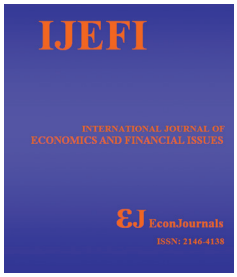

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The Impact of Cash Holding on Debt Cost

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ABSTRACT

This paper seeks to highlight the potential relationship that could exist between cash holding and the cost of debt. It also tries to underline the effect of the control block moderator and of operating risk on this relationship. The study was conducted on a sample of 100 French companies listed in the SBF120 index over a 5-year period. In general, the results are conclusive in all cases. However, the holding of cash has a negative and statistically significant effect. This result confirms the H_1 hypothesis. In other words, the more liquidity the company retains, the lower the cost of debt. This relationship is confirmed by the arbitrage pricing theory according to which, above a certain threshold, the debt increases the risk of financial distress resulting from the direct costs associated with administrative and judicial orders in case of bankruptcy and indirect costs linked to a loss of credibility with the partners and especially with its creditors. To deal with this risk, firms are required to retain liquidity.

Keywords: Cost of Debt, Cash Holding, Control Block, Operating Risk
JEL Classification: G30

1. INTRODUCTION

In order to meet the need for cash holding, companies are prepared to assemble funds to spread out their activities and grow. Therefore, they choose between two funding sources: debt and the issue to new shares. However, a rational manager tends to choose debt over liquidity. This can be justified, on the one hand, by the low cost of debt in return for equity, and, on the other, by tax savings.

In this regard, in order to decrease information asymmetry, the manager must certainly reform the level of information distribution at the annual reporting level in order to soften contract settlements and avoid very restrictive contractual clauses. Additionally, the presence of this relation of agency postulates that there is a conflict of interests between the manager and the creditors. These creditors face an expropriation risk, and this is especially if the flows generated by the project are insufficient for the settling of the main debt and interest. To deal with such a situation, creditors will then demand very restrictive control measures that can diminish the illegal power of managers and create auxiliary control costs for the company.

This would generate the appearance of non-intervention information, hiding the real situation of the company, which would lead to an increase in the share of risk, especially for creditors. These types of situations can lead to higher control costs invested to ensure the firm's situation (Ashbaugh et al., 2006). In order to reduce the importance of these costs, creditors tend to raise the interest rate which leads them to also increase the cost of debt. In this case, companies prefer to maintain cash, which allows them to fund their respective projects at lower cost and to reduce transaction and external financing costs.

For this reason, it is important to reflect upon the relation that could exist between cash holding and the costs of debt in order to explain the moderating effect of control block and operating risk on this relation.

The rest of this article is structured as follows, the part entitled "The Concept of Debt Cost" defined the context of debt costs. The part "Literature Review and development of Hypotheses" presents previous research on the cost of debt in order to explain the relationship between debt and cash holding. The part entitled "Data and Methodology" revolves around the statistical and methodological aspects of research, while relying on the selected sample and the measurement of different variables and statistics. The "Results" section treats empirical results and their interpretations, while the conclusion assembles several remarks and suggests future lines of research in relation to the topic of this paper.

2. THE CONCEPT OF DEBT

Debt is a beneficial development lever, as it represents a strategic variable for directing and controlling. However, in the financial context, debtors are expected to take on debt and to bear its repayment in the long term to the benefit of a third party that is the creditor (Parienté, 2013).

Consequently, in a contractual agreement, debt is granted through a repayment schedule. This repayment consists of a payment to the lenders that includes the principal as well as the interest. That is to say, the cost of the borrower in agreed upon in advance. Similarly, Aldamen et al. (2012) mention that everyone wants returns on investments. Creditors expect a contractual interest, and shareholders want a minimum return on equity.

This mode of external funding can create positive opportunities to the company thanks to the tax benefit it provides. In fact, the debt procures deductible interest on taxable profit and concedes an adequate influence, mainly, on the portion of the resulting profit to the shareholders. This is in line with the idea that the increase in debt is the result of a similar increase in the risk held by the companies. These parties are therefore inclined to increase their debt ratio, although in proportion to the cost of borrowing and the costs of likely financial difficulties.

Several researchers have focused on debt. According to (Parienté, 2013), the real cost of debt represents the cost that the company could incur in order to be able to get a debt. As for Fabianne (2001), the cost of debt includes the finiancial net expenses of products as well as net debt. He believes that there is a variable that represents the rate of return that creditors require the company to finance it.

On the other hand, the cost of debt is generally measured by the interest rate, which usually depends on the conditions of the economy and the rate policy pursued by the public authorities. In fact, the interest rate is only a cost element and consists of the various charges paying for banking services and the financial cost of the debt (Hugounenq, 2003). This financial cost will be determined by the net cost of debt which takes into account the tax favours provided through the deductibility of the financial cost of the loan. In fact, the cost of debt should be determined in terms of the potential dangers of the situations of over-indebtedness that could lead to the failure of the company.

In relation to the company, the financial cost of the debt is based both on all gross financial cost which include the rate of interest provided for in the contract and all costs charged to the undertaking such as insurance, bank commissions and fees… etc. These financial cost vary, depending on the funding conditions negotiated with creditors. They also vary in terms of the type of loan maturity (bank loan, leasing, and bond and partner accounts).

2.1. Consequences of Debt Excess

Assuming that indebtedness is a normal situation for any organization, over-indebtedness is a bad option, the consequences of which generally extend to the various partners in the company and even to the economy as a whole (Alain Couret, 1998). However, the boundaries between debt and over-indebtedness are not always systematically well defined. In fact, over-indebtedness is related to an explosive progression of the debt marked by the impossibility declared by the debtor in good faith to meet his commitments to creditors either immediately or in the long term (Aldamen et al., 2012). Consequently, over-indebtedness often has significant consequences because it creates financial difficulties that can cause direct and indirect costs at the same time. In fact, literature on the topic distinguishes between two forms of costs, direct and indirect.

2.1.1. Direct costs

Direct costs are measurable costs and represent the legal fees and administrative charges of the trustees and experts responsible for implementing the prevention or liquidation processes of the defaulting firm. For instance, a study conducted by Warner (1977), after that by Ang et al. (1982), measured these costs. The studies found about 5.3% and 7.5% respectively, of the liquidation value of the assets at the time of default. These studies, however, indicate a sizeable effect according to which larger firms do not pay much attention to these direct costs as small and medium-sized firms do. In addition, some researchers such as Brealey et al. (1984) show that these costs are not huge and even claim that they are negligible.

2.1.2. Indirect costs

Financial difficulties entail, in particular, non-measurable indirect costs, which in a way constitute "opportunity costs" and are therefore difficult to determine. They relate to the suspension of operations, the complexity of running a defaulting firm, and the tax exemption for interest on debt because it is cancelled when the business no longer earns taxable income. In fact, the prevention of difficulties must be attested as soon as the continuity of the operation is compromised, even if the companies are not yet in a position of cessation of payment.

The treatment of difficulties contributes to the recovery of the firm or its putting into legal liquidation when the debtor finds him/herself in a situation of inability to settle his/her debts at maturity, then s/he becomes in a state of irreversible cessation of payment. Judicial redress manifests itself when there are serious chances of safeguarding the organisation and discharging its liabilities.

The judicial liquidation is the final stage of the treatment of the difficulties. It reaches an end when there is no possibility of redress of the company's situation and when the settlement of the liabilities is irrevocably compromised. The judgment opening the liquidation

necessitates unmatured debts and results in the auction or over-the-counter sale of the company's movable or immovable property. Therefore, the company is bound to disappear from the market when its proprietors find themselves empty-handed. However, the conflict of interests between the bondholders and the shareholders of the company is also estimated as the painful and very burdensome indirect costs weighing on the finance of the company.

2.1.3. Other costs

The level of debt has a double effect on the entire value of the firm. On the one hand, a very high level of indebtedness becomes favorable in order to generate significant tax savings through a huge deductibility of interest charges. On the other hand, an increase in debt contributes to increasing the percentage of default and can generate difficulties or bankruptcies.

Whereas the tax benefit of the debt dominates the costs of the difficulties, the company has an interest in going into debt and consequently increases its value. The demand for debt will therefore determine the costs of the difficulties which include the effected tax savings. At this point, any additional debt will inadvertently lead to a decline in value (Goffin, 2004). In fact, striking a balance between bankruptcy costs and tax savings entails an optimal financial structure that is established before the company has extinguished its debt capacity. Consequently, the value of the company that has debts to pay is calculated by adding to it the value of a company without debts.

This entails that the value of tax savings leads to the reduction of costs of financial difficulties: (Indebted firm value = Indebted firm value+Value of tax savings–Value of costs of financial difficulties).

Moreover, the increase of debt at the beginning generates an increase on the adjusted value of the fiscal favor, but after a certain amount of debt, the appearance of financial difficulties will be higher and faster, and the value of the firm will decrease. This measure presents the optimal debt ratio. At this juncture, the value of the fiscal savings from the additional borrowing is equalized by the present value of the bankruptcy costs.

However, discussion of the costs of difficulties has generated several reactions. Indeed, Miller (1977), based on the research conducted by Warner (1977), shows that if bankruptcy costs exist, their amount will not be very large in order to compensate for the tax gains resulting from the debt. In the same context, Senbet and and Hauguen (1978) particularly reject the magnitude of the bankruptcy costs and argue that the value of the company comes from rational investor arbitrage in competitive financial markets.

2.2. Risk Related to Debt

Holding the cost of debt is highly important for investors, as it allows them to have an idea about the level of risk for entities in relation to others. In fact, the most risk-averse firms are those with high debt costs (Bradley and Chen, 2011; Kholbadalov, 2012; Dadashi et al., 2013).

Indeed, the risk is related to the concept of flexibility, and it can be explained as the ability to adapt to abrupt changes related to the work environment. It presents itself by a volatility of revenues over time. This volatility becomes stronger as the risk gets higher (Charreaux, 1993). In the financial context, risk represents the result of the impact of financial leverage. It can also result from fluctuations in the interest rates of the debt (Charreaux, 1993). Therefore, it has a direct link with the level of indebtedness, and its effect on financial profitability is indispensable. In this regard, companies can increase their profitability through a useful mixing of debt and equity in their financial structure. In case of a certain level of well-determined risk, the value of the company will increase and consequently reduce the weighted average cost of capital if its operating profit can ensure an extended level.

In fact, companies' failure in tax use would lead to improved credit quality, lower bankruptcy risk and costs, and consequently lower debt costs (Lin, 2011). It is also invested to replace the use of debt (Elyasiani et al., 2010; Karjalainen, 2011; Lim, 2011).

Besides, Graham et al. (2006) demonstrate that companies have low debts when they take into account the inapplicability of fiscal activity because fiscal shelters are considered as a substitute for the subtraction of interest in the selection of the capital structure.

3. LITERATURE REVIEW AND DEVELOPMENT OF HYPOTHESES

Agency theory indicates that shareholders are individuals who are appointed by creditors who give them resources in return for a promise of repayment at maturity. Nevertheless, the opportunistic behavior of the managers has an impact on the interests of shareholders and creditors, as it can increase the company's bankruptcy risk (Ashbaugh et al., 2006).

Furthermore, Draief and Chouaya (2012) indicate that in order to reduce these difficulties and protect their interests, creditors tend to rely on restrictive contractual terms. If the company does not respect the terms, it will maintain the fixed debt costs.

A great deal of research on this has confirmed that restrictive contractual terms reduce the cost of financing, but increase the capacity of financing (Booth et al., 2001). They consequently lead lenders to control the company (Asquith et al., 2005). On the other hand, other researchers such as; Roberts and Sufi (2009); Nini et al. (2009) and Dadashi et al. (2013) affirm that the costs are enormous, especially if the companies are obliged to make concessions to the creditors during the renegotiation of private credit contracts that include financial terms.

Nonetheless, various factors can influence the cost of debt: cash flows resulting from operations, the issue of information asymmetry, agency costs, company specifics, size of the company, result management, accounting audit (Demirtas et al., 2013).

Thus, in what follows, we examine the various previous research on the cost of debt, focusing on the importance of information, as it is the fundamental link between the company's cash holding and the cost of debt.

3.1. Previous Research on Corporate Debt Cost

The cost of the debt is greatly affected by the quality of the financial information. Thus, non-integrated information conceals the real situation of the company, which leads to increased risk for creditors and makes it mandatory to incur control costs in order to access sound insurance on the firm's situation. In order to make up for costs, creditors thus increase the interest rates, leading to an increase in the cost of debt (Anderson et al., 2004 and Ashbaugh et al., 2006).

According to Jensen and Meckling (1976), relevant and efficient information contributes to effectively resolving agency conflicts in general, which reduces the risk of creditors' information, reduces the costs of control and consequently the cost of debt. In this regard, Ashbaugh et al. (2006) and Regaieg and Fdhil (2006) show that the provision of credible and efficient financial information increases the company's degree of problem solving and consequently reduces the cost of debt. In this context, Iatridis (2006) considers that companies' disclosure strategies are designed to meet their needs to attract different investors or to borrow low-cost loans.

Indeed, Sengupta (1998) carried out research on the relationship between the quality of information disclosure and firm cost between 1987 and 1991. The study estimated the cost of debt based on the return effect of newly issued debt. He reached the conclusion that the quality of financial information has a high impact on the cost of debt. The results confirm that lenders and insurers value the quality of information when evaluating risks.

Prevost et al. (2008), study the impact of income management on the cost of debt based on a sample of listed American companies over an 11-year period between 1994 and 2005. They found that the creditors can notice the opportunistic manipulations of the managers of the firm, which subsequently causes sanctions that are realized through the imposition of a significant cost of financing.

Francis et al. (2005) analyze the link between the quality of accruals and the cost of debt. They note that the quality of accruals has a negative influence on the cost of debt. They also found that discretionary accruals are related to significant debt and equity costs. Similarly, Janes (2003), studied the usefulness of the accruals that provide information that can be effective in predicting the financial distress of the company and an effective use of this information at the level of the terms of the contract.

Draief and Chouaya (2012) indicate that even when the information is relevant, creditors will not involve it under the terms of the debt agreement. On the other hand, Janes (2003) shows that firms that tend to exhibit important discretionary increases generally benefit from less restrictive terms than firms that reasonably manage results. Thus, the researcher affirms that, in order to set the interest rate, creditors can use the information included in accruals.

Jiang (2008) seeks to verify in his study whether the achievement of benchmarks helps minimizing the cost of debt, using the bond yield gap and credit rating. His analyses show that companies that have used benchmarks have a positive image among creditors. They can even benefit from a reduction in the cost of their debts, mainly if they perform well. Additionally, the research shows that the reduction of the cost of debt is limited except in the case where firms use benchmarks through the management of the result.

Moreira et al. (2007) indicate in their research that credit market pressure pushes managers to seek minimizing losses by directing results, as creditors do not trust losing companies. This consequently results in an increase in the cost of debt. Moreover, they indicate that firms seeking to go into debt manage the results to minimize losses and hide the difficulties that they encounter with the credit market to prevent any negative signal from having an impact on their cost of debt.

In the same context, Draief and Chouaya (2012) believes that creditors represent the most important users of accounting figures because this allows them to interpret the information in the discretionary accruals, which influences the cost of debt. On the other hand, Prevost et al. (2008) indicate that the link between results management and the cost of debt is demonstrated by bond performance. These researchers highlight the negative progress between increases and bond yields. Moreover, Chaney el al. (2011) explain the relation between cost of capital and financial reporting. They found that a significant level of discretionary accruals is explained by a low quality of financial reporting, which has a negative impact on the cost of debt.

Moreover, Bharath et al. (2008) in their study of debts obtained from commercial banks, show that companies with strong results management can settle even large debts on their bank credits, since they cannot hide the manipulations from them, which generates an increase in the interest rate and a low maturity.

Indeed, in the context of financial rating, Demirtas et al. (2013) affirm that financial rating has great financial consequences for firms, including the costs of future borrowings and the valuation of bonds. For this reason, managers can use smoothing results to minimize the volatility of profits. Agencies, indeed, emphasize the importance of volatility of results. The authors of the aforementioned study confirm that results management influences the financial rating, which already impacts the cost of the debt.

In this regard, Demirtas et al. (2013) study the management of results in the case of the rating. These results indicate that rating agencies are being misled by managerial discretion, as companies consider the gains before issuing the initial debt. This is manifested through important ratings and, consequently, through debt cost reduction.

Moreover, Ashbaugh et al. (2006) study the link between corporate governance and credit rating. They prove that the quality of financial information has a big impact on the cost of debt. On the other hand, the disclosure of information on the firm's actual situation increases the risk for creditors and generates additional control costs in order to ensure the real situation of the firm. Thus, the creditors will increase interest rates to make up for these costs, which increases the cost of debt.

Furthermore, Boubakri and Ghouma (2010), based their study on American companies using the level of profit management and the level of leaders' rootedness to examine the influence of managerial opportunism on the cost of debt and the rating of bonds issued. Indeed, they found that the more leaders are established and lead results at a high level, their ratings would be lower and the cost of bonds would be higher.

Shen and Huang (2011) show in their research that information asymmetry can influence the way results are managed on financial rating and subsequently on the cost of debt. Their analyses proved that the management of results negatively influences financial rating when the evaluators notice the presence of accounting manipulations, which leads to an increase in the cost of debt.

Nevertheless, Shen and Huang (2011) also note that evaluators have more confidence in the results published by countries that have rigid banking regulations, since in these countries, results management is more reliable compared to other countries with weak banking regulations.

On the other hand, Cassar et al. (2008) found completely different results. They based their research on a sample of offshore firms in order to analyze the effects of discretionary accruals on the cost of debt. They affirm that firms that use accruals benefit from much lower interest rates because the information from this source of information reduces the data asymmetry at the level of banking relations, particularly in the short term. This leads to reducing the level of the interest rate and subsequently the debt costs.

Zhang (2010) studies the effect of the quality of accruals on bond liquidity and debt cost. The study was based on the idea that if the quality of accruals increases bond liquidity, it will be able to indirectly reduce the cost of debt thanks to its positive effect on liquidity. These hypotheses are confirmed by the study results, since a negative association between the character of accruals and the cost of debt was noted. As a consequence, the accruals reduce the information asymmetry and consequently the cost of debt thanks to improving bond liquidity.

Omri et al. (2007) indicate that smoothing accounting results can have an impact on the cost of the firm financing. In this context, Takasu (2012) analyses the impact of information asymmetry on the link between the smoothing of earnings and the cost of bank financing. The study results show that the outcome of the smoothing of results at the level of the cost of bank financing varies according to the information asymmetry that is still present between the financial institutions and the firm.

Furthermore, Takasu (2012) indicates that the act of smoothing of result provides information that is beneficial for credit contracts, as it lowers debt cost. Li (2010) have demonstrated in their study that the behavior of smoothing the result has two opposite goals. On the one hand, a smoothing of the result could decrease the cost of debt, if it has an informational objective. On the other hand, smoothing of the result can lead firms to bear higher debt costs, if its function is to modify data. The results confirm that the more important the smoothing of result is, the lower the cost of debt will be.

Based on these different studies, we note that the financial literature is rich in studies concerning the cost of corporate debt, yet there is a lack of studies that examine the relationship between this variable and cash holdings. In fact, according to our knowledge, the only study that examines this link is that of Dhaliwal et al. (2015), which examines the effect of foreign cash holdings on the cost of corporate debt.

However, the main goal of the following part is to analyze the effects of cash holdings on the cost of debt for French companies. In addition, we will try to further explore the effects of this relationship by examining the moderating role of certain variables.

3.2. The Effect of Cash Holding on Cost of Debt

Cash holding has a positive impact on companies, as it permits companies to save transaction costs while also maintaining their investments, especially in cases where external funding is high or unavailable. It displays a policy based on the coverage of default risk, and thus allows reducing the cost of bankruptcy. It then provides companies with more financial flexibility that is essential to benefit from advantageous investment opportunities and to bear the cost of debt.

This question is not relevant according to neoclassical financial theory, since the investment decision is totally separate from the global financing decision without frictions (Modigliani and Miller, 1958). Modigliani and Miller's work (1958) shows that the effect of the capital structure on the value of the enterprise is neutral. In other words, the forms of financing are similar and adopt the same attitude towards perfect financial markets. In this context, financial theory pushes the firm to commit to any investment that brings value without worrying about the source of financing. In other words, the firm can determine its investment opportunities without facing their financing methods. This is purely defined by the present value of cash flows resulting from past, present and future investments of the company. Managers can wait until the company has the necessary cash to finance them.

In fact, in a world governed by the regulations of neoclassical finance, any holding of cash would not really have any interest because the firms do not need to hold any. Instead, they should reinvest the surplus in productive projects or distribute them to shareholders. In fact, as indicated by De Angelo (2007), Digliani and Miller's theory (1958) was based on an unexplained hypothesis that all excess cash is systematically distributed to shareholders. This confirms the absence of cash holding in neoclassical financial theory. In fact, Modigliani and Miller's foundational article shows for the 1st time that financial researchers base their work on a scientific methodology that is already based on forming hypotheses and then studying their implications to deduce propositions using statistical methods.

Modigliani and Miller (1958) propose the factors that could be summarized as follows: the efficiency of the financial market, transaction fees and bankruptcy costs are absent, investors'

rationality, taxation is not taken into account, reporting between agents is symmetrical, and investors have immediate and free access to all information, while loans and borrowings are risk-free and have a fixed interest rate. In the context of a perfect market where agents are perfectly rational and where information asymmetry is absent, managers opt for decision in order to maximize the market value of the firm's shares. Therefore, the investment is only feasible with a positive NPV.

As a result, investment in relation to availability is unnecessary, as the NPV of financial assets is zero in an efficient market. Thus, the increase in investment in liquid assets is not only interpreted as a reduction in profitability, as the revenue rate is same as the cost of capital. However, it is explained by a reduction in the cost of capital. Consequently, the impact on value is zero (Damodaran, 2006).

In order to achieve ultimate value, financial theory does not include investment in liquid assets (Morris, 1983). Thus the valuation models are based on hypotheses that render the investment ineffective. In addition, the hypothesis of the Capital Asset Pricing Model (CAPM) may have external funds guaranteed by a potentially perfect financial market. In this case, they propose that the financial assets are calculated only over the same period during which the profits are shared. This leads us to conclude that the company does not need to have assets in cash, yet based on the studying the reality of French companies, results are totally different.

Modigliani and Miller's theory (1958) explains the reasons that make the financing structure affect the value of the firm. In this way, the inability of neoclassical financial theory to explain the holding of liquidity by firms will bring three main theories that explain the real behavior of firms vis-à-vis cash into the foreground. These theories include the arbitrage pricing theory, pecking order theory or free cash flow.

As for the arbitrage pricing theory, it is important to suggest that Modigliani and Miller (1958) were the first to criticize their work by omitting a hypothesis. They revised the term of taxation and the tax savings resulting from the deductibility of interest rates from debt in 1963.

In fact, the value of an indebted enterprise is similar to the value of an enterprise that is not indebted which is raised by this tax favor.

$V_D=V_E+tD–BC$

With:
V_D = Value of the indebted company.
V_E = Value of the company financed entirely by funds.
t = Tax rate.
tD = Present value of tax benefit of debt.
The company prefers to use a maximum debt to benefit from the tax advantage of debt, yet a large debt can increase the risk of bankruptcy. This puts into question the hypothesis of the absence of the cost of bankruptcy. This situation forces companies to model their financial structure by taking into account the optimal debt ratio that increases its value.

Based on the arbitrage pricing theory, there is an optimal capital structure resolved by the arbitrage between advantages and disadvantages. The advantages of debt are correlated through tax favor, while the disadvantages of debt are correlated with the costs of financial distress that increases with the rise in the level of debt. Financial pressure causes the emergence of not only direct costs related to administrative and legal costs, but also indirect costs.

An indebted company will have a more significant value than a company financed entirely by own funds.

$V_D=V_E+tD–BC$

With:
V_D = Value of the indebted firm
V_E = Value of the firm financed entirely by own funds
t = Tax rate.
tD = Present value of fiscal benefit of debt.
BC = Present value of bankruptcy costs.

As the relevance of the capital structure is limited, the company may choose whether to go into debt or not. The arbitrage pricing theory indicates that the firm's value reaches its peak in the case of optimal indebtedness.

We are therefore led to criticize the hypotheses of financial theory because of the contribution of Keynes (1936). In fact, considering the hypothesis of absence of transaction costs foregrounds, as in the case of debt, the presence of an optimal degree of cash holding. It represents the result of the arbitrage between the marginal cost and the marginal profit of holding cash. If the holding of cash has the aim of minimizing the transaction costs and is considered as a means of protection against risks, it, thus, results in an opportunity cost of capital made possible by a low return on cash.

Furthermore, as with arbitrage theory, the pecking order theory initiated by Donaldson (1961) and developed by Myers (1984) and Myers and Majluf (1984) stipulates that the determination of the financial structure depends on the hierarchy of preferences of the financial modes. In other words, if the companies have priorities when choosing sources of financing, they will firstly favor self-financing, then the use of debt and then finally the issue to new shares.

The use of internal sources of finance reflects an awareness concerning information asymmetry which can generate high external financing that pushes non-cash companies to neglect profitable projects and adopt a policy of underinvestment. Therefore, in order to avoid these costs and avoid the problem of underinvestment, the company opts for using its cash flow on profitable investment projects on a low cost, to pay its debts, and distribute dividends.

On the other hand, this hierarchy is related to the objective of the head of the company. If the manager acts in the interest of the shareholders, he or she will therefore adopt a decreasing financial hierarchy, starting with self-financing, then debt and finally capital increase (Myers and Majluf, 1984). In case the leader acts in favor

of his own interest, the leader will first opt for self-financing, then capital increase and finally debt. He advances the issuance of new debt shares to avoid the disciplinary role of debt. Nevertheless, the theory of free cash flow has an impact on the motivations and role of the leader to keep cash.

Based on the hypotheses advanced in the field of neoclassical finance of data efficiency and of the absence of conflicts of interest and people's rationality, shareholders have the ability to control the shares of executives who seek to increase their wealth. There is, however, a drawback to the holding of liquidity because it has an impact on the opportunity cost of capital thanks to a low cash return. In addition, managers have their own function that is not in line with that of shareholders. Thus, their financial decisions can be markedly different from the goal of maximizing value to meet their own interests.

By departing away from the hypotheses of Modigliani and Miller (1958), the theory of free cash flow indicates that the holding of cash leads to a risk of cash diversion by managers who anxiously seek to only satisfy their own interests. In fact, according to Jensen (1986), managers should maintain high levels of cash for the purpose of controlling capital markets and financing investments with uncertain profitability.

Furthermore, both theories of free cash flow and pecking order theory require shareholders to receive excess cash in order to avoid over-investment. Thus, information asymmetry really takes place when data are not received by all stakeholders during a transaction. That is why, information asymmetry is the major source of anomalies that influence financial decisions and interpret the companies' decision to retain cash. It makes cash holding an essential element for companies seeking to guarantee their investments.

However, as aforementioned, the choices of mode of finance are classified respectively as self-financing, debt and the issue to new shares. In fact, this preference of self-financing is the result of the information asymmetry between creditors and shareholders who do not know the quality and risk of their investment projects because the market price only shares information publicly accessible while concealing some of the private information except for managers and existing shareholders. This fear makes the demand of financial market expensive because of the risk of adverse selection on the firm's assets (Myers, 1984 and Myers and Majluf, 1984).

As the stock market value does not accurately reflect the current value of the firm and is either undervalued or overvalued, investors expect managers to possess particular data about the real and future value of the firm. They would wait for firms to reduce the funding cost, and choose the right timing for capital expansions by eliminating periods during which their firms are undervalued and benefiting from periods when firms are overvalued.

Consequently, investors think of the capital increase as a signal of bad news about the firm's value and charge for auxiliary risks (Myers, 1993).

However, the relationship between creditors and the company is also subject to information asymmetry. According to Aldamen et al. (2012), the problem of adverse selection results from the information asymmetry circulating in the credit market, as well as the presence of some borrowers with another repayment credibility.

Practically, the bank is not able to distinguish the bad from the good borrowers. That is why, it does not set the interest rate according to the type of the project to be financed, but, on the other hand, it sets a single and average interest rate by adding a risk tax to all projects. This term presents an obstacle for investors who prefer projects that are not risky, since they repay a risk tax and protect investors from very risky projects. That is why, good project investors abandon the credit market, and what remains is only risky projects. This is the result of underinvestment by companies that have good investment opportunities and choose not to pay back an auxiliary risk tax and manipulate shareholders' value on behalf of creditors.

In fact, Aldamen et al. (2012) analyse the phenomenon of credit rationing because. They think that in the case of identical borrowers, some get a credit while others who propose a dominant interest rate do not. Besides, banks have a different reasoning, because they believe that applicants who do not reject a high interest rate at the optimal rate are generally investors of risky projects compared with other applications. Therefore, even if the demand entails a higher rate of credit. The policy adopted by the bank ensures that this type of projects will in most cases be refused. The banks are led to make adjustments and adopt a rational policy concerning credit, because when a certain rate is reached, the bank's profits tend to decrease.

In a world well-equipped with the right information, creditors set the interest rate based on the risk of the project to be financed. In addition, they possess knowledge of all the possibilities that the borrower could follow. Similarly, they are able to control the companies by contractual terms that ensure their actions to the extent of their interests. Practically speaking, on the other hand, creditors cannot exactly predict the characteristics of the project carried out by the firm because there is always an informational imbalance, even after the control of the provided information. Indeed, information asymmetry is possible when the borrower can divert funds to more risky projects without the lender's knowledge of it (Jensen and Meckling, 1976).

Besides, information asymmetry between managers and creditors is beneficial for the former. Indeed, this ambiguity is explained by the ignorance of the funders regarding the projects where they will invest their capital. The companies, thanks to possessing this information, adopt opportunistic behavior by replacing the initial projects with risky but profitable projects in a way that transfers the risk to the creditors. Firms follow this approach because it is more profitable, and the risk is taken only by the bank.

This led creditors to ask for higher guarantee, such as the introduction of a control system and a risk fee (Jensen and Meckling, 1976). This control costs too much in addition to being transmitted on the cost of credit. Assuming that this control cost

is higher than the expected gains of the loan, the lenders opt for abandoning the loan offer and adjusting the credit. Besides, borrowers sanctioned by information asymmetry will be removed from the credit market even when having better investment opportunities. Therefore, thanks to risks of adverse selection and risk transfer, when the company opts for going into debt, it may experience underinvestment difficulties. Shareholders support not investing or even leaving profitable projects if the cost of debt is higher. Self-financing is more beneficial, since it avoids transaction costs, and especially the risk of credit rationing.

Therefore, firms are encouraged to hold a significant amount of cash to avoid external funding. In the case of insufficient internal financing, firms tend to opt for risk-free financial debt and then capital increase. Additionally, firms prefer to hold cash in order to fund their investments at a lower cost and to reduce transaction costs resulting from external financing.

On the other hand, a well-defined financial strategy must ensure more internal cash and facilitate access to future external funding, since the firm cannot be content with external resources to balance investment opportunities (Deangelo and Masulis, 2007). Companies must have debt capacity to ensure that they can obtain external cash in the future. This disposition, through the reduction of debt leverage and accumulation of liquidity reserves, makes it possible to strengthen the firm's debt capacity.

When a contract is signed, creditors know that they can face two types of risks: the default risk and asset substitution risk. The adopted procedure to assess the risks goes through the assessment of the company's assets in order to combat the risk in case of default.

Furthermore, Williamson (1988) shows that firms' debt capacity is closely linked to the net asset value. It indeed represents the only guarantee available to creditors. The assets considered as net asset values are assets that are easily reusable, as they are commonly negotiable in the event of the company's bankruptcy.

Therefore, cash increases the firm's debt capacity, since the more the firm's assets are not in cash, the more costly their disposal will be in a situation of bankruptcy. Thus, in order to reduce the costs of financial difficulty and the costs of bankruptcy, the managers of companies with less liquidity escape the call to debt. Contrariwise, companies characterized by liquid assets benefit from a high debt capacity. Additionally, the disposition of liquid assets brings comfort to creditors because the more cash the entities have, the less they are close to the future risk of bankruptcy (Sibilkov, 2009).

Other studies like (Pettit, 2007) indicate that cash holding is a sign of profitability. Consequently, the firm must be highly careful in the management of its cash reserves by mainly eliminating its reduction in order to avoid issuing a negative signal concerning the orientation of the firm's future investments. Moreover, suppose that the act of reserving cash is a protective measure for creditors against bankruptcy risks. This process supports only the allocated funds so that they do not build into risky projects. In order to strengthen creditors, the borrower's financial contract is obligatory.

Furthermore, the private data held by the managers forms a handicap when a loan application is submitted, which leads to companies with good projects and companies that seek loans, to reduce information asymmetry and to inform creditors of the firm's financial wellbeing and the investment projects it is working on. Similarly, it helps to ensure that allocated resources do not fund risky projects. To prove their good intentions to creditors, companies demonstrate an expensive signaling effort to gain credibility.

Pettit (2007) indicates that managers invest in their projects in order to signal their good quality. Additionally, the importance of self-financing makes it possible to distinguish good from bad projects. In fact, dividing risks with the borrower's financial participation in the financing of the project shows to the investors the firm's good faith, its willingness to avoid excessive risks and to keep its commitments. On the other hand, in the case of total funding of the project by a debt, the borrower is asked to grant funds to risky projects because even if the project fails, it is the bank that bears the project's deficits and not the firm. On the other hand, if the investment proves to be profitable, the profits will go to the company, while the creditor will get a small contractual remuneration.

Therefore, if the availability of cash by the borrower represents a protective measure for creditors in case of failure, the financial participation of the company presents the essential «right of defence» of creditors worried of their settlement in the face of moral risk (Greenbaum and Thakor, 2007). The banks require that the role of the company is not limited to holding cash in order to assert its solvency but rather to self-finance a percentage of the project.

It is important to mention that an anticipated availability of cash is necessary, as an investment is not exclusively financed through debt.

$H._1$ There is a negative link between cash holding and the cost of debt.

3.3. The Effect of Moderating Variables on the Relationship between Cash Holding and the Cost of Debt

3.3.1. Control block

The conflicts of interest between Shareholders and executives influence capital structure and investment policies, which can result in inefficient management decisions and "sub-optimal" investments generally falling into the categories of underinvestment and over-investment. In this context, several corporate governance mechanisms are proposed to solve the problem of divergence of interests between managers and shareholders and to reduce agency costs related to such conflicts.

The literature on finance presents the structure of ownership as the most important governance mechanism affecting the value of the firm (Berle and Means, 1900; Jensen and Meckling 1976; Fama et al., 1983). For example, the effect of the concentration of capital on the value of the enterprise is theoretically complex

and empirically ambiguous. Moreover, several studies found a positive influence of the presence of majority shareholders on the value of the company, whereas other studies found no existing relationship. However, Berle and Means (1900), in a book entitled The Modern Corporation and Private Property that there really is a real rupture between ownership and managerial control in the firms, and this is linked to the location of strength of the managers towards the shareholders. They suggest the existence of a positive and linear relationship between the concentration of capital and the value of the firm.

In this context, the results of Claessens et al. (2002) and Shleifer et al. (1997) are in line with the aforementioned conclusion. These authors show the importance of the role played by majority shareholders, which may have an influence on votes during general meetings and allocate, in an easier way, more important means for the control of managers and the protection of their investments.

Alexandre and Paquerot (2000) indicate that the concentration of ownership is presented as a warranty of the efficiency of the check of the management of directors by shareholders. In fact, the involvement of a shareholder in the control of management will change according to the percentage of capital possessed by that shareholder, its goals and its investment measures.

A shareholder possessing a solid portion of the capital will tend to focus on investing in corporate governance. Besides, the ownership structure can promote an effective decision-making to take place and reduce information asymmetry and moral risk, thereby reducing the cost of the firm's debt. Generally, the majority shareholders benefit from private information compared to the other shareholders, which particularly contributes to a greater control over the managers. Therefore, the agency costs of managerial discretion decrease. Nevertheless, the financing decisions sincerely control the leaders, lead to set an adequate level of cash with the aim of increasing shareholder value and abandon value devastating projects.

Anderson et al. (2009) also explain the positive effect of the concentration of shareholding based on the degree of liquidity held by the risk aversion of dominant shareholders. On the other hand, Aldamen et al. (2012) indicate that minority shareholders have less control over managers' initiatives, since they alone bear the fees of surveillance. Thus, there is a risk for them when they try to benefit from the activism of other shareholders without any efforts. The existence of a majority shareholder leads to this problem, as this majority shareholder is more likely to practice control over managers thanks to this shareholder's broad collaboration of the risk he/she assumes (Shleifer et al., 1997).

On the other hand, the structure of capital has a neutral influence on performance, since all ownership structures are equivalent, and the performance of the firms is mainly affected by the environment and the operating conditions of the firm. In this regard, Claessens et al. (2002) study the impact of majority shareholders on the profitability of the company. They noted the existence of a positive link in Asia, yet they observed a rooting effect associated with holding higher voting rights than ownership. In addition, Shabou (2003), in a study that analyses the influence of capital concentration on the performance of Tunisian companies, indicates that capital concentration has a statistically insignificant influence on performance.

In the French context, corporate shareholding is generally concentrated with a majority shareholder. This shows that French firms are well controlled, and that managers are unable to hold cash. This French framework, which is marked by a concentrated shareholding and a fragile minority shareholding aid, leads us to reflect on two opposite effects on the association between performance and the concentration of shareholding. On the one hand, high concentration in France can lead to rooting consequences (Boubaker, 2015). On the other, the low degree of protection and support of minority shareholders reinforces the positive relation between concentration and performance and Ghouma (2010).

The signalling of the tunneling hypothesis of La Porta et al. (1997, 2000) indicates that the majority shareholders seek to satisfy their personal interests and aim through tunneling to manipulate gains towards their accounts. La Porta et al. (1997) show a significant risk of conflict of interest between majority shareholders and managers, as they adopt policies that are aimed at satisfying the interests of majority shareholders at the expense of the interests of minority shareholders.

Nevertheless, the shareholder responsible for controlling is also able to benefit from his/her position in order to take advantage of the company's wealth at the expense of minority shareholders (Fama and Jensen, 1983). This can lead to a rooting of the majority shareholder. In addition, a shareholder responsible for controlling may ask for the direct payment of dividends instead of funding investments in projects with a positive net present value, thereby reducing the average expected cash flow of the company and even promoting the risk of debt. The controlling shareholder may also serve his/her own ends at the expense of minority shareholders (Jonson et al., 2000).

Besides, La Porta et al. (2000); Boubakri and Ghouma (2010) took into account the existence of conflicts of interest between majority and minority shareholders. The concentration of shareholding has an influence on resources and reduces the level of performance, as majority shareholders assisted by managers prefer to act opportunistically against minority shareholders by various means like embezzlement or fraud. In this case, the selection of the preservation of dividends and excessive cash investment represent a means of resource control in order to benefit from private gains because of the ease of misappropriation of these assets. That is to say that they can benefit from strategic decision-making in the company and divert these decisions to their own profit.

Indeed, the effect of the control group's behaviour on the company's investment policy was studied by Myers and Majluf (1984). These studies show that private profits can lead to over-investment. These researchers note the usefulness of private profits, which, in this respect, can counteract the tendency towards under-investment linked to the management of the company by

a controlling shareholder. Nevertheless, the difference between the managers and the controlling shareholders manifests itself at the level of the composition of their financial assets and rights to public benefit.

Nevertheless, the various mechanisms of the incentive theory present the convergence of each other's behavior. The managers become de facto shareholders of the firm by means of incentive contracts granting rights to cash flow. Like controlling shareholders, managers are not in a position to diversify their global assets, nor are they in a position to systematically reduce risk in a divided market. They are more exposed to the specific risk and bankruptcy of the company than other investors.

Moreover, according to the incentive theory, it is possible to form optimal contracts and create balance zones that manifest themselves through providing data that are private to controlling shareholders. The logic of an optimal incentive balance is realistic with managers looking to provide correct information on the economic profitability of the firm. This type of results is counterbalanced by studies which highlight the existence of short-term opportunistic behavior by managers within the framework of incentive contracts. These can manipulate the displayed results in order to influence market prices and practice their stock option contracts or share purchase plans of action. In this regard, the accounting manipulations seek to inaccurately increase the result. However, the manipulation of results can also be explained by the behavior of the controlling shareholders vis-à-vis minority shareholders: the former use accounting procedures in order to conceal the existence of private benefit. In fact, in an international comparison, Leuz et al. (2003) highlight that the manipulation of results is higher in a situation of weak minority protection.

In the same context of appropriation of private profits, indebtedness favours the power of the dominant shareholder, as the majority shareholder gains more control over resources and invests without dilution of power. The appropriation of private profits does not penalize the firm's investment policy in case of profitable projects. Debt allows the majority shareholder to invest and continue to benefit from private profits. The decision of indebtedness here is linked to the policy of the profitability of investments. It allows the controllers to take advantage of profitable opportunities and to benefit from gain in the form of private profits. Filatotchev and Miekiewicz (2001) show that, in a weak investor protection environment, the majority can take over a part of the new debt in the form of direct predation to the will of the minority shareholders even before the completion of the project of investment.

Moreover, Zhang's mode (1998) is one of the first to explain the relation between the ownership structure of the enterprise and its financial structure. This model does not refer to surveillance costs or possible private benefits, but to informational costs on ongoing investment projects. The benefits of acquiring internal information must be sufficient to cover the under-diversification of their portfolio and the costs of data acquisition. The direct consequence is the tendency towards underinvestment as a consequence of a higher return requirement on the part of the controlling shareholders. The debt that is opted for is the risky debt because there is a probability of non-repayment for the lender. This leads to a phenomenon where risk is transferred from the controlling shareholder to the lender, which makes it possible to lower the rate of rejection of investments and reduce underinvestment. Heinrich (2000) came to similar results noting that increased indebtedness makes the dominant shareholder more tolerant of risk.

However, according to the internal policy of debt within the company groups, the group structure allows «circuit-breakers» in case of bankruptcy. It is thus possible to load certain subsidiaries of debts and to circulate the cash-flow within a group for the benefit of certain entities. The expropriation of minority indebted subsidiaries thus stems from the cost of the financial issue they are responsible for instead of the controlling shareholder (Faccio et al., 2012). According to (Bianco and Nicodano, 2001), this type of analysis focuses on the distribution of debt within a group by promoting, for instance, the option of partial liquidation that the majority obtains free of charge from the minority. In the situation of bankruptcy, the minority and the bank's lenders assume the risk (La Porta et al. 2000). As these agency costs increase, the risk fee needed by creditors increases, leading to an increase in the cost of debt (Anderson et al. 2004).

For example, Kusnadi (2011) examined the impact of holding non-restrictive blocks and that of the size of the board on liquidity. He found a significantly positive relationship between board size and cash holding, but an inverse relationship between holding control blocks and cash holding. He concluded that smaller boards more effectively control the work of the CEO, while larger boards place more emphasis on the discretionary powers of the CEO (Jensen, 1993).

$H_{1\text{-}a}$: Control block moderates the relationship between the level of cash holding and the cost of corporate debt.

3.3.2. Operating risk

Risk is uncertainty about the future. More precisely, when we consider the performance of a company, risk is associated with the variability of expected outcomes that it offers to its funders. A company is facing a risk if its performance cannot be predicted with certainty. However, several factors can influence its performance. Thus, these disturbances may be more or less strong depending on its characteristics.

There are two sources of risk that make future returns random and that influence its variability. First, the operating risk, linked to the activity of the enterprise, can be explained by the possibility of a more or less strong variation of the result when the level of activity of the enterprise varies. This economic risk depends on the size of the set costs necessary for the functioning of the enterprise. In fact, if an enterprise bears more set costs, it will be encouraged to reorganize its operation in order to avoid unnecessary costs. The higher these fixed costs, the greater the constraint on turnover in order to achieve a positive economic result.

Then, there is the financial risk that depends on the level of indebtedness. With debt funding, financial interest charges increase and subsequently increase the possibility of achieving a positive

net result. This debt financing does not increase the operating risk but adds a financial risk which is manifested by the fact that each unit of capital will support a larger part of the economic risk.

This way, the volatility of the firm's revenues weakens the expected value of cash flow and increases the risk of underinvestment, which generates negative results on the firm's value and pushes it to cancel its investments. Indeed, according to Han and Qiu (2007), high cash-flow volatility is associated with a low level of investment, especially as companies develop investment projects in the event of a cash-flow deficit instead of resorting to capital markets. In addition, the diminished company may even cancel the dividend distribution. To deal with these risks, the company must use protective means or the separation of activities. In this case, it is important to opt for the accumulation of liquidity and/or debt in order to provide firms with alternatives to the protective operations to deal with their risks.

Han and Qiu (2007) indicate that the volatility of cash flows on cash holdings can be explained by funding constraints. They also indicate that only companies that have a financial difficulty can increase their level of liquid assets through an increase in the volatility of their cash flows.

The volatility of cash flows increases the use of external financing, and consequently significant financing costs, especially when asymmetric information is present. In this case, creditors are more attentive to give loans to a company whose cash flows are unstable.

Therefore, we can see that the volatility of cash flows not only increases the need for firms to resort to capital markets but also increases the cost of recourse. Taking into account the agency theory, the pecking order theory, and the hypotheses of the optimal debt ratio, we note a negative relationship between risk and the level of debt.

However, the higher the risk, the greater the chance of bankruptcy, which can create a negative link between risk and debt. This negative impact is confirmed in a study by Huang and Song (2006). Indeed, the cash reserve reduces the probability of bankruptcy in the case of cash deficit and avoids the obligation of having to abandon profitable projects. Cash holding also reduces the cost of debt and creates value through reducing the risk of sub-investment.

After the risk of underinvestment, the uncertainty of cash flow increases the chance of insufficient cash that can block the firm to face its obligations, which leads to greater risk of financial distress. In other words, a firm is in financial distress when its cash is insufficient to face its essential financial commitments (John, 1993). Therefore, the company must implement mechanisms in order to safeguard the company against bankruptcy. As a result, these mechanisms generate financial distress costs for the company.

According to John (1993), the issue of financial distress can be solved by two mechanisms: either through asset restructuring, which consists in increasing the level of liquid assets through the disposal of real assets, or by the restructuring of the balance sheet liabilities, which is represented as the restructuring of debt contracts (for example, by the reduction of capital and interest, by a longer maturity, etc.) and also by the reduction of debt at the level of net capital.This researcher, indicates that companies maintain volatile cash flows and retain more liquidity. The study by Opler et al. (1999) confirms these results. On the other hand, according to Metron (1970), volatility is an important determinant of debt risk eliminating the cash effect. The study shows that the value of the debt becomes higher than the market value of its assets in a situation of bankruptcy within the company. External financing and the holding of assets in cash are no longer important, while the cash reserve becomes relevant for companies exposed to risks to address uncertainty of future results and to simplify access to external financing.

Through this model of z-score, Altman (1968) considers the liquidity of companies' balance sheets as a potential determinant of their bankruptcy risk. It shows that the holding of cash affects the risk of default. Thus, Deangelo and Masulis (1980) show that the volatility of cash flow increases the risk of bankruptcy of the firm. They also claim that investors face difficulties in predicting the future gain of a firm with a high fluctuation in its bottom line. This will lead the market to force severe restrictions and oblige the firm to pay an extra fee in order to provide funds to be able to increase the cost of the debt. Besides, Acharya et al. (2011) indicate that the holding of cash at companies affects the probability of bankruptcy, and this result may then negatively impact the optimal level of liquidity to be retained. In other words, liquid assets subsequently form an internal factor combined with the risk of bankruptcy. They note that the more cash reserves the company has, the more protected it is from bankruptcy risks.

On the other hand, Davydenko (2011) affirms that holding liquidity reduces the risk of bankruptcy in the short term, but in the longer term (between 2 and 5 years) the relationship becomes positive. In fact, he found a positive relationship between corporate liquidity, cash spread and bankruptcy risk.

However, other characteristics like leverage, volatility, profitability or funding constraints, may affect the company's credit risk and affect its liquidity.

$H_{1\text{-}b}$: Operating risk moderates the relationship between the level of cash holding and the cost of companies' debt.

The aforementioned hypotheses can be summarized as follows Table 1:

Having presented the theoretical framework that takes into consideration the existing significance between cash holding and the cost of debt, we will present in the next section the statistical technique and the methodology adopted in order to either confirm or refute the aforementioned research hypotheses while setting the research specifics and obstacles that could prevent this validation.

4. DATA AND METHODOLOGY

4.1. Presentation of the Research Sample

The sample presented in this study is composed of French companies listed on the SBF 120, for the period 2011-2015. This

sample has the form of a non- cylinder panel. We analyzed the sample by deleting financial businesses, as well as removing businesses with missing data or those whose accounting reports were not closed as of December 31. After having refined the research sample, the final non- cylinder sample comprising 500 observations and representing 100 firms over the period of 2011 and 2015 was updated. The annual data were collected manually based on annual reports and firms' reference documents. These documents are available on these firms' websites (Table 2).

4.2. Presentation of Variables

4.2.1. Description of the measurement of the dependent variable (COUD)

The dependent variable in this part is the level of the cost of corporate debt: It is a continuous quantitative variable measured by the amount of financial cost divided by the total sum of the firm's financial debts (Draief and Chouaya, 2012; Pittman and Fortin, 2004; Regaieg and Fdhil, 2006; Piot and Piera, 2007). However, it should be noted that this measure can be set by other variables. Indeed, several researchers such as (Anderson et al., 2004; Klock et al., 2004; Ashbaugh et al., 2006; Prevost et al., 2008; Chaney el al., 2011) used the internal rate of return to measure the cost of debt.

Due to the absence of essential data to determine the internal rate of return for all companies in the sample, we adopted an average cost of debt that shows the ratio of the value of financial cost to the total value of the company's debts. This procedure is similar to that of (Draief and Chouaya, 2012; Pittman and Fortin, 2004 and Regaieg and Fdhil, 2006).

$$\text{COUD} = \frac{\text{financial cost}}{\text{total debt}}$$

4.2.2. Description of the measurement of the independent variable (CASH)

The cash holding variable (CASH) has the role of the independent variable. To measure this variable, we adopted the ratio between the value of the liquid assets and the total assets of the company. We adopted a similar approach to that of (Opler et al., 1999 and Zeljko et al., 2017).

$$\text{CASH} = \frac{\text{cash and cash equivalents}}{\text{total assets}}$$

4.2.3. Description of measurement of moderating variables

In this part, the aforementioned assumptions support a moderating role in the main relationship studied. In other words, we seek to verify whether the impact of the company's cash holding on the cost of debt is affected by the characteristics related to the following financial determinants: control block and operating risk.

4.2.3.1. Control block (BLC)

The concentration of Shareholding is an essential mechanism of the organizational form, since dominant shareholders are more likely to monitor managers and have more room for maneuver to apply their will during dividend distribution. Thus, it is useful to know the identity of the control block holder because the influence of holding blocks of shares on the performance and value of the company may differ from one dominant shareholder to another. However, it appears that there are no specific rules for determining the percentage of voting rights necessary for the establishment of a control block.

To measure this variable, we use the following measurement:

BLC: Binary variable equaling to1 if the company has a control block (voting rights greater than 40%) and 0 if otherwise, as shown by (Dechow et al., 2010; Berger et al., 1997; Bouri and Guermazi, 2016).

4.2.3.2. The operating risk: (REXP)

The operating risk, also known as economic risk, is related to the possible variability for various reasons in the evolution of environmental factors such as competition, technology, the industry, and the operating performance of the company in the event of a negative gross operating surplus. That is why the operating risk for a company is explained by the instability of turnover or volatility of returns that do not cover fixed expense.

We measure this moderating variable by the standard deviation of economic profitability (ROA), as demonstrated by Draief and Chouaya (2012).

4.2.4. Description of control variables

The control variables studied in this research are: the size of the firm and economic profitability.

4.2.4.1. The size of the firm: (SIZE)

This variable measuring the size of the firm must be negatively correlated to the cost of debt. In fact, several researchers Sengupta (1998) suggest that large enterprises bear low debt costs taking into consideration small firms as large enterprises are likely to be more varied and therefore less issuer at risk of bankruptcy. Similarly, Klock et al. (2004) indicate that large firms are characterized by stronger stability made for big economies. These researchers assure that large firms benefit from a low debt cost.The size of the firm is measured by the logarithm of the accounting value of total assets (Anderson et al., 2004; Pittman and Fortin, 2004; Skaife et al., 2006; Chen et al., 2007).

SIZE = Log (accounting value of total assets)

4.2.4.2. Economic profitability: (ROA)

The ROA variable measures the global efficiency of the firm in using capital, because it is considered as one of the determinants of the firm's debt. In this context, several studies like (Zulkufly, 2013 and Piot and Piera, 2007) show that the company's profitability has a positive impact on the cost of debt. In order to measures this variable, these researchers use the ratio between operating profit and total assets. ROA = Net income/Total assets

4.3. Statistical Methods

4.3.1. Presentation of models

In order to test the hypotheses of this study, and based on the characteristics of the various variables, our general model is a multiple linear regression on the panel data (Sevestre, 2002) which is presented as follows:

Variable to be explained =c+α Explanatory variables it + β Variables of control it+ εit

This method is interested in identifying the best estimation equation and evaluating its accuracy and significance. We will consider the contribution as being related to two or several explanatory variables on a variable to be explained. Furthermore, it shows the complementary or antagonistic impact between the different explanatory variables and indicates the relative importance of several explanatory variables on a variable to be explained in relation to a causal theory subject to research (Borcard, 2004). The practice of this method is carried out according to the (STATA) program.

4.3.2. The general model (M1)

Our general model is interested in directly measuring the effect of cash holding on the cost of debt, and it is written as follows:

$$COUD_{it}=\beta_0+\beta_1 CASH_{it}+\beta_2\ BLC_{it}+\beta_3\ REXP_{it}+\beta_4\ SIZE_{it}+\beta_5\ ROA_{it}+\varepsilon_{it} \quad (1)$$

Where:

$COUD_{it}$ = cost of debt (financial cost/total debt).
$CASH_{it}$ = cash holding (cash and cash equivalents/total assets).
BLC_{it} = Control Block (dummy variable equaling to 1 if the company has a control block and 0 if otherwise).
$REXP_{it}$ = Operating Risk (standard deviation of ROA).
$SIZE_{it}$ = firm size (logarithm of total assets).
ROA_{it} = return on assets (Net *income*/total assets).
ε_{it} = the error term of this model.

4.3.3. Study of moderating effects

The hypotheses that we formulated play a moderating role in the context of the major relation that is studied. Besides, we seek to prove whether the effect of cash holding on the cost of debt is affected by characteristics related to ownership structure and operating risk. According to Sharma et al. (1981) a moderating variable is a variable that operates particularly on the link between two other variables. It regularly changes the size, intensity, meaning and/or shape of the impact of the explanatory variable on the variable to be explained.

We therefore suggest an assessment of these models:

4.3.3.1. The effect of control block on the association between cash holding and cost of debt

$$COUD_{it}=\beta_0+\beta_1\ Cash_{it}+\beta_2\ BLC_{it}+\beta_3\ Cash*BLC_{it}+\beta_4\ SIZE_{it}+\beta_5\ ROA_{it}+\varepsilon_{it} \quad (1\text{-}1)$$

Where:

$COUD_{it}$ = cost of debt (financial cost/total debt).
$CASH_{it}$ = cash holding (cash and cash equivalents/total assets).
BLC_{it} = Control Block (dummy variable equaling to 1 if the company has a control block and 0 if otherwise).
Cash*BLC = this is an interaction variable between the cash holding variable and the Control Block variable.
$SIZE_{it}$ = firm size (logarithm of total assets).
ROA_{it} = return on assets (Net *income*/total assets).
ε_{it} = the error term of this model.

4.3.3.2. The effect of operating risk on the association between cash holding and cost of debt

$$COUD_{it}=\beta_0+\beta_1\ Cash_{it}+\beta_2\ REXP_{it}+\beta_3\ Cash*REXP_{it}+\beta_4\ SIZE_{it}+\beta_5\ ROA_{it}+\varepsilon_{it} \quad (1\text{-}2)$$

Where:

$COUD_{it}$ = cost of debt (financial cost/total debt).
$CASH_{it}$ = cash holding (cash and cash equivalents/total assets).
$REXP_{it}$ = operating Risk (standard deviation of ROA).
Cash*REXP = this is an interaction variable between the cash holding variable and the operating risk variable.
$SIZE_{it}$ = firm size (logarithm of total assets).
ROA_{it} = return on assets (Net *income*/total assets).
ε_{it} = the error term of this model.

4.3.4. Specification tests

We chose to carry out specification tests in order to be able to adopt the most commonly adopted method for our case studies, especially that the specifics related to firms tend to have an impact on the value of the firm.

4.3.4.1. Verification of the condition of absence of multicollinearity

First of all, we will study the multicollinearity between the explanatory variables. According to Groebner et al. (2008), the existence of such a problem within the model may generate signals and inaccurate coefficients. It may also consequently lead to false results and analysis conclusions. In order to ensure the absence of such errors, we refer to the VIF test (Variance Inflation factor). According to Aczel and Sounderpandian (2006), this variance inflation factor is an effective means of detecting multicollinearity between model variables. According to Groebner et al. (2008), a serious multicollinearity problem exists between model-independent variables when VIF values exceed 10.

By applying the VIF test on the obtained variables for each model in this study, we found values that do not exceed 1.22.

4.3.4.2. Hausman's test

The aim of this specific test is to determine whether fixed or random effects should be treated. In applying the Hausman tests, we note that this test is relevant for the three models (P-value 5%). Thus, we will retain the estimators of the fixed effects model.

After setting different proximities that will be adopted, the sample of companies to be tested and the statistical formulas that will be used to test the different hypotheses, we now proceed to the final

phase of the research which consists in presenting and interpreting the noted empirical results.

5. RESULTS

5.1. Descriptive Statistics

By Referring to the Table 3 below that summarizes the major descriptive statistics of variables, the following remarks can be stated:

First, for the dependent variable, we note that the cost of debt (COUD) varies between 0.001 and 0.344. Its average and its standard deviation are respectively 0.056 and 0.042. We note, for example, that the level of debt cost varies in the sampled companies. Second, for the independent variable, we note that cash holding (Cash) varies between 0.001 and 1.96 with an average of 0.119 and a standard deviation equal to 0.181. Third, for the moderating variables, we note that the binary variable of control block (BLC) varies between 0 and 1 with an average of 0.718 and a standard deviation equal to 0.450. As for operating risk, (REXP) it is 0.056 on average. It varies between 0.001 and 0.093 with a standard deviation of 0.010. Finally, as for control variables, we note that the size of the enterprise (SIZE) varies between 2.022 and 6.898. Its average and standard deviation are respectively 4,040 and 0,684. Economic profitability (ROA) has an average of 0.046 and a standard deviation of 0.065, which evolves between - 0.262 and 0.579.

5.2. Correlation Matrix

Table 4 summarizes the associations between the various variables for the explanatory variables of the previously defined model. We note that the highest correlation coefficient (0.139) is found between the variable of economic profitability (ROA) and that of cash holding (Cash).

Table 1: Summary of hypotheses

The hypotheses
H_1: There is a negative link between cash detection level and the corporate debt cost
$H_{1\text{-}a}$: Control block moderates the relationship between the level of liquidity detention and the cost of corporate debt
$H_{1\text{-}b}$: Operating risk moderates the relationship between the level of liquidity detection and the cost of corporate debt

5.3. Multivariate Analysis

The assessment of the overall quality of the model is carried out by referring to Fischer's statistics, which shows whether the explanatory variables have an ascendant over the dependent variable. The examination of the assumptions for H_0 suggests that the total of the coefficients of the model are zero. Concerning H_1, it signals the presence of at least one non-zero coefficient. The reconciliation was reached by comparing the F-statistical value estimated and arranged by Fischer. Automatically, the Stata software gives the collaborating probability to the calculated F-statistic, which remarkably helps our present analysis when comparing the collaborating probability to the F-statistic at the threshold of 5%. If the calculated F-statistic is less than 5%, then the hypothesis H0 will be rejected in favor of the alternative hypothesis where regression is entirely significant.

The results of the various tests of three models which respectively deal with the effect of cash holding on the cost of debt (M_1), the effect of control block on the relationship between cash holding and the cost of debt (M_1-$_1$) and the effect of operating risk on the relationship between cash holding and debt cost ($M1_1$-$_2$), are significant in general and of remarkable quality. There is at least one variable in each model explaining the cost of debt. Fisher's statistics that are calculated by the Stata software indicate 0.009 for (M_1), 0.004 for (M_1-$_1$), and 0.002 for the last model (M_1-$_2$). Therefore, they reveal satisfying explanatory powers: 0.17% for (M_1), 0.18% for (M_1-$_1$), and 0.1% for (M_1-$_2$).

We will examine in the following part the individual significance of the variables for each model (Table 5).

- Testing hypothesis 1: The effect of cash holding on the cost of debt (M_1)

In this general model, we find that the cash holding variable (Cash) has a negative coefficient of (–0.025), with a P-value equal to

Table 2: Data sources

	Variables	Required data	References	Sources of information
Dependant variable	Cost of debt	COUD: Financial cost/total debt	Draief and Chouaya (2012); Pittman and Fortin (2004), Regaieg and Fdhil (2006)	Annual Reports
Independant variable	Cash holding	CASH: cash and cash equivalents/total assets	Opler et al. (1999); Zeljko et al. (2017)	Annual Reports
Moderating variable	Control Block	BLC: dummy variable equaling to 1 if the company has a control block and 0 if otherwise	Dechow et al. (2010); Berger et al. (1997); Bouri and Guermazi (2016)	Annual Reports
	Operating Risk	REXP: Standard deviation of (ROA)	Draief and Chouaya (2012)	Annual Reports
Control variables	Firm size	SIZE: Logarithm of total assets	Anderson et al. (2004); Ashbaugh et al. (2006); Chen et al. (2006); Pittman and Fortin (2004)	Annual Reports
	Return on assets	ROA: Net income/total assets	Piot and Missonier (2007); Zulkufly (2013)	Annual Reports

0.096. Thus, we can confirm that the Cash variable is statistically significant and negative on the cost of debt at the threshold of 10%.

The more cash the company holds, the lower the cost of debt will be. This result confirms the H_1 hypothesis which can be justified by the fact that the availability of cash constitutes a prerequisite to the granting of debts, since it increases the loaning capacity of the firm and reassures the creditors (Sibikov, 2009). The more cash companies hold, the less exposed they are to bankruptcy risk.

According to Anderson et al. (2004) and Skaife et al. (2006), invalid information hiding the firm's real situation generates increasing risk for creditors. In this case, the commitment of control costs becomes essential to ensure a prudent approach to the company's situation. In order to compensate for these costs, creditors tend to prefer increasing interest rates, which also leads to an increase in the cost of debt. In this context, the companies opt for holding cash with the aim of financing their projects at a lower cost and minimizing the transaction costs of external financing. In other words, cash availability by the borrower is an obstacle against creditors in case of failure despite the relationship between creditors and the company that is subject to asymmetry of information and despite the problem of adverse selection on the credit market (Aldamen et al., 2012), as well as the presence of some borrowers with different repayment credibility, as the bank is not able to distinguish from the beginning the bad from the good borrowers, and cannot exactly know the characteristics of the project carried out by the firm thanks to the information imbalance even after the control of the provided information (Jensen and Meckling, 1976).

This effect could be explained by the fact that the companies of the study sample have more liquid assets, since the cash value of the assets almost represents the unique guarantee offered to creditors (Williamson, 1988). These assets, which are considered as cash values, are assets that are easily reusable, as they are currently negotiable in case of the company's bankruptcy.

In addition, as shown by Sibilkov (2009), the disposition of liquid assets is reassuring to creditors because the more cash the entities reserve, the less likely they will be at the risk of bankruptcy. Thus, holding cash can be seen as a sign of profitability, and therefore it represents protection for creditors against this risk (Pettit, 2007). Therefore, this link can be explained by the financial participation of the company, since alongside the availability of cash, the role of the company to self-finance a percentage of the project represents the essential «right of defense» of creditors anxious about their settlement when faced with moral risk (Greenbaum and Thakor, 2007).

- Testing Hypothesis 2: Effect of control blocks on the relationship between cash holding and debt cost: (M_1-$_2$)

Before analyzing the effect of control block on the relationship between cash holding and the cost of debt, it is necessary firstly to interpret the direct relationship between the cash holding variable and the cost of debt variable. Indeed, we note that the Cash variable has a significantly negative effect - 0.002 on the cost of debt, which is in line with the interpretation of our general model.

Besides, this model has a significant moderating effect where results reveal that the presence of control block has a positive

Table 3: Descriptive statistics

Variable[a]	Obs	Mean	Std. Dev.	Min	Max
COUD	500	0.055	0.042	0.001	0.344
Cash	500	0.119	0.181	0.001	1.960
BLC	500	0.718	0.450	0	1
REXP	500	0.056	0.011	0.001	0.093
SIZE	500	4.040	0.684	2.022	6.898
ROA	500	0.046	0.653	–0.262	0.579

Notes: [a]Description of the variables: CASH represents the cash holdings in SBF120 French companies (= cash and cash equivalents/total assets), BLC indicates control block (= dummy variable equaling to 1 if the company has a control block and 0 if otherwise), REXP represents the operating risk (= standard deviation of ROA). SIZE represents the firm size (= logarithm of the total assets), and ROA indicates return on assets (= net income/total assets)

Table 4: Correlation matrix

	COUD	Cash	BLC	REXP	SIZE	ROA
COUD	1.000					
Cash	0.070	1.000				
BLC	–0.050	–0.128	1.000			
REXP	–0.004	0.056	–0.099	1.000		
SIZE	0.026	–0.163	0.014	0.095	1.000	
ROA	–0.043	(0.139)	–0.099	0.008	–0.393	1.000

Notes: [a]Table 3 for the description of variables. N=500 for all variables. [b]The highest correlation coefficient is expressed between the parenthesis

Table 5: Multiple regression analysis

Independant variable	Model (1)	Model (1-1)	Model (1-2)
Constant	0.249 (0.000)***	0.235 (0.000)***	0.257 (0.000)***
Test variables			
Cash	–0.025 (0.096)*	–0.065 (0.002)***	0.179 (0.108)
BLC	0.005 (0.562)	–0.055 (0.601)	
Cash*BLC		0.060 (0.007)***	
REXP	–0.032 (0.909)		0.119 (0.690)
Cash*REXP			–3.990 (0.063)*
Control variables			
SIZE	–0.047 (0.000)***	–0.427 (0.001)***	–0.050 (0.000)***
ROA	0.018 (0.611)	0.016 (0.640)	0.020 (0.558)
Number of observations	500	500	500
Adj. R-Square	0.001	0.001	0.001
F (p-value)	(0.0017)***	(0.004)***	(0.002) ***
Max. VIF	1.22	1.20	1.22

Notes: [a]Table 3 for the description of variables. *Significant at 10%; **significant at 5%; *** significant at 1%

and significant impact; the coefficient of the Cash* BLC is 0.007 positive and statistically significant at the 1% threshold. This finding confirms the H_{1-a} hypothesis. We therefore note that the presence of control blocks can balance the relationship between cash holding and the cost of the firm's debt. In other words, when the company holds a control block, the cost of debt increases even when there is a significant level of cash holdings. This way, the confirmation of this hypothesis can be explained by the power of the majority shareholders. It also seems that, when the company holds cash with concentrated capital, the shareholders' power becomes more important.

These results are opposed to those that indicate the ownership structure that promotes effective decision-making through a reduction in information asymmetry, moral risk, and the cost of the company's debt, which the authors mainly explain by the strengthening of external management control and the alignment of incentives between management and shareholders (Alexandre and Paquerot, 2000). Therefore, this link can be explained by the tunneling hypothesis or the hypothesis of the risk of expropriation of minority shareholders, according to which dominant shareholders take advantage of their position in order to bring private gains from the firm at the expense of minority shareholders (Johnson et al., 2000).

Nevertheless, shareholding in France is generally dominated by a majority shareholder. Furthermore, the voting rights of the majority shareholder in our sample reach a rate of more than 40%. Therefore, the major agency dispute focuses on the association of majority and minority shareholders.

Furthermore, we note that La Porta et al. (2000), like Boubakri and Ghouma (2010), have taken into consideration conflicts of interest between minority and majority shareholders. These authors explain that the dominant position of the shareholders in control in the strategic decision-making process in the company can generate an increase in risk. This is mainly because the majority shareholders collaborate with managers to disapprove of the minority shareholders through various methods (theft or fraud.), which will cause to an increase in the cost of the debt.

In this context, the preservation of dividends and excessive investment in cash are an effective means for verifying the extremum of resources and to create private gains in order to facilitate the diversion of these assets. In other words, strategic decisions are made within the company with the aim of taking advantage of some of the profit. In addition, a controlling shareholder may request the direct payment of (dividends) instead of supporting projects where VAN is positive. This will therefore reduce the average expected cash flow of the company and may even increase the risk of debt.

It should be noted that debt allows a majority to invest and continue to derive profits to their own private profit. The debt decision which is linked to the investment policy, allows those responsible for controlling to take advantage of profitable opportunities and to maximize their gains and wealth in the form of private profits.

As Filatotchev and Miekiewicz (2001) show, the majority may hold part of the new debt in the form of direct predation to the minority shareholders even before the investment project is realized. This relationship can also be explained by the study of Myers and Majluf (1984) which investigates the impact of the control group's behavior on the company's investment policy. The study shows that private profits may lead to over-investment. They deduce the usefulness of private profits which can counteract the tendency towards under-investment linked to the management of the company by a controlling shareholder. A study by Leuz et al. (2003) which shows that manipulation of results is more serious in a situation where minority protection is weak, indicates that this manipulation could be explained by the controlling shareholders' behavior towards minority shareholders through their decision to conceal the existence of private gains.

Thus, the orientation of major shareholders towards risky debt is explained by a probability of non-repayment for the lender. This results in a miracle transfer of risk from the controlling shareholder to the lender that reduces the rate of rejection of investments and reduces underinvestment. Thus, excessive indebtedness places the company in a situation of default which results in a loss of private and public control profits (Grullon and Michaely, 2001).

This behavior of the controlling shareholders would lead to their direct appropriation before the payment of interest and the expropriation of the minority of the indebted subsidiaries. This means that they would accept an increased chance of bankruptcy because of their behavior. Therefore, as these agency costs increase, the risk fees needed by creditors increase too, which will cause an increase in the cost of debt (Anderson et al., 2004).

- Testing hypothesis 3: The effect of operating risk on the relationship between cash holding and debt cost: (M_1-$_2$)

The results of the linear regression testing the impact of operating risk on the relationship between cash holding and the cost of debt reveal that companies under risk face a low cost of debt in the presence of cash, which confirms our third H_{1-b} research hypothesis.

In fact, the coefficient combined with the variable Cash*RE is negative and significant at the 10% threshold. Creditors facing companies in risky situations do not require high risk fees to protect themselves against a potential threat of non-repayment thanks to the cash held by these firms. In other words, even in the presence of high operating risk, the holding of cash reduces the cost of debt. This result also shows the importance of cash holding because it reduces the potential occurrence of bankruptcy and also reduces the cost of debt in addition to offering firms an alternative to hedging actions to manage their risks.

This link also makes it possible to highlight the importance of the role of the moderating effect since in most financial theories, such as the agency theory, the pecking order theory and the theory of the optimal debt ratio, a negative relationship between the level of debt and risk is indicated. Therefore, the higher the risk, the higher the risk of bankruptcy will be, which can cause to an increase in

the cost of debt. This negative impact is empirically confirmed by the studies of Huang and Song (2006). Besides, the holding of cash presents a guarantee for creditors who are less confronted with the risks of non-repayment.

This result does not coincide with the studies of Acharya et al. (2011) and Davydenko (2011), which indicate a positive link between corporate liquidity, default risk and credit spread. They conclude that the more the risk of future absence of cash increases, the more liquidity companies accumulate to limit the risk. They also conclude that holding liquid assets represents an effective indicator of future risks, but it is not a sign of good financial well-being. They tend to give more guarantees to doubtful creditors about non-payment or the transfer of wealth on behalf of shareholders.

On the other hand, the results associated with the impact of control variables on the cost of debt indicate that larger enterprises benefit from lower debt costs. In fact, the coefficient relative to the variable SIZE is negative and significant in all the studied models. This result confirms our expectations and seems to indicate that large firms that hold large liquidity and benefit from economies of scale encounter few problems of non-liquidity. Their economic weight also allows them to benefit from less costly debts.

Similarly, this result is in line with the work of Sengupta (1998) and Klock et al. (2004), which suggest that larger firms are characterized by better stability adapted to large economies. These researchers indicate that large firms bear relatively lower debt costs, as they are more diversified and therefore face less risk of bankruptcy.

However, there is no significant effect between the return on assets and the cost of debt of the companies in our sample.

6. CONCLUSION

This article allows to study the impact of companies' cash holdings on the cost of debt and to interpret the moderating effect of the ownership structure (control block) and the risk (operating risk) on this relationship. Therefore, we sought to carry out an empirical study based on a hypothetical-deductive approach based on panel data of 100 French companies listed on the SBF 120 over the period of 2011-2015.

The results found are conclusive in all cases. However, the holding of cash has a negative and statistically significant effect. This result confirms the H_1 hypothesis.In other words, the more liquidity the company retains, the lower the cost of debt. This relationship is confirmed by the arbitrage pricing theory according to which, above a certain threshold, the debt increases the risk of financial distress resulting from the direct costs associated with administrative and judicial orders in case of bankruptcy and indirect costs linked to a loss of credibility with the partners and especially with its creditors. To deal with this risk, firms are required to retain liquidity.

Therefore, if we take into account the control block that was incorporated in this study as a moderating variable, we find that this variable moderates the relationship between Cash and the cost of debt. In other words, holding cash has a positive and significant influence on the cost of debt when the company holds a controlling block. This hypothesis was confirmed by relying on the power of majority shareholders, since this relationship is in line with the hypothesis of the risk of expropriation of minority shareholders.

As for operating risk, we found that this interaction variable moderates the relationship between cash holding and the cost of debt because cash has a negative and significant effect on the cost of debt despite the presence of high operating risk. This result reflects the importance of cash holding as a kind of hedging against risk for companies.

Concerning control variables, we found that the firm's size (SIZE) has a negative and statistically significant impact on cash holding for the three models. This explains why large companies bear relatively low debt costs because they are more diversified and therefore less exposed to the risks of bankruptcy Sengupta (1998). Nevertheless, the economic return (ROA) has no significant effect on the cost of debt for the companies in our sample.

In conclusion, we consider that our analyses are based only on listed French companies. More important and more urgent cash holding for unlisted companies is an issue that we will leave for future research.

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