10.1111/0022-1082.00200.

Rashid, M., Dk, Johari, D. S. N. K. P. H., D.S., Izadi, S. (2020). National culture and capital structure of the Shariah compliant firms: Evidence from Malaysia, Saudi Arabia and Pakistan. *International Review of Economics and Finance*, article on press. DOI: 10.1016/j.iref.2020.10.006.

Reinhart, C. M., & Rogoff, K. S. (2009). *This time is different: Eight centuries of financial folly*. Princeton University Press.

Rothbard, M. N. (2004). *Man, economy, and state with power and market*. Ludwig von Mises Institute.

Rubio, G., & Sogorb-Mira, F. (2012). Adjustment costs and the realization of target leverage of spanish public firms. *Spanish Journal of Finance and Accounting, 41*(156), 547–564. DOI:10.1080/02102412.2012.10779735.

Scharfstein D., & Stein, J. (2000). The Dark Side of Internal Capital Markets: Divisional Rent Seeking and Inecients Investments. *Journal of Finance, 55*, 2537-2564. DOI:10.1111/0022-1082.00299.

Schmieding, H., Hofheinz, P., Quitzau, J., Rossen, A., & Schulz, C. (2011). The 2011 Euro Plus Monitor: Progress Amid the Turmoil.Berenberg. Retrieved January 10, 2021, from https://www. berenberg.de/files/MacroNews2017/2011_Euro_Plus_Monitor-Progress_amid_the_turmoil. pdf.

Schoefer, B.(2015). *The Financial Channel of Wage Rigidity.* PhD Thesis. Harvard University, Cambridge, MA.

Scholtens, B., & Dam, L. (2007). Cultural Values and International Differences in Business Ethics. *Journal of Business Ethics, 75*, 273–284. DOI: 10.1007/s10551-006-9252-9.

Schwarz, L.A.D., & Dalmácio, F. Z. (2020).The relationship between economic policy uncertainty and corporate leverage: Evidence from Brazil. *Finance Research Letters, 40*, 101676. DOI: 10.1016/j.frl.2020.101676.

Selgin, G. (2011). *La libertad de emisión de dinero bancario*. Aosta.

Serfling, M.A. (2013). *Labor Adjustment Costs and Capital Structure Decisions. Working Paper.* Financial Management Association Annual Meeting and workshop at the University of Arizona.

Serfling, M.A. (2016). Firing costs and capital structure decisions. *J. Finance, 71*(5). DOI: 10.1111/jofi.12403.

Shapiro, C., & Stiglitz, J.E. (1984). Equilibrium unemployment as a worker discipline device. *Am. Econ. Rev., 74*(3), 433–444. https://www.jstor.org/stable/1804018

Sharpe, S.A. (1994). Financial market imperfections, firm leverage, and the cyclicality of employment. *Am. Econ. Rev., 84*, 1060–1074. https://www.jstor.org/stable/ 2118044.

Shleifer, A., & Vishny, R. (1992). Liquidation Values and Debt Capacity: A Market Equilibrium Approach. *Journal of Finance, 47*(4), 1343-1366. DOI: 10.2307/2328943.

Shyam-Sunder, L., Myers, S.C. (1999). Testing Static Tradeoff against Pecking Order Models of Capital Structure. *J. Financ. Econ. 51*, 219–244. DOI: 10.1016/S0304-405X(98)00051-8.

Simintzi, E., Vig, V., Volpin, P. (2015). Labor protection and leverage. *Rev. Financ. Stud., 28* (2), 561–591. DOI: 10.1093/rfs/hhu053.

Singh, M., Davidson, W. N., Suchard, J. A. (2003). Corporate diversification strategies and capital structure. *Quarterly Review of Economics and Finance, 43*(1), 147–167. DOI: 10.1016/S1062-9769(02)00124-2.

Skulanova, N. (2019). Influence of selected determinants on the financial structure in the civil engineering companies in the selected countries. *Soc. Tyrim., 42*(2), 5–15. DOI: 10.21277/st.v42i2.268.

Smith, D. J., Chen, J., & Anderson, H. D. (2014). The influence of firm financial position and industry characteristics on capital structure adjustment. *Accounting & Finance, 55*(4), 1135–1169. DOI: 10.1111/acfi.12083.

Stein, J. (1997). Internal Capital Markets and the Competition for Corporate Resources. *Journal of Finance, 52*(1), 111-113. DOI: 10.1111/j.1540-6261.1997.tb03810.x.

Stockhammer, E. (2017). Determinants of the wage share: a panel analysis of advanced and developing economies. *Br. J. Ind. Relat., 55*(1), 3–33. DOI: 10.1111/bjir.12165.

Stoft, S. (2002). *Power System Economics: Designing Markets for Electricity*. Wiley-IEEE Press, New York.

Stulz, R. (1990). Managerial discretion and optimal financing policies. *J. Financ. Econ., 26*(1), 3–27. DOI: 10.1016/0304-405X(90)90011-N.

Su, L. D. (2010). Ownership structure, corporate diversification and capital structure: Evidence from China's publicly listed firms. *Management Decision, 48*(2), 314-339. DOI: 10.1108/00251741011022644.

Su, K., Kong, D., Wu, J. (2021). Can economic policy uncertainty reduce a firm's trade credit?. *International Review of Finance, 21*(3), 1089-1099. DOI: 10.1111/irfi.12311.

Suzuki, K., Zushi, N. (2020). Labour unions and leverage: evidence from firm-level union data. *Appl. Econ., 52*(27), 2882–2894. DOI: 10.1080/ 00036846.2019.1683150.

Tabash, M.I., Farooq, U., Ashfaq, K., Tiwari, A.K. (2022). Economic policy uncertainty and financing structure: A new panel data evidence from selected Asian economies. *Research in International Business and Finance, 60*, 101574. DOI: 10.1016/j.ribaf.2021.101574.

Taylor, J. B. (1993). Discretion versus policy rules in practice. *Carnegie-Rochester Conferences Series on Public Policy*, *39*(December), 195–214. DOI: 10.1016/0167-2231(93)90009-L

Taylor, J. B. (1995). The monetary transmission mechanism: An empirical framework. *Journal of Economic Perspectives, 9*(4), 11–26. DOI: 10.1257/jep.9.4.11.

Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *Journal of Finance, 43*(1), 1–18. DOI: 10.1111/j.1540-6261.1988.tb02585.x.

Tobin, J. (1972). Inflation and unemployment. *Am. Econ. Rev., 62*(1), 1–18.

Tran, D. T., & Phan, H. V. (2022). Government economic policy uncertainty and corporate debt contracting. *International Review of Finance, 22*(1), 169-199. DOI: 10.1111/irfi.12347.

Ulupinar, B., & Camyar, I. (2020). Election uncertainty and capital structure. *Economics Bulletin, 40*(1), 36.

Williamson, O. (1988). Corporate finance and corporate governance. *Journal of Finance, 43*(3), 567–591. DOI: 10.2307/2328184.

Woods, K., Tan, K.J.K., Faff, R. (2019). Labor unions and corporate financial leverage: the bargaining device versus crowding-out hypotheses. *J. Financ. Intermediation, 37*, 28–44. DOI: 10.1016/j.jfi.2017.05.005.

Xu, Z. (2020). Economic Policy Uncertainty, Cost of Capital, and Corporate Innovation. *Journal of Banking and Finance, 111*, 105698. DOI: 10.1016/j.jbankfin.2019.105698.

Yarba, İ., & Güner, Z.N. (2020). Leverage dynamics: Do financial development and government leverage matter? Evidence from a major developing economy. *Empirical Economics, 59*(5), 2473-2507. DOI: 10.1007/s00181-019-01705-5.

You, J., Chen, Y., Wang, W., Shi, C.(2018). Uncertainty, opportunistic behavior, and governance in construction projects: The efficacy of contracts. *International Journal of Project Management, 36*(5), 795-807. DOI:10.1016/j.ijproman.2018.03.002.

Zhen, X., el Ghoul, S., Guedhami, O., Kwok, C.C.Y. (2012). National culture and corporate debt maturity. *Journal of Banking and Finance, 36*(2), 468-488. DOI: 10.1016/j.jbankfin.2011.08.004.

Zhou, Q., Jui Keng Tan, K., Faff, R., Zhu, Y. (2016). Deviation from target capital structure, cost of equity and speed of adjustment. *J. Corp. Financ., 39*, 99–120. DOI: 10.1016/j.jcorpfin.2016.06.002.

11. SPANISH SUMMARY

Hace sesenta y cinco años, Modiglliani y Miller sentaron las bases de la estructura de capital en el contexto de los mercados de capitales perfectos, situando el valor de la empresa en el centro de su análisis. Desde entonces, la investigación financiera ha estudiado los factores determinantes del endeudamiento de las empresas, lo que ha dado lugar a una rica bibliografía sobre los factores que determinan la estructura de capital.

Una revisión de esta literatura sugiere un pequeño número de teorías que han contribuido notablemente a explicar los determinantes de la estructura de capital. Según la teoría del *trade-off*, la empresa persigue una estructura de capital óptima, es decir, la mejor combinación de deuda y fondos propios teniendo en cuenta el ahorro fiscal y los costes de quiebra de la deuda. La teoría del orden jerárquico afirma que las empresas establecen una jerarquía de financiación para hacer frente a los problemas de información asimétrica entre los *insiders* y los mercados de capitales. La teoría de la agencia subraya el papel de los fondos financieros (deuda y capital) para aliviar los conflictos de intereses entre los partícipes de la empresa. Posteriormente, el enfoque de *Law and Finance* amplió el marco para incluir factores a nivel de país, mostrando que las instituciones relacionadas con la cultura y las cuestiones legales afectan a la estructura de capital de las empresas. Recientemente, el enfoque de las finanzas conductuales ha modificado los supuestos de racionalidad y ha introducido los sesgos de los inversores y los gestores, como el enfoque del *market timimg*, el cual se refiere a aprovechar los precios erróneos de los títulos, o el optimismo y el exceso de confianza de los gestores, lo cual conduce a una preferencia por la financiación interna.

En los últimos años, la crisis financiera y la posterior recesión de 2008, la pandemia de la COVID-19 y la guerra en Europa confirman de forma inequívoca la importancia del entorno macroeconómico para entender las decisiones financieras de las empresas. En este contexto, la empresa se ve como una entidad alternativa al mercado que opera en un entorno incierto gobernado por fuerzas de los ámbitos

monetario y real de la economía, lo que plantea nuevas cuestiones sobre la decisión de la estructura de capital. Por lo tanto, las estrategias financieras de las empresas deben responder a una amplia variedad de factores de distinta naturaleza que conforman el entorno macroeconómico con el fin de adaptarse a él, lo que crea nuevas oportunidades de investigación que complementan la literatura anterior sobre los determinantes de la estructura de capital.

La motivación de esta tesis se basa, en primer lugar, en analizar la influencia de la política monetaria en la estructura de capital a lo largo del ciclo económico en torno a la crisis financiera de 2008, dado el importante papel que desempeñaron los bancos centrales en el sobreendeudamiento empresarial que tuvo lugar antes de la crisis y las graves dificultades financieras que afrontaron las empresas después. En segundo lugar, esta crisis puso de manifiesto que el mercado laboral de los países afecta a la capacidad de resistencia de sus empresas frente a las situaciones adversas. Por lo tanto, es interesante estudiar cómo las condiciones del mercado laboral influyen en los costes indirectos de la deuda, los cuales afectan a la flexibilidad de la empresa para hacer frente al entorno y, por lo tanto, a su riesgo de quiebra. Por último, la crisis aumentó la incertidumbre y la brecha de información entre los agentes económicos. Nuestro estudio analiza cómo la incertidumbre de la política económica -una imperfección del mercado que exacerba la información asimétrica y el oportunismo- afecta a la estructura de capital, y cómo las instituciones de los países y las estrategias de las empresas pueden actuar como escudos para paliar estos problemas.

El estallido de la crisis de 2008 reúne una serie de peculiaridades en la economía monetaria y real que merece la pena analizar. La política monetaria de bajos tipos de interés y gran liquidez sobreestimuló la economía. El posterior sobrecalentamiento de la economía hizo aflorar las malas inversiones realizadas con anterioridad y condujo a un periodo de recesión y destrucción de empleo. Sin embargo, la crisis no afectó a todos los países de la misma manera, ya que las condiciones de sus mercados laborales los dotaron de diferentes niveles de

resiliencia para superar la crisis. Además, la crisis financiera y la posterior crisis de la deuda soberana han dado lugar a un período de creciente incertidumbre en el entorno macroeconómico en el que operan las empresas, exacerbado por acontecimientos como el Brexit, la crisis sanitaria y la guerra de Ucrania.

La última crisis financiera ha arrojado luz sobre una de las cuestiones más controvertidas de la economía: si el dinero es neutral o si afecta a la economía real. Aunque la teoría del trade-off nos dice que las empresas persiguen un objetivo de ratio de apalancamiento, una vertiente reciente de la literatura evidencia su volatilidad a lo largo del tiempo. Los trabajos anteriores que investigan cómo las decisiones de financiación de las empresas se ven afectadas por la volatilidad de las variables macroeconómicas a lo largo del tiempo, han asumido o demostrado que las fluctuaciones en el precio y la oferta de dinero no desempeñan ningún papel, mientras que otros presentan pruebas contrarias, especialmente cuando el crédito bancario es una de las fuentes de financiación más frecuentes de la economía.

En esta línea, el primer estudio, publicado en la *Revista Española de Finanzas y Contabilidad*, analiza la influencia de la política monetaria en la decisión de estructura de capital tomada por un panel de empresas europeas cotizadas a lo largo del ciclo económico. Los resultados confirman la relación positiva entre el apalancamiento y los tipos de interés a corto y largo plazo, en contraste con la influencia negativa del diferencial entre ellos en ambas fases del ciclo económico. Se constata que la relación entre el dinero estrecho y el dinero amplio tiene un impacto negativo sobre el apalancamiento, mientras que la velocidad del dinero lo afecta positivamente tanto en los escenarios de expansión como de recesión. La velocidad de ajuste al ratio de endeudamiento objetivo es más rápida durante los periodos de expansión. Además, mostramos que el efecto de las variables monetarias se atenúa en los sistemas financieros de mercado.

Este estudio inicial contribuye a la literatura sobre la estructura de capital de varias maneras. En primer lugar, las investigaciones anteriores han explorado la

relación entre las variables macroeconómicas y las decisiones de financiación utilizando periodos de muestra largos que incluyen crisis reales y financieras con diferentes fundamentos económicos. Otros estudios se centran en un solo país, lo cual constituye un caso particular del efecto de la crisis financiera. Nuestra muestra representa el entorno empresarial europeo durante un ciclo económico concreto (2003 a 2013) y un tipo específico de crisis, es decir, una crisis financiera de origen monetario. En segundo lugar, nuestro estudio contribuye a desarrollar un marco teórico que vincula la teoría económica y la teoría empresarial para apoyar nuestros resultados, ya que las investigaciones anteriores no incluyen ningún análisis profundo por separado de las diferentes razones económicas de la influencia del dinero en la decisión de financiación en cada fase del ciclo. En tercer lugar, los estudios anteriores se centran en el efecto de los tipos de interés sobre las decisiones de financiación de las empresas. Nuestro estudio incorpora el efecto inexplorado sobre la decisión de financiación de las empresas europeas de dos variables monetarias: la liquidez de la economía y la velocidad del dinero. Por último, a diferencia de los estudios anteriores, que analizan la relación entre las variables monetarias y las decisiones de financiación bajo un tipo específico de sistema financiero, el nuestro va más allá al considerar las diferencias debidas a los sistemas financieros específicos de cada país, lo que nos permite comprobar la relevancia de los tipos de interés en la estructura de capital.

Durante la crisis, la destrucción de empleo difiere entre países y revela que los mercados laborales afectan a la flexibilidad financiera para hacer frente al entorno. Sin embargo, no existe un marco teórico unificador sobre cómo las diferentes condiciones del mercado laboral afectan a la estructura de capital de las empresas. De hecho, en la década de 1980, el debate entre las condiciones del mercado laboral se intensificó debido a la baja tasa de desempleo en EE.UU., que contrastaba con la mayor tasa en Europa, la cual aplicaba una normativa laboral más estricta. En la actualidad, dentro de Europa también existen importantes diferencias que permiten analizar el impacto de los mercados laborales en la estructura de capital.

Por ello, realizamos un segundo estudio, publicado recientemente en *Research in International Business and Finance*, que examina la influencia de las condiciones del mercado laboral en la estructura de capital de las empresas en una muestra de 2.892 empresas cotizadas de Francia, Alemania, Italia, España y el Reino Unido. Tras considerar el desempleo y la inflación, se analiza el efecto de dos imperfecciones del mercado: los derechos de los trabajadores y la rigidez salarial a la baja. Los resultados indican que el apalancamiento financiero responde a los cambios en los niveles de desempleo e inflación. También encontramos que la influencia de los derechos de los empleados no es lineal, mientras que el efecto negativo de la rigidez salarial a la baja está moderado por el poder de mercado de las empresas. En conjunto, nuestros resultados demuestran que las decisiones financieras de las empresas están condicionadas no sólo por cuestiones de índole empresarial, sino también por el mercado laboral de un país.

Este estudio contribuye a la literatura anterior sobre la decisión de financiación de las empresas y da un paso más al explorar la relación entre la estructura de capital y las condiciones laborales de un país de dos maneras. En primer lugar, conciliamos los resultados contradictorios anteriores sobre el efecto de los derechos de los trabajadores en la estructura de capital. Combinando diferentes enfoques teóricos, detectamos una relación en forma de U invertida entre los derechos laborales de los empleados y el apalancamiento. Explicamos esta relación desde la perspectiva de la teoría de la agencia en el caso de los derechos directos, mientras que la perspectiva del coste de oportunidad del ocio proporciona la justificación teórica de la influencia de los derechos indirectos. En segundo lugar, abordamos la cuestión de cómo la rigidez salarial a la baja afecta a la decisión de financiación de la empresa, lo cual había sido objeto de muy escasa atención anteriormente. Las teorías de la rigidez salarial nos permiten explicar esta influencia y analizar el papel moderador del poder del mercado desde la perspectiva de la teoría microeconómica. Los resultados confirman que las condiciones laborales del mercado ejercen una influencia decisiva en la estructura

de capital de las empresas, proporcionando así al mundo académico y a los gestores nuevos conocimientos sobre esta relación.

Los efectos negativos de los excesos de la política monetaria y la relevancia de las condiciones del mercado de trabajo no son las únicas características del entorno macroeconómico cuya importancia puso de manifiesto la crisis financiera de 2008. Aquella recesión y la posterior crisis de la deuda soberana se caracterizaron por unos niveles de incertidumbre económica sin precedentes que han seguido creciendo hasta la actualidad, dificultando las decisiones empresariales al aumentar las asimetrías informativas y los conflictos de agencia entre los agentes económicos.

En esta línea, realizamos un tercer estudio centrado en cómo la incertidumbre de la política económica -una imperfección del mercado que exacerba la información asimétrica y el oportunismo- afecta a la estructura de capital y cómo las instituciones de los países y la diversificación empresarial moderan esta relación. Utilizando una muestra de 3.175 empresas de once países europeos, encontramos que el apalancamiento financiero está positivamente relacionado con la incertidumbre de la política económica, siendo esta relación moderada por la evitación de la incertidumbre del país, la calidad institucional y el desarrollo financiero. También encontramos que la diversificación de las empresas está relacionada positivamente con la deuda corporativa. Esta relación es más fuerte para la diversificación no relacionada. Además del efecto directo, ambos tipos de diversificación moderan indirectamente la influencia positiva de la incertidumbre sobre el apalancamiento, siendo este efecto más fuerte para la diversificación no relacionada. Nuestros resultados muestran que la deuda y las condiciones institucionales funcionan como mecanismos sustitutivos para aliviar los conflictos de agencia causados por la incertidumbre y que, de forma similar, la diversificación corporativa atenúa la relación positiva entre la incertidumbre de la política económica y el apalancamiento financiero.

La contribución de este tercer análisis es doble. En primer lugar, la mayor parte de la literatura anterior sobre los determinantes de la financiación de las empresas ha ignorado generalmente la incertidumbre del entorno o ha mostrado resultados contradictorios. Nosotros arrojamos luz sobre este tema analizando la influencia de la incertidumbre de la política económica en la estructura del capital. Además, sostenemos que las instituciones de los países no sólo afectan a la estructura de capital de las empresas, sino que también pueden moderar la influencia de la incertidumbre del entorno. En consecuencia, hacemos una contribución novedosa y abordamos esta influencia centrándonos en el papel moderador que tienen tres instituciones relevantes en tiempos de incertidumbre: la evitación de la incertidumbre, la calidad institucional y el desarrollo financiero. En segundo lugar, apenas se ha investigado la influencia de la diversificación empresarial en la estructura de capital. Además, esta literatura previa no es concluyente y ha tendido a centrarse en un solo país, como Estados Unidos, España, Singapur, China, Francia o Italia. Nosotros arrojamos luz sobre este tema y nos basamos en un amplio conjunto de datos internacionales durante un largo periodo de tiempo. Además, los estudios anteriores muestran que la diversificación puede utilizarse para responder mejor a las características del entorno, pero no abordan el papel moderador de la diversificación corporativa como escudo contra el efecto de la incertidumbre en la estructura del capital. Por ello, damos un paso más al explorar esta relación.

Nuestra investigación tiene implicaciones para los profesionales, los responsables políticos y el mundo académico. Los directivos podrían mejorar sus decisiones financieras y la estructura de capital de sus empresas analizando las tendencias de los tipos de interés a corto y largo plazo, el diferencial de ambos y la liquidez, especialmente en los sistemas financieros basados en la banca. Sin embargo, las empresas que operan en economías de mercado deben prestar especial atención a las principales variables macroeconómicas reales, como la productividad y la flexibilidad del mercado laboral, la innovación tecnológica o el grado de libertad económica. Nuestra investigación también subraya que las

empresas deben tomar decisiones teniendo en cuenta no sólo sus características financieras específicas, sino también las condiciones del mercado laboral en el que operan. A su vez, para lograr la estructura financiera óptima, los directivos no deben centrarse solo en cuestiones financieras, sino tener en cuenta las condiciones de desempleo e inflación, el poder de negociación de los empleados, el nivel de rigidez salarial a la baja y el poder de mercado de las empresas. Además, los directivos deben tener en cuenta el papel relevante que desempeñan la incertidumbre de la política económica y las condiciones institucionales. Adicionalmente, la estrategia financiera surge como parte de la estrategia global de la empresa, de modo que interactúa con la estrategia de diversificación cuando la empresa opera en entornos inciertos. Así pues, los partícipes (directivos, accionistas y deudores) deben equilibrar los pros y los contras de las condiciones institucionales y los distintos tipos de diversificación empresarial para hacer frente a la incertidumbre de la política económica.

Nuestra investigación también tiene implicaciones útiles para los responsables políticos. La estabilidad financiera de un país depende en gran medida de su política monetaria y hay varios factores clave que los bancos centrales deben tener en cuenta. Uno de ellos es el exceso de liquidez, que puede aumentar innecesariamente el riesgo de crédito si se financian inversiones de dudosa rentabilidad. Otro factor fuertemente vinculado al anterior son los tipos de interés, cuya gestión puede aumentar el riesgo de precio de los activos y dificultar las previsiones de los *cash flows* de las empresas. Además, nuestros resultados recuerdan a los responsables políticos las múltiples implicaciones de los mercados laborales de los países y que los intereses de los empleados y de las empresas deben estar equilibrados para garantizar la estabilidad financiera de las empresas y estimular el crecimiento económico. Por último, subrayamos que la incertidumbre de la política económica está fuertemente relacionada con el apalancamiento financiero de las empresas y, en última instancia, con la estabilidad financiera de los países. En tiempos de gran incertidumbre política y económica, esta implicación es especialmente relevante, ya que mostramos que el

efecto de la incertidumbre depende en gran medida del entorno institucional, de modo que la eficacia de las medidas políticas no es universal.

Nuestra investigación no está exenta de limitaciones. A pesar de ser representativo de los mayores países europeos, podría ampliarse a otros países clave no europeos con diferentes marcos institucionales y culturales o características a nivel de empresa. Las reformas fiscales, por ejemplo, son un buen ejemplo de una variable institucional que podría introducirse en futuros análisis. Las reformas fiscales modifican los ingresos netos de los empleados y, a su vez, pueden alterar la demanda de derechos laborales para mantener el mismo coste de oportunidad del ocio, influyendo así en la capacidad de endeudamiento de la empresa.

Además, nuestro estudio empírico abre algunas posibilidades interesantes para futuras investigaciones. Podría merecer la pena analizar la influencia de otros canales monetarios, como el canal de la inflación no anticipada, y considerar de forma más explícita la segmentación por tamaño o los factores legales e institucionales específicos de cada país y su interacción con las características de las empresas y las variables macroeconómicas. Otra vía de investigación en el escenario actual creado por las consecuencias de la pandemia del COVID-19 y la guerra en Europa podría ser la de explorar el papel moderador de los canales monetarios no convencionales (como el forward guidance) o el uso de fuentes de deuda diversificadas (no sólo bancarias o de mercado) para mitigar el efecto del actual clima de incertidumbre.

En cuanto a los mercados de trabajo, las investigaciones futuras podrían abordar también el papel de la productividad laboral, que aumenta el poder de negociación de los empleados y les lleva a obtener mejores condiciones en sus contratos de trabajo individuales. Además, nuestra investigación plantea algunas cuestiones del mercado laboral que requieren nuevos análisis, como la participación de los empleados en el capital social. En la moderna economía del conocimiento, una nueva vía de investigación a explorar podría ser la relación

entre las inversiones en capital humano específico y la financiación empresarial. Además, otro tema interesante es estudiar el efecto de la propiedad intelectual en la estructura de capital como mecanismo de gobierno que protege a las empresas de la pérdida de empleados con talento.

Por último, hay algunas cuestiones de gobierno corporativo que exigen una nueva investigación, como el papel que desempeña la política de dividendos o el efecto de la propiedad y la remuneración de los directivos para aliviar los problemas de agencia causados por la incertidumbre de la política económica. La incertidumbre generada por el conflicto armado en Ucrania y el cambio de la política monetaria abren una nueva vía de investigación sobre la relación entre la incertidumbre del entorno (no sólo de la política económica), la diversificación de las empresas y las nuevas fuentes de fondos proporcionadas por las autoridades públicas.