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Impact of Cost of Capital on European Economic Growth: The Role of IFRS Mandatory Adoption

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Abstract: Since 2005, the International Financial Reporting Standards (IFRS) mandatory adoption in the European Union has played a pivotal role to reduce financing costs which has influenced positively economic growth across member states. Thus, this study examines the effect of Cost of Capital on Economic Growth under IFRS mandatory adoption in 17 European countries between 1994 and 2021 using Pooled Mean Group Autoregressive Distributed Lag (PMG-ARDL) and System Generalized Method of Moments (GMM-system) methods. The findings reveal a positive correlation between the Cost of Capital and Economic Growth under IFRS adoption. Specifically, the model estimates indicate that the Cost of Capital contributes to a 0.58% increase in Economic Growth in the PMG-ARDL framework. Moreover, the GMM-system model underscores the significance of IFRS adoption in reducing the Cost of Capital, leading to a 0.52% increase in Economic Growth. These results provide insights into the benefits of adopting international accounting standards and highlight the importance of institutional and financial factors in shaping the economic impact of adopting accounting standards.

Keywords: Cost of Capital; Economic Growth; European Countries; PMG-ARDL; GMM-system.

JEL classification: C23; M40; O11; O52.

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1. INTRODUCTION

Economies, investors, and lenders depend on the free flow of capital and investment between countries. International Financial Reporting Standards (IFRS) have become a global language used by investors in more than 165 countries when evaluating cross-border investments (Prather-Kinsey *et al.*, 2022). In particular, the European Union (EU) has approved a regulation that, since 2005, listed companies in the European Union, including insurance companies and banks, can prepare their consolidated financial statements by IFRS. For this reason, the International Accounting Standards Board (IASB) introduced these Standards which represent an accounting code that aims to create a single financial reporting platform worldwide (Mohsin *et al.*, 2021).

As described in Van Greuning *et al.* (2011), this regulation heralded the biggest changes in financial reporting in Europe in the last 30 years, and these changes directly affected approximately 7000 companies and indirectly affected various types of consolidated subsidiaries. IFRS is governed by the IASB, an organization whose mission is to serve the public interest by promoting long-term economic growth, confidence, and financial stability in the global economy through reliable financial information. In general, IFRS replaces Generally Accepted Accounting Principles (GAAP). For example, members of the EU and the European Economic Union (EEA) have imposed a mandatory requirement to use IFRS for listed companies in member states and non-member countries since 2005 (Mager and Meyer-Fackler, 2017; Nguyen, 2018).

According to Zeff (2005), accounting standard setting reflects the growing importance of financial accounting standards in different sectors of the economy, which has led to increasing lobbying by special interests for accounting standards with characteristics consistent with desired outcomes. Financial accounting standards affect the economy in several ways, both overall and in the distribution of income, wealth, and risk. In addition, IFRS yields significant benefits for companies and adopting countries in terms of improved transparency, reduced capital costs, improved cross-border investment, improved comparability of financial reports, and increased scrutiny by foreign analysts (IASB, 2014; De George *et al.*, 2016).

The adoption of IFRS provides quality financial information, thereby encouraging FDI (Gordon *et al.*, 2012). The information provided when using IFRS is clear, which reduces business risk. In addition, the success of countries in integrating international trade developments has made free trade an important condition for promoting their growth and development. According to Cooke and Wallace (1990), the more open an economy is to the outside world, the more it will be exposed to international pressures. These pressures reflect complex business volumes but provide a skilled workforce and workers. In addition, they represent a comparative advantage in wage costs. These advantages are likely to attract investors and thus expand their economic activities. Thus, there are significant benefits to adopting accounting standards to facilitate international transactions (Kolsi and Zehri, 2013).

In the European case, Oppong and Aga (2019) examine the impact of IFRS adoption on economic growth using the GMM method for 28 European economies over a period from 2005 to 2014. The results of the model reveal that IFRS adoption has a positive and significant impact on economic growth. Furthermore, full adoption of IFRS is significantly associated with economic growth in both developed and developing countries, while partial adoption is only significant for economic growth in developing countries. Therefore, IFRS adoption is

not the only factor that may affect the rate of economic growth, but developing countries could benefit fully from IFRS adoption if they consider that geographical, macroeconomic, and political factors influence economic growth, as these factors appear to be important in explaining economic growth in the EU.

The effects of mandatory IFRS adoption in the European Union on economic growth is a very interesting and important topic for those interested in financial reporting. The voluntary adoption of IFRS in the European Union (EU) during the 1990s was a significant step toward harmonizing accounting practices across member countries which has been mandated since 2005 and their impact on the cost of equity of firms and economic growth has been significant (Bengtsson, 2022). Specifically, IFRS has played a crucial role in lowering the cost of capital and enhancing the financial ecosystem. As a result, cross-border investment has been facilitated, and the allocation of capital optimized, contributing to overall economic growth. This underscores the critical importance of IFRS as a key driver of financial stability and prosperity within the European Union.

Given the critical importance of financial reporting to economic growth, this study provides valuable insights into the potential benefits of adopting IFRS Standards. As highlighted by Ball (2006) and Barth *et al.* (2012) have extensively explored the positive effects of IFRS on financial reporting and capital markets which has positive effects on economic growth (Ben Othman and Kossentini, 2015; Oppong and Aga, 2019; Banker *et al.*, 2021; Owusu *et al.*, 2022). However, there remains a noticeable gap in understanding the nuanced relationship between the cost of capital and economic growth specifically within the EU context post-IFRS adoption.

While prior studies acknowledge the general benefits of IFRS, a focused examination of how variations in the cost of capital, influenced by IFRS, directly contribute to or hinder economic growth in the EU is notably underexplored. Addressing this gap is crucial for policymakers, investors, and businesses as it provides insights into the mechanisms through which financial reporting standards impact the broader economic landscape, offering valuable guidance for decision-making and policy formulation in the European Union.

Thus, the contribution of this study lies in its ability to provide concrete proof of the potential benefits of the mandatory adoption of IFRS and its considerable impact on the relationship between Cost of capital and economic growth for 17 European Countries adopted these Standards between 1994 and 2021 using two econometric methods which are Pooled Mean Group Auto-Regressive Distributed Lag (PMG-ARDL) and the System Generalized Methods of Moments (GMM-system). In this context, this research aims to answer the following research question: Does the cost of capital have a favorable effect on economic growth in EU countries under the mandatory adoption of International Financial Accounting Standards (IFRS)?

Additionally, many prior investigations have predominantly relied on singular methodologies, limiting the depth of their analyses. Thus, by incorporating both methodologies concurrently, this research seeks to provide a more comprehensive and robust assessment of the relationship between the cost of capital and economic growth. Moreover, unlike previous studies that may have employed broader or less relevant timeframes, this research takes a focused approach, analyzing the period between 1994 and 2021. This allows us to directly observe and analyze the dynamic interplay between changes in accounting standards and their real-world economic consequences, specifically on the cost of capital and growth.

The remainder of this paper is organized as follows. Section 2 provides a comprehensive overview of the theoretical and empirical framework underlying the research topic by

presenting the existing literature on the relationship between mandatory IFRS adoption and economic growth, exploring the main theories, concepts, and ideas that have been advanced by researchers and experts in the field, as well as presenting the hypothesis development. Section 3 describes the sample selection, data, and empirical specifications. Section 4 presents the empirical estimations of this study. Finally, Section 5 presents some conclusions of the findings and policy implications.

2. LITERATURE REVIEW

IFRS is the abbreviation for "International Financial Reporting Standards" which are accounting standards developed by the International Accounting Standards Board (IASB). They are used as a common financial reporting language by companies and organizations around the world to ensure transparency, comparability, and consistency of financial reporting. These standards guide various aspects of financial reporting, including financial statement presentation, recognition and measurement of assets, liabilities, and equity, and disclosure requirements. IFRS also guides in specialized areas such as revenue recognition, leases, and financial instruments and is intended to ensure that financial information is accurate, reliable, and relevant to the needs of investors, creditors, and other stakeholders.

Moreover, IFRS promotes transparency and consistency in financial reporting, making it easier for investors to compare financial information between countries. This can increase cross-border investment, and therefore economic growth. In addition, by providing standardized financial information, IFRS can increase the availability of capital for companies, particularly those in emerging markets, leading to increased investment, growth, and job creation. In addition, it encourages companies to present their financial information accurately and transparently, allowing investors and stakeholders to make informed decisions about resource allocation. This can lead to more efficient use of resources, better productivity, and increased economic growth.

2.1 Theoretical framework

The macroeconomic justification for the widespread adoption of IFRS is underpinned by two key theories: the economic theory of networks by Katz and Shapiro (1985) and the neo-institutional theory elucidated by DiMaggio and Powell (1991).

In the economic theory of networks, IFRS implementation creates a global financial reporting network, promoting seamless communication and collaboration among diverse economic entities. This interconnectedness enhances market efficiency, reduces information asymmetry, and attracts international investment, contributing to overall economic growth.

Conversely, isomorphism posits that countries adopting IFRS align themselves with global standards, gaining legitimacy and signaling a commitment to transparency and best practices. This alignment attracts foreign investment and harmonizes financial reporting practices, fostering economic stability and growth.

From the economic theory of networks perspective, countries are more likely to adopt IFRS if their trade partners or countries within their geographical region have already embraced IFRS. This theory views IFRS as a product, assessing its intrinsic value and the value derived from its network. If a country shares a close economic relationship with others

that have adopted IFRS, implementing IFRS reduces domestic bias for foreign investors and facilitates multinational operations (Ramanna and Sletten, 2009).

The "autarky value of IFRS" represents its intrinsic value, considering economic and political benefits. Economic net value refers to more efficient resource allocation, while the political value represents control over the standard-setting process. IFRS standards are considered valuable for a developing country if the autarky value and the synchronization value of IFRS surpass the value of local GAAP.

For the institutional theory, they explain the more and more homogeneous organizational behavior and structure by the concept of isomorphism. According to DiMaggio and Powell (1983); DiMaggio and Powell (1991), three types of isomorphism can be used to explain the adoption of IFRS in one country. The first type is Coercive isomorphism which involves institutions forcing economic actors to align with IFRS, such as the International Monetary Fund (IMF) requiring financial reforms in exchange for aid. The second type is mimetic isomorphism encompasses the imitation of nations perceived as more legitimate and successful, potentially influenced by professional accounting organizations. The third type is the normative isomorphism which is linked to a country's education level, with higher education attainment affecting accounting practices and the shift toward IFRS (Hassan, 2008).

2.2 Empirical framework

Several studies show that the adoption of IFRS can increase investment, improve access to capital markets, improve the quality of financial reporting, and promote economic growth. Several studies examined the effect of IFRS on economic growth. Larson (1993) used a similar approach and carried out a cross-sectional study with data from 35 African countries to assess the differences in growth patterns between countries that adopted IFRS to suit their local environment, countries that adopted the standards without any adaptation, and countries that did not adopt IRFS. The study reveals that compared to complete adopters and non-adopters, countries that adopt IFRS to suit their local environment experience substantially higher economic growth.

Larson and Kenny (1995) conducted an exploratory study that empirically examined the relationships between the adoption of International Accounting Standards (IAS), the development of stock markets, and economic growth in developing countries with stock markets for 27 developing countries between 1985 and 1989, using a transnational sociological research design and partial least squares. The results indicate that there is no major association between the development of stock markets in developing countries and economic growth due to the adoption of IAS standards.

Leuz and Verrecchia (2000) conducted a study on a sample of German companies that adopted either IAS or US-GAAP Accounting Standards in their consolidated financial statements. Their results showed that companies that are committed to increasing their disclosure levels receive economic benefits. Firstly, an international communication strategy is associated with a reduction in bid-ask spreads and an increase in stock turnover, while controlling for various firm characteristics such as performance, firm size, foreign listings, and selection bias. Secondly, regarding stock price volatility, the authors demonstrated a negative association or reduction around the switch to international accounting, and there are minor differences between companies that follow US-GAAP and those that follow IAS.

Zeghal and Mhedhbi (2006) conducted a study focused on the determinants of the adoption of IAS/IFRS standards by developing countries. Their study was based on a sample of 32 developing countries that have adopted IAS standards and 32 other countries that have not. They concluded that developing countries with developed capital markets, advanced education levels, and high economic growth are more likely to adopt IFRS standards.

In another study, Akisik (2013) examined the relationship between accounting regulation, financial development, and economic growth in 51 developed and emerging market economies over the period 1997-2009 using the Generalized Method of Moments estimation techniques. This study provides evidence that accounting regulation has a significant effect on economic growth, even after controlling for several macroeconomic and socio-economic variables.

Using a sample of 50 emerging economies over a period from 2001 to 2007, Ben Othman and Kossentini (2015) found a positive association between the degree of adoption of IFRS standards and the development of the stock market. Given that it has been proven that the development of the stock market promotes economic growth in developing economies (Adjasi and Biekpe, 2006; Cooray, 2010), the adoption of IFRS standards could enhance the economic growth of a country.

In a study spanning a decade from 2005 to 2015, Özcan (2016) investigates the impact of IFRS adoption on the economic growth of 41 countries that embraced IFRS and 29 countries that did not adopt IFRS standards. Through the application of a panel data model, the regression results demonstrate a significant increase in the economic growth of countries following the adoption of IFRS and while IFRS adoption emerges as a contributing factor, other elements such as education policies, human capital, geographical factors, and political structure also influence economic development rates.

Oppong and Aga (2019) studied the influence of IFRS adoption on economic growth across 28 European economies from 2005 to 2014, using the GMM method. This modeling reveals a positive impact of IFRS adoption on economic growth. The study also shows that full adoption of IFRS is associated with economic growth in both developed and developing countries, while partial adoption is only significant for economic growth in developing countries. This study suggests that IFRS adoption may not be the only factor impacting economic growth, as other factors such as geographic, macroeconomic, and political conditions may also play a key role in explaining economic growth in the EU. Therefore, developing countries could benefit from adopting IFRS by taking into account these factors that affect economic growth.

Akisik *et al.* (2020) examine the effect of IFRS adoption on economic growth in 41 African countries over the period 1997 and 2017 and found that the IFRS adoption and economic growth is statistically insignificant but its interaction with FDI has a significant and positive effect on economic growth, suggesting that the adoption of IFRS may not be beneficial for economic growth and IFRS appears to enhance the positive impact of FDI on economic growth.

In a recent study, Banker *et al.* (2021) examine whether productivity improves after mandatory IFRS adoption for 141 countries between 1996 and 2013 using mandatory IFRS as a shock to the accounting regime to examine changes in country-level productivity. The authors find that countries that adopt mandatory IFRS experience significant increases in Total Factor Productivity (TFP) and labor productivity and that post-adoption productivity improvements are larger for countries without convergence to IFRS. In addition, TFP

increases more for countries that experience a greater increase in industry comparability. In addition, the new IFRS accounting regime increases economic productivity by improving information environments and facilitating internal business decisions.

More recently, Owusu *et al.* (2022) examine whether the adoption of IFRS Standards affects economic growth in developing economies, and investigate the role of institutional quality at the country level in this relationship using panel data spanning three non-overlapping years between 1996 and 2013 for 78 developing countries, and employing the two-step Generalized Method of Moments (GMM) method. Their results showed that countries that adopt IFRS experience better economic growth than those that do not. Furthermore, good institutions can moderate the link between IFRS and economic growth.

2.3 Hypothesis development

The adoption of IFRS does not directly affect the cost of equity or economic growth. However, the adoption of IFRS can indirectly impact both of these factors. IFRS can affect the cost of equity by improving the transparency and comparability of financial statements, which can reduce the perceived risk of investing in a company. As a result, investors may require a lower return on their investment, reducing the cost of equity for the company. Moreover, IFRS can indirectly impact economic growth by improving the quality of financial reporting, which can enhance the ability of investors and creditors to make informed decisions about allocating capital. This, in turn, can increase the availability of capital for investment and stimulate economic growth. Indeed, this research can be further elaborated into this fundamental hypothesis (**H1**) which is that the cost of capital has a positive impact on economic growth in European countries under IFRS adoption.

3. RESEARCH DESIGN

3.1 Sample and data

The widespread adoption of the International Financial Reporting Standards (IFRS) has generated intense research interest within the last two decades. As Leuz and Wysocki (2008) point out, both firm-level and macroeconomic evidence are important in evaluating the economic consequences of accounting standards or reporting regulations. Thus, we provide some evidence on the macro front by investigating the link between IFRS adoption and the economic growth of countries.

This study assesses the effect of IFRS adoption on economic growth, through the variable cost of capital. Therefore, to estimate the effect of IFRS adaptation in equity on economic growth in European countries and concerning Oppong and Aga (2019), we will consider the following model:

$$GDPG_{it} = \beta_0 + \beta_1 Activity_{it} + \beta_2 GFCF_{it} + \beta_3 INFL_{it} + \beta_4 Trade_{it} + \beta_5 EXR_{it} + \beta_6 Mean\_Ke_{it} + \beta_7 IFRS_{it} + \varepsilon_{it} \quad (1)$$

where

- "*GDPG*" is the GDP growth rate in annual percentage, this indicator is expressed in annual percentage terms and represents an important economic indicator that measures the rate at which a country's economic output is expanding or contracting over a year. It represents

the vital instrument of the economic cycle and progression in countries (Acquah and Ibrahim, 2020; Song *et al.*, 2020).

- "*Activity*" is the ratio of the working population to the working age population (15 years and older), the activity rate serves as a valuable tool for analyzing the level of economic activity within a given population and plays a role in understanding the labor market dynamics on a national or global scale. Human capital is regarded as a measure of the ability and skills of a labor force and it is evaluated by the formal education or the job learning accumulated experience that plays a relevant role in enabling innovation and R&D activities.

- "*GFCF*" (% of GDP) is the ratio of gross fixed capital formation to GDP, this indicator measures the proportion of a country's total economic output used for investment in fixed capital assets and provides insights into the level of investment relative to the economic output. Investment is the heart of economic growth and plays a vital role in its economic progression. Psycharis *et al.* (2020) and Alfredsson and Malmaeus (2019) prove that public capital investment enhances industrial productivity, boosts GDP growth, and way forward to sustainability development.

- "*INFL*" is the Inflation rate in percentage of the consumer price index, this indicator reflects the rate at which the general price level of goods and services is rising, leading to a decrease in the purchasing power of a currency. In a neo-classical growth model, Haslag (1997) generalized the relationship between inflation and growth in the long run by introducing money and showed that there would be negatively related if money was a complement to capital, positively related if money was a substitute to capital, and independent if money was only a medium of exchange.

- "*Trade*" (% of GDP) is the ratio of the sum of exports and imports divided by GDP, this indicator measures the importance of international trade to the economic output of a country and reflects the degree to which a nation is engaged in global trade activities and the impact of international commerce on its economic performance. International trade is a necessary way for a country to cope with economic globalization, and it has long been debated whether the degree of trade openness is beneficial to the economic development of all countries in the world (Kirikkaleli and Oyebanji, 2022). Trade openness has a positive effect on economic growth (Manwa *et al.*, 2019; Ehigiamusoe and Babalola, 2021; Odebode and Oladipo, 2021; Rehman *et al.*, 2021). Carrasco and Tovar-García (2021) investigated the trade-economic growth relationship in developing countries, using a dynamic panel data model, and found that trade-induced growth in developing countries benefits from imports of high-tech and capital goods.

- "*EXR*" is the exchange rate of a currency against the domestic currency, in which has profound implications for the economy, influencing various aspects of international trade, investment, and overall economic health. There is a relatively large body of literature suggesting a correlation between the real exchange rate and GDP growth. As long as productivity is higher in the traded goods sector, countries have an incentive to maintain the relative price of traded goods high enough to make it attractive to shift resources into their production (Habib *et al.*, 2017).

- "*Mean_Ke*" is the aggregate cost of capital by country which represents the overall cost a company or entities within an economy incur to finance their operations and investments and reflects the return required by investors for providing funds to these entities. Mean_Ke plays a crucial role in economic growth by influencing investment decisions. A lower aggregate cost of capital may encourage businesses to invest in projects and expand

operations, fostering economic growth. In a recent study, Ghouma *et al.* (2023) found that IFRS adoption reduces in cost of equity capital which supports the argument that high-quality accounting standards enhance the quality of financial reporting and positively affect firms' cost of equity capital.

- "*IFRS*" is a dichotomous variable equal to 1 when the financial statements are prepared by IFRS and 0 otherwise, the year of adoption of IFRS in Europe thus begins with 1 between 2005 and 2021 and 0 between 1994 and 2004 (Gordon *et al.*, 2012; Ben Othman and Kossentini, 2015; Oppong and Aga, 2019; Owusu *et al.*, 2022).

All the variables were collected from World Development Indicators (WDI) and DataStream and our sample is presented by 17 European countries, which are: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, Norway, Netherlands, Poland, Portugal, United Kingdom, Spain, Sweden, and Switzerland, between 1994 and 2021 (i.e. T=28). The parameters of the model measure the sensitivity of the variables to economic growth. We summarize all these variables in Table no. 1.

Table no. 1 – Variables definitions

Variables	Definition	Source
GDPG	Gross Domestic Product (Annual %)	WDI
Activity	The ratio of the working population to the working-age population (15 years and older)	WDI
GFCF	Gross Fixed Capital Formation (% of GDP)	WDI
INFL	Inflation rate (% of Consumer Price Index)	WDI
Trade	The sum of exports and imports (% of GDP)	WDI
EXR	The exchange rate of a currency against the domestic currency	WDI
Mean_Ke	The aggregate cost of capital by country	DataStream
IFRS	The dichotomous variable is equal to 1 when the financial statements are prepared by IFRS and 0 otherwise	DataStream

Notes: WDI refers to World Development Indicators DataBank.

3.2 Estimation techniques

We start by presenting the methodology of the Pooled Mean Group Autoregressive Distributed Lag (PMG-ARDL) method, this technique was proposed by Pesaran *et al.* (1999) and Pesaran *et al.* (2001) to overcome the limitations of the methods of Engle and Granger (1987) and Johansen (1991).

An advantage of the PMG-ARDL model is that the short-term dynamic specifications can vary across cross sections, while the long-term coefficients must be the same. Therefore, the PMG-ARDL model is used to study the cross-sectional heterogeneous dynamic problem and evaluate the short- and long-term relationship between the variables. In addition, the statistical advantages of this method are higher efficiency, low collinearity, and higher degree of freedom parameters (Lee, 1995). Furthermore, this estimator is made under the assumption of cointegration of all variables, which must be [I(0)], [I(1)], or a mixture of [I(0)] and [I(1)].

The reason for using PMG-ARDL is that it has a relatively small sample size and is therefore less sensitive to the presence of outliers (Pesaran *et al.*, 1999). In addition, the serial autocorrelation problem can be simultaneously corrected, and this rather lagged model has the advantage of reducing the endogeneity problem (Pesaran *et al.*, 1999), which has been a concern in the recent literature on economic growth and its application. Therefore, we obtain

unbiased estimates of the short-term model (Harris and Sollis, 2003). The equation of the ARDL model will be the following:

$$\begin{aligned} GDPG_{it} = {} & \delta_0 + \delta_1 GDPG_{it-1} + \delta_2 Activity_{it-1} + \delta_3 GFCF_{it-1} + \delta_4 INFL_{it-1} \\ & + \delta_5 Trade_{it-1} + \delta_6 EXR_{it-1} + \delta_7 Mean\_Ke_{it-1} \\ & + \sum_{j=1}^{p} \alpha_{1j} \Delta GDPG_{it-j} + \sum_{j=0}^{q} \alpha_{2j} \Delta Activity_{it-j} \sum_{j=0}^{q} \alpha_{3j} \Delta GFCF_{it-j} \\ & + \sum_{j=0}^{q} \alpha_{4j} \Delta INFL_{it-j} + \sum_{j=0}^{q} \alpha_{5j} \Delta Trade_{it-j} + \sum_{j=0}^{q} \alpha_{6j} \Delta EXR_{it-j} \\ & + \sum_{i=0}^{q} \alpha_{7j} \Delta Mean\_Ke_{it-j} + u_{it} \end{aligned} \quad (2)$$

Alternatively, a dynamic error correction model (ECM) can be drawn, whose error correction term ρ_1 must be negative and significant to indicate the speed of adjustment, i.e., the time required for the variables to return to long-term equilibrium. Thus, the ECM model can be represented by the following equation:

$$\begin{aligned} \Delta GDPG_{it} = {} & \rho_0 + \rho_1 \hat{\varepsilon}_{it-1} + \sum_{j=1}^{p} \alpha_{1j} \Delta GDPG_{it-j} + \sum_{j=0}^{q} \alpha_{2j} \Delta Activity_{it-j} \\ & + \sum_{j=0}^{q} \alpha_{3j} \Delta GFCF_{it-j} + \sum_{j=0}^{q} \alpha_{4j} \Delta INFL_{it-j} + \sum_{j=0}^{q} \alpha_{5j} \Delta Trade_{it-j} \\ & + \sum_{j=0}^{q} \alpha_{6j} \Delta EXR_{it-j} + \sum_{i=0}^{q} \alpha_{7j} \Delta Mean\_Ke_{it-j} + \mu_{it} \end{aligned} \quad (3)$$

where $\hat{\varepsilon}_{it-1}$ is the estimated residual error of the above Eq. 1.

To verify the results presented by ARDL, we proceed to use the System Generalized Method of Moments (GMM-system) method. This technique allows us to verify the robustness of results by checking if the estimated parameters are consistent across different models and also allows us to assess the sensitivity of their results to different assumptions. Arellano and Bover (1995) and Blundell and Bond (1998) develop a system of difference and level regressions. The instruments of difference regression are the lagged levels of the explanatory variables and the instruments of level regression are the lagged differences of the explanatory variables. These are considered appropriate instruments under the assumption that while there may 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 the country-specific effect.

Moreover, this technique is more efficient with an additional assumption that the first differences of instruments are uncorrelated with the fixed effects, which in turn allows the inclusion of more instruments (Roodman, 2009) and yields efficient estimates in cases where the series are close to being random walks (Blundell and Bond, 1998). The equation of the GMM-system can be written as follows:

$$\begin{aligned} GDPG_{it} = {} & \beta_0 + \beta_1 GDPG_{it-1} + \beta_2 Acticity_{it} + \beta_3 GFCF_{it} + \beta_4 INFL_{it} + \beta_5 Trade_{it} \\ & + \beta_6 EXR_{it} + \beta_7 Mean\_Ke_{it} + \beta_8 IFRS_{it} + \varepsilon_{it} \end{aligned} \quad (4)$$

In addition, to ensure the GMM-system estimation's consistency of Eq. 1, we employed two primary diagnostics. Firstly, we used the Arellano and Bond (1991) test to confirm that

the first differenced error term is without first- and second-order serial correlation. The null hypothesis of the p-value reported by AR(2) is that the first difference residuals have no serial correlation in the second-order. Secondly, we applied the Hansen (1982) test to identify constraints that report p-values for null assumptions and make sure that the error term should not be correlated with instruments.

4. RESULTS

4.1 Variables analysis

Before starting the analysis of the analysis of cross-section dependence, the stationarity of variables, the cointegration relationship between, and the analysis of the models, it is essential to start with the descriptive analysis taken into account for this estimation. Thus, we begin by analyzing statistically the key variables in this study.

According to Table no. 2, for the 476 observations, the variable "GDPG" is characterized by an overall mean of 2.236, a median of 2.261, and a standard deviation of 2.988. Furthermore, the minimum and maximum of this variable are equal to -10.823 and 25.176, respectively. Moreover, the distribution is completely skewed to the right (Skewness=0.299>0), and strongly platykurtic (Kurtosis=12.568> 0). Moreover, this distribution is non-normal for the whole sample and is no longer auto-correlated. Furthermore, the variable "Mean_Ke" is characterized by an overall mean of 0.014, a median of 0.008, and a standard deviation of 0.194. In addition, the minimum and maximum of this variable are equal to -3.148 and 1.317, respectively. Moreover, the distribution is completely skewed to the left (Skewness= -7.971>0), and strongly platykurtic (Kurtosis=162.014> 0).

Table no. 2 – Descriptive statistics of variables

Variables	GDPG	Activity	GFCF	INFL	Trade	EXR	Mean_Ke	IFRS
Observations	476	476	476	476	476	476	476	476
Mean	2.236	60.086	21.756	1.988	100.014	23.431	0.014	0.607
Standard deviation	2.988	5.862	3.439	2.517	61.861	168.806	0.194	0.489
Minimum	-10.823	47.270	14.752	-4.478	40.455	0.500	-3.148	0
Maximum	25.176	74.110	53.591	32.991	388.848	1736.207	1.317	1
Median	2.261	60.175	21.599	1.812	79.441	0.903	0.008	1
Skewness	0.299	0.078	2.217	7.419	2.299	9.393	-7.971	-0.439
Kurtosis	12.568	2.826	19.311	80.073	8.803	90.727	162.014	1.193
Jarque & Bera (JB) test	1823	1.085	5667	1.2e+05	1087	1.6e+05	-	-
Probability (JB)	0.000	0.581	0.000	0.000	0.000	0.000	-	-
Born & Breitung (BB) test	3.04	14.43	7.33	13.79	11.53	2.02	-	-
Probability BB	0.218	0.001	0.026	0.001	0.003	0.365	-	-

Notes: JB refers to Jarque and Bera (1987) normality test. BB refers to Born and Breitung (2016) *serial correlation test.*

4.2 Cross-Sectional Dependence

The next step, after the statistical description of variables, is the application of the dependence test as this test represents an important step in the application of panel models. The dependence test is performed to test the hypothesis of cross-sectional independence and to determine the appropriate panel unit root test to adopt. De Hoyos and Sarafidis (2006) highlight the need and importance of testing for cross-sectional dependence in dynamic panel

data. Specifically, Sarafidis and Robertson (2006) indicate that the absence of cross-sectional independence in the data can lead to inconsistency in all estimation procedures.

In more detail, cross-sectional dependence should be considered when analyzing panel data, as it can impact the validity of statistical tests and lead to inaccurate findings. Pesaran (2007) underscores the importance of accounting for this dependence, especially in unit root tests and cointegration analysis. The assumption of observational independence may be violated by cross-sectional dependence, and maintaining this assumption is crucial for reliable statistical inference. Neglecting cross-sectional dependence may result in a misleading and inconsistent interpretation of the long-term relationships between variables. Thus, to ensure the accuracy and reliability of cointegration tests, it is imperative to account for cross-sectional dependence (Banerjee *et al.*, 2004).

Therefore, the Cross-sectional Dependence (CD) test developed by Pesaran (2004) is performed. In this vein, De Hoyos and Sarafidis (2006) argue that in dynamic panels, the validity of Pesaran (2021) tests remains proven under fixed/random effect estimation, and it is therefore considered the preferred choice for cross-sectional independence analysis. To this end, we will examine different tests of dependence such as the Friedman (1937), Frees (1995, 2004), and Pesaran (2004); Pesaran *et al.* (2008) tests. These tests examine the existence of a dependent relationship between individuals. According to Table no. 3, all the tests affirm the existence of a dependency between individuals because all the probabilities of these tests are lower than 1%.

Table no. 3 – Cross-Section Dependence test results

Tests	Value	Probability	Decision
Friedman (1937)	269.511	0.000	Dependence
Frees (1995, 2004)	5.307	0.000	Dependence
Pesaran (2004)	39.964	0.000	Dependence
Pesaran *et al.* (2008)	37.078	0.000	Dependence

4.3 Unit root tests

In the presence of cross-sectional dependence (CD), the use of first-generation unit root tests may lead to inaccurate results. Therefore, we have opted for unit root tests that can accurately identify the stationarity properties of the variables. For this reason, we have used second-generation stationarity tests for the determination of the stationarity attribute of the variables under study. Thus, both CADF and CIPS unit root tests of Pesaran (2003); Pesaran (2007) respectively were used to determine the order of integration of these variables (Akadiri *et al.*, 2020; Onifade *et al.*, 2023).

These tests, presented in Table no. 4, have been developed to asymptotically eliminate the problem of dependence between series and have the property of being robust. Thus, to control the order of integration, second-generation panel root tests have been performed. The results of these unit root tests show that the variables GDPG, INFL, EXR, and Mean_Ke are stationary in level while the variables Activity, GFCF, and Trade and stationary in first difference. We perform also another unit root test with a break to verify these results.

Table no. 4 – Second-generation unit root test

Variables	GDPG	Activity	GFCF	INFL	Trade	EXR	Mean_Ke
Pesaran (2003)							
Panel A: In level							
With Constant	-2.780***	-2.026	-2.005	-2.691***	-1.862	-3.880***	-4.086***
With Trend	-2.787***	-2.390	-2.952***	-2.911***	-2.105	-3.822***	-4.125***
Decision	S	NS	NS	S	NS	S	S
Panel B: In first difference							
With Constant	-4.386***	-3.274***	-3.754***	-4.319***	-3.665***	-4.838***	-5.331***
With Trend	-4.409***	-3.407***	-3.892***	-4.589***	-3.881***	-5.200***	-5.486***
Decision	S	S	S	S	S	S	S
Pesaran (2007)							
Panel A: In level							
With Constant	-3.815***	-2.094	-2.077	-3.227***	-1.699	-3.526***	-4.832***
With Trend	-3.850***	-2.491	-3.106***	-3.312***	-1.946	-3.355***	-4.736***
Decision	S	NS	NS	S	NS	S	S
Panel B: In first difference							
With Constant	-5.945***	-4.449***	-4.100***	-5.356***	-4.362***	-5.151***	-6.005***
With Trend	-6.004***	-4.613***	-4.561***	-5.602***	-4.279***	-5.057***	-6.150***
Decision	S	S	S	S	S	S	S

Notes: *, **, *** represent significance at 10%, 5%, 1%, respectively. NS: non-stationary. S: Stationary.

The results of Karavias and Tzavalis (2014) unit root test with break presented in Table no. 5 show that the series are stationary in level or first difference with the presence of some breaks in the years 1995, 1997, 1999, 2015, and 2020. As most of the variables are stationary in level or first difference, it is important to study the existence of a cointegration relation between them.

Table no. 5 – Unit root test with a break

Variables	In level	In first difference
GDPG	-28.559***(1995)	-39.166***(1995)
Activity	-4.282***(1995)	-28.710***(1995)
GFCF	-11.425***(2015)	-42.923***(2020)
INFL	-14.765***(1997)	-30.674***(2020)
Trade	-15.338***(2020)	-30.793***(2020)
EXR	-1.9e+02***(1999)	-33.512***(1995)
Mean_Ke	-37.520*** (1995)	-45.890*** (2020)

Notes: The value between brackets represents the break date. *** represents significance at 1%.

4.4 Cointegration tests

Since the variables are stationary in the first difference, it is necessary to find a long-term relationship (cointegration relationship) to justify the switch to the GMM approach. Therefore, we proceed to test for the existence of a long-term relationship between variables by using the panel Cointegration test. Therefore, we use the tests of Kao (1999); Pedroni (2004); Westerlund (2007) to determine the existence of a Cointegration relationship between variables.

Table no. 6 – Cointegration tests

Tests	t-Statistics	Probability	Decision
Kao (1999)	-6.227	0.000	Co-integration
Pedroni (2004)	-8.091	0.000	Co-integration
Westerlund (2007)	-2.392	0.008	Co-integration

According to the results of Table no. 6 which presents the different cointegration tests, namely that of Kao (1999); Pedroni (2004); Westerlund (2007), all the tests have a probability lower than the 5% threshold, so we can say that there is at least one cointegration relationship for all the variables of our model. Thus, the null hypothesis is strongly rejected and consequently, the variables have a long-term relationship between variables. This confirmation not only enhances the reliability of our model but also offers insights into the speed of adjustment and short-term dynamics governing the long-term relationships among the variables.

4.5 PMG-ARDL results

After testing the Cointegration relationship between variables, we can proceed to estimate the model with the PMG-ARDL method by Pesaran *et al.* (2001) suggested to test the effect of IFRS adoption on economic growth in European countries. This estimator is performed with the assumption of the existence of cointegration between all variables which must be [I(0)], [I(1)], or a mixture of [I(1)] and [I(0)].

Moreover, the serial autocorrelation problem can be corrected simultaneously and the advantage of using panel ARDL with sufficient lags is a reduction in the endogeneity problem (Pesaran *et al.*, 1999) which has been a concern in the recent literature on economic growth. The results presented in Table no. 7 show that the most appropriate model is represented by an ARDL(1,0,0,0,0,0,0) with 1 lag and with a trend that has a maximum F-statistic (F-test = 12.971 with a significance level of 0.0003, higher than Pesaran *et al.* (2001) critical value of 3.79 at 5%).

The results of the short-term model reveal that the error correction term, ECT_{it-1}, is both statistically significant and negative. This proves the existence of a cointegrating relationship between the variables in the short-term model. Specifically, the estimated ECT_{it-1} value is equal to -0.476, indicating that the rate at which the long-term equilibrium adjusts in response to the imbalances caused by the short-term shocks of the previous period is 47.6%. Briefly, this coefficient represents the strength of recall, meaning that 47.6% of the imbalance between real and desired economic growth is adjusted in response to economic shocks. Therefore, a shock to economic growth is fully absorbed after 2 years, 1 month, and 6 days.

In the short term, we observe that the cost of capital has a positive impact on the economic growth of EU countries. Therefore, the adoption of IFRS has an immediate effect on the important role of the cost of capital in increasing economic growth in European countries. The IFRS standards as soon as they are adopted give a positive sign in the short term for the European economies. In addition, the adoption of IFRS, in the short term, improves the level of transparency of financial information and reduces the information asymmetry in countries which leads to an improvement in FDI flows (Gordon *et al.*, 2012; Lungu *et al.*, 2017; Turki *et al.*, 2017a; Turki *et al.*, 2017b; Abad *et al.*, 2018; Yousefinejad *et al.*, 2018).

Table no. 7 – Pooled Mean Group ARDL estimation

Variables	Coefficient	Standard-deviation	t-statistic	Probability
Short-term estimation of ARDL(1,0,0,0,0,0,0): dependent variable: $\Delta GDPG_{it}$				
$GDPG_{it-1}$	-1.255	0.114	-11.013	0.000
$Activity_{it-1}$	0.423	0.205	2.065	0.034
$GFCF_{it-1}$	0.193	0.065	2.950	0.003
$Trade_{it-1}$	0.203	0.061	3.316	0.001
EXR_{it-1}	0.457	1.380	0.331	0.740
$INFL_{it-1}$	-0.837	0.217	-3.856	0.000
$Mean\_Ke_{it-1}$	0.733	0.351	2.090	0.037
$\Delta GDPG_{it-1}$	0.053	0.080	0.663	0.508
$\Delta Activity_{it}$	0.569	0.351	1.625	0.104
$\Delta GFCF_{it}$	0.611	0.197	3.102	0.002
$\Delta Trade_{it}$	0.407	0.050	8.144	0.000
ΔEXR_{it}	0.825	1.902	0.434	0.665
$\Delta INFL_{it}$	-0.462	0.179	-2.580	0.010
$\Delta Mean\_Ke_{it}$	2.812	5.089	0.552	0.581
Trend	-0.247	0.112	-2.215	0.027
ECT_{it-1}	-0.476	0.081	-5.894	0.000
Constant	15.320	24.694	0.062	0.535
Long-term estimation of ARDL(1,0,0,0,0,0,0): dependent variable: $GDPG_{it}$				
Constant	12.204	19.724	0.618	0.526
$Activity_{it}$	0.337	0.162	2.071	0.038
$GFCF_{it}$	0.153	0.051	2.986	0.002
$Trade_{it}$	0.161	0.045	3.515	0.000
EXR_{it}	0.364	1.102	0.330	0.741
$INFL_{it}$	-0.667	0.184	-3.621	0.000
$Mean\_Ke_{it}$	0.584	0.279	2.089	0.037

According to the long-term estimation of the PMG-ARDL model presented above, the results show that every 1% increase in the variable Activity increases growth by 0.34%. This factor is also considered to be a very important factor for an economy and it helps to provide a highly skilled and innovative workforce that can use limited resources efficiently, thus increasing per capita income. Effective human capital also attracts FDI, which stimulates economic growth (Intisar *et al.*, 2020). Moreover, any increase in gross fixed capital formation increases economic growth by 0.15%. The rate of capital formation can play a main role in promoting economic growth. In fact, for an open economy, the link between investment and economic growth is very important. In other words, a higher ratio of gross fixed capital formation has a positive impact on growth so growth opportunities also lead to further increases in domestic investment (De Long and Summers, 1991, 1992). Indeed, an increase in public investment increases output and therefore has long-term growth effects thus productive government activity and long-term economic growth allow for a better resulting welfare allocation. Furthermore, according to Barro (1990), government spending as a public good in the production function of individual firms increases the rate of return to private capital and therefore stimulates growth (Irmen and Kuehnel, 2009). Similarly, along with public investment spending, adequate private capital inflows accelerate economic growth in economies. Thus, private capital investment helps to stimulate economic growth (Choong *et al.*, 2010).

For the Trade variable, every 1% increase has a positive effect on economic growth of 0.16% and this result reveals that more liberalized trade regimes are accompanied by higher export and GDP growth rates. Trade openness is also considered likely to improve technology because a large international market can provide technological spillovers, economies of scale in research and development, and higher profits for innovators (Katz and Shapiro, 1985; Romer, 1990; Grossman and Helpman, 1991; Rivera-Batiz and Romer, 1991). The link between trade openness and growth can exist through investment and technology. For the first link, trade openness favors investment because the trade sector is more capital-intensive than the non-trade sector. For the second link, the production of investment goods uses imported intermediate goods to some extent, and competition in the international market for machinery and capital goods lowers the price of capital (Baldwin and Seghezza, 1996).

Concerning the inflation variable, any 1% increase in inflation reduces economic growth by 0.67%. Indeed, inflation is a harmful factor that affects output growth because it discourages exports, and savings and public spending become inefficient and increases taxes, which reduces purchasing power, increases uncertainty, discourages investment, and thus reduces productivity and economic growth. In other words, high inflation can lead to uncertainty about the future benefits of investment projects and thus reduce aggregate output (Azam and Khan, 2022).

The exchange rate exhibits a positive but statistically non-significant impact on economic growth, with a 1% increase in the exchange rate correlating to a 0.36% rise in economic growth. This positive association suggests that while exchange rate fluctuations contribute to economic expansion, other intricate factors concurrently wield significant influence. Effective policy measures, resilient fiscal strategies, and a stable global economic environment may be collaboratively acting to alleviate potential adverse effects of currency movements.

Moreover, it also seems that companies adapt to changes in exchange rates quite well, employing tactics that capitalize on the advantages while minimizing the drawbacks. This positive but not significant link highlights how complex the economic environment is, with various elements interacting to shape growth, and gives a picture of the situation that goes beyond significance.

According to the results, the cost of capital on economic growth has a positive and significant influence that a 1% increase in the cost of capital leads to a 0.58% increase in economic growth. Therefore, the adoption of IFRS in the EU has a positive influence on economic growth because it has created a higher level of confidence for investors and the transparency of financial reporting promotes increased foreign investment in host country companies. As a result, foreign investors are concerned about the costs and risks associated with investing in companies, and the adoption of IFRS helps to alleviate these concerns by creating greater confidence in financial reporting.

The adoption of IFRS has proven to be an effective strategy to improve the reliability of financial reporting, reduce information asymmetry among users of accounting information, and reduce the costs and risks associated with foreign direct investment (FDI) flows. By reducing the costs and risks of doing business in a foreign country, foreign investors gain greater confidence and assurance in investing outside their home country. In addition, improved corporate governance and reduced information asymmetry further enhance investor confidence.

Therefore, it can be concluded that IFRS adoption improves FDI, as evidenced by studies such as Gordon *et al.* (2012); Jinadu *et al.* (2016); Lungu *et al.* (2017). These studies suggest that IFRS adoption creates greater transparency and comparability in financial reporting, which leads to greater foreign investor confidence and encourages more foreign investment in host country firms. Foreign Direct Investment (FDI) plays a crucial role in stimulating economic growth and an increase in FDI flows leads to a significant improvement in economic growth (Borensztein *et al.*, 1998; Gudaro *et al.*, 2012; Pegkas, 2015; Bermejo Carbonell and Werner, 2018; Sokang, 2018; Song *et al.*, 2020). Given the economic growth benefits associated with increased FDI inflows, many countries, particularly developing nations, are actively seeking ways to increase FDI inflows. These efforts reflect a growing recognition of the important role that FDI can play in economic development and improved living standards.

Table no. 8 – Diagnostic tests

Tests	Value (p-value)	Decision
ARCH test	1.096 (0.295)	No heteroscedasticity
Serial autocorrelation LM-test	0.227 (0.634)	No autocorrelation
Ramsey test	0.320 (0.572)	No specification errors

The diagnostic tests conducted on the ARDL model, as detailed in Table no. 8, reveal a robust validation of the model outcomes. The results affirm that the error terms within the short-term model exhibit freedom from heteroscedasticity, indicating consistent variability. Moreover, the absence of serial correlation and specification errors confirms the reliability of the model results and underscores the validity of the ARDL model and confidence in its capacity to provide accurate results.

4.6 GMM-system results

To verify the results obtained above, we need to apply the GMM-system method of Arellano and Bover (1995) and Blundell Blundell and Bond (1998), to check the long-term impact of variables on economic growth.

According to the GMM model results presented in Table no. 9, the results show that every 1% increase in Activity variable increases economic growth by 0.24%. Human capital is also considered a fundamental source of economic growth because it improves the level of total productivity and potential earnings of the labor force. Investment in human capital improves the quality of education and leads to self-sustaining growth. Moreover, investment in technological research results in new knowledge and technological development, and therefore investment in human capital is a key factor for sustainable economic growth (Lucas, 1988; Romer, 1990). In addition, human capital is also valued by skills, qualifications the ability to create new products, and experience of the workforce through specialization and division of labor, improving basic education, vocational training, encouraging self-employment, and creating business opportunities (Intisar *et al.*, 2020).

Moreover, any increase in gross fixed capital formation increases economic growth by 0.36 percent. This is because the investments will increase production capacity and have a positive impact on employment. These new jobs will generate wage income, which in turn will increase the stock of distributed income, which is used to provide goods and services, and thus to buy and serve. Therefore, firms make profits because they own more which

increases output in the domestic market and national income (Goldsmith, 2008; Leduc and Wilson, 2014; Scandizzo and Pierleoni, 2020).

Table no. 9 – Two-step GMM-system estimation

Variables	Coefficient	Standard-deviation	t-statistic	Probability
$GDPG_{it-1}$	-0.106	0.034	-2.94	0.010
$Activity_{it}$	0.238	0.057	4.16	0.001
$GFCF_{it}$	0.358	0.090	3.99	0.001
$INFL_{it}$	0.563	0.078	7.24	0.000
$Trade_{it}$	0.024	0.004	5.75	0.000
EXR_{it}	-0.001	0.0002	-3.05	0.008
$Mean\_Ke_{it}$	0.520	0.227	2.29	0.022
$IFRS_{it}$	1.907	0.312	6.11	0.000
Constant	4.891	2.925	1.67	0.114

Furthermore, investment is central to economic growth and plays a critical role in its economic progression. In other words, appropriate public financing and resource allocation policy accelerates economic activities. Moreover, public capital investment improves industrial productivity, stimulates GDP growth, and paves the way for sustainable development (Alfredsson and Malmaeus, 2019; Psycharis *et al.*, 2020).

For the inflation variable INFL, the results show that an increase of 1% in the inflation rate increases economic growth by 0.56%. Indeed, economic growth can benefit greatly from moderate inflation. In other words, modest inflation can stimulate economic growth by lowering real interest rates and promoting investment and spending. This idea supports the Keynesian viewpoint by highlighting the role that aggregate demand plays in promoting economic expansion. Additionally, moderate inflation can reduce debt loads, which in turn makes it simpler for governments and consumers to service loans and reallocate resources to more beneficial purposes.

Moreover, a 1% increase in the Trade variable exerts a positive influence, leading to a 0.024% improvement in economic growth. Indeed, trade openness and economic growth have a positive relationship with economic growth and there is a bidirectional causality between them. Our results are consistent with those (Yanikkaya, 2003; Wang *et al.*, 2004; Borrmann *et al.*, 2006; Armstrong *et al.*, 2008; Chang *et al.*, 2009; Oppong and Aga, 2019; Akisik *et al.*, 2020; Owusu *et al.*, 2022). Liberalization can provide useful insight into the gains from trade liberalization because it increases manufacturing output growth and can affect growth (Lee, 1995).

In addition, trade liberalization facilitates knowledge and technology transfer, which in many endogenous growth models improves productivity and growth (Grossman and Helpman, 1991) by increasing the size of the market and thus the demand for goods and services in the economy as a whole, which indirectly forces producers to generate a high level of output to meet unexpected demand. Concerning the relationship between the degree of trade openness and economic growth, the conventional view is that trade openness has growth-enhancing effects. Therefore, countries with outward-looking economies tend to grow faster than inward-looking economies. The explanation is that openness to trade generally expands a country's trade opportunities, increases the rate of technology transfer and diffusion, and improves the efficiency of resource allocation in an economy, which in turn improves productivity and growth (Wang *et al.*, 2004; Borrmann *et al.*, 2006; Abad *et al.*, 2018).

Additionally, the exchange rate has a low negative and significant on the economic growth of European countries. The changes in exchange rates have a negative effect on economic growth because they disrupt trade and investment and a volatile or depreciating currency can reduce a country's export competitiveness by raising the cost of its goods and services for foreign consumers which decreases exports has an impact on the country's overall economic output. Moreover, a volatile currency rate creates uncertainty, which discourages foreign direct investment and hinders enterprises' long-term planning.

Furthermore, capital inflows are hampered by investors' reluctance to participate in cross-border initiatives, which reduces the amount of money available for profitable projects and reduces the possibility of long-term economic growth. Thus, the adverse consequences of fluctuating exchange rates surpass their direct influence on commerce, infiltrating many aspects of the economy and generating an atmosphere less favorable for strong and consistent expansion.

Taking into account the impact of the cost of capital on economic growth, any 1% increase in the cost of capital increases economic growth by 0.52%. Our results are consistent with those (Choong *et al.*, 2010; Chen *et al.*, 2015; Francis *et al.*, 2016; Brown and Martinsson, 2019; Amel-Zadeh *et al.*, 2020; Golshan *et al.*, 2023).

It is revealed that the adoption of IFRS leads to a positive and significant increase in the GDP growth rate. This result is consistent with the institutional theory that IFRS adoption has a significant positive effect on economic growth, which is similar to Zehri and Abdelbaki (2013); Oppong and Aga (2019); Akisik *et al.* (2020), who found that IFRS adoption stimulates economic growth. The higher the level of harmonization with IFRS, the greater the development of adopting countries. The results also support the old institutional theory hypothesis that IFRS (in this case, mandatory adoption) is an institutional infrastructure that could stimulate growth and development (North, 1990).

The consistency of the estimated growth model parameters is based on the results of diagnostic tests of the estimated GMM-system dynamic model, presented in Table no. 10, which indicate the presence of first-order AR(1) autocorrelation and the absence of second-order AR(2) autocorrelation in the model residuals. In addition, the Hansen (1982) test is used to check the validity of the instruments to ensure that the model is not mis-specified.

Table no. 10 – Arellano and Bond autocorrelation and over-identification tests

Tests	Value	Probability
AR(1)	-2.91	0.004
AR(2)	-1.26	0.104
Hansen	15.910	0.460

Our results show that there is no serial correlation in the disturbances in the second-order AR(2), while the Hansen (1982) test demonstrates that the instruments used in the GMM specification are valid. This indicates that the estimated parameters are reliable and can be used to draw valid conclusions about the relationship between the variables in the growth regression model.

In other words, the absence of serial correlation within the perturbations of the second-order AR(2) model provides evidence of the temporal independence of the errors, which is crucial for ensuring the integrity of our model. These findings are consistent with the results of the Hansen (1982) test, which not only confirms the absence of serial correlation but also attests to the validity of the instruments incorporated in the System Generalized Method of

Moments (GMM-system) specification which is crucial as to resolve endogeneity problems in the growth regression model.

5. CONCLUSION AND POLICY IMPLICATIONS

This study examines the impact of the cost of capital on economic growth under the mandatory adoption of IFRS in 17 European countries between 1994 and 2021 using GMM-system and PMG-ARDL approaches. The results show that the cost of capital has a positive effect on economic growth under IFRS adoption. In other words, the model estimates show that the cost of capital increases economic growth by 0.58% in the PMG-ARDL. In the GMM-system model, the results show that IFRS adoption has important to lower the cost of capital, which increases the economic growth by 0.52%.

Before the adoption of IFRS, investors often faced greater uncertainty due to the absence of regulated reporting methods. In the 1990s period, the adoption of IFRS by corporations was voluntary, and as a result, financial reporting transparency improved significantly, boosting investor confidence and ultimately reducing the cost of capital. Since 2005, mandatory adoption has reinforced these positive trends by extending the benefits of lower capital costs to a wider range of enterprises. By facilitating access to capital for businesses, promoting strategic investments, and creating a more dynamic and effective business climate, these combined efforts have been crucial in boosting economic growth.

The positive effect of mandatory IFRS Standards on economic growth can be attributed to several factors. Firstly, IFRS improves the comparability and transparency of financial statements, enabling investors to make more informed decisions. Secondly, IFRS provides a more accurate picture of a company's financial situation, which helps to reduce the risk of financial anomalies and fraud. Finally, the adoption of IFRS encourages foreign investment by creating a level playing field for international investors.

IFRS reduces the knowledge gap between investors and companies by strengthening accountability and by providing both capital producers and capital holders with important information that holds both parties accountable. The implementation of these standards reduces investment risk, creating more investment opportunities for investors worldwide. Furthermore, IFRS provides high-quality accounting information that enables effective financial decision-making.

The adoption of IFRS can promote the harmonization of financial information across different countries and support the development of national accounting standards based on IFRS. This can reduce the cost and complexity of financial statement preparation for companies operating in multiple countries. Moreover, IFRS can improve financial stability by providing investors with better information about the financial situation of companies, which increases the comparability and reliability of financial statements, improves credit rating quality, and reduces the risk of financial crisis.

It should be noted that the majority of variables have positive and significant effects on economic growth, except inflation in the PMG-ARDL approach and the exchange rate in the GMM approach (negative sign).

Overall, our results using both approaches (PMG-ARDL & GMM) validate hypothesis H1 above, which assumes that the cost of capital has a positive impact on economic growth in European countries under IFRS adoption.

To foster further economic growth, the adoption of IFRS allows policymakers to invest in training programs that help companies better understand and apply IFRS. This can help address the complexity and interpretation issues associated with IFRS. In addition, policymakers can seek to harmonize accounting practices across European countries for more consistent implementation of IFRS and strengthen enforcement mechanisms to ensure that companies comply with IFRS by including more severe penalties for non-compliance and better monitoring and control of financial reporting. In addition, policymakers can help small businesses implement IFRS by including access to education and training programs as well as financial support to cover implementation costs.

As with any research, several research limitations should be acknowledged. Firstly, the complexity of economic systems and the multitude of factors influencing growth make it challenging to isolate and attribute causality solely to the cost of capital. Additionally, the heterogeneity in economic structures and regulatory environments across European nations may introduce variations in the observed effects, and the availability and quality of data, especially about the cost of capital calculations, could pose limitations on the accuracy and comparability of findings. Moreover, the dynamic nature of IFRS adoption and potential changes in regulatory frameworks over time may influence the long-term effects, requiring a nuanced interpretation of the results.

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