IFRS ADOPTION, INFORMATION ASYMMETRY AND STOCK LIQUIDITY: MODERATING EFFECTS OF CORPORATE GOVERNANCE MECHANISMS

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Abstract

The purpose of this paper is to test the impact of International Financial Reporting Standards (IFRS) adoption on information asymmetry, transaction transparency, and stock market liquidity. Furthermore, this study examined the direct and moderating effect of corporate governance devices on this relationship. We apply ordinary least squares (OLS) regression to examine changes in stock liquidity for French-listed firms between the pre-IFRS and the post-IFRS period. We show that IFRS adoption is well-perceived by financial statement users. Following Boubaker et al. (2019), R. and Firoz (2022), Bansal (2023), and Agrawal and Chakraverty (2023), we found that these standards have a positive impact on stock liquidity and a negative impact on information asymmetry. In addition, audit quality has a decisive role in improving information quality. However, contrary to expectations, the independent members of the board of directors do not exercise their role of control and monitoring efficiently. We conclude that the reporting process is influenced by firm-level characteristics, and we contribute to the literature by enhancing discussion on the debate related to the benefits of IFRS adoption. Our findings can be of interest to regulatory bodies and policymakers by providing a better understanding of the factors that influence stock liquidity and decision-making.

Keywords: IFRS, Corporate Governance, Mandatory Reporting, Audit Quality, Board of Directors, Stock Liquidity, Information Asymmetry

Authors' individual contribution: Conceptualization — H.G.; Methodology — H.G.; Writing — Original Draft — H.G.; Writing — Review & Editing — H.G.; Supervision — A.O.; Project Administration — A.O.

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1. INTRODUCTION

Financial theory argues that information quality affects stock market liquidity. French legislation has been changed to place a greater emphasis on information quality while still primarily focusing on the needs of stakeholders. That is why, France, like most other countries around the world, decided to adopt International Financial Reporting Standards (IFRS) in 2005. Indeed, the primary purpose of this paper is to study the effect of IFRS adoption on information asymmetry and stock liquidity of French-listed companies. This year marks the 12th anniversary since the European Union mandated IFRS for all companies listed on the main European Stock Exchanges. In fact, 2005 represents a major regulatory transition affecting several tens of thousands of companies worldwide; 165 countries

have implemented IFRS until now (Prather-Kinsey et al., 2022), especially in France and researchers are more and more focusing on this theme (Viana et al., 2023; Cualain & Tawiah, 2023).

It is known that accounting information is useful in the decision-making process. Switching to IFRS is expected to improve information quality. Thus, with the hindsight of more than a decade, we can argue that IFRS have become the global accounting standards. Indeed, we examine one of the capital market consequences of IFRS adoption in relation to stock liquidity. The use of IFRS is likely to affect firms' financial disclosure policy by improving their information quality and increasing their transparency. There will be, therefore, less opacity and higher stock liquidity. According to the agency theory, information asymmetry increases due to differential information and agency conflicts, which generate organizational problems. Moreover, the signaling theory suggests that the manager is required to disclose firms' information by the transmission of signals to the financial market. Based on these theoretical findings, this study analyzes the relationship between IFRS adoption, governance mechanisms, and stock liquidity.

We try to answer the following research questions:

RQ1: Does IFRS adoption enhance stock market liquidity in the French context?

RQ2: What is the moderating role of corporate governance mechanisms?

We develop a better understanding of IFRS adoption from an empirical and methodological perspective in the French context. Indeed, we extend prior studies on the relationship between a firm's informational policy and stock liquidity in several ways. First, previous empirical findings show a negative relationship between a firm's disclosure policy and information asymmetry. Most academic papers investigate how voluntary disclosure explains this relationship (Healy et al., 1999; Healy & Palepu, 2001; Gajewski & Li, 2015). This work highlights the expected effects not of voluntary disclosure but of the mandatory adoption of IFRS. Transition to these standards represents both a mandatory dimension of information disclosure and a change to principle-based accounting standards. Consequently, information asymmetry will be mitigated, uncertainty reduced, as well as stakeholders' risk in financial markets will be limited (Agrawal & Chakraverty, 2023). Secondly, several studies focused on the relationship between a firm's informational policy, in general, and its stock liquidity (Espinosa et al., 2008; Ajina et al., 2015). However, this paper investigates if IFRS adoption, in an order-driven market, has been able to achieve the goal of greater financial transparency and increased stock liquidity and, thus, make it less expensive and easier to buy and sell shares at a fair price. Thirdly, to our knowledge, most previous studies on this problem focused on American firms. Few papers, except those of Gajewski and Li (2015), Ajina et al. (2015), Shibly and Dumontier (2015), and Boubaker et al. (2019) have been developed in the French context. In addition, studying the case of one single country can allow us to isolate the effect of these standards during the period of study. Thus, it is valuable to compare our empirical findings to those obtained in different contexts. Then, many researchers argue that the positive consequences of IFRS adoption depend on the institutional context and the presence of some enforcement mechanisms (Prather-Kinsey et al., 2022; Cualain & Tawiah, 2023). So, this study explores the characteristics and the influence of corporate governance mechanisms (direct and moderating effect) as enforcement devices of IFRS adoption. IFRS, as components of the regulatory environment, are considered an element of the firm's corporate governance, and at the same time a solution to promote governance quality. Transparency, as the main contribution of IFRS, represents an essential ingredient of good governance. This latter induces, as well, a higher transparency to generate more confidence. In fact, both concepts are closely related. For this, the study investigates the role of audit quality (as an external mechanism) and the board of directors' independence (as an internal mechanism) in the enforcement of IFRS. Lastly, studies about international accounting standards, IAS (Lantin & Tort, 2015) have been growing especially since 2011, which shows the importance of this phenomenon. Therefore, the popularity of these standards is justified by the multiple benefits of their application. Many consequences of IFRS adoption are treated, in particular, the impact on earnings management (Garrouch et al., 2014, Viana et al., 2023). The influence on information asymmetry and stock liquidity remains, however, not enough treated.

Using a panel data analysis of ten years from 2002 to 2012, the study tests the impact of the mandatory transition to IFRS for 97 French-listed companies on the SBF 120 index on stock liquidity. Our findings support the idea that increasing stock liquidity requires high levels of transparency. Indeed, accounting harmonization increases financial information transparency between informed investors and uninformed investors. It guarantees more equitable access to private information which increases liquidity. Moreover, and following the predictions of previous studies, the impact of IFRS adoption appears even more accentuated in the presence of enforcement mechanisms such as Big4 auditors.

The remainder of the paper is organized as follows. Section 2 outlines the general framework and the literature review dealing with the relationship between IFRS adoption, stock liquidity, and corporate governance which allows us to formulate our research hypotheses. Section 3 describes the methodology approach. In Section 4, results are reported. Section 5 discusses the research findings. Section 6 concludes the paper.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Information asymmetry is one of the principal causes of organizational problems. The transition from historical cost to IFRS is recommended for firms wishing to reduce the risk of information asymmetry, to put investors in trust, to increase market transactions, and to enforce stock liquidity. IFRS can mitigate the anticipation gap among different stakeholders in the financial market. They can reduce the information gap between informed

and uninformed investors and limit, uncertainty related to the firm's cash flows to improve investment decisions. According to the informational approach, IFRS can be considered as a form of mandatory disclosure. Disclosure creates a signal that reduces the adverse selection problem and increases liquidity (Glosten & Milgrom, 1985). This study tests the effectiveness of IFRS standards and governance mechanisms in reducing information asymmetry between informed and uninformed investors. Stock liquidity is apprehended as a measure of information asymmetry, based on market microstructure, and as an external consequence of IFRS adoption.

The informational disparity, that may exist between the firm and its stakeholders, can be reduced by information that accurately reflects the firm's image. Based on the principle of faithful representation or substance over form, IFRS standards insist on the best description of the firm's situation. Consequently, better information quality is expected to reduce information asymmetry and therefore lower the spread. Transparency and information quality are elements of corporate governance. In this sense, weak governance reflects less transparency and bad information quality (Haroon & Zaka, 2023; Yassin et al., 2022; Migliavacca et al., 2021; Zejnullahu, 2021). When new information is disclosed to the market, it is received by analysts, investors, and other stakeholders. It serves as a basis for different decisions and affects investors' behavior, equity prices, and trading volumes. The dissemination of heterogeneous or incomplete information creates a situation of opacity. The market may respond through stock liquidity.

2.1. IFRS adoption and stock market liquidity

Using a sample of German-listed firms on the DAX 100, Leuz and Verrechia (2000) study the impact of the adoption of IAS and the United States Generally Accepted Accounting Principles (US GAAP) on bid-ask spread. By comparing German firms' spreads, they conclude that IFRS adoption reduces the spreads of adopting firms. They also find that in the post-IFRS period, firms have lower spreads compared to the pre-IFRS period. In addition, findings indicate that firms using IFRS standards or US GAAP have higher spreads than those using local standards. This difference is, however, non-significant.

The study of Shibly and Dumontier (2015) examines the impact of mandatory IFRS adoption on information asymmetry and firms' spreads in France for the period 2004–2008, they show that the effect of IFRS differs from one firm to another. The French companies have not all benefited from international accounting harmonization. Indeed, some firms have even been penalized due to an increase in opacity. In other words, according to Shibly and Dumontier (2015), the bigger French firms, which are the most followed (by analysts) or those who communicate sufficiently, are those who benefit the most from IFRS. After that, Boubaker et al. (2019) examine the impact of less readable disclosure on stock liquidity and conclude that it is diminished by mandating the use of IFRS standards. Recently, R. and Firoz (2022) concluded, for Indian firms, that

IFRS convergence contributes to increased market liquidity. By checking the economic consequences of IFRS adoption in India, Bansal (2023) confirmed an increase in the cost of equity capital, cost of debt capital, and information asymmetry, as well as a decrease in market liquidity. Bansal (2023) emphasized the phased implementation of IFRS by showing that the negative effect tends to decrease over time and concludes with a learning curve effect of IFRS.

These studies conclude in different contexts an increase in stock liquidity after IFRS adoption. There is a debate on whether the unique set of IAS should be adopted. The effect on market reaction and especially on bid-ask spread is treated in this study. It is, therefore, particularly suited to the present purposes of investigating the IFRS adoption impact on stock liquidity. So, we state the following hypothesis:

H1: There is a positive relationship between IFRS adoption and stock market liquidity.

2.2. Impact of control mechanisms on the association between IFRS and liquidity

Removing unequal access to information and agency conflicts among stakeholders results in a robust system of corporate governance (Hayek et al., 2023) which leads, through its multiple tools, to enforcement of IFRS adoption. Yamani et al. (2021) show also, for a sample of Gulf Cooperative Council (GCC) listed banks how corporate governance affects compliance with mandatory disclosure requirements. Gajewski and Li (2015) examine a sample of 180 French firms listed on the SBF 250 index. They report a negative and significant relationship between information disclosure via the Internet, the level of information asymmetry, and relative spread. They provide evidence that promoting transparency is essential in the French context to reduce information asymmetry. Later, Karmani et al. (2015), by establishing an index of governance, confirmed that firms with efficient governance mechanisms have weaker spreads and higher liquidity. This result implies that firms can reduce information asymmetry and improve their stock liquidity through good governance practices. Berglund (2020) confirms that corporate governance enhances liquidity by decreasing information asymmetry. In conclusion, investors are more convinced that agency problems are under control when a firm uses the best practices of corporate governance. They will, in this case, be more willing to buy firm shares. It is therefore interesting to discuss, in the next subsection, among the mechanisms of governance, which one offers the best guarantee to resolve potential conflicts and ensure more efficiency to firms.

2.2.1. Board of directors' independence, IFRS, and stock market liquidity

The presence of outside independent members on the board represents the most influential tool and a critical driver of good corporate governance (Zaid, 2023) that helps in the compliance of IFRS.

According to many scholars (Melón-Izco et al., 2020; Dwekat et al., 2022), board effectiveness relies on independence.

Only a few papers examine the board of directors' role in the increase of stock liquidity directly. Elbadry et al. (2015) suggest that the more board members are independent, the more this mechanism effectively plays its role of monitoring. Their results also show that high board independence increases shareholders' confidence that agency problems will be minimized, the spread will also be reduced, and price volatility and trading volumes will increase. Recently Abbassi et al. (2021), by studying the impact of multiple governance devices on stock liquidity in the Asian context, concluded that board independence is positively related to stock liquidity due to their monitoring power.

Thus, the corporate governance role (internal mechanism) is clear in the reduction of information asymmetry and the improvement of stock liquidity. Expertise and experience are important skills of professional board members that improve monitoring quality and upgrade transparency (Zaid, 2023). Regarding the effectiveness of board members in France, the French AFEP-MEDEF code developed, since 1995, a set of recommendations related to incorporating a minimum number of independent members of the boards. We expect that the percentage of independent members will have an impact on how IFRS adoption and stock liquidity are related. This leads to the following hypothesis:

H1a: Mandatory IFRS adoption increases stock market liquidity in the presence of a significant number of independent board members.

2.2.2. Audit quality, IFRS, and stock market liquidity

The degree of stock liquidity depends essentially on information asymmetry. Indeed, the use of an independent monitoring authority (external auditors) is necessary to ensure the production of credible information that could attract investors. Thuneibat and AlHalaseh (2023) show that stock liquidity increases by improving audit quality. Campbell et al. (2023) report a positive relationship between audit quality and stock liquidity.

Lopez et al. (2022) suggest that specialist auditors play a crucial role in ensuring high information quality. Soares Fontes et al. (2023) conducted interviews with a number of auditors who confirm a high involvement of these actors in propagating IFRS logic and methods in Portugal. Tsipouridou and Spathis (2012) confirm that the audit effect depends on the institutional context of the study. In a weak investors' protection context, external auditors, even Big4 or not, have the same incentives. The French system is particularly characterized by the mandatory joint audit for firms with consolidated accounts. These companies have the free choice to opt for zero to two external auditors as part of the Big4. Based on the foregoing analysis, we adhere to the opinion that having a Big4 auditor can intervene to moderate the relationship between IFRS and stock liquidity. This discussion leads us to the following hypothesis:

H1b: Mandatory IFRS adoption increases stock market liquidity in the presence of high audit quality.

3. RESEARCH METHODOLOGY

3.1. Sample selection and data collection

The sample includes all financial listed firms on the SBF 120 index observed over the period between 2002–2012. We exclude the year 2005 to ensure that the transitional effect, during the first year of adoption, does not bias our results. Financial firms were excluded to maintain the same accounting characteristics. We also rejected five firms with missing data. Thus, our final sample is reduced to 97 firms studied for 10 years.

By choosing France, we study a continental European country and a first-time adopter of IFRS standards characterized by its highly concentrated ownership structure and its weak protection of minority interests. It is a code law country that is subject to certain specific transparency requirements compared to Anglo-Saxon countries. By choosing this period of study, we aim to examine the same companies for two different periods: the "non-IFRS" period: General Accounting Plan (*Plan Comptable Général* [PCG]) between 2002 and 2004 and the "IFRS" period between 2006 and 2012. We analyze IFRS adoption over time and examine the learning curve effect of IFRS.

Financial and accounting data were extracted from the Datastream database, financial data related to liquidity variables were collected from yahoo.finance.com, and data related to corporate governance were hand-collected from the firm's annual reports. Our data requirements give a final sample of 97 firms.

3.2. Variables identification and measurement

To test our research hypotheses, we base our regression models on some variables described in the next section. An overview of all the variables is also provided in Table 1.

The dependent variable is *Stock market liquidity.* Information asymmetry existing between investors generates adverse selection problems. The bid-ask spread reflects well this problem. This study is based on two stock liquidity proxies: quoted spread (*FPA*) which corresponds to the posted costs of the market. It has the advantage of giving an idea of information asymmetry and liquidity, and the trading volumes (*VOLM*) is the liquidity measure considered in the robustness analysis:

$$FPA = \frac{(Ask_t - Bid_t)}{(Ask_t + Bid_t)/2} \qquad (1)$$

where, Ask_t is the asking price and Bid_t is the bid price.

Table 1. Variables definition

Group	Code	Variable	Definition
Dependent variables	FPA	Quoted spread	The annual average of the difference between the daily bid price and ask price.
	VOLM	Trading volume	Natural logarithm of the annual average of daily trading volume.
Explanatory variables	IFRS	IFRS adoption	Dummy variable is equal to 1 for the years 2006 up to 2012 and 0 for 2002 up to 2004.
	BIND	Board independence	Ratio between independent board members and the total board members.
	BIG4	Audit quality	Dummy variable that takes 1 if the firm is audited by at least one Big4 auditor and 0 otherwise.
Control variables	VOLT	Price volatility	The annual average of the standard deviation of equity returns.
	PRICE	Share price	The average of the daily closing price of each year.
	USCOT	US listing	Dummy variable is equal to 1 if the firm is listed on the American market and 0 otherwise.
	LNCB	Firm size	The natural logarithm of year-end market capitalization.

Explanatory variables include *IFRS adoption* (*IFRS*), *Audit quality* (*BIG4*), and *Independent board members* (*BIND*).

IFRS adoption (*IFRS*): A dummy variable indicating the adoption of IFRS standards. It takes 0 between 2002 and 2004, and 1 from 2006. It shows the mandatory transition, since the first of January 2005, to IFRS in the European Union (Regulation (EC) No. 1606/2002 of the European Parliament and of the Council of 19 July 2002).

Audit quality (*BIG4*): A dummy variable that takes 1 if the firm is audited by one Big4 auditor at least and 0 otherwise. Given the presumed role of control and monitoring by auditors, we expect a positive sign of this variable. If this mechanism adequately fulfills its function, it certainly improves stock liquidity.

Independent board members (*BIND*): The ratio between the number of independent directors and the total number of directors in the board. Agency theory stipulates a crucial role of the board in the mitigation of opportunistic managerial behavior. That is why, we expect a negative sign of this variable.

Following previous studies, we include some control variables that affect liquidity: *Trading volume* (*VOLM*), *Price volatility* (*VOLT*), *US listing* (*USCOT*), *Firm size* (*LNCB*), and *Share price* (*PRICE*) (Ajina et al., 2015; Elbadry et al., 2015). For instance, *Trading volume* is included in this section as a control variable and as a dependent variable in the robustness analysis. Empirical studies indicate that high trading volume is associated with lower levels of information asymmetry and increased stock liquidity. This variable is measured by the natural logarithm of the mean daily trading volume, and we expect a negative relationship between the spread and the trading volume.

Price volatility is measured by the standard deviation of daily returns. It reflects information asymmetry in the market. Many authors (Bernea & Logue, 1975; Stoll, 1978) show the positive impact of volatility on a stock's risk and the negative impact on liquidity. Other studies (Admati & Pfleider, 1988) find that stocks with high volatility are more liquid. Amihud and Mendelson (1986) show that larger firms have a lower spread. Merton (1987) finds that larger firms are followed by analysts and investors

and have lower information asymmetry. We define this variable by the logarithm of the firm's capitalization, and we expect a positive relationship with the bid-ask spread.

Equity with low prices is riskier and the spread becomes larger. Price is the average of the daily closing price of each year. Empirical studies show an ambiguous relationship between price and liquidity. For example, while Sarin et al. (1996) confirm a positive association, Stoll (2000) and Heflin et al. (2005) find a negative relationship. We anticipate a negative relationship between bid-ask spread and share price. Finally, we include a dummy variable named *US listing*. It takes 1 if the firm is listed in the US market and 0 otherwise. Foreign quotation affects a firm's disclosure. Information requirements are stronger, especially in the US. Indeed, when a firm is publicly listed in an Anglo-Saxon market it must comply with its standards. Disclosing information according to American standards increases investors' confidence and attracts them to invest. That is why, a positive association is expected between this variable and stock liquidity.

4. RESULTS

4.1. Descriptive statistics and univariate analysis

The descriptive data for our main variables are presented in Table 2. According to the results, the *Quoted spread* is equal on average to 0.078. It is higher than those recorded in the Anglo-Saxon context. Thus, in North America, the *Quoted spread* is about 0.016 (Heflin & Shaw, 2000). It is near to 0.012 in the US (Sarin et al., 1996). So, liquidity in the French market is low compared to the Anglo-Saxon one. Statistics reveal that the mean of the variables *Quoted spread*, *Trading volume*, *Price volatility*, and *Share price* are higher than their medians showing the existence of extreme values. In addition, the distributions of the variables are high, indicating the heterogeneity of the sample. Statistics also show high levels of skewness and kurtosis for these variables. To reduce these coefficients, we use the natural logarithm of these variables.

Table 2. Descriptive statistics

Variables	Mean/Proportion	Maximum	Minimum	Standard deviation
FPA	0.0780784	1.745295	-0.8609438	0.1570921
BIG4	0.7134021	1	0	0.4524053
BIND	48.08385	100	0	21.06703
VOLM	1262464	2.10e+07	3.725667	2356164
VOLT	0.0164964	0.0075605	0.000202	0.0925405
PRICE	47.29771	796.73	0.725475	61.43973
LNCB	16.16752	21.13994	2.630491	2.133954
USCOT	0.6896907	1	0	0.4628588

Descriptive statistics denotes that 71.34% of the firms in our sample are audited by at least one Big4 auditor. Near the half of board of directors' members are independents (the mean of the *BIND* variable is equal to 48.08%). Concerning the other control variables, statistics indicates an average size of 16.16 for the 97 selected companies, with a standard deviation of 2.63. The companies have similar sizes. Statistics show that 68.96% of our companies are listed on the US market. Figure 1 illustrates the variability of stock liquidity during the studied period.

Figure 1. Evolution of stock liquidity between 2002 and 2012
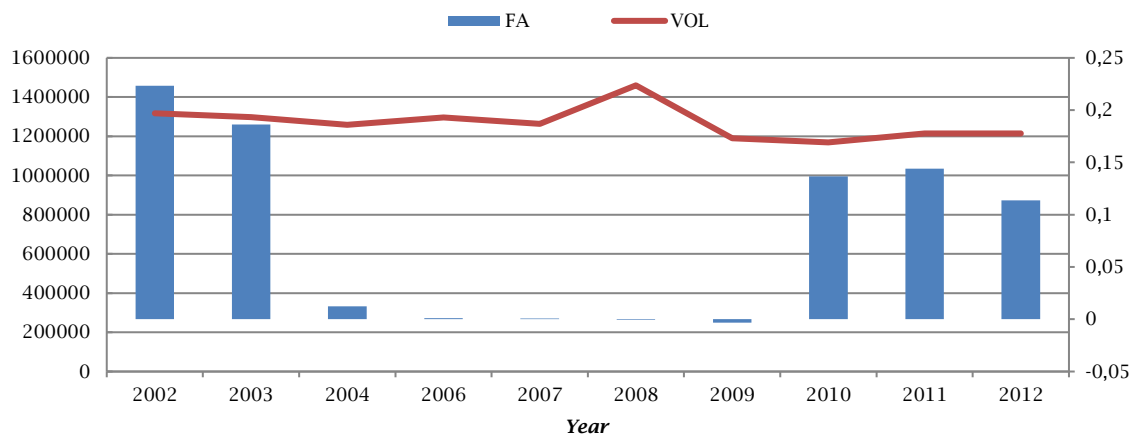
Observation of liquidity variation (quoted spread and trading volume) shows a considerable decline in the average spread displayed in the second period (post-adoption) compared to the first one. It becomes even more negative during 2008 and 2009. However, we notice that the more the bid-ask spread decreases, the more liquidity increases. The level of transparency resulting from IFRS adoption has given its benefits to facilitate market transactions and increase stock liquidity. However, the post-crisis period (after 2009) recorded a higher average of bid-ask spread involving less stock liquidity than the period before the crisis. The crisis period has generated uncertainty about the conditions of the financial markets. Thus, investors fear the purchase and the sale of their equity before the restoration of an atmosphere of confidence. Indeed, as it appears in Figure 1, the year 2012 is experiencing a slight reduction of the quoted spread. These means remain in general lower than those of IFRS pre-adoption years. The following analysis proposes to compare companies' characteristics according to the adoption or not of IFRS standards. This figure also shows that results may suffer from the "learning curve effect" (Bansal, 2023) suggesting that these standards gain efficiency over time.

4.2. Bivariate analysis

We split the sample into two subgroups which include the same companies for two different periods: the "non-IFRS" group takes 0 and the "IFRS" group takes 1. We proceed to a comparison between the two subsamples. The results of these tests in Table 3 show that the quoted spread displayed is statistically different in rank ($z = 8.549$) between the two groups of firms at the threshold of 1%. It is significantly less high in the post-IFRS period. The trading volume is higher for companies adopting IFRS. Most of the variables means of the companies of the "IFRS" group are higher. Before starting the multivariate analysis, it is appropriate to use another bivariate statistical analysis using the Pearson correlation coefficients.

Table 4 reports the Pearson correlations matrix; it allows us to identify the degree of correlation between independent variables used in the study.

Table 3. Mean's comparison test

Variables	IFRS	Obs.	Mean	Parametric test (Student)	Non-parametric test (Mann–Whitney U test)		
				T	Rank mean	Z	Probability
FPA	0	246	0.1374516		143616	8.549***	0.0000
	1	665	0.0563759		279124		
VOLM	0	245	1290237		107272	-1.362	0.1732
	1	669	1252293		310883		
VOLT	0	245	0.0174855		118940	1.938*	0.0526
	1	669	0.0161342		299215		
LNCP	0	245	15.90078		106576	-1.559	0.1190
	1	669	16.2652		311579		
PRICE	0	246	40.68906		107272	-1.981**	0.0476
	1	673	49.71336		310883		
USCOT	0	291	0.6872852	-0.1059			
	1	679	0.6907216				

Note: * p < 0.1; ** p < 0.05; *** p < 0.01; p-values are reported in ().
Source: Authors' estimation.

Table 4. Pearson correlations matrix

	LNFPA	LNVOLM	IFRS	BIG4	BIND	LNVOLT	LNPRICE	USCOT	LNCB
LNFPA	1.0000								
LNVOLM	-0.0980*** (0.0031)	1.0000							
IFRS	-0.2522*** (0.0000)	0.0537 (0.1048)	1.0000						
BIG4	-0.2083*** (0.0000)	0.1537*** (0.0000)	0.3246*** (0.0000)	1.0000					
BIND	-0.0022 (0.9462)	0.1317*** (0.0001)	0.0694** (0.0308)	0.0077 (0.8112)	1.0000				
LNVOLT	0.0841** (0.0113)	0.1374*** (0.0000)	-0.0748** (0.0237)	-0.0967*** (0.0034)	-0.0030 (0.9285)	1.0000			
LNPRCE	-0.0557* (0.0928)	-0.1659*** (0.0000)	0.0572* (0.0831)	-0.0309 (0.3494)	0.0993*** (0.0026)	-0.2754*** (0.0000)	1.0000		
USCOT	-0.0729** (0.0279)	0.2424*** (0.0000)	0.0034 (0.9157)	0.0694** (0.0306)	0.2044*** (0.0000)	0.0559* (0.0912)	0.1404*** (0.0000)	1.0000	
LNCB	-0.1165*** (0.0004)	0.9060*** (0.0000)	0.0757** (0.0221)	0.1331*** (0.0001)	0.1774*** (0.0000)	0.0160 (0.6282)	0.2671*** (0.0000)	0.2939*** (0.0000)	1.0000

Note: * p < 0.1; ** p < 0.05; *** p < 0.01; p-values are reported in ().
Source: Authors' estimation.

The Pearson correlations are low between the explanatory variables, suggesting the absence of multicollinearity among the independent variables of our models. This is not the case for the size variable (*LNCB*) which displays a very high coefficient (0.9060) significant at a 1% level with the trading volume variable. This very high degree of collinearity implies that these two variables cannot be integrated into the same model. Based on the study of Chen et al. (2007), we choose to eliminate the market capitalization variable (a proxy of firm size) and keep the trading volumes. Indeed, as stipulated by these authors, this latter variable is more used in microstructure literature. We can also detect a negative impact of IFRS adoption on the bid-ask spread and a positive impact on trading volumes. Our hypothesis (*H1*) as to the effect of IFRS on the reduction of the asymmetry of information and the increase of liquidity is confirmed.

5. DISCUSSION

To test the impact of IFRS adoption on the stock liquidity of French companies, the following models consider the direct effect of IFRS but also the moderating effect of corporate governance devices on this relationship:

Model 1

$$LNFPA_{it} = \beta_0 + \beta_1 IFRS_{it} + \beta_2 LNVOLM_{it} + \beta_3 LNVOLT_{it} + \beta_4 LNPRICE_{it} + \beta_5 USCOT_{it} + \varepsilon_{it} \tag{2}$$

Model 2

$$LNFPA_{it} = \beta_0 + \beta_1 IFRS_{it} + \beta_2 BIG4_{it} + \beta_3 BIND_{it} + \beta_4 LNVOLM_{it} + \beta_5 LNVOLT_{it} + \beta_6 LNPRICE_{it} + \beta_7 USCOT_{it} + \varepsilon_{it} \tag{3}$$

Model 3

$$LNFPA_{it} = \beta_0 + \beta_1 IFRS_{it} + \beta_2 BIG4_{it} + \beta_3 BIG4 * IFRS_{it} + \beta_4 BIND_{it} + \beta_5 BIND * IFRS_{it} + \beta_6 LNVOLM_{it} + \beta_7 LNVOLT_{it} + \beta_8 LNPRICE_{it} + \beta_9 USCOT_{it} + \varepsilon_{it} \tag{4}$$

Table 5 reports the relationship between stock liquidity and the variables IFRS adoption and corporate governance devices. By comparing the results of the three developed models, findings argue that IFRS is statistically significant in the three models. As expected, its sign is negative (-0.5023, -0.4674, and -1.040).

Table 5. Results of multivariate regressions

Variable	LNFPA (M1)	LNFPA (M2)	LNFPA (M3)
Intercept	-2.273511*** (-3.62)	-2.224804*** (-3.31)	-2.025043*** (-2.92)
IFRS	-0.5023075*** (-3.86)	-0.467457*** (-3.29)	-1.040092** (-2.22)
BIG4		-0.2687991* (-1.73)	-0.40601*** (-2.36)
BIG4*IFRS			0.6372159* (1.80)
BIND		0.0002349 (0.06)	0.0009302 (0.14)
BIND*IFRS			-0.0000801 (-0.01)
LNVOLM	-0.0319055 (-0.95)	-0.0282967 (-0.82)	-0.0377876 (-1.09)
LNPRICE	0.0646436 (0.86)	0.0571022 (0.72)	0.0339423 (0.44)
LNVOLT	0.205364** (2.24)	0.1777724* (1.86)	0.1679713* (1.77)
USCOT	-0.0307792 (-0.20)	-0.0639925 (-0.40)	-0.0659491 (-0.42)
Wald Chi²	23.57***	26.36***	31.78***
Obs. number	906	904	904
Specific effect	Random	Fixed	Fixed

*Note: * p < 0.1; ** p < 0.05; *** p < 0.01; p-values are reported in ().*
Source: Authors' estimation.

We can, therefore, conclude that the post-IFRS period knows weaker spreads and better liquidity than the pre-IFRS period. The hypothesis (*H1*) is confirmed. We join through this result the emerging literature on the benefits of information quality improvement on stock liquidity (Ajina et al., 2015; Ren et al., 2023).

IFRS's advantages relating to transparency are quite clear. Despite the significant differences between the French system and the IFRS, the accounting harmonization in France seems to achieve the objectives in terms of the reduction of information asymmetry and increase in stock liquidity. Market reactions to IFRS show a decrease in transaction costs and easier exchanges between stakeholders who appreciate the reduction of opacity as well as the informational fairness resulting from it. The introduction, within the second model of the *BIG4* variable, shows that it is also very significant (at the level of 1%). The coefficient is negative (-0.2687). It is, therefore, clear that having Big4 auditors represents a major factor that helps firms to increase their stock liquidity. This result joined the theoretical predictions regarding the role of external auditors in the reduction of information asymmetry and the promotion of liquidity (Fung et al., 2023; Thuneibat & AlHalaseh, 2023; Karmani et al., 2015) on the positive impact of corporate governance devices on stock liquidity for the French case.

Empirical results confirm that external audit is an effective corporate governance mechanism that participates in mitigating information asymmetry and improving liquidity for French companies. Following our expectations, the coefficient of the moderator variable *BIG4*IFRS* (0.6372) is significantly positive (z = 1.80). The moderating effect of audit quality is confirmed. The informational environment apprehended by the mandatory IFRS adoption is supported by an effective role played by corporate governance, through Big4 auditors in France. Concerning the relationship between bid-ask spread and IFRS, it is still significantly negative. An observation of Wald Chi² shows that it has increased slightly compared to the first two models (23.57, 26.36, and 31.78). We conclude that governance moderating variables contribute slightly in terms of additional explanatory power.

The coefficient of the *BIND* variable, in the second model is not significant, even if it is negative. We find the same result for this variable in the third model, after integration of multiplying variables. The interaction between *IFRS* and *BIND* added to the third model, also appears non-significant (z = -0.01). According to these results, we can conclude the absence of a mediating effect of independent board members. Indeed, these members play a passive and ineffective role contrary to the predictions of previous works. Such a result joined the idea of the reconsideration in recent years of the role of the board independence in France, as advanced by Broye and Moulin (2012). The high concentration of ownership structure of French companies explains that board members do not control the managers sufficiently. It is widespread in France that the controlling shareholder may be the manager (Broye & Moulin, 2012). We are witnessing in this way an alignment of interests between managers and shareholders. In addition, concentration allows the direct control of managers by the principal shareholder. The use of the board of directors as a control mechanism will thus be limited. The different codes of governance in France insist on the notion of board independence as the most critical dimension reflecting its effectiveness. However, the study's results do not confirm this. We can even say that board independence is rather a "myth" in the French context. The requirement of a well-defined percentage of independent members on the board is important to the practical plan. This inefficiency can also be explained by the major role of other alternative mechanisms that replace the board. Board independence in France is also compromised because of the pre-eminence of bilateral relations between members or "directors' networks" (Boulerne & Sahut, 2010). In addition, a large part of firms adopt only "a process of formal compliance with regulatory or professional

provisions rather than a real adherence to governance principles" (Boulerne & Sahut, 2010, p. 1), which explains the failure of some mechanisms of governance in France.

The hypothesis (*H1a*) relative to the role of the board of directors in improving liquidity following the adoption of IFRS is rejected. Signs of control variables are consistent with our expectations, even if the significance varies slightly. According to the results of Table 5, we can identify a negative relationship between trading volume and bid-ask spread. However, this link is not statistically significant. Holding shares and information research have many costs which decrease with the increase in trading volume and liquidity. We also confirm the findings of Karmani et al. (2015) and Gajewski and Li (2015) that high levels of trading volume enhance liquidity and reduce information asymmetry. Price volatility appears also positively and significantly associated with the quoted spread. Indeed, it is more likely to negotiate with

an informed investor when the profitability of an asset has more important price volatility. Thus, we notice an increase in bid prices and a reduction in ask prices. It results in a wider spread and low liquidity. We confirm, therefore, the results of Espinosa et al. (2008) and Karmani et al. (2015). Nevertheless, the variables of share prices and US listing are not too significant. Indeed, we cannot conclude their relationship with the quoted spread.

To check the robustness of our findings presented above, we use an alternative measure of liquidity: trading volume. This variable is approached by the natural logarithm of the annual average of equities exchanged. It gives an idea of the attitude of investors during the operations of purchase and sale of equity on the market. The literature shows a positive link between trading volume, price volatility, and share price (Leuz & Verrecchia, 2000). Table 6 outlines the results of the sensitivity tests. Thus, we are considering the following models:

Model 4

$$LNVOLM_{it} = \alpha_0 + \alpha_1 IFRS_{it} + \alpha_2 LNVOLT_{it} + \alpha_3 LNPRICE_{it} + \alpha_4 USCOT_{it} + \varepsilon_{it} \tag{5}$$

Model 5

$$LNVOLM_{it} = \alpha_0 + \alpha_1 IFRS_{it} + \alpha_2 BIG4_{it} + \alpha_3 BIND_{it} + \alpha_4 LNVOLT_{it} + \alpha_5 LNPRICE_{it} + \alpha_6 USCOT_{it} + \varepsilon_{it} \tag{6}$$

Model 6

$$LNVOLM_{it} = \alpha_0 + \alpha_1 IFRS_{it} + \alpha_2 BIG4_{it} + \alpha_3 BIG4 * IFRS_{it} + \alpha_4 BIND_{it} + \alpha_5 BIND * IFRS_{it} + \alpha_6 LNVOLT_{it} \\ + \alpha_7 LNPRICE_{it} + \alpha_8 USCOT_{it} + \varepsilon_{it} \tag{7}$$

Table 6. Robustness checks

Variable	LNVOLM (M4)	LNVOLM (M5)	LNVOLM (M6)
Intercept	13.9445*** (56.09)	13.38399*** (54.77)	13.3098*** (50.80)
IFRS	0.1199819* (1.90)	-0.0112092 (-0.19)	0.0033713 (0.02)
BIG4		0.6405921*** (11.22)	0.5045425*** (4.78)
BIG4*IFRS			0.2196803* (1.79)
BIND		0.0110848*** (10.21)	0.0137101*** (6.93)
BIND*IFRS			-0.0033586 (-1.49)
LNPRICE	-0.2672401*** (-7.56)	-0.2932081*** (-9.29)	-0.3024285*** (-9.87)
LNVOLT	0.3118324*** (5.84)	0.3443884*** (6.20)	0.3319881*** (5.96)
USCOT	1.401527*** (23.63)	1.284898*** (22.56)	1.286731*** (22.69)
Wald Chi²	737.75	1418.77	1561.22
Obs. number	914	912	912
Specific effect	Fixed	Fixed	Fixed

*Note: * p < 0.1; ** p < 0.05; *** p < 0.01; p-values are reported in ().*
Source: Authors' estimation.

Table 6 shows that the results of the variable IFRS remain unchanged. This variable is associated positively and significantly with the trading volumes (for the first model). It shows that IFRS adoption increases stock liquidity. The hypothesis (*H1*) is confirmed. The observation of Wald Chi² shows a considerable increase when going from the first model toward the second and third (737.75, 1418.77, and finally 1561.22). We conclude with the effect of the moderating variables. The second

regression shows a positive relationship and is very significant to audit quality with trading volume. This relation remains positive and highly significant with the board independence variable. Our advanced results above are, as well, robust to the change in liquidity proxy. Similarly, the US listing variable becomes positive and significant, which is consistent with the expected sign and confirms the results of Leuz and Verrechia (2000) and Karmani et al. (2015).

6. CONCLUSION

This research investigates the impact of mandatory IFRS adoption on stock liquidity for a sample of French firms listed on the SBF 120 index for the period 2002–2012. Furthermore, it examines whether the IFRS effect depends on enforcement by corporate governance mechanisms. We choose to test our theoretical hypothesis in the French institutional context. The empirical findings confirm the positive effect of Big4 auditors on the intensity of the relationship between IFRS adoption and stock liquidity. The informational environment traduced by the mandatory adoption of IFRS is supported by an effective role played by corporate governance, through Big4, in France. Rather, we note the absence of a mediating effect of the independent members of the board. The latter plays a passive and ineffective role in the governance of French-listed firms. Such a result is in contradiction with earlier works findings (Zaid, 2023; Melón-Izco et al., 2020; Dwekat et al., 2022). We can explain this by a possible alignment of interests between managers and shareholders. In addition, ownership concentration allows direct control of managers by the main shareholder. The use of the board of directors as a control mechanism will thus be limited.

The findings show that audit quality has a greater influence on enhancing stock liquidity and financial reporting transparency after IFRS compliance. Overall, the findings show that IFRS have better effects on liquidity, than the French PCG, when enforced by efficient corporate governance mechanisms. IFRS adoption is well-perceived by financial statement users. The financial market considers this mechanism as a source of additional reliability contributing to increasing their confidence in the reliability of financial information prepared using IFRS standards.

After studying IFRS's consequences on French firms' behavior, we can argue that our results are impressive for many reasons. First, this study recommends that French companies invest primarily in promoting transparency and information quality by establishing effective mechanisms such as corporate governance. This study fosters the debate about IFRS consequences by providing proof of the impact of the adoption in France. It allows for addressing several issues relating to IFRS adoption. It sheds light on the benefits of the choice of implementing those standards and on the necessity of their enforcement.

Firstly, we propose a multidimensional model of interactions between IFRS adoption, financial characteristics, and corporate governance mechanisms. This study recommends that legislators increase firms' information quality. Although multiple efforts in this regard have already been undertaken and realized in 2005 with the application of IFRS in France, we conclude that the absence of reliable enforcement mechanisms prevents these standards from achieving their desired benefits.

This work also proposes that accounting standards setters should improve the effectiveness of the independent board members. The results of the current study may, therefore, be helpful for regulators as they assess whether IFRS has met the requirements for improving the quality of financial reporting in France and whether it has accomplished the desired objectives.

This study might also encourage French regulators to update the AFEP-MEDEF code relating to the efficiency of board members.

This paper extends prior studies on the relationship between a firm's informational policy and stock liquidity in several ways. It highlights the expected effects not of voluntary disclosure but of the mandatory adoption of IFRS. Our study had been developed in the French context. In addition, studying the case of one single country can allow us to isolate the effect of these standards during the period of study. we also contribute to the literature by enhancing discussion on the debate related to the benefits of IFRS adoption. Our findings can be of interest to regulatory bodies and policymakers by providing a better understanding of the factors that influence stock liquidity and decision-making.

It would be even relevant to expand our sample to studying several countries at a time to establish a comparison between IFRS adoption in different contexts. It is also recommended to study other countries which adopted recently IFRS. Analyzing IFRS adoption impact on another type of information asymmetry, between borrower and lender, for example, can also be tested. Finally, this research is not without limitations. Indeed, this study focused on only two corporate governance mechanisms, so it would be interesting to include other devices.

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