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# Do IFRS Disclosure Requirements Reduce the Cost of Equity Capital? Evidence from European Firms

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**Abstract:** This study analyzes the impact of adopting International Financial Reporting Standards (IFRS) on the cost of equity capital for firms listed on STOXX Europe 600 using a sample of 9773 firm-year observations between 1994 and 2022. We estimate the cost of equity capital using the modified price–earnings–growth ratio model and employ the GMM system to investigate the effect of IFRS Standards on the cost of equity capital. Our results indicate that IFRS adoption reduces firms' cost of equity capital. We performed various sensitivity analyses to ensure the reliability of our results. Overall, this study contributes to the extant literature on the cost of equity capital implications of IFRS adoption and provides valuable insights for investors, regulators, and policymakers.

**Keywords:** cost of equity capital; IFRS; European firms; STOXX Europe 600; GMM-system

**JEL Classification:** C23; M40; M41; O52



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## 1. Introduction

The smooth flow of capital and investments between countries is vital for economies, investors, and lenders. To assess cross-border investments, investors worldwide utilize the International Financial Reporting Standards (IFRS) as a universal language, adopted in over 165 countries (Prather-Kinsey et al. 2022). In particular, since 2005, the European Union (EU) has endorsed a regulation allowing listed companies within its member states, including insurance companies and banks, to prepare their consolidated financial statements following IFRS. This move aligns with the International Accounting Standards Board's (IASB) vision of introducing IFRS, an accounting code aiming to establish a unified financial reporting platform on a global scale (Mohsin et al. 2021).

According to AICPA (2005), this regulation marked a significant milestone in financial reporting within Europe, representing the most substantial changes in the past three decades. These changes directly impacted around 7000 companies and had indirect effects on various types of consolidated subsidiaries. The authority governing IFRS is the IASB, an organization dedicated to promoting public interest by fostering long-term economic growth, confidence, and financial stability in the global economy through reliable financial information. In essence, the IFRS supplants Generally Accepted Accounting Principles (GAAP), and, since 2005, the EU and the European Economic Union (EEA) have imposed obligatory requirements for listed companies in both member states and non-member countries (Mager and Meyer-Fackler 2017; Nguyen 2018).

The movement to mandate the adoption of IFRS is considered the most widespread global financial reform in accounting history (Daske et al. 2008). The principle behind these

standards is to improve financial statements' transparency and reliability worldwide and facilitate cross-border investments. Because of this global dimension, it is more difficult and essential to determine the economic consequences of accounting standards in the context of financial regulatory reforms as an increasing number of countries with different levels of development adopt IFRS (Zeff 2012).

Examining these effects has important economic and social implications for European countries, which may impact the domestic and international users of accounting information. Therefore, regulators are interested in knowing whether IFRS adoption may have contributed to reducing the cost of equity capital and, consequently, report an increase in market efficiency and liquidity (Han et al. 2016). Investors are interested in determining whether information asymmetry problems have reduced since IFRS adoption. This indicates decreased information acquisition and verification efforts, allowing for more efficient investment decisions (Diamond and Verrecchia 1991; Ball 2006) and a potential increase in cross-border investment (De Fond et al. 2011).

While previous studies have documented the positive effects of IFRS implementation (i.e., reduction in firms' cost of equity capital), empirical evidence on the role of specific legal disclosure requirements on these financial benefits is lacking. Hellman et al. (2018) argue that non-compliance is significant in both general and specific IFRS disclosures. Therefore, the findings based on IFRS adoption cannot be used to determine the effect of IFRS requirements on the level of disclosure. This creates a gap in the literature that we attempt to fill by explicitly examining the relationship between firm-level IFRS disclosure and its impact on the cost of equity capital. This study sheds light on whether IFRS disclosure requirements benefit users economically and contribute to the disclosure overload debate.

The contributions of this study are two-fold. First, studying the impact of IFRS adoption on the cost of equity capital can help inform policy decisions on financial reporting and accounting standards. Second, the cost of equity capital is an important indicator for companies because it reflects the return investors require to compensate for the risk associated with investing in a particular company. Therefore, understanding the relationship between IFRS and the cost of equity capital can have important implications for both companies and policymakers.

Hence, this study assesses the effect of IFRS on the cost of equity capital for a sample of 337 European firms listed on STOXX 600 Europe in 17 European countries that implemented these standards between 1994 and 2022. To account for cross-sectional dependence among the firms in our sample, we perform CD tests, as suggested by Pesaran (2021). Furthermore, we use the GMM-system technique to examine the relationship between IFRS adoption and the cost of equity capital. The findings from the analysis suggest that there is an inverse relationship between IFRS disclosure requirements and the cost of equity capital. In simpler terms, companies that adhere to higher levels of IFRS disclosure tend to experience lower costs of equity capital.

The remainder of this paper is organized as follows: Section 2 provides an overview of the relevant theoretical and empirical literature and presents the development of our hypotheses. Section 3 details the sample data and methodology used. Section 4 presents the empirical results. Section 5 presents the main conclusions and some policy implications.

## 2. Literature Review and Hypothesis Development

### 2.1. Theoretical Framework

From a theoretical perspective, separation of ownership gives rise to the need for better governance. Smith (1776) highlighted the agency problem by stating that managers should consider other people's funds rather than their own. He argued that managers could not look after the funds as partners were in a partnership. According to Berle and Means (1932), small shareholders cannot be a controller in large corporations with dispersed ownership because of high costs and low returns (Ali et al. 2019).

In cases where accounting enforcement mechanisms are lacking, a company's corporate governance system and financial reporting incentives, commonly referred to as "corporate characteristics", may significantly impact the determination of incentives for disclosures. According to agency theory, there is an agency relationship in which one party (i.e., principal) delegates work to another (i.e., agent) performing that work on behalf of the principal. Thus, there is a separation of ownership and control of the entity, and it may be expensive or difficult for the principal to verify what the agent is doing because of information asymmetry (Eisenhardt 1989; Jensen and Meckling 1976).

The application of corporate governance principles is a monitoring cost that can be used to curb the information asymmetry caused by agency relationships. For instance, Fama and Jensen (1983) claimed that the role of the board of directors can be used as an information system to monitor shareholders' opportunism toward top executives. Further, Eisenhardt (1989) posited that when the board provides quality financial information (through, for instance, compliance with IFRS disclosure requirements), top executives are more likely to behave consistently with shareholders' interests.

According to Damak-Ayadi et al. (2020), the adoption of IFRS for SMEs' standards in various countries can be attributed to two main theories: the neo-institutional theory, as proposed by DiMaggio and Powell (1997), and the economic theory of networks, as proposed by Katz and Shapiro (1985). According to DiMaggio and Powell (1997), companies that internationalize their operations tend to gain increased legitimacy in the eyes of their stakeholders and the broader business community. Déjean and Saboly (2006) further argued that this quest for organizational legitimacy plays a significant role in influencing firms to adopt specific practices or standards, such as IFRS for SMEs. As a result, firms may embrace these standards not only for their inherent benefits but also to align themselves with prevailing norms and gain acceptance in their international business engagements. As highlighted by Meyer and Rowan (1977), organizations facing environmental constraints should actively employ mechanisms of legitimacy. By doing so, these organizations can establish a favorable image and gain acceptance within their societal and business environments. Adopting mechanisms of legitimacy can involve embracing widely recognized standards, like IFRS, to showcase their commitment to transparency, accountability, and responsible financial reporting.

DiMaggio and Powell (1983) argued that legitimacy is achieved through the concept of "institutional isomorphism". They proposed that a country's full adoption of IFRS can be explained by three types of isomorphism. The first is coercive isomorphism, which refers to the institutional pressures on economic actors to adopt IFRS. Mantzari et al. (2017) defined coercive pressures as occurring when external powerful parties, such as the state and other constituents upon which an organization is dependent, force the adoption of an organizational practice or element, usually by using sanctions. On the other hand, Reichborn-Kjennerud et al. (2019) defined coercive pressure as the social pressure to follow existing societal norms. They highlighted that norms may be formal or informal. Formal coercive norms are based on laws and regulations, while informal coercive pressure includes media and public expectations. The impetus behind the adoption of IFRS can be attributed to the regulatory system and influential international financing organizations, such as the World Bank and International Monetary Fund (IMF), as pointed out by Judge et al. (2010).

Another factor influencing the adoption of IFRS is mimetic isomorphism, where organizations imitate the practices of more efficient counterparts when they face uncertainty in their environment and have ambiguous objectives. Meyer and Rowan (1977) proposed that organizations facing uncertain environments can effectively and economically navigate these challenges by adopting a strategy of imitating the behaviors of successful organizations. In simpler terms, when organizations encounter uncertainties or complexities in their operating environment, they can increase their chances of success by emulating the practices and strategies of established and prosperous companies. By imitating successful

organizations, they can draw upon proven methods and approaches, reducing the risks associated with experimentation and trial-and-error.

Meyer and Rowan (1977) suggested that this imitative approach allows organizations to benefit from the experiences and lessons learned by others, enabling them to adapt more efficiently to dynamic market conditions and increasing the likelihood of achieving favorable outcomes in their own endeavors. Mantzari et al. (2017) defined mimetic pressures as occurring “when an organization attempts to imitate a more successful referent organization or improve upon the practice of other organizations”. Boolaky et al. (2020) highlighted that “mimetic isomorphism arises from the replication of practices across nations, whereby there is a tendency to emulate what more successful countries have done to secure benefits and social acceptance”.

Finally, normative isomorphism signifies the influence of universities and other professional organizations on firms, leading them toward homogeneity (Hassan 2008). DiMaggio and Powell (1997) further stressed that normative isomorphism is closely associated with a country’s level of education. Hassan et al. (2014) emphasized that normative pressure resulting from the norms and values of the profession also influences the degree to which a nation will adopt international best practices. Boolaky et al. (2018) suggested that normative isomorphism occurs when individuals are trained under similar educational systems and tend to engage in similar conventional practices; they concluded that a firm that draws from a standard pool of professional staff would be able to improve its systems and practices because their ability to harmonize and enhance accounting quality may be greater.

The economic theory of networks suggests that countries are more inclined to adopt international standards, like IFRS, when they observe their economic partners already using them. According to Ramanna and Sletten (2009), IFRS is perceived as a commodity that countries have the discretion to embrace. The adoption decision is influenced by the network effect, wherein one country’s adoption of IFRS encourages others to follow suit, leading to a network of countries utilizing the same standardized financial reporting framework. The decision to adopt international standards like IFRS is driven by two critical factors: the inherent value of the product and the network effects it creates, as described by Katz and Shapiro (1985).

Ramanna and Sletten (2009) put forward the idea that harmonizing accounting practices serves the purpose of globalizing trading networks. They introduced two key concepts: the “autarky value”, which represents the inherent value of the product (accounting standards developed by the IASB), and the “synchronization value”, which reflects the network value of the product arising from harmonization with other countries already using the same standards. According to the authors, a country should opt for international standards only when the combined benefits of both autarky and synchronization outweigh the advantages of sticking to local accounting standards.

## 2.2. Information Disclosure and Cost of Equity Capital

Whether firms benefit from disclosure is one of the most critical issues in current accounting research. In particular, these benefits may arise from the reduced cost of equity capital brought about by companies’ increased disclosure of accounting information. In recent years, several theoretical studies have focused on the relationship between the cost of equity capital and disclosure.

From a theoretical point of view, it has been argued that disclosure reduces information asymmetry and, consequently, the cost of equity capital for companies by reducing bid/ask spreads (Amihud and Mendelson 1986) or by increasing demand for a company’s shares (Diamond and Verrecchia 1991). Another advantage of improving the quality of information is that it reduces the estimation risk of potential investors regarding the parameters of a stock’s future performance. Indeed, investors are expected to assign greater systematic risk to poorly informed assets rather than highly informed ones (Clarkson et al. 1996).

Although many arguments favor accounting information quality and its positive impact on the cost of equity capital, theoretical discussions remain open. Thus, one of

the most controversial central questions in theoretical literature is whether the effects of information are diversified or not. [Easley and O'Hara \(2004\)](#) proposed a model of rational expectations in which information can influence a company's cost of equity capital, which is compatible with the logic of non-diversification. Indeed, a company can influence its cost of equity capital by acting on the accuracy and quantity of information made available to its investors. Furthermore, the authors believe that this objective can be achieved through a company's choice of accounting standards and disclosure policies.

In their study, [Lambert et al. \(2007\)](#) devised a methodology that establishes a connection between accounting information and the cost of equity capital. Their primary objective was to examine whether the quality of a company's accounting information is mirrored in the cost of its equity capital. Through this approach, the authors effectively demonstrated that the quality of accounting information has a dual impact on a company's cost of equity capital. Firstly, the quality of accounting information directly influences a company's cost of equity capital by shaping market players' perceptions of the distribution of future cash flows. Secondly, the quality of accounting information also has an indirect impact on a company's cost of equity capital through actual decisions made based on that information. Decisions taken by the company, which may alter the distribution of future cash flows, can further affect the cost of equity capital.

In several empirical studies, the relationship between information disclosure and information asymmetry/sharing costs varies according to the type of firm, type of disclosure, and measure of information asymmetry ([Botosan 1997](#); [Leuz and Verrecchia 2000](#); [Botosan and Plumlee 2002](#); [Francis et al. 2008](#)). Furthermore, the effects of mandatory IFRS adoption on equity costs suggest that IFRS adoption can reduce equity costs in countries with strong enforcement and investor protection mechanisms ([Daske et al. 2008](#); [Li 2010](#); [Persakis and Iatridis 2017](#)).

In their research involving a sample of 307 Spanish-listed companies from 1999 to 2009, [Castillo Merino et al. \(2014\)](#) conducted a focused country-level analysis using OLS regression analysis. The dependent variable, the cost of equity capital, was estimated using the proxy proposed by [Easton \(2004\)](#). The authors discovered that Spanish-listed companies experienced a substantial decrease in their cost of equity capital following the compulsory adoption of IFRS in 2005. This reduction in the cost of equity capital remained significant even after accounting for various firm-specific risk factors and market-related variables that could potentially influence the cost of equity. Thus, increased financial disclosure, improved comparability of information, and changes in legal and institutional enforcement appear to have a joint effect on the cost of equity capital, leading to a sharp decrease in expected returns on equity.

[Houqe et al. \(2016\)](#) conducted a study examining the impact of IFRS adoption on the cost of equity capital for listed companies in New Zealand. Their research was based on a sample of 290 firm-year observations spanning two periods: 1998–2002 and 2009–2013. The authors reported a significant negative association between IFRS adoption and the cost of equity capital, suggesting that IFRS is a higher-quality set of accounting standards than previous New Zealand GAAP. Their study provides empirical evidence on the impact of IFRS adoption on the cost of equity capital of New Zealand companies and supports the findings of previous studies on European companies.

In the case of Brazilian firms, [Gatsios et al. \(2016\)](#) assessed the impact of IFRS adoption on the cost of equity capital of 1325 Brazilian public companies over the period 2004–2013 using Difference-In-Difference (DID) analysis, which compares the results of firms that voluntarily adopted IFRS with those that adopted IFRS after the mandatory adoption period. Their results indicate that IFRS adoption did not reduce equity costs in Brazil. Similarly, [Da Silva and Nardi \(2017\)](#) studied the impact of IFRS adoption on Brazilian firms' cost of equity capital using DID and GMM approaches for 2010 and 2011. Their results show that an increase in information contributes to a reduction in asymmetric information and that a more efficient allocation of resources reduces the cost of equity capital. These results support the hypothesis of increased earnings quality after IFRS adoption.

Sanjaya et al. (2017) attempted to analyze and compare the cost of equity capital before and after the adoption of IFRS on the financial instrument of financial accounting standards (PSAK) for banking companies listed on the Indonesian stock exchange for the period 2008–2009 before IFRS adoption and 2013–2014 after IFRS adoption. The results of this study prove that the cost of equity capital was lower after IFRS adoption on financial instruments of financial accounting standards for banking companies listed on the Indonesian stock exchange. Thus, IFRS adoption reduces equity costs, impacts the reduction of non-performing loans, increases the loan-to-deposit ratio, and increases the net interest margin.

For a sample of 1658 firm-years from companies listed on the KSE and KOSDAQ from 2000 to 2013, Kim and Ryu (2018) studied the effect of mandatory IFRS adoption on the cost of equity capital, starting from its mandatory introduction in 2011 using the average implied cost of equity capital values presented by Claus and Thomas (2001), Gebhardt et al. (2001), Easton (2004), and Ohlson and Juettner-Nauroth (2005). Their results show a significantly negative relationship between mandatory IFRS adoption and the cost of equity capital, thus decreasing the cost of equity capital.

Not far away, De Moura et al. (2020) conducted a study to investigate the impact of mandatory IFRS adoption on the cost of equity capital and cost of debt for a group of firms operating in Argentina, Brazil, Chile, Mexico, and Peru. The findings reveal that even after controlling for firm-level reporting incentives, mandatory IFRS adoption reduces equity costs. Additionally, the cost of debt experienced a significant reduction after the IFRS adoption. These results suggest that the enhanced disclosure and comparability facilitated by IFRS standards, compared with previous domestic accounting standards, mitigated the information asymmetry problem and produced positive economic outcomes for firms operating in Latin America.

For their part, Saha and Bose (2021) examined the association between IFRS disclosure requirements and the cost of equity capital for a sample of 157 Australian firms. The authors showed that disclosure requirements negatively affect the cost of equity capital; thus, firms with higher IFRS disclosure levels have a lower cost of equity capital. Furthermore, the study revealed a negative relationship between IFRS disclosure requirements and the costs of debt and equity for the companies under investigation. These findings add valuable insights to the ongoing discussion about the comparative advantages and disadvantages of IFRS disclosure requirements. The implications of these results are significant for standard-setting bodies, regulators, and stakeholders who rely on financial statements for decision-making and analysis.

In a recent study, using a meta-analysis of 56 empirical studies with 1265 effect sizes, Opare et al. (2021) determined the impact of IFRS adoption on financial reporting comparability, market liquidity, cost of equity capital, and cost of debt. Their results show that IFRS adoption significantly improves comparability, increases market liquidity, and reduces the cost of equity capital but has no significant effect on the cost of debt. The results also show that mandatory IFRS adoption has a greater impact than voluntary adoption. However, for the cost of debt, voluntary adoption results in a reduction in the cost of debt but the impact of mandatory adoption on the cost of debt is not significant.

### 2.3. Financial Instruments and Cost of Equity Capital

The risks associated with financial instruments are considered one of the most important aspects tested from the perspective of economic theory, along with the cost of capital. Despite the complexity of financial instruments, they are applied by all companies, including accounts receivable and payable as financial instruments that must be disclosed in every small or large company (Lim and Foo 2017). In addition, the introduction of financial instruments requires the disclosure of detailed information about the risks arising from the company's activities, such as liquidity risk, market risk, and credit risk (Jacobs 2009).

The importance of financial instruments in the implementation of IFRS and their different effects on the quality of financial reporting, investors, and capital markets have caused conflicts between researchers, accountants, and auditors. In addition, the fair value debate continues to be a controversial topic among academics in terms of its actual impact on the business domain, as fair value is at the core of financial instruments in IFRS implementation; thus, IFRS 7 brings the fair value debate to the forefront of disclosure requirements (Palea 2014; Kasyan et al. 2017). Moreover, IFRS 7 addresses the hedging policies used by companies in terms of cash flows, fair value, and foreign investments, as well as the relevant quantitative or qualitative information that investors and lenders consider important in assessing the situation of these companies (Deloitte 2017; Grosu and Chelba 2019).

According to Yamani et al. (2021), IFRS 7 financial instrument disclosures help to reduce information asymmetry. A better disclosure implies that companies adhere to the appropriate application of IFRS standards and meet their requirements. This shows that companies are committed to rules and regulations, thereby improving their level of transparency. Moreover, providing investors with comprehensive financial information on financial instruments enables companies to better understand their terms and conditions. This, in turn, can lead to a reduction in risk estimates and an improvement in capital market liquidity. As a result, investors and shareholders will benefit from greater confidence and closer relationships with companies, potentially leading them to demand a lower cost-of-capital ratio.

Financial intermediaries are generally very positive about IFRS standards when assessing potential borrowers. These standards promote transparency, consistency, and comparability, making it easier to make informed lending and risk assessment decisions, thus fostering a healthier financial ecosystem for both borrowers and lenders.

Balancing the benefits and costs of better-quality disclosure is crucial for companies. Striking the right balance can help businesses build trust with stakeholders, improve decision-making, and foster long-term sustainable growth while mitigating potential risks and resource burdens. Regulatory frameworks and industry standards play a critical role in guiding companies toward responsible and meaningful disclosure practices.

This framework has allowed us to deepen the complexities of disclosure practices and their implications. Taking into account both positive outcomes, such as increased transparency; better risk management and access to capital; and associated costs such as resource allocation, competitive disadvantage, and legal risks, this research can provide a more nuanced analysis of the subject.

#### *2.4. Hypothesis Development*

The relationship between mandatory IFRS disclosures and the cost of equity capital has been neglected, despite its potential significance in the disclosure overload problem debate. Some studies have examined the impact of IFRS disclosure on firms' cost of equity capital and are essential for providing additional information and clarifying firms' accounting policies and calculations. However, there needs to be more research on the association between mandatory IFRS disclosure and the cost of equity capital, particularly in the context of the disclosure overload debate. Disclosure under the various IFRS measurement and recognition requirements should help reduce the cost of equity capital. Thus, based on this reasoning, we propose the following hypothesis:

**H1.** *The level of IFRS disclosure reduces companies' cost of equity capital exposure.*

In other words, the more a company discloses under IFRS, the lower its cost of equity capital. This hypothesis can be tested by the collection of data on a sample of firms and by analyzing the relationship between the cost of equity capital and the level of IFRS disclosure. It is important to note that proving causality between two variables is only sometimes possible and other factors may influence the results.

### 3. Methodology

#### 3.1. Sample and Data

As the mandatory transition to IFRS has concerned listed companies located in the European Union, we followed Ertz et al. (2021) by testing the effect of IFRS on the cost of equity capital by considering 337 firms listed on the STOXX Europe 600 over the period 1994–2022, i.e., a total of 9773 firm-year observations. This stock market index includes the 600 largest market capitalizations in 17 European countries: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. This choice is motivated by the idea that, although each company has been affected differently by the transition to IFRS, these impacts are homogeneous within a single industry. Therefore, we consider seven industries represented in STOXX Europe 600 with different characteristics. Following Lotfi et al. (2022, 2023), the selected industries were automotive, healthcare, food and beverage, and banking.

The companies selected were all listed on STOXX Europe 600 when they published their financial statements under IFRS Standards, mainly in 2004 or 2003. As the impact of IFRS may differ depending on the sector of activity and the environment in which the company operates, it is crucial to consider this in our analysis and diversify the countries where the companies were headquartered at the time of this accounting transition as much as possible. Information on the selected companies by industry sector and head office country is summarized in Table 1.

**Table 1.** Distribution of the final sample by sector of activity.

Number of Sectors	Sector of Activity	Number of Firms	Percentage
1	Consumer goods	35	10.39%
2	Technology	27	8.01%
3	Health	49	14.54%
4	Oil and Gas	22	6.53%
5	Industry	154	45.70%
6	Telecommunications	18	5.34%
7	Consumer Services	32	9.50%
	Total	337	100%

#### 3.2. Cost of Equity Capital Measure

The variable chosen for the statistical analysis is the cost of equity capital, defined as the opportunity cost that evaluates investors’ interest in investing their money in a company rather than elsewhere. It represents the minimum rate of return that must be generated by the company’s investments in order for it to meet the profitability requirements of shareholders and creditors. Therefore, to estimate the cost of equity capital, referring to Houque et al. (2016), we use the modified Price–Earnings–Growth (PEG) ratio model proposed by Easton (2004). Modification of the standard PEG ratio model involves inclusion in the model of a dividend per share forecast one year in advance. Botosan and Plumlee (2005) conclude that estimates of the modified PEG ratio model provide the best measure of the cost of equity capital in a country with strong investor protection because it dominates the other alternatives in that it is consistently and predictably linked to various risk measures such as information risk, leverage risk, residual risk, market risk, and growth. Thus, given strong investor protection, we use the modified PEG ratio model as follows:

$$K_e = \frac{eps_{t+2} - eps_{t+1} + K_e * Div_{t+1}}{P_t} \text{ or } K_e = \frac{eps_{t+2} - eps_{t+1}}{P_t - Div_{t+1}} \tag{1}$$

where  $K_e$  is the cost of equity capital,  $eps_{t+1}$  is the expected earnings per share at the one-year horizon,  $eps_{t+2}$  is the expected earnings per share at the two-year horizon,  $Div_{t+1}$  is the one-year-ahead dividend forecast, and  $P_t$  is the price per share at year-end.



### 3.3. Estimation Technique

To test the effect of IFRS adoption on the cost of equity capital for 337 firms from 17 European countries between 1994 and 2022 chosen from STOXX Europe 600-listed companies, we adopt the following regression equation, which includes a set of company-specific controls for other factors that may affect a company’s cost of equity capital. We use the IFRS variable, which indicates the change in the accounting framework following the mandatory adoption of IFRS in Europe since 2005; it takes 0 before the mandatory adoption of IFRS in 2005 and 1 after the mandatory adoption of IFRS. Concerning Houque et al. (2016), and the GMM-system suggested by Arellano and Bover (1995) as well as Blundell and Bond (1998), the model can be written as follows:

$$Ke_{it} = \beta_0 + \beta_1 Ke_{it-1} + \beta_2 IFRS_{it} + \beta_3 Size_{it} + \beta_4 BMR_{it} + \beta_5 Beta_{it} + \beta_6 FL_{it} + \beta_7 ROE_{it} + \varepsilon_{it} \tag{2}$$

Let  $Ke_{it}$  represent the cost of equity capital for firm “i” in year “t”. Additionally, let IFRS be a dichotomous variable that takes the value of 1 when the financial statements of the firm “i” are prepared in accordance with IFRS in a year “t”, and 0 otherwise. Size is measured by the natural logarithm of the current year’s total assets for a firm “i” in a year “t”. BMR is the ratio of the market value of equity to book value of equity for a firm “i” in a year “t”. Beta is the systematic risk of firm i in year t. FL represents the firm’s financial leverage, which is the ratio of total Debt to Shareholders’ Equity of a firm “i” in a year “t”. ROE is the return on equity, which measures financial performance and is calculated by dividing net income by shareholders’ equity of a firm “i” in a year “t”.  $\varepsilon_{it}$  is an error term assumed to verify the statistical properties of white noise regardless of a firm “i” or a period “t”. We summarize all the variables in Table 2.

**Table 2.** Variable description.

Variables	Definition
Ke	Cost of Equity Capital
IFRS	The dichotomous variable that is equal to 1 when the financial statements are prepared in accordance with IFRS and 0 otherwise
Size	Measured by the natural logarithm of the current year’s total assets for firm i in year t
BMR	The ratio of the market value of equity to the book value of equity for firm i in year t
Beta	The systematic risk of firm i in year t
FL	The ratio of total Debt to Shareholders’ Equity of firm i in year t
ROE	The return on equity, which measures financial performance and is calculated by dividing net income by the shareholders’ equity of firm i in year t

To address potential bias and inaccuracies associated with using difference GMM (Arellano and Bond 1991), Arellano and Bover (1995) as well as Blundell and Bond (1998) propose a system of difference and level regressions. In the difference regression, the instruments are the lagged levels of the explanatory variables, while in the level regression, the instruments are the lagged differences of the explanatory variables. These instruments are considered appropriate under the assumption that while there might be a correlation between the levels of the explanatory variables and the country-specific effect, there is no correlation between these variables in the differences and country-specific effects.

The consistency of the GMM-system estimator relies on two key aspects: the validity of the assumption that the error term is serially uncorrelated and the validity of the instruments. The test of the null hypothesis of no first-order serial correlation should be rejected under the identification assumption that the error is serially uncorrelated, whereas the test of the null hypothesis of no second-order serial correlation should not be rejected. Therefore, to evaluate the model’s performance and instrument validity, we employ two diagnostic tests proposed by Arellano and Bover (1995) and by Blundell and Bond (1998). Additionally, we use the Hansen (1982) tests of over-identifying restrictions; if the null

hypothesis cannot be rejected, it would indicate that the model is correctly specified and the instruments are valid.

#### 4. Empirical Results

##### 4.1. Descriptive Statistics

Before commencing the examination of variables’ stationarity, cointegration relationship, cross-sectional dependence analysis, and model analysis, it is crucial to initiate the process with a descriptive and graphical analysis. This preliminary analysis will serve as the foundation for subsequent estimations and assessments.

According to the information presented in Table 3, the variable “Ke” exhibits the following descriptive statistics: The overall mean of the variable is 0.014, with a low median value of 0.005. The standard deviation is 0.719, and the minimum and maximum values are −37.303 and 37.602, respectively. The distribution of the variable is highly left-skewed, as indicated by the skewness value of −7.179, which is less than 0. Additionally, the distribution is strongly platykurtic, with a kurtosis value of 2079.617, which exceeds 0, signifying heavy tails and extreme outliers. The dataset comprises a total of 9773 observations. It is important to note that the distribution of the variable “Ke” is non-normal for the entire sample and demonstrates no autocorrelation. In addition, the fact that the median is low (0.5%) proves once again that the distribution is asymmetrical and there is a strong asymmetry of information concerning this variable Ke.

**Table 3.** Descriptive statistics of the variables in the sample.

Variables	Ke	IFRS	Size	BMR	Beta	FL	ROE
Observations	9773	9773	9773	9773	9773	9773	9773
Mean	0.014	0.621	15.598	3.231	0.893	0.583	19.436
Standard deviation	0.719	0.485	1.990	10.008	0.973	0.205	76.295
Minimum	−37.303	0	8.301	−548.090	−19.069	0.005	−3043.680
Maximum	37.602	1	21.010	204.570	8.322	2.693	2230.020
Median	0.005	1	15.750	2.380	0.880	0.587	15
Skewness	−7.179	−0.497	−0.393	−25.591	−8.855	1.301	2.374
Kurtosis	2079.617	1.247	2.949	1395.255	160.138	13.500	521.683
Jarque–Bera (JB) test	$1.8 \times 10^9$	-	252.6	$7.9 \times 10^8$	$1.0 \times 10^7$	$4.8 \times 10^4$	$1.1 \times 10^8$
Probability JB	0.000	-	0.000	0.000	0	0	0
Born–Breitung (BB) test	2.300	-	225.330	0.240	15.890	59.500	4.690
Probability BB	0.317	-	0.000	0.889	0.000	0.000	0.096

Notes: BB refers to [Born and Breitung’s \(2016\)](#) serial correlation test. JB refers to [Jarque and Bera’s \(1987\)](#) normality test.

According to the data presented, for the 9773 observations, the variable “IFRS” is described by the following statistics: The overall mean of the variable is 0.621 and the median value is 1. The standard deviation is 0.485, and the minimum and maximum values of the variable are 0 and 1, respectively. The distribution of the variable “IFRS” is highly left-skewed, as evident from the negative skewness value of −0.497, which is less than 0. Moreover, the distribution is leptokurtic, with a kurtosis value of 1.247, which exceeds 0, indicating heavy tails and more extreme values.

After global descriptive statistical interpretation, we first performed a unit root test for the variables of the model. In this step, we first test the null hypothesis of cross-sectional independence between individuals. [De Hoyos and Sarafidis \(2006\)](#) emphasize the need and significance of conducting a cross-sectional dependence test when working with dynamic panel data. In particular, [Sarafidis and Robertson \(2006\)](#) underscore that the presence of cross-sectional dependence in the data is crucial to avoid inconsistencies in all estimation procedures. Hence, in this study, we explore various dependence tests to ensure the reliability of our analysis, as cited in [Pesaran \(2021\)](#). The *p*-values associated with the different CD tests are below 0.05, suggesting that augmentation with current and lagged cross-sectional averages adequately accounts for cross-sectional dependence (see Table 4).

**Table 4.** Cross-section dependency tests.

Tests	Value	Probability	Decision
Friedman (1937)	888.479	0.000	Dependence
Frees (1995, 2004)	6.033	0.000	Dependence
Pesaran (2006)	89.162	0.000	Dependence
Pesaran (2015)	103.813	0.000	Dependence

Second, after performing the cross-dependence tests cited by Pesaran (2021), we examine the unit root tests for the model variables. In this step, we examine the unit root tests by two generations; the first generation is represented by Levin et al. (2002), Im et al. (2003), as well as Hadri (2000), while the second is represented by Pesaran (2003) and Pesaran (2007) unit root tests.

First-generation unit root tests are based on the assumption that the residuals are inter-individually independent. This assumption allows for the straightforward establishment of statistical distributions for tests, often resulting in asymptotic or semi-asymptotic normal distributions. In contrast, second-generation unit root tests typically depart from the independence assumption. These tests adopt a completely different perspective in which correlations between individuals are not considered nuisance parameters. Instead, they propose leveraging these co-movements to define new test statistics.

According to first-generation unit root tests conducted by Levin et al. (2002), Im et al. (2003), and Hadri (2000) presented in Table 5, the variables in the model are either level stationary or first difference stationary for all variables in the model. However, for the second-generation tests of Pesaran (2003) and Pesaran (2007) presented in Table 6, all variables are stationary in the first difference.

**Table 5.** The first generation of unit root tests.

Variables	In Level			In First Difference		
	LLC	IPS	Hadri	LLC	IPS	Hadri
Ke	−54.564 ***	−58.486 ***	15.152 ***	−88.892 ***	−70.382 ***	−18.036 ***
Size	−13.488 ***	6.497 ***	280.411 ***	−36.259 ***	−46.823 ***	9.783 ***
BMR	−6.273 ***	−13.312 ***	3.787 ***	−47.688 ***	−57.280 ***	−18.237 ***
Beta	−12.694 ***	−5.013 ***	184.773 ***	−38.816 ***	−46.982 ***	1.178 ***
FL	−11.498 ***	−10.209 ***	160.231 ***	−47.375 ***	−53.455 ***	−2.446 ***
ROE	−12.678 ***	−25.124 ***	92.294 ***	−47.286 ***	−59.689 ***	−8.883 ***

Note: \*\*\* represent significance at 1%.

We use the unit root test with breaks suggested by Karavias and Tzavalis (2014) to verify the unit root tests mentioned above. The results in Table 7 show that the series is stationary in level or first difference related to certain breaks in 1995, 1997, 2000, and 2021, related to the European Monetary System crisis (1992–1993), Asian Financial crisis (1997–1998), Internet bubble crisis (2001), and COVID-19 crisis (2019–2020), respectively. Therefore, it is necessary to check for the existence of a cointegrating relationship between the series.

Given that the majority of variables exhibit stationarity when analyzed in their first difference, it becomes crucial to investigate whether a cointegrating relationship exists among these variables. Granger (1981) showed that when a series is integrated in order one (they become stationary after the first differencing) but their linear combination is already stationary without differencing, they are said to be cointegrated, which implies the existence of a long-run relationship between the series (Mahmoodi and Mahmoodi 2016). Based on the outcomes presented in Table 8, which include various cointegration tests like those by Kao (1999) and Pedroni (2004), the results indicate that the probability obtained from both tests falls below the 5% significance threshold. As a result, we can infer that there is at least one cointegrating relationship among all the variables included in our model.

**Table 6.** Second-generation unit root tests.

Variables	Ke	Size	BMR	Beta	FL	ROE
<i>Pesaran (2003)</i> unit root test						
Panel A: In level						
Constant	−4.350 ***	−1.821	−1.787	−2.263 ***	−2.067 ***	−2.401 ***
Constant and Trend	−4.458 ***	−2.204	−2.331	−2.295	−2.304	−2.678 ***
Decision	S	NS	NS	NS	NS	S
Panel B: In first difference						
Constant	−5.661 ***	−3.403 ***	−4.103 ***	−3.210 ***	−3.716 ***	−4.356 ***
Constant and Trend	−5.692 ***	−3.568 ***	−4.233 ***	−3.338 ***	−3.847 ***	−4.399 ***
Decision	S	S	S	S	S	S
<i>Pesaran (2007)</i> unit root test						
Panel A: In level						
Constant	−5.427 ***	−1.949	−2.282 ***	−2.266 ***	−2.221 ***	−3.023 ***
Constant and Trend	−5.586 ***	−2.400 ***	−2.868 ***	−2.318 ***	−2.474 ***	−3.362 ***
Decision	S	NS	S	S	S	S
Panel B: In first difference						
Constant	−6.085 ***	−4.795 ***	−5.606 ***	−4.432 ***	−5.092 ***	−5.589 ***
Constant and Trend	−6.265 ***	−4.946 ***	−5.761 ***	−4.543 ***	−5.216 ***	−5.734 ***
Decision	S	S	S	S	S	S

Note: \*\*\* represent significance at 1%.

**Table 7.** Unit root test with break.

Variables	In Level	In First Difference
Ke	$-1.9 \times 10^2$ *** (1995)	$-2.4 \times 10^2$ *** (2021)
Size	−85.779 *** (2021)	$-1.4 \times 10^2$ *** (2021)
BMR	$-1.5 \times 10^2$ *** (2021)	$-2.3 \times 10^2$ *** (2021)
Beta	−25.416 *** (2000)	$-1.5 \times 10^2$ *** (2021)
FL	−23.654 *** (1997)	$-1.6 \times 10^2$ *** (2021)
ROE	−53.352 *** (2021)	$-1.8 \times 10^2$ *** (2021)

Note: \*\*\* represent significance at 1%.

**Table 8.** Cointegration tests.

Tests	t-Statistic	Probability	Decision
<i>Kao (1999)</i>	−60.573	0.000	Cointegration
<i>Pedroni (2004)</i>	−107.764	0.000	Cointegration

4.2. Estimation and Interpretation

After examining the stationarity and cointegration tests, a set of robustness tests were performed. In fact, the results show that our panel is characterized by a serial autocorrelation problem ( $\chi^2(136) = 1712.999$ ,  $p$ -value = 0.000), a heteroscedasticity problem ( $\chi^2(17) = 138.68$ ,  $p$ -value = 0.000), and presents a cross-sectional dependency problem (Table 4). To address these issues effectively, the “Robust” command in Stata was utilized in conjunction with the Generalized Method of Moments (GMM) system approach proposed by [Arellano and Bover \(1995\)](#) and [Blundell and Bond \(1998\)](#).

In addition, we examine diagnostic tests such as the [Arellano and Bond \(1991\)](#) autocorrelation test and the over-identification tests of [Hansen \(1982\)](#) to validate the estimation of this model.

The estimation established in Table 9 shows that the cost of equity capital decreases after IFRS adoption. In fact, the adoption reduces the cost of equity capital by 0.038, which is consistent with the findings of [Prather-Kinsey et al. \(2008\)](#), [Daske et al. \(2008\)](#), [Armstrong et al. \(2010\)](#), [Li \(2010\)](#), [Palea \(2013\)](#), [Castillo Merino et al. \(2014\)](#), [Houqe et al. \(2016\)](#), [Persakis and Iatridis \(2017\)](#), [Utama et al. \(2017\)](#), [Wook-Bin and Yuk \(2018\)](#), and [De Moura](#)

et al. (2020), who found that the IFRS Standards reduce the cost of equity capital. IFRS adoption has been beneficial to EU capital markets because it is associated with greater earnings and equity value relevance, increased information content, and lower cost of equity capital than before IFRS adoption. In addition, it improves the comparability of financial statements, which enhances the ability of users of financial statements to assess business performance. The improvement in disclosure and comparability of financial statements also reduces the cost of equity capital.

Table 9. Two-step GMM-system estimation.

Variables	Coefficient	Corrected Standard-Deviation	t-Statistic	Probability
Ke <sub>it-1</sub>	−0.106	0.004	−28.92	0.000
IFRS <sub>it</sub>	−0.038	0.012	−3.17	0.002
Size <sub>it</sub>	0.014	0.004	3.21	0.001
BMR <sub>it</sub>	0.0001	0.0002	0.52	0.603
Beta <sub>it</sub>	0.006	0.003	1.78	0.077
FL <sub>it</sub>	0.081	0.032	2.51	0.013
ROE <sub>it</sub>	−0.001	0.0001	−2.68	0.008
Constant	−0.226	0.065	−3.46	0.001
AR(1) test		−1.42 (0.155)		
AR(2) test		−0.04 (0.967)		
Hansen test		23.510 (0.133)		

The regression analysis of European firms reveals that among the control variables, size (firm size) has a significant and positive coefficient ( $p$ -value = 0.001 < 1%), indicating that it has a significant effect on the increase in the cost of equity capital. This finding is consistent with the results of Reschiwati et al. (2020) and is explained by trade-off theory. According to this theory, larger firms can use more debt because they have lower bankruptcy risk. The bankruptcy risk for large firms translates into a lower cost of debt, which encourages them to use more debt. Therefore, firm size plays a crucial role in the cost of equity capital.

As expected, systematic risk (beta) had a positive and significant effect at the 10% level ( $p$ -value = 0.077 < 10%). This reveals that, as systemic risk increases, firms' cost of equity capital increases. Our results are consistent with those of Castillo Merino et al. (2014) and Houque et al. (2016). Financial leverage (FL) also has a positive and significant effect at the 5% threshold ( $p$ -value = 0.013 < 5%) on the cost of equity capital in EU countries. This result was confirmed by Castillo Merino et al. (2014) and Persakis and Iatridis (2017).

This discount rate is an important element of corporate financial policy and influences the performance of capital markets because a slight variation in its value significantly affects the stock market value of a firm and its ability to create value. As expected, a firm's beta and leverage significantly and positively affect the cost of equity capital. Sharpe (1964) assumes that the higher the risk of a stock, the higher the return expected by investors. The estimation risk argument also affects leverage because a higher level of leverage increases the estimation risk of potential investors regarding the parameters of a stock's future returns.

The result for ROE shows a negative and significant relationship at the 1% level with the cost of equity capital in the EU countries ( $p$ -value = 0.008 < 1%). This result is confirmed by Ali Shah and Butt (2009), Khan (2016), and Faysal et al. (2021). Return on equity (ROE) (net income after tax/equity) measures a firm's return on equity. It was used as a control variable in the research on the relationship because of its impact on firm risk. Thus, the higher the ROE, the more comfortable investors are and the lower the risk. In theory, ROE is a profitability ratio that measures a company's ability to manage its sources of funds to increase revenues. If the ROE generated is high, it means that management has been able to

manage the existing capital as much as possible so that the profit generated is high, which should attract investors to invest in the company.

The diagnostic tests of the GMM-system method, as displayed in Table 9, indicate that the [Arellano and Bond \(1991\)](#) tests for AR(1) and AR(2) are not statistically significant. In addition, [Hansen's \(1982\)](#) test shows that the instruments are identified. Thus, these two tests for the GMM system estimation confirm the validity of this estimation.

European countries were early adopters of IFRS, especially after the European Union (EU) made it mandatory for listed companies to prepare their consolidated financial statements in accordance with IFRS since 2005. Many non-listed companies also choose to apply IFRS for their financial reporting due to the benefits of consistency, comparability, and global acceptance.

As a result of widespread IFRS adoption in Europe, investors and analysts are more familiar with the IFRS financial statements and reporting standards. This familiarity can lead to greater transparency and understanding of financial information, potentially reducing information asymmetry between companies and investors. Consequently, this can result in a reduction in the perceived risk by investors, leading to a lower cost of equity for European companies.

Non-European countries have also made significant progress in adopting IFRS; however, the extent of its adoption varies. Some countries have fully adopted IFRS for both listed and non-listed companies, while others may have adopted it only partially or for specific industries. In countries where IFRS adoption is limited, investors may face challenges in understanding and analyzing financial statements prepared using local accounting standards, especially if they are unfamiliar with those standards. This could result in increased uncertainty and perceived risk for investors, leading to a higher cost of equity for companies.

## 5. Conclusions and Policy Implications

This study examines the impact of IFRS adoption on the cost of equity capital of 337 firms listed in STOXX Europe 600, spanning 17 European countries, from 1994 to 2022. To estimate the cost of equity capital, the modified price–earnings–growth ratio model was employed, and the GMM-system technique suggested by [Arellano and Bover \(1995\)](#) and [Blundell and Bond \(1998\)](#) was used.

The findings reveal that IFRS adoption is negatively associated with European firms' cost of equity capital. In other words, IFRS adoption leads to a 0.038 reduction in the cost of equity capital. This implies that firms in European countries have benefited from a decrease in the cost of equity capital after IFRS adoption. This result supports the argument that high-quality accounting standards enhance the quality of financial reporting, which could positively affect firms' cost of equity capital, provided that adopting new accounting standards are implemented with a focus on improving a country's enforcement mechanisms. Thus, this result supports the hypothesis above.

After conducting a regression analysis, linking the estimated cost of equity capital of European firms to various control variables concerning accounting information, market influence, and mandatory IFRS adoption, we find compelling evidence regarding the impact of risk parameters (beta) on expected stock returns. Specifically, a firm's beta has a significant and positive effect on its cost of equity capital. An increase in a company's beta leads to a rise in its cost of equity capital, indicating higher perceived risk for investors and, consequently, a demand for increased returns to invest in the firm's stocks. Moreover, the study reveals that firms with higher leverage tend to possess a riskier profile, which leads investors to seek higher returns when investing in their stocks. The evidence consistently supports the idea that leverage not only positively influences the return on equity but also significantly affects the cost of equity capital for firms. This effect is attributed to the increase in the discount rate applied to future cash flows, thereby reducing the value of equity for investors.

After controlling for market beta and leverage, we find that—in contrast to [Daske et al. \(2008\)](#) and similar to the results of [Li \(2010\)](#), [Castillo Merino et al. \(2014\)](#), [Houque et al. \(2016\)](#), and [Persakis and Iatridis \(2017\)](#)—the mandatory adoption of IFRS by European firms in 2005 led to a decrease in the cost of equity capital. Thus, improved financial disclosure quality and enforcement mechanisms have a significant and negative joint effect on the cost of equity capital of European stocks. This finding is relevant, as it suggests that a country-specific analysis with additional data for the post-adoption period is needed to capture and understand the economic consequences of mandatory IFRS adoption at the national level.

Thus, IFRS standards should be encouraged. Two key policy implications must be considered. First, European countries have to invest in Education and Training. Since IFRS adoption requires significant knowledge and expertise, the EU should invest in education and training programs to improve accounting professionals, investors, and other stakeholders' understanding and application of IFRS. Policymakers can prioritize developing high-quality training programs that cover the latest updates and changes in IFRS standards. By doing so, the EU can ensure that accounting professionals have the skills to implement IFRS effectively.

Second, European countries can harmonize their tax laws. In fact, the differences between EU countries' tax laws can create challenges in IFRS implementation. Policymakers can harmonize tax laws to ensure consistency and reduce the compliance burden on businesses. Harmonizing tax laws can also reduce the potential for tax-related distortions in financial reporting. This can increase investor confidence in financial statements and improve the comparability of financial information across the EU.

As in any research, our study has several perspectives. First, our findings rely on estimating the effect of IFRS disclosures in European countries. Future research could extend our study to other regions or countries, such as Asia and Africa. Second, our results show that IFRS adoption may be the only way to affect a firm's cost of equity capital and that there are many other potential factors in the literature that may have a larger impact than IFRS adoption, such as financial instruments and corporate governance. Third, future studies could explore how IFRS adoption affects equity costs in different economic sectors. Finally, further research on the implications of IFRS can be expanded and differentiated based on Europe countries, company dimensions, or business sectors. This approach would allow for a more comprehensive understanding of how IFRS impacts accounting and finance practices across different geographical regions, company sizes, and industry sectors.

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