EFFECT OF IFRS ADOPTION ON CREDIT TERMS: THE CASE OF FRENCH CONTEXT

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ABSTRACT

This research investigates the effect of the mandatory adoption of IFRS on banks' credit terms in France using the STATA. We base on 492 observation-year in France during 2002-2015 period. We provide strong evidence that in France, firms that adopt IFRS standards profit from a longer maturity and more financial covenants. Concerning the interest rate and the secured, we find that these international standards have not a significant effect on these two credit terms. Besides, we test the indirect effect of the cost of capital on the link between the IFRS adoption and credit terms. However, we document the absence of a significant effect of the cost of capital on the link between the IFRS adoption and credit terms.

INTRODUCTION

During their economic life, firms seek to maximize their interests by publishing good news and hiding bad news from lenders, which increase the conflicts of interest. These last increase the asymmetry of information between managers of firms and lenders. In fact, the asymmetry of information presupposes the implicit existence of accounting information with poor quality which can be translated by a bad image of the firm in the financial market. That's why, firms are trying to hide some private data concerning the real quality of accounting information. As a result, lenders do not trust every piece of information published by the firm. In order to regain the trust of lenders, managers must publish accounting and financial information under an accounting framework, which assists in the preparation of annual reports indicating the actual financial situation of firms and which reduces the asymmetry of information. Thus, one of the main remedies for conflicts of interest between lenders and firms is the adoption of IFRS, which tends to improve the quality and the quantity of the accounting and financial information (Dicko and Khemakhem, 2010). These standards have demonstrated their superiority over local standards in many contexts (Bartov et al, 2005; Jermakowicz et al, 2007; Barth et al. 2008; Landsman et al. 2012). Improving the explanatory power of accounting numbers following the adoption of new standards (Bartov et al, 2005 ; Jermakowicz et al, 2007; Barth et al, 2008 ; Iatridis, 2010 ; landsman et al, 2012 ; Salameh, 2013)[1] can improve the trust of lenders concerning the financial situation of firms.

[1] Turki, H., Wali, S., and Boujelbene, Y. (2016). The effect of IFRS mandatory adoption on the information asymmetry. *Cogent Business & Administration*, 3 (1), 1-25.

However, the mandatory adoption of IFRS may have two effects on the decision of lenders. On the one hand, compared to local accounting standards, IFRS eliminate some accounting alternatives and reduce the discretionary power of management and limit the opportunistic management of earnings. In addition, IFRS are based on the principal of substance over form and tend to avoid specific and precise guidelines. This not only improves the informational content of the accounting information with regard to the underlying economy, but also limits the management of the circumvention of accounting standards by using the structuring of transactions (Barth et al., 2008; Langmead and Soroosh, 2009). Lastly, IFRS put more emphasis on the fair value. The inclusive use of fair value could lead to recognize economic gains and losses at the right time. This mechanism could reduce contractual costs of monitoring borrowers' financial performance and renegotiating contractual terms. On the other hand, the greater flexibility inherent to IFRS, accompanied by the lack of detailed implementation guidelines, could lead to undesirable results, depending on how standards are interpreted and applied**.** Considering the incentive of managers to exploit the accounting discretion for their own interests, greater discretion permitted under IFRS due to the lack of direction in the implementation of IFRS, in fact, lead to the more opportunistic management of profits (Schipper, 2003; Maines et al. 2003; Langmead and Soroosh 2009; Ahmed al., 2013). This mechanism could minimize the reliability of accounting amounts and decrease the contractual usefulness of accounting information in credit agreements (Ball et al, 2015). Lenders can rely less on financial accounting covenants and shorten the maturity.[2] In summary, the mandatory adoption of IFRS could have two opposite effects on the bank loan agreement, and the exact impact is finally an empirical problem. Therefore, the research question is: Did the adoption of IFRS improve credit terms in the French context?

Thus, the purpose of this study is double. It's a question for testing, first of all, the direct effect of the adoption of IFRS on credit terms in the French context and then to examine, the mediating effect of the cost of capital between the adoption of IFRS and credit terms.

The choice of the French context is dictated by two reasons. The first reason is that the adoption of IFRS has been mandatory since 2005 (EU regulation, No. 1606/2002) and few firms have voluntary adopted them before the transition year 2004. The second reason relates to significant differences between international standards IFRS, of Anglo-Saxon origin and French standards, belonging to the continental origin (Raffournier et al, 1997; Ben Othmen and Zeghal, 2006; Khaoutra, 2014). However, Anglo-American countries use an accounting based on the fair value and the separation between the accounting and the taxation, by preparing the tax base independent of financial statements (Glaum and Mandler, 1996; Raffournier et al, 1997; Escaffre and Sefsaf, 2011; Khaoutra, 2014). They are moving towards the protection of investors' interests (La Porta et al, 1997). On contrary**,** the continental model is based on the historical costs, a close connection between accounting and taxation (Glaum and Mandler, 1996;

[2] Chen, T. Y., Chin, C. L., Wang, S. and Yao, W. R (2015). The Effects of Financial Reporting on Bank Loan Contracting in Global Markets: Evidence from Mandatory IFRS Adoption. *Journal of International Accounting Research*, 14(2), 45-81.

Raffournier et al, 1997; Escaffre and Sefsaf, 2011; Khaoutra, 2014) and the protection of the interests of the firm's stakeholders (Ben Othmen and Zeghal, 2006).

To answer the research question, listed French firms which appertain to the CAC all tradable indexes are taken as a sample. This index is the widest in Paris stock exchange and it represents the whole French economy and points out the overall evolution of the French equity market (Turki et al, 2016). The period of our study extends from 2002 to 2015 by eliminating the years 2004 and 2005, considered as years of transition (Li, 2010).

Concerning the direct effect of IFRS adoption on banking credit terms and contrary to the results of previous empirical studies, we provide strong evidence that in France, mandatory adopters of IFRS benefit from a long maturity and more financial covenants. Concerning the interest rate and the secured, our results demonstrate that there is not a significant relationship between the IFRS adoption and these two credit terms. These results can be explained by the fact that the adoption of IFRS standards is a variable that does not affect the interest rate and the secured as contractual terms of the credit agreement. Concerning the indirect effect of IFRS adoption on banking credit terms via the information asymmetry, which is measured by the proxy, the cost of capital, we find that the cost of capital does not play the role of the mediator between the adoption of IFRS standards and credit terms.

This study adds to the previous literature concerning the results related to the indirect effect of the cost of capital on the association between the IFRS adoption and credit terms.

The rest of the article is articulated as follows. Section 2 presents the literature related to the direct effect of IFRS adoption on credit terms and the indirect effect of the information asymmetry on the link between the IFRS adoption and credit terms. Section 3 devotes to expose our empirical hypotheses. Section 4 summarizes our empirical models. Section 5 presents our empirical results. Section 6 concludes the article.

LITERRATURE REVIEW

In this section, we will present first previous studies testing the direct effect of IFRS adoption on credit terms. Then, we will present studies dealing the indirect effect of IFRS adoption on credit terms via the asymmetry of information, which is measured by the proxy, the cost of capital.

1- The direct effect of IFRS adoption on credit terms

Prior studies focus on the effect of IFRS adoption on credit terms. Chen et al (2015) note that the mandatory adoption of IFRS causes an increase in interest rates, a decrease in the maturity, a decrease in the use of financial covenants, an increase in the use of secured with collateral. They also explain that the increase of interest rate, the reduction in the use of accounting-based financial covenants, the decrease in the maturity of the loan and the increase of secured with collateral are due to the deterioration in the quality of accounting information.

Kim et al (2011) analyze the effect of the voluntary adoption of IFRS by no American firms on price and non-price terms of bank loan and on the type of lenders (domestic or foreign

lenders). They demonstrate that during the voluntary adoption of IFRS, lenders require a lower interest rate to adopters than non-adopters. Besides, they note that bank agreements of borrowers adopting IFRS have less restrictive covenants compared to those of non-adopters. Concerning collateral, they point out that there is not difference between adopters and non-adopters. They prove also that IFRS adopters benefit from a long maturity and an increase in lenders numbers, especially foreign lenders. Hence, they indicate that the voluntary adoption of IFRS allows lenders to evaluate the quality of credit of borrowers because of the improving of the financial information and increases the familiarity between foreign lenders and financial reports of borrowers. These standards, therefore, increase the border investment and decrease the cost of external financing (Covrig et al. 2007).

Moscariello et al (2014) also examine the effect of the mandatory adoption of IFRS in Italy and in the United Kingdom on the cost of debt. In Italy, they note that the mandatory adoption of IFRS has a positive effect on debt contracting process especially the interest cover which explains the cost of debt in the post adoption period. However, in the United Kingdom, they note a small increase in accounting measures in the post adoption period due to the similarity between UK GAAP and IFRS.

For their part, Florou and Kosi (2015) examine if the mandatory introduction of IFRS in the world is related to the propensity to access the public debt market rather than the private debt market. These authors note that adopters of IFRS for the first time are more likely to increase the capital for public debts than private debts, specifying that there is an increase in the probability of access to the public bond market. They indicate that IFRS adopters for the first time benefit from a low cost of bonds while the cost of loans does not change. This indicates that there is no relationship between the mandatory adoption of IFRS and the cost of the private debt.

Besides, the results of De Lima et al (2018) indicate that the mandatory IFRS adoption has heterogeneous effects on the contractual relationship between lenders and borrowers. In fact, the mandatory adopters of IFRS, which present a good quality of accounting information, profit from a low cost of debt, from a long maturity and from a less demand of collateral.

2- The indirect effect of IFRS adoption on credit terms via cost of capital

The relation between firm disclosure, investor's information and the cost of capital is one of the most essential relations in finance and accounting. Comprehending this relation is of the important interest to firms providing information to capital markets and financial market regulators who require disclosure (Leuz and schrand, 2009).

2-1 Effect of IFRS adoption on asymmetry of information

The application of new international accounting standards constitutes a revolution in the local accounting system and especially in the continental accounting system engenders various qualitative and quantitative changes (Dicko and Khemakhem, 2010). In fact, the accounting information prepared in accordance with IFRS standards helps to reduce the asymmetry of information (Leuz and Verrecchia, 2000; Daske et al., 2008; Muller III et al., 2011; Kao and Wei, 2014; Turki et al, 2016), increasing the transparency of the communication between the

various economic agents, insider and outsider (Leuz and Verrecchia, 2000). This asymmetry of information found his origin in the agency theory standing up the consequences of the principal-agent relationship. This relationship of agency is defined by Jensen and Meckling (1976) as a contract whereby one or more person (the principal) engages another person (the agent) to perform on his behalf any task that involves the delegation of some decision to the agent. Because of its nature, the agency relationship poses a problematic if the personal interests of the principal and the agent are divergent (Zogning, 2017), that's why the agency theory is appeared in order to treat and remedy these conflicts of interest between managers and shareholders on the one hand, and the firm and lenders on the other hand.

Besides, Jensen and Meckling (1976) found three agency costs of debt. The first cost is the incentive effects when owner-managers are an incentive to engage in new investments with higher future gains or higher future costs which the most are beared by creditors. The second cost is monitoring costs. In fact, the manager has to take into consideration the costs imposed on the firm in the debt contract through covenants, which restrict the managerial behavior, having a direct impact on the firm's future cash flow. Jensen and Meckling (1976) propose also the third cost which is costs of bankruptcy. In the case of bankruptcy, they point out that an adjudication process consumes a part of the residual value of the firm's assets. Besides, they indicate also that the increase of bankruptcy costs affects negatively the revenue and the operating costs.

In fact, the accounting information is considered as a source to which reflects the economic situation (Chen et al, 2010) and various activities of firms. Indeed, the accounting information has advantages in reducing the asymmetry of information (Bushman and Smith, 2003). First, the best quality of accounting information helps stakeholders to predict the future situation of firms and facilitate the decision making**.** Secondly, the high quality of accounting information facilitates for stakeholders to control the economic situation of firms and managers activities in order to protect their capital (FASB, 1980).[3] As a result, an information asymmetry makes the accounting information with poor quality (Kao and Wei, 2014), to which reflects a worse image of a firm in the financial market. That is why firms are trying to hide some private data concerning the real quality of the accounting information. As a result, the market has no confidence in every information published by the firm, which has been forced to adopt IFRS.

Numerous researchers note many positive capital-market effects related to the mandatory adoption of IFRS, like as increased market liquidity, lowered cost of equity, ameliorated analyst forecast and reduced private information of firms insiders (Daske et al, 2008; Li, 2010; DeFond et al 2011; Byard et al 2011; De Lima et al, 2011; Tan et al 2011; Brochet et al 2013).[4] In fact, IFRS adoption reduces the information asymmetry (Daske et al. 2008; Li, 2010) and decreases the cost of capital (Daske et al. 2008; Li, 2010; Turki et al, 2016).

[3]https://fasb.org/Page/ShowPdf?path=con2.pdf&title=CON+2+%28AS+ISSUED%29&acceptedDisclaimer=true&Submit=

[4] De Lima, V. S., De Lima, G. A. S. F., and Gotti, G. (2018). Effects of the adoption of IFRS on the credit market Evidence from Brazil. *The International Journal of Accounting*, Elsevier, 53(2), 77-101.

Sridharan and Soonawalla (2011) give evidence that IFRS-filing firms cross-listed on US markets benefit from a reduction in the cost of capital simultaneously with the elimination of the US GAAP reconciliation from their 20-F disclosures. These authors find that for domestic GAAP filers, giving a reconciliation participate in the reduction of the cost of capital. They note that this result is in accordance with Barth and Clinch (1996) that U.S GAAP reconciliation for domestic GAAP filers gives a supplementary information to investors. Therefore, they conclude that U.S. investors don't consider U.S. GAAP reconciliation such an especially informative disclosure for IFRS-filing firms. In other words, they point out that eliminating the reconciliation is profitable by investors participating in the cost of capital reductions.

Regarding to most previous research, the voluntary adoption of IFRS participates in the reduction of the cost of capital (Leuz and Verrecchia, 2000; Daske, 2006; Barth et al, 2008; Karamanou and Nishiotis, 2009; Li, 2010).

In the Spain context, Castillo-Merino et al (2014) demonstrate that mandatory adopters of IFRS benefit from a significant reduction of the cost of equity capital in the post adoption period compared to the pre adoption period. They explain that higher quality of accounting standards participates in the improvement of financial information quality, which contributes to have a beneficial effect on the cost of capital of firms in the case of the amelioration of the enforcement mechanism of countries. In accordance with Li (2010), they indicate that there are also two mechanisms, which have an effect on the cost of capital: increased disclosure and enhanced comparability. So, mandatory adopters in countries with strong legal enforcement and a large raise in comparability experience a significantly bigger reduction in the cost of capital than in countries with a small increase in comparability (Li, 2010). Because of the increases in comparability, IFRS adoption reduces the private information (Brochet et al, 2013).

Concerning results of Daske et al (2008), the cost of capital is decreased due to the adoption of IFRS for mandatory adopters and they note that the general capital market are more interested in IFRS than in local accounting standards because IFRS is characterized by his comprehensibility (Ding et al, 2007).

Previous researches (Leuz and Verrecchia, 2000; Daske et al., 2008; Muller III et al., 2011; Kao and Wei, 2014; Turki et al, 2016) demonstrate that the adoption of IFRS standards in financial markets leads to the reduction of information asymmetry and so the decrease in the cost of capital (Turki et al, 2016). Besides, IFRS adoption improves the quality of accounting information (Barth et al, 2008; Turki et al, 2016). According to Dicko and khemakhem (2010), the IFRS adoption contributes to the improvement of the quality and the quantity of published financial statements.

Previous study (Ding et al, 2007) demonstrate that France is considered as a one of European countries where French GAPP is extremely different from IFRS and the mandatory adoption of IFRS in 2005 has driven to a remarkable change in the financial reporting[5] but after the adoption of these international standards, earnings management increased.

[5] Turki, H., Wali, S., and Boujelbene, Y. (2016). The effect of IFRS mandatory adoption on the information asymmetry. *Cogent Business & Administration*, 3 (1), 1-25.

Armstrong et al (2010) find some evidence that the common accounting standard leads to the improvement of the comparability of firms' information, which could reduce the cost of capital.[6] Like Lambert et al. (2007), Leuz and Schrand (2009) demonstrate that there is a negative association between the higher disclosure of information and the cost of capital.

Iatridis (2010) indicates that the application of international standards improves the explanatory power of accounting numbers.[7] In addition, Salameh (2013) proves the importance effect of the adoption of IFRS standards by SMEs listed in France on the relevance of accounting amounts.

2-2 Effect of informational asymmetry on credit terms

The accounting information is one of mechanisms that help economic agents such as investors, shareholders and bankers to control the economic situation of firms (Armstrong et al, 2010). This section gives proofs in the effect of the quality of accounting information on the decision of investments in the market of bank credit. To ensure their financing, firms need to convince funders who lack information on the actual situation of the firm and on how theirs capital will be used**.** Managers, because of their close relationship with the firm, possess some private information. In other words, insider qualified managers know well the internal environment and in particular, they have more information than fund providers qualified as outsiders (Spence 1973; Ross, 1977; Connelly et al, 2011; Taj, 2016**).** Based on this hypothesis, signaling theory incites managers, who are knowledgeable of the actual situation of the firm, to communicate this information to shareholders and to lenders, through signals using a very effective system (Spence 1973; Ross, 1977; Goranova et al, 2007; Connelly et al, 2011; Taj, 2016). The quality of accounting information expresses implicitly an asymmetry of information. By increasing their confidence in financial statements, lenders provide firms with favorable credit terms. The effect of the information asymmetry on credit terms has been the researcher's concern in accounting and finance (Wittenberg-Moerman, 2006).

Previous studies demonstrate that lenders provide efforts to cope with the risk of the borrower's information uncertainty by controlling the quality of credit of borrowers and by evaluating the quality of financial information.

Armstrong et al (2010), through the literature review, present the role of the transparence of financial information in the reduction of agency conflicts between managers and shareholders and the agency conflict between shareholders and lenders. They indicate that lenders need financial statements to evaluate the risk associated with the borrower. In fact, they explain that lenders require firms to provide them audited financial statements to determine the ability of

[6] Li, S. (2010). Does Mandatory Adoption of International Financial Reporting Standards in the European Union Reduce the Cost of Equity Capital? *The Accounting Review*, 85 (2), 607-636.

[7] Turki, H., Wali, S., and Boujelbene, Y. (2016). The effect of IFRS mandatory adoption on the information asymmetry. *Cogent Business & Administration*, 3 (1), 1-25.

firms in the future service of the debt and they use the value of current assets as guarantees of bankruptcy.

The low quality of information is remarkable in the syndicated debt, which is made between the borrower and two or more lenders. The contract of syndicated loan is constituted by the senior's banks (lead of arranger) who participate in the gathering of information concerning borrowers, in looking for junior banks participants and in coordinating all negotiations. The lead arranger has the role to monitor the compliance of borrowers on credit terms. In the context of syndicated loans, there is an asymmetry of information between participants of loans and the lead arranger creating agency problems. Therefore, the lead arranger must do reasonable diligence, which is expensive and unobservable by the syndicate's participants on borrowers before the initiation of the contract**.** The value of debt-contracting with general purpose accounting information can reduce problems of adverse selection and moral hazard (Ball et al, 2008). Pichler and Wilhelm (2001) and Sufi et al (2007) make clear that the reputation of the lead arranger helps to decrease the problem of the moral hazard, and debt contracting value can reduce the percentage of loans in the hand of the lead arranger with low reputation (Ball et al, 2008). Sufi (2007) indicates that the lead arranger has made significant efforts to learn more about the borrower in the first time and will take fewer incentives of control for the same borrower. He indicates that the lead arranger without precedent lending relationship has a very high percentage of loans.[8] Wittenberg-Moerman (2006) indicates that the information asymmetry pushes lenders to require borrowers a high interest rate and a short maturity on their syndicated loans. Besides, this author's results demonstrate that financial covenants are related to longer maturity because of his role in the reduction of the effect of borrower-lender informational asymmetries. In other words, requiring financial covenants encourage the lender to provide a loan with long maturity.

Bharath et al. (2008) suggest that lenders modify both price and non-price contractual terms in response to the cross-sectional variation in the quality of accounting information. In the case of private debt, they point out that firms with good accounting information have a long maturity. For private and public debt, these authors demonstrate that higher information quality is accompanied by reducing the interest spread. In other words, the best quality of accounting information is accompanied by the decrease in interest spreads. Because of the poor quality of accounting information, they indicate that lenders are heading to the use of collateral in the case of private debt, and they require a high interest spread in the case of private debt and the public debt.

The Sarbanes-Oxley act requires firms to evaluate and to publish periodically the report of the internal control system and external auditors have to give separately their opinions on the effectiveness of the internal control system while focusing on the quality of accounting information (Gupta and Nayar, 2007). In this context, Costello and Wittenberg-Moerman (2011) demonstrate that the quality of accounting information is thus measured according to the quality of the internal control's report indicating the situation of the financial statements. They add that

[8] Ball, R. T., Bushman, R. M., and Vasvari, F. P., (2008). The debt-contracting value of accounting information and loan syndicate structure. *Journal of Accounting Research*, 46 (2), 247-287.

the poor quality of the internal control's report provides to lenders a sign of low quality of accounting reporting.

Besides, Moscariello et al. (2014) indicate that lenders face the risk because of the bad quality of financial information, which risk losing the credibility. Therefore, they note that the lender requires firms an interest rate reflecting the information risk (Fama, 1985; Rajan, 1992).

From the above, we conclude that the mandatory IFRS adoption increases the ability of accounting information to explain the corporate's cost of capital, reduces or increases the interest rate and the demand for collateral, increases or decreases the maturity and increases the financial covenants.

EMPIRICAL HYPOTHESES

In fact, a low quality of accounting information incite lenders to charge borrowers a high interest rate (Bharath, 2008). Therefore, firms are required to adopt IFRS standards in order to ameliorate the quality of information which allow them to profit of low interest rate (De Lima et al, 2018). However, the prior literature (Chen et al, 2015) demonstrates that mandatory adopters of IFRS are required to pay higher interest rates than non-adopters. Alternatively, it is expected the following hypothesis:

H1: *firms adopting IFRS standards pay lower interest rates on theirs loans.*

IFRS standards can also affect non-price conditions of the debt (Chen et al, 2015). In fact, the loss of confidence due to weak accounting turnovers pushes lenders to require firm very short loan maturities in order to control it from one period to another. In order to benefit from a long maturity, firms should adopt IFRS standards which ameliorate the accounting quality (De Lima et al, 2018). However, Chen et al (2015) highlight that the mandatory adoption of IFRS by firms encourage lenders to require a short maturity. Therefore, we pose the following hypothesis:

H2: *firms that adopt IFRS benefit from long loan maturities.*

If a borrower has a financial distress, lenders require collateral instead of restrictive covenants to better protect themselves (Rajan and Winton, 1995). As low quality of accounting turnovers are less effective to report the actual financial situation of the borrower, the adoption of IFRS standards makes lenders more confident about these accounting turnovers. On the one hand, Chen et al (2015) note that the mandatory adoption of IFRS causes a decrease in the use of financial covenants and an increase in the use of secured with collateral. On the other hand, De Lima et al (2018) demonstrate that the mandatory adoption of IFRS standards makes lenders less requiring of secured. Therefore, we present the following two hypotheses:

H3: *The adoption of IFRS standards decreases secured required by lenders*
H4: *The adoption of IFRS adoption increases the number of financial covenants required by lenders.*

During granting credits, lenders focus on the information asymmetry**.** In other words, the higher asymmetry of information decreases the confidence of lenders in firms demanding very strict credit terms**.** In order to reduce the asymmetry of information, firms must adopt IFRS standards to have a high quality of accounting information (Kao and Wei, 2014)**.** Most previous studies find that the IFRS adoption mitigates the information asymmetry improving the quality of accounting information and so lenders encourage to require favorable credit terms. Hence, it is expected:

H5: *The adoption of IFRS has an indirect and a significant effect on loan conditions via the asymmetry of information.*

EMPIRICAL MODELS

To test the first objective of the present research, that of testing the impact of IFRS adoption on contractual credit terms controlling loans and firms characteristics and like prior studies (Kim et al. 2011; Chen et al. 2015), four terms of loan contract were retained namely the interest rate, the maturity, the secured and financial covenants. The general model used is as follows:

Contractual credit terms = $\alpha 0 + \alpha 1$ IFRS+ $\Sigma \alpha i$ Loans characteristics + $\Sigma \alpha i$ firms characteristics + ε

Where IFRS is a dummy variable, which takes the value of one if the borrower adopts IFRS, and zero otherwise. In the French context, we test four loan terms which have been influenced by the quality of accounting information: (1*)* Interest rate is the amount of interest paid to the lender per period [9] in basis points over Libor rate. (2) Maturity corresponds to a due date of loan payment[10]**.** It is calculated by the natural logarithm of the number of months between the date of issue of the facility and the date of the loan's maturity. (3) Secured is a guarantee of payment in a banking contract. It is a dummy variable that takes the value of 1 if a loan is required by collateral, and zero otherwise. (4) Financial covenants are the covenants of the respect of financial ratios in order to reduce the risk of the borrower's insolvability[11] and are calculated by the number of financial covenants required by the convention of the loan.

In addition, we include control variables of loan specific (Kim et al, 2011, Costello and Wittenberg-Moerman, 2011; Chen et al, 2015) and borrower specific (Bharath et al. 2008; Kim et al, 2011; Costello and Wittenberg-Moerman, 2011; Moscariello et al, 2014; Chen et al 2015) in models of this research.

In fact, control variables of loan specific is as follows: (1) Loan Size is defined as a sum of money given by a lender to a borrower. The latter is required to repay the loan with interest,

[9] https://en.wikipedia.org/wiki/Interest_rate

[10] https://en.wikipedia.org/wiki/Maturity_(finance)

[11] https://bpifrance-creation.fr/covenant

over a period of time[12]. The loan size is calculated by the natural logarithm of the facility amount, (2) Term loan is a loan contract providing firms with a fixed amount of cash which has a duration exceeding one year[13]**.** It is a dummy variable that takes the value 1 if the loan type is a term loan, and zero otherwise. (3) Revolver is known as a revolving credit facilities which is a short-term line of credit that the firm can access when it needs short-term financing for paying the operating expenses.[14] This indicator variable takes the value 1 if a type of loan is a line of credit, and zero otherwise.

Furthermore, we integrate the following control variables of borrower specific: (1) ROA is the return on assets measured by the ratio between the net income and assets; (2) size is measured by the naturel logarithm of total assets; (3) leverage is the use of many debts in order to raise return from an investment and in other words the amount of debt used to fund a firm's assets[15] and is calculated by the ratio between borrower's total debts to total assets; (4) Loss is a dummy variable taken the value 1 if the firm reports an accounting loss, and zero otherwise; (5) Current ratio is an indicator of the firm's capacity to pay short-term debts[16] and is calculated by the ratio of current assets to current liabilities of a firm; (6) Market to book value (MTB) is a ratio which is obtained by comparing a market value of equity to book value of equity.

To test the indirect effect of the adoption of IFRS standards on credit terms through the cost of capital, we use the model of mediation, which test the hypothesis of the process by which X is associated to Y. In general, it appealed the model of indirect effects with or without direct effect of X on Y. According to Baron and Kenny (1986) and Kenny (2021), it is important to examine four conditions in order that the variable M exercises a complete mediating effect on the relation between variables X and Y:

- The variable X must have a significant effect on the variable Y.
- The variable X must have a significant effect on the mediating variable M.
- The variable M must have a significant effect on the variable Y, when the influence of the variable X on Y is controlled, verifying the significance of the coefficient b.
- The effect of the variable X on the variable Y (c') should be zero controlling the mediating variable M.

In the case of the verification of these four conditions, the effect of independent variable X on the dependent variable Y is mediated by the variable M. If we check only the first three terms, we can say that the mediation is not complete and it is called the partial mediation.

[12] https://debitoor.fr/termes-comptables/emprunt

[13] https://www.accountingtools.com/articles/term-loan

[14] https://www.wallstreetoasis.com/resources/skills/finance/revolver-debt

[15] https://www.investopedia.com/terms/l/leverage.asp

[16] https://fr.wikipedia.org/wiki/Ratio_de_liquidit%C3%A9_g%C3%A9n%C3%A9rale

In our study, we use the cost of capital, which is reflected the real level of risk, as the measure of the information asymmetry. The cost of capital reflects the actual level of risk visualized by investors after the IFRS adoption which is a good measure of the relevance of published earnings (Turki et al, 2016). In order to calculate the cost of capital, we use the formula of Easton (2004) which is extremely adopted by others literature (Li, 2010; Bravo Urquiza et al, 2012; Kim et al, 2014) and is a strong evaluation of the cost of capital, is focused on earnings per share provisions for two years and the current price as follows:

$$\overline{COC = \frac{eps2 - eps1}{P0}}$$

Where eps2 and eps1 refer to earnings per share provision of 2 and 1 year in advance, P0 is the current price, and the COC is used as a proxy for the cost of capital.

Besides, Bravo Urquiza et al (2012) consider that the measure of the cost of capital is a problem in this contemporary literature.[17]

The table 1 below presents the models concerning the test of the mediating effect of the cost of capital on the relationship between the IFRS adoption and credit terms.

Table n°1
Models used in the test of the mediating effect of the cost of capital

Number of sample = 30 listed firms	
Interest rate =α0+ α1 IFRS+ ε Cost of capital = α0+ α1 IFRS+ ε Interest rate = α0+ α1 cost of capital+ α2 IFRS +ε interest rate =α0+ α1 IFRS+ α2 cost of capital + ε	Maturity = α0+ α1 IFRS+ ε Cost of capital = α0+ α1 IFRS+ ε Maturity = α0+ α1 cost of capital+ α2 IFRS + ε Maturity =α0+ α1 IFRS+ α2 cost of capital + ε
Secured = α0 + α1 IFRS + ε Cost of capital = α0 + α1 IFRS + ε Secured = α0 + α1 cost of capital + α2 IFRS+ ε Secured =α0 + α1 IFRS + α2 cost of capital + ε	Financial covenants= α0 + α1 IFRS + ε Cost of capital = α0 + α1 IFRS+ ε Financial covenants= α0 + α1 cost of capital+ α2 IFRS+ ε Financial covenants =α0 + α1 IFRS + α2 cost of capital + ε

By using STATA, we carried out panel data regressions for testing the direct effect of IFRS adoption on credit terms and its indirect effect, mediating the cost of capital.

[17] Turki, H., Wali, S., and Boujelbene, Y. (2016). The effect of IFRS mandatory adoption on the information asymmetry. *Cogent Business & Administration*, 3 (1), 1-25.

EMPIRICAL RESULTS

1. Sample selection and description data

The aim of the present research is to test the effect of the adoption of IFRS standards in France on credit terms especially the interest rate, the maturity, the secured and financial covenants as this question is not thoroughly studied and debated in this context. In order to achieve this aim and to test hypotheses, it is necessary to define first the sample and the period of analysis.

The target sample for the accomplishment of this study is listed French firms belonging to the CAC all-tradable index. The selection of one country allows having a homogeneous sample. In other words, the belonging to the same institutional and legal context helps easily to study the annual reports prepared according to local standards, as well as the same tax system and legal system "civil law"[18] allows us to explain results. The initial sample composes of 60 French firms listed on the Paris stock exchange and contains various sectors of activities except the financial sector. Firms with some missing information concerned the period and variables of this study are excluded. The final sample composes of 41 listed French firms (492 observations). The choice of French context is dictated by two reasons. The first reason is that the adoption of IFRS has been mandatory since 2005 (EU regulation, No. 1606/2002) and few firms have adopted them voluntarily before the transition year 2004. The second reason is related to significant differences between international standards IFRS, of Anglo-Saxons origin, and French standards belonging to continental origin (Raffournier et al, 1997; Ben Othmen and Zeghal, 2006; Khaoutra, 2014). On the one hand, Anglo-American countries use an accounting based on the fair value and on the separation between the accounting and the taxation, establishing necessarily the tax base outside of financial statements **(**Glaum and Mandler, 1996; Raffournier et al, 1997**;** Escaffre and Sefsaf, 2011; Khaoutra, 2014). They are tending to protect the interest of investors (La Porta et al, 1997). On the other hand, the continental model is based on the historical cost, a close connection between the accounting and the taxation **(**Glaum and Mandler, 1996; Raffournier et al, 1997; Escaffre and Sefsaf, 2011; Khaoutra, 2014) and the protection of interests of the firm's stakeholders (Ben Othmen and Zeghal, 2006). In order to test our hypotheses, we collected data of the study, presented as a panel, from the Data stream database and annual reports of French firms for 2002-2015, excluding the years of transition, published on the Paris stock exchange website. Many researchers think that the transition year 2005 is the first year of mandatory adoption of IFRS (Jiao et al, 2012; Jones and Finley, 2010). However, Saadi (2010) thinks that 2004 is the year of transition. The third type of research has thought that the two years 2004 and 2005 are transition years (Li, 2010).[19] The period of our study covers 12 years from 2002 to 2015 while eliminating the years 2004 and 2005 considered as transition years (Li, 2010).

[18] In accordance with Dainow (1966), France is a civil law country.

[19] Turki, H., Wali, S., and Boujelbene, Y. (2016). The effect of IFRS mandatory adoption on the information asymmetry. *Cogent Business & Administration*, 3 (1), 1-25.

The period of our study is of several interests. On the one hand, the analysis of 12 years allows to take changes in standards into consideration (transition from GAAP to IFRS) and to stand back from each accounting standards (two years under GAAP and ten years under IFRS). On the other hand, this choice permits to reduce the bias regarding the period change of standards (2004 and 2005) and the bias regarding the period of learning and understanding of IFRS which changes from a firm to another depending on the level of familiarization of managers to IFRS.[20]

The table 2 below presents the summary of firms selection and the table 3 presents the repartition of firms by sector of activities: retail trade, construction, industry, service and public services. The sample is dominated by the sector of service, which present 46.34% then we find the industrial sector, which is of 31.70%. The percentage of retail trade is of 9.76% and public services is of 7.32%. For construction, the percentage is about 4.88%.

Table n°2 : Summary Table of the sample selection	
Initial Sample	60
Excluding firms which have missing information about the sub-period of the study	17
Excluding firms which have missing information about variables of the study	2
Final Sample	41

Table n°3: Distribution of the sample by the sector of activity		
Sector	**Number of firms**	**Percentage**
Retail trade	4	9.76%
Construction	2	4.88%
Industry	13	31.70%
Services	19	46.34%
Public service	3	7.32%
Total	41	100%

In order to identify the mediating effect of the cost of capital, as shown by the table 4, we are based on the sample of 30 French firms. In fact, the initial sample composes by 41 French firms listed on the Paris stock exchange and firms that lack certain information concerning the measure of the cost of capital are excluded. Therefore, the final sample includes 30 listed French firms. The detail of the sample selection is presented below in the table 4.

[20] Turki et al (2016) indicate that the long period of analysis permits, on the one hand, to take changes in standards into consideration and to stand back from each accounting standards. On the other hand, they consider also that the long period permits to reduce the bias regarding the period change of standards and the bias regarding the period of learning and understanding of IFRS which changes from a firm to another depending on the level of familiarization of managers to IFRS.

Table n°4:Table of the synthesis of the sample selection	
Initial Sample	41
Excluding firms which have missing information concerning the measure of the cost of capital	11
Final Sample	30

2. Empirical results

2.1 Direct effect of the IFRS adoption on credit terms

In the table 5, the descriptive statistics show that in the pre adoption period, the mean of interest rate is of 4.05865 with a standard deviation equal to 2.20140. In the post adoption period, the mean of interest rate moves to 4.38620 with standard deviation of the order 3.49208. The difference of means indicates that after the adoption of IFRS standards, the interest rate increases of 0.32755. Concerning the maturity, it passes from 1.31456 during the pre-adoption period to 1.62592 in the post adoption period, so an increase of 0.31136. Standards deviation during the two periods is respectively 0.35520 and 1.76528. For secured, its mean varies between 0.60976 during the pre-adoption period and 0.59512 after the adoption of IFRS, hence the decrease of the order of 0.01464. In regard to financial covenants, lenders require more financial covenants than the secured, when granting credit. Concerning the standard deviation, it passes from 1.49460 to 1.61170 between the two periods. As for control variable, we note an increase in the mean of revolver and in the mean of term loan, and a decrease in the mean of the MTB. For other control variables, the table 5 demonstrates that the means of loan size, current ratio, leverage and size are almost the same before and after the mandatory adoption of IFRS. On the other hand, the ROA increases of 2.07069 and loss passes from 0.32927 to 0.12927.

Table n° 5: Table of descriptive test				
	Before the adoption of IFRS standards		After the adoption of IFRS standards	
Variables	Mean	Standard deviation	Mean	Standard deviation
Interest rate	4.05865	2.20140	4.38620	3.49208
Maturity	1.31456	0.35520	1.62592	1.76528
secured	0.60976	0.49081	0.59512	0.49147
Financial covenants	0.84146	1.49460	1.485366	1.61170
Loan size	3.94705	1.57292	3.91513	1.77734
Revolver	0.06098	0.24076	0.29268	0.45555
Term Loan	0.71951	0.45200	0.96342	0.18798
ROA	2.27524	10.6974	4.34593	5.14967
Current ratio	1.46451	0.65049	1.40146	0.65062
Leverage	18.32744	11.90146	18.73793	11.96642
MTB	2.59220	3.99703	1.61310	0.97200
Size	5.33705	1.27969	5.44306	0.99759
Loss	0.32927	0.47284	0.12927	0.33591

Based on results found by the matrix of correlation below, we remark that correlation coefficients between variables do not pass the value of 65.35%. This correlation matrix brings out the positive correlation of 65.35% between leverage and interest rate. In addition, the negative correlation of 45.61% established between ROA and loss indicates that rentable firms have a small loss. The positive correlation of 22.96% between term loan and financial covenants suggests that lenders give a term loan to borrowers requiring financial covenants. Besides, we find a remarkable correlation between the mandatory adoption of IFRS and a term loan, so firms adopting IFRS benefit from a term loan. Moreover, the matrix of correlation presents the negative correlation between the IFRS adoption and loss.

	Interest rate	Maturity	Secured	Financial Covenants	IFRS	Loan size	revolver	Term loan	ROA	Current ratio	Leverage	MTB	Size	Loss
Interest rate	1.0000													
Maturity	0.0096	1.0000												
Secured	0.0778	-0.0803	1.0000											
Financial Covenants	0.0288	-0.0894	0.3020	1.0000										
IFRS	0.0368	0.0725	-0.0063	0.1459	1.0000									
Loan size	-0.1158	0.1101	0.1154	0.1179	-0.0103	1.0000								
Revolver	0.1561	-0.0666	0.0884	0.1470	0.1974	0.1074	1.0000							
Term loan	0.0490	0.0544	0.1357	0.2296	0.3434	0.1209	0.1172	1.0000						
ROA	-0.0746	0.0177	0.0403	-0.0691	0.1286	0.0793	-0.0568	0.0007	1.0000					
Current ratio	-0.1168	-0.0676	0.0757	-0.0381	-0.0354	-0.1573	-0.0891	-0.0312	-0.0081	1.0000				
Leverage	0.6535	0.0052	0.0805	0.0280	0.0115	-0.1655	0.0707	0.0294	0.0166	-0.0207	1.0000			
MTB	0.0490	-0.0310	-0.0628	-0.0914	-0.1961	-0.0670	0.0138	-0.1728	0.0584	0.1630	0.0755	1.0000		
Size	-0.2566	0.0834	-0.0745	0.0084	0.0328	0.4611	-0.0084	-0.0266	0.1765	-0.2243	-0.2704	-0.0840	1.0000	
Loss	0.1493	-0.0623	-0.0319	-0.0047	-0.2048	-0.1237	0.0582	-0.0990	-0.4561	0.0110	0.0349	0.0070	-0.1505	1.0000

As discussed in previous chapters, four credit terms were selected for this work, namely interest rate, maturity, secured and Financial Covenants. The regression of different models also brings out the existence of various significant relationships between the dependent variables and the independent variable.

The table 6 presents the result of the mandatory adoption of IFRS standards on the interest rate. The verification of the statistical test brings out the effect of the adoption of IFRS standards on the interest rate. The coefficient related to the link between the mandatory adoption of IFRS and the interest rate is positive (0.34140) and not significant (0.28). Therefore, the first hypothesis is rejected. In other words, the mandatory adoption of IFRS standards does not affect the interest rate as a credit term. This result is opposed to our expectations and to those found by Chen et al. (2015) and De Lima et al (2018). Concerned control variables, our results demonstrate that there is a positive (0.71434) and a significant (0.02) relationship between the interest rate and the revolver variable at the level 5%. Furthermore, the leverage variable is

positively (0.17608) and statistically significant (0.00) related to the interest rate at the level 1%, which means that more firms take loans, more they pay more of interest rate. Besides, our regression results demonstrate that the interest rate is positively (0.80346) and significantly (0.02) related to the loss at the level of 5%.

Table n°6: Effect of the mandatory adoption of IFRS on credit terms

Model : Credit terms=α_0+ α_1 IFRS + α_2 Loan size + α_3 Revolver+ α_4 Term loan + α_5 ROA + α_6 Current ratio + α_7 Leverage+ α_8MTB+ α_9 Size+ α_{10} Loss +ε

Credit term	Interest rate	
Variables	Coef	P>Z
Constante	2.10331	0.08
IFRS	0.34140	0.28
Loan size	0.02076	0.82
Revolver	0.71434	0.02**
Term loan	-0.11730	0.80
ROA	-0.01856	0.34
Current ratio	-0.33221	0.18
Leverage	0.17608	0.00***
MTB	0.01244	0.84
Size	-0.20422	0.19
Loss	0.80346	0.02**
R ajusted	6.33%	

*** **and*: significant respectively at the level of 1%, 5% and 10%

Concerning the second hypothesis, we interest in studying the effect of mandatory adoption of IFRS standards on the maturity of credit. According to previous studies, the table 7 indicates that the variable IFRS is positively associated with the maturity variable. In fact, the verification of the causal relationship demonstrates that the coefficient associated with the link between the adoption of IFRS standards and the maturity is positive (0.41229) and statistically significant (0.03) at the level of 5%. Therefore, the second hypothesis is confirmed. This result confirms that the adoption of IFRS standards improves the maturity of the bank loan. In other words, firms, which adopt IFRS standards, benefit from a long maturity. This association is in accordance with our expectation and the results of De Lima et al. (2018), but contrary to those found by Chen et al (2015). The regression model also brings out the existence of various significant relationships between the dependent variable and some control variables. In fact, after the adoption of IFRS standards, the loan size variable is positively (0.12108) and significantly (0.05) related to the maturity at the level 5%, this explains that borrowers adopting IFRS benefit from big amounts of loan with long maturity. An examination of causal relationship finds that the coefficient associated with the link between the revolver and the maturity is negative (-0.48091) and statistically significant (0.01) at the level 1%. The results indicate that the borrower

benefits from a loan with revolver nature which is in short term lines of credit renewed on a permanent basis.

Table n°7: Effect of the mandatory adoption of IFRS on credit terms		
Model : Credit terms=α_0+ α_1 IFRS + α_2 Loan size + α_3 Revolver+ α_4 Term loan + α_5 ROA + α_6 Current ratio + α_7 Leverage+ α_8 MTB+ α_9 Size+ α_{10} Loss +ε		
Credit term	Maturity	
Variables	Coef	P>Z
Constante	1.08212	0.18
IFRS	0.41229	0.03**
Loan size	0.12108	0.05**
Revolver	-0.48091	0.01***
Term loan	-0.04084	0.89
ROA	0.01085	0.37
Current ratio	-0.07407	0.67
Leverage	0.00605	0.63
MTB	-0.00797	0.84
Size	-0.03792	0.72
Loss	0.01224	0.95
R ajusted	3.04 %	

*** **and*: significant respectively at the level of 1%, 5% and 10%

The table 8 exhibits the effect of the IFRS standards adoption on secured (the third hypothesis). The Statistical test indicates that the variable IFRS is negatively and not significantly associated with the secured variable. In fact, the examination of causal relation demonstrates that the coefficient related to the link between the adoption of IFRS and the secured variable is negative (-0.01946) and statistically not significant (0.34). Therefore, the third hypothesis is rejected. In other words, the adoption of IFRS is a variable, which does not affect the secured variable as a contractual term of the credit agreement. These results are opposed to our expectations and to results found in previous literature. However, our results also prove the existence of a negative (-0.06280) and a significant (0.05) relationship at the level 5% between the term loan variable and the secured variable. In fact, lenders give term loans to borrowers they trust. That is why, they require them less of a guarantee. Our regression results also demonstrate that the ration of current ratio is positively and significantly associated with the secured variable. The examination of the causal relationship finds also that the coefficient related to the link between the current ratio and the secured variable is positive (0.04629) and statistically significant (0.04) at the level 5%. We can conclude that lenders focus on the liquidity when granting credit to borrowers. In fact, the likelihood to have secured loans increases with the existence of high liquidity among borrowers. The variable ROA affects positively (0.00326) and significantly (0.01) secured at the level 1%. Furthermore, our regression results demonstrate that

the secured variable is negatively (-0.01434) and significantly (0.00) related to MTB at the level of 1%.

Table n°8: Effect of the mandatory adoption of IFRS on credit terms		
Model : Credit terms=α_0+ α_1 IFRS + α_2 Loan size + α_3 Revolver+ α_4 Term loan + α_5 ROA + α_6 Current ratio + α_7 Leverage+ α_8MTB+ α_9 Size+ α_{10} Loss +ε		
Credit term	Secured	
Variables	Coef	P>Z
Constante	0.59417	0.00
IFRS	-0.01946	0.34
loan size	-0.00363	0.63
Revolver	0.01068	0.62
Term loan	-0.06280	0.05**
ROA	0.00326	0.01***
Current ratio	0.04629	0.04**
Leverage	0.00108	0.72
MTB	-0.01434	0.00***
Size	0.00264	0.83
Loss	0.00814	0.70
R ajusted	6 %	

*** **and*: significant respectively at the level of 1%, 5% and 10%

As for the fourth hypothesis, we are interested to study the effect of the adoption of IFRS standards on financial Covenants. The Statistical test, as presented in the table 9, indicates that the variable IFRS is positively and significantly associated with financial Covenants. Therefore, the fourth hypothesis is confirmed. These results demonstrate that the mandatory adoption of IFRS standards increases the percentage that lenders require financial covenants to borrowers, when granting loans. We can conclude that the adoption of IFRS improve the quality of financial information which makes lenders confident about the financial situation of firm by granting them loans under condition of financial covenants. This result is conformed to our expectation and different from those found by Chen et al. (2015). As for control variables, the results of this regression demonstrate that the revolver is positively and significantly associated with financial covenants. An examination of the causal relationship finds that the coefficient associated with the link between the revolver and financial covenants is positive (0.52035) and statistically significant (0.00) at the level 1%. These results indicate that borrowers, which benefit from loans of revolver nature, are required to respect financial covenants (Berlin et al, 2020). The coefficient associated with the link between term loan and financial covenants is positive (0.59510) and statistically significant (0.01) at the level of 1%. Thus, lenders provide a term loan to borrowers requiring them to respect financial covenants.

Table n°9: Effect of the mandatory adoption of IFRS on credit terms		
Model : Credit terms=α_0+ α_1 IFRS + α_2 Loan size + α_3 Revolver+ α_4 Term loan + α_5 ROA + α_6 Current ratio + α_7 Leverage+ α_8MTB+ α_9 Size+ α_{10} Loss +ε		
Credit term	Financial covenants	
Variables	Coef	P>Z
Constante	0.61931	0.00
IFRS	0.41576	0.00***
Loan size	0.05487	0.26
Revolver	0.52035	0.00***
Term loan	0.59510	0.01***
ROA	0.00870	0.32
Current ratio	-0.05319	0.71
Leverage	0.00500	0.72
MTB	0.01773	0.52
Size	0.06080	0.46
Loss	0.21918	0.13
R ajusted	11.55%	

*** **and*: significant respectively at the level of 1%, 5% and 10%

As a conclusion, the publication of accounting information prepared under IFRS standards returns lenders confident in the financial situation of a firm giving borrowers loans with long maturities and under financial covenants. However, the adoption of IFRS standards does not affect the interest rate and the secured as credit terms.

2.2 Indirect effect of the cost of capital on the association between IFRS and credit terms

In order to test the second aim of this research, it is necessary to examine the indirect effect of the mandatory adoption of IFRS adoption on credit terms via the cost of capital; we began first to examine the complete mediating effect of the cost of capital on the relation between the variable IFRS and different credit terms. Then, the Sobel test is performed to verify the significance of the mediating effect.

Several researchers find different results concerning the effect of IFRS on the financial information quality. Many researchers have affirmed that the explanatory power of accounting numbers are ameliorated by the adoption of the International Financial Reporting Standards IFRS (Bartov et al, 2005 ; Jermakowicz et al, 2007; Barth et al, 2008 ; Iatridis, 2010 ; landsman et al, 2012 ; Salameh, 2013), which means that there is a supplementary information under IFRS. Examining the association between stock returns and accounting numbers, Escaffre and Sefsaf (2011) demonstrate that the effect of IFRS adoption on the informational relevance of accounting numbers varies from one country to another. The conclusion of their study indicates that the

impact of IFRS adoption on the quality of accounting information relies on institutional factors in each country, which is proved by Zogning (2013). The defendants of IFRS adoption consider that IFRS is the origin of the reduction of the information asymmetry which reduces the risk visualized by investors, and so the cost of capital. Tweedie (2006) argues that the removal of a main investment risk which is the concern that national accounting systems are not fully clear, is anticipated to minimize the cost of capital and to improve the investment returns**.** Moreover, Lambert et al (2007) argue that a high quality accounting information and financial disclosures influence the evaluated covariance with firms and this impact makes a firm's cost of capital to be closer to the risk-free rate. Besides, Barth et al (2008) demonstrate the existence of a relationship between a high quality of financial statements and a low cost of capital, which means that the reduction of cost of capital is associated with the voluntary adoption of IFRS and not associated with the mandatory adoption. Li (2010) indicates that the adoption of IFRS participates in the reduction of cost of equity capital of firms, which present a strong legal enforcement.[21]

The verification of four conditions expected by Baron and Kenny (1986) in order to examine the mediating effect is exposed in tables 10, 11, 12, 13 and 14.

Table n°10: Results of four conditions test related to the mediating effect of the cost of capital on the link between IFRS variable and the interest rate

Model	Variables		Coef	Std. Err.	T	P>t
Interest rate =α0+ α1 IFRS+ ε	Y= Interest rate	Constant	4.33154	0.44297	9.78	0.00
		IFRS	0.16112	0.02105	7.66	0.00***
Cost of capital = α_0+ α_1 IFRS + ε	M= Cost of capital	Constant	0.19676	0.05462	3.60	0.00
		IFRS	0.03441	0.04413	0.78	0.44
Interest rate = α_0+ α_1 Cost of capital + α_2 IFRS+ ε	Y= Interest rate	Constant	4.3207	0.44484	9.71	0.00
		Cost of capital	0.05579	0.03311	1.68	0.09*
		IFRS	0.15875	0.02099	7.56	0.00***
Interest rate = α_0+ α_1IFRS+ α_2 Cost of capital + ε	Y= Interest rate	Constant	4.3207	0.44484	9.71	0.00
		IFRS	0.15875	0.02099	7.56	0.00***
		Cost of capital	0.05579	0.03311	1.68	0.09*

*** **and*: significant respectively at the level of 1%, 5% and 10%

The results of the indirect effect of the cost of capital on the link between IFRS standards and the interest rate are presented in the table 10 demonstrating that the IFRS variable has a significant and a positive effect on the interest rate. In fact, the coefficient linking the adoption of

[21] Turki, H., Wali, S., and Boujelbene, Y. (2016). The effect of IFRS mandatory adoption on the information asymmetry. Cogent Business & Administration, 3 (1), 1-25.

IFRS and the interest rate is positive (0.16112) and statistically significant (0.00). However, the adoption of IFRS does not affect the cost of capital. Moreover, the cost of capital has a significant impact on the interest rate, when the influence of the variable IFRS on the interest rate is controlled, verifying the significance of the coefficient which is positive and statistically significant. Furthermore, the effect of the variable IFRS on the interest rate is not zero controlling the mediating variable, the cost of capital. Therefore, the cost of capital has not an effect on the link between IFRS standards and the interest rate because 2/4 conditions are verified.

Table n°11 : Results of the test of four conditions related to the mediating effect of the cost of capital on the link between IFRS variable and the maturity

Models	Variables		Coef	Std. Err.	T	P>t
Maturity $= \alpha_0 + \alpha_1$ IFRS+ ε	Y= Maturity	Constant	1.28643	0.33229	3.87	0.00
		IFRS	0.49958	0.31437	1.59	0.11
Cost of capital $= \alpha_0 + \alpha_1$ IFRS + ε	M = Cost of capital	Constant	0.19676	0.05462	3.60	0.00
		IFRS	0.03441	0.04413	0.78	0.44
Maturity= $\alpha_0 + \alpha_1$ Cost of capital + α_2IFRS+ ε	Y= Maturity	Constant	1.29964	0.34612	3.75	0.00
		Cost of capital	-0.06998	0.44712	-0.16	0.88
		IFRS	0.50205	0.31473	1.60	0.11
Maturity = $\alpha_0 +$ α_1IFRS+ α_2 Cost of capital + ε	Y= Maturity	Constant	1.29964	0.34612	3.75	0.00
		IFRS	0.50205	0.31473	1.60	0.11
		Cost of capital	-0.06998	0.44712	-0.16	0.88

*** **and*: significant respectively at the level of 1%, 5% and 10%

The table 11 presents the results of the indirect effect of the cost of capital on the link between IFRS standards and the maturity. The coefficient linked the adoption of IFRS standards and the maturity is positive (0.49958) and statistically not significant (0.11) and so the variable IFRS has not a significant effect on the maturity. The effect of IFRS variable has not an impact on the variable of the cost of capital. Besides, the coefficient linked the variable IFRS and the mediating variable, the cost of capital, is negative and statistically not significant. The result of this test demonstrates that the cost of capital has not a significant effect on the maturity and the effect of IFRS on the maturity is negative and not significant. The impact of IFRS on the maturity is zero controlling the mediating variable, the cost of the capital. We can conclude that IFRS standards have not indirectly an effect on the maturity via the cost of capital because not all conditions are verified.

Table n°12: Results of the test of four conditions related to the mediating effect of the cost of capital on the link between IFRS variable and the secured

Model	Variables		Coef	Std. Err.	T	P>t
Secured $= \alpha_0 + \alpha_1$ IFRS+ ε	Y= Secured	Constant	0.63025	0.08476	7.44	0.00
		IFRS	0.01692	0.02363	0.72	0.47
Cost of capital= $\alpha_0 + \alpha_1$ IFRS + ε	M= Cost of capital	Constant	0.19676	0.05462	3.60	0.00
		IFRS	0.03441	0.04413	0.78	0.44
Secured = $\alpha_0 + \alpha_1$ Cost of capital + α_2 IFRS + ε	Y= Secured	Constant	0.60678	0.08551	7.10	0.00
		Cost of capital	0.12045	0.03626	3.32	0.00***
		IFRS	0.01178	0.02310	0.51	0.61
Secured = $\alpha_0 + \alpha_1$ IFRS + α_2 Cost of capital + ε	Y= Secured	Constant	0.60678	0.08551	7.10	0.00
		IFRS	0.01178	0.02310	0.51	0.61
		Cost of capital	0.12045	0.03626	3.32	0.00***

*** **and*: significant respectively at the level of 1%, 5% and 10%

The results of the indirect effect of the cost of capital on the link between IFRS standards and the secured are exposed in the table 12. The variable IFRS has not a significant effect on the secured. In fact, the coefficient linked the adoption of IFRS standards and the secured variable is positive (0.01692) and statistically not significant. It is the same for the coefficient linked the adoption of IFRS standards and the cost of capital, which is positive and statistically not significant. Besides, we note that the cost of capital has a significant effect on the secured, and the controlled coefficient linked the IFRS variable and the secured is positive and not significant. In addition, the effect of IFRS variable on the secured variable is zero controlling the mediating variable, the cost of capital. Based on these results, we can deduce that IFRS adoption has not an effect on the secured via the cost of capital because of the rejection of 2/4 conditions.

Table n°13: Results of the test of four conditions related to the mediating effect of the cost of capital on the link between IFRS variable and financial covenants

Model	Variables		Coef	Std. Err.	T	P>t
Financial co-venants = α_0+ α_1 IFRS+ ε	Y= Financial covenants	Constant	0.71828	0.22411	3.21	0.00
		IFRS	0.66446	0.14891	4.46	0.00***
Cost of capital = α_0+ α_1 IFRS + ε	M= Cost of capital	Constant	0.19676	0.05462	3.60	0.00
		IFRS	0.03441	0.04413	0.78	0.44
Financial co-venants =α_0+ α_1 Cost of capital + α_2IFRS+ ε	Y= Financial covenants	Constant	0.71647	0.23091	3.10	0.00
		Cost of capital	0.00890	0.22699	0.04	0.97
		IFRS	0.66408	0.14923	4.45	0.00***
Financial co-venants = α_0+ α_1IFRS+ α_2 Cost of capital + ε	Y= Financial covenants	Constant	0.71647	0.23091	3.10	0.00
		IFRS	0.66408	0.14923	4.45	0.00***
		Cost of capital	0.00890	0.22699	0.04	0.97

*** **and*: significant respectively at the level of 1%, 5% and 10%

Table 13 presents the results concerning the indirect effect of the cost of capital on the link between IFRS and financial covenants. However, the variable IFRS has a significant effect on financial covenants. In fact, the coefficient linked the adoption of IFRS standards and financial covenants is positive (0.66446) and statistically significant (0.00). Moreover, the variable IFRS has not an effect on the mediating variable, the cost of capital. The coefficient linked IFRS standards and the cost of capital is positive and statistically not significant. The cost of capital has not a significant effect on financial covenants, when the influence of IFRS on financial covenants is controlled, verifying the significance of the coefficient which is positive and statistically not significant. Besides, the effect of IFRS on financial covenants variable is not zero controlling the mediating variable, the cost of capital. We can say that IFRS standards has not an effect on financial covenants because 3/4 conditions are not verified.

2.3 The verification of the validity of the results related to the association between IFRS and credit terms: The mediating effect of cost of capital

In order to ensure of the validity of results found by the method of Baron and Kenny (1986), these latter propose the use of Sobel test (1982) in order to check the significance of the indirect effect. Table 14 presented below exposes Sobel test's results concerning the mediating effect of the cost of capital.

Table n° 14: Results of Sobel test related to the mediating effect of the cost of capital				
			T-statistics	P-values
X= IFRS	M= Cost of capital	y1= Interest rate	0.70764	0.48
		y2= Maturity	-0.15345	0.88
		y3= Secured	0.75911	0.45
		y4= Financial covenants	0.03916	0.97

Our results demonstrate that the t-statistic concerning the first dependent variable, the interest rate is of (0.70764) and it is not significant (0.48). Therefore, the cost of capital does not play the role of mediator between the adoption of IFRS and the interest rate. It is the same for the second dependent variable, the maturity. Thus, the cost of capital does not play the role of mediator between the adoption of IFRS and the maturity. Besides, the t-statistic concerned the third dependent variable, the secured, is of (0.75911) and it is not significant (0.45). Hence, the cost of capital has not an indirect effect on the link between the adoption of IFRS and the secured, similar result for the fourth-dependent variable, financial covenants. Consequently, the cost of capital does not affect the relationship between the IFRS adoption and credit terms, and so the hypothesis 5 is not verified.

CONCLUSION

In this research, we have double aims. It is necessary to test first the direct effect of the adoption of IFRS standards in a French context on credit terms and to examine, then the mediating effect of the cost of capital between the adoption of IFRS standards and credit terms. The advanced test of hypothesis is based on the sample 41 French listed firms. The period of our study covers 12 years from 2002 to 2015 while eliminating the years 2004 and 2005 considered as transition years (Li, 2010). The period of study is of several interests. On the one hand, the analysis of 12 years allows to take changes in standards into consideration (transition from GAAP to IFRS) and to stand back from each accounting standards (two years under GAAP and ten years under IFRS). On the other hand, this choice permits to reduce the bias regarding the period change of standards (2004 and 2005) and the bias regarding the period of learning and understanding of IFRS which changes from a firm to another depending on the level of familiarization of managers to IFRS.[22]

[22] Turki et al (2016) indicate that the long period of analysis permits, on the one hand, to take changes in standards into consideration and to stand back from each accounting standards. On the other hand, they consider also that the long period permits to reduce the bias regarding the period change of standards and the bias regarding the period of learning and understanding of IFRS which changes from a firm to another depending on the level of familiarization of managers to IFRS.

Concerning the direct effect of IFRS adoption on banking credit terms and contrary to the results of previous empirical studies, we provide strong evidence that in France, the mandatory adoption of IFRS does not affect the interest rate variation. However, the mandatory adoption of IFRS allows to borrowers to benefit from a long maturity and more financial covenants. Concerning the secured, our results demonstrate that there is not a significant link between the IFRS adoption and this credit term. These results can be explained by the fact that the adoption of IFRS standards is a variable which does not affect the interest rate and the secured as contractual terms of the credit agreement.

Concerning the indirect effect of IFRS adoption on banking credit terms via the information asymmetry, which is measured by the proxy, the cost of capital, we find that the cost of capital does not play the role of mediator between the adoption of IFRS standards and credit terms.

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