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Earnings Quality in the IFRS Era: Evidence from Morocco

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ABSTRACT: Purpose: the aim of this study is to determine whether the introduction of International Financial Reporting Standards (IFRS) by Moroccan companies listed on the Casablanca Stock Exchange will contribute to improving the quality of earnings. Methodology: This study spans six years (2015-2020) and a sample of 27 listed Moroccan groups. Furthermore, we divided earnings quality into two main dimensions: on the one hand, earnings management, measured by earnings smoothing and earnings management towards small positive amounts; on the other hand, earnings attribute quality, assessed by accruals quality, persistence and predictability of net income and operating cash flows. Findings: The results of the empirical tests can be divided into two categories: On the one hand, the results of tests of the effect of IFRS on earnings management practices as the first measure of earnings quality show that companies use earnings management in the post-IFRS period compared with the pre-IFRS period. Furthermore, the results of tests of the effect of IFRS on the quality of earnings attributes as a second measure of earnings quality show that the various measures used appear to be of better quality in the pre-IFRS period than in the post-IFRS period. This indicates that the adoption of IFRS in the Moroccan context is contributing to deterioration in the quality of information. Practical implications: The authors demonstrate that the serious and rigorous adoption of IFRS by preparers, as well as training and seminars on the interpretation and application of each standard, are important to accentuate the positive effect of IFRS on the reliability of results. In addition, the findings provide policy-makers and stakeholders in the Moroccan financial market with an insight into the quality of Moroccan standards compared with IFRS in terms of earnings quality. Originality/value: to the best of the authors' knowledge, studies on the effect of IFRS on earnings quality in the Moroccan context are rare, if not non-existent. We therefore focus on this financial center, which mirrors developing countries, in order to highlight the effects of the introduction of IFRS on this type of market.

Keywords: IFRS, Moroccan standards, earnings quality, emerging market, agency theory, information asymmetry.

I. INTRODUCTION

Financial reporting provides stakeholders with essential information for decision-making. It must therefore inform the various users as neutrally as possible; in order to provide objective, error-free data that reflects the company's economic reality. Furthermore, the information provided by the accounting system has a considerable impact on the company and its future, particularly in terms of investment decisions, financing, shareholder and management remuneration, etc. Indeed, financial statement preparers may use the accounting options most favorable to their objectives, which may call into question the quality and reliability of the information provided. However, the adoption of local standards gives managers greater leeway to manipulate the accounts, which can undermine the true and fair view that financial statements should reflect, making the figures less transparent and preventing international comparability [1, 2]. In response to this problem, the IASB's conceptual framework assumes that IFRS limit the accounting options available to management under local standards, thereby reducing the scope for management manipulation of the data contained in the financial statements and improving accounting quality.

The quality of accounting information is determined by the quality of a company's reported earnings. Most academic research uses this approach for the simple reason that earnings are considered by a large number of users as the main measure of company performance. Empirical studies on earnings quality generally attempt to determine this quality by taking into account several aspects of earnings deemed useful to different users [3, 4]. Similarly, the IASB defines the quality of financial statements in terms of completeness, relevance, reliability and comparability. In addition, since the introduction of IFRS in Europe and, by extension, in many countries around the world, research has been conducted into their effects on the accounting landscape and earnings quality, focusing on a number of measures. Studies such as [5, 6, 7] confirm the decisive role of IFRS in improving earnings quality. On the other hand, studies have found opposite results, confirming that IFRS contribute to deterioration in the quality of disclosures compared with local standards [8, 9, 10].

With this in mind, this paper attempts to compare the quality of earnings before and after the adoption of IFRS by listed Moroccan companies, focusing on two aspects: firstly, we study the effect of IFRS on earnings management practices; secondly, we focus on their impact on the quality of various earnings attributes. The focus is on the Moroccan context, partly because of the ambiguity of the effect of IFRS due to the lack of in-depth studies comparing earnings quality under IFRS and Moroccan standards, and partly because of curiosity about their impact on emerging financial markets and countries with significant differences between local standards and IFRS, including Morocco. In short, this paper aims to answer the following question: To what extent does the adoption of IFRS contribute to improving the quality of earnings of listed Moroccan companies?

This question raises other related issues, namely:

- To what extent does the adoption of IFRS reduce management discretion in terms of earnings management?
- To what extent does the adoption of IFRS by listed Moroccan companies improve the quality of the various earnings attributes?

In order to address our problem, this paper is structured as follows: the first section presents a review of the literature, first highlighting agency theory as the theoretical framework for this study, and then previous work examining the impact of IFRS adoption on earnings quality. The second section develops the research hypotheses and examines the potential impact of IFRS on earnings quality. The third section describes the research methodology, focusing on the characteristics of the sample, the study period and the regression models used. The results obtained are presented and interpreted in the fourth section, and discussed in the fifth section, followed by the conclusion.

II. LITERATURE REVIEW

1. THEORETICAL FRAMEWORK: AGENCY THEORY

Agency theory provides a comprehensive theoretical framework for analyzing and explaining the conflicts of interest that arise mainly between shareholders and managers, insofar as the former do not play an active role in the management of the company, while the latter exploit their informational power for personal ends contrary to the owners' objectives [11, 12]. These agency problems were first addressed by Ross [13], then studied and analyzed theoretically by [14], who defined agency theory as "a contract by which one or more persons (the principal) engages another person (agent) to perform a task on his behalf, which implies a delegation of decision-making power to that agent". Secondly, these authors have identified mechanisms by which investors can control the actions of managers and align their interests with those of the latter, including the use of optimal contracts, boards of directors and information transmission intermediaries such as financial analysts and rating agencies [15]. Furthermore, the IASB asserts that IFRS have been designed to reduce this moral hazard by limiting the accounting choices available to management and minimizing the managerial opportunism that can be exercised under local standards and, consequently, the provision of high-quality information to different key users.

2. REVIEW OF EMPIRICAL LITERATURE

The study of earnings quality, and in particular earnings management as a measure of earnings quality, is one of the main concerns of the general public, including investors, researchers, professionals, etc., due to its adverse effects on the decisions of investors, financial analysts, etc., and on the sustainability of companies in general (Enron case, worldCom for example). The issue of earnings management was first addressed by [16], and constitutes one of the most important studies in the field of positive accounting theory. However, since the introduction of the new IFRS financial reporting standards in Europe in 2005, and currently in several other countries around the world, as a solution to accounting divergences and in response to the expectations of users of financial information, notably investors who are the preferred recipients according to the IASB, a number of authors have sought to demonstrate the role of these standards in improving accounting quality by enhancing the relevance and reliability of the information provided, reducing earnings management practices and improving other earnings attributes.

In this context, [17] showed that the earnings quality of Korean listed companies improved significantly in the five years following IFRS adoption. They also show that the earnings quality of the consolidated financial statements of KOSDAQ-listed companies improved more than that of KOSPI-listed companies. These results are supported by [18], who found an improvement in earnings quality after the transition to the new accounting regime. [19] Investigate the extent to which convergence to IFRS improves the accounting quality of Chinese companies, focusing on two aspects of accounting quality: accruals aggressiveness and timely loss recognition. The results show that convergence to IFRS was generally accompanied by an increase in discretionary accruals and a decrease in timely loss recognition for Chinese companies. They add that changes in accruals aggressiveness and timely loss recognition are more pronounced for companies located in regions where the level of development of the legal environment is lower.

[20] Suggest that companies are less likely to practice profit smoothing after mandatory IFRS adoption. In West Africa, [10] studied the consequences of IFRS adoption in Nigeria after the implementation of IFRS international accounting standards. The results indicate that accounting quality deteriorated after IFRS adoption. In-depth analysis shows an increase in earnings management practices, while timely loss recognition and earnings persistence declined. [21, 22] confirm that in continental European countries where investor protection mechanisms are weak, IFRS adoption costs are higher and the level of management has increased after the transition. This explains why some companies use IFRS as a hedge to reinforce management's opportunistic behavior. In contrast, [23, 24] found that in Anglo-Saxon countries with strong investor protection mechanisms, the level of earnings management was stable after adoption. Furthermore, [25] found that the earnings management phenomenon increased in France and remained stable in the UK and Australia in the post-IFRS period.

[7] Finds an increase in the quality of accruals after IFRS adoption. However, the results reveal no significant difference in persistence before and after IFRS adoption. [26] Demonstrated that accruals quality, based on persistence, improved after IFRS adoption by banking sector companies listed in Brazil. Furthermore, the results reveal that fair value adjustments to financial instruments did not alter earnings persistence. Similarly, [6] indicates that earnings management is present both before and after IFRS adoption. However, a comparative approach shows that the intensity of earnings management is higher in the pre-IFRS period than in the post-IFRS period. Furthermore, the results show that earnings management carried out after the transition to IFRS affects earnings quality. The publication of earnings by companies practicing earnings management sometimes provokes a strong market reaction. Other tests have shown that earnings persistence is higher in the post-IFRS period than in the pre-IFRS period. In addition, [9] provides evidence that ROE persistence declined after Canadian companies converted to IFRS in 2011.

[27] Concluded that, despite mixed evidence, there has been a general downward trend in the use of earnings management since 2001. In contrast, [28] found opposite results and confirmed an increase in earnings management after IFRS adoption for Russian companies. Similarly, [29] found an increase in earnings management practices in Germany, Austria, Switzerland, France, Belgium and the Netherlands, while there was no change in practice in the UK, Ireland, Denmark, Finland, Norway and Sweden.

Similarly, [30] report a positive correlation between the difference between local standards and IFRS and earnings management practices. In other words, the closer local standards are to IFRS, the less earnings management practices are used by annual report preparers and the better the quality of accounting data. They go on to show that this divergence is more pronounced in countries where capital markets are less developed and ownership concentration is higher. In Switzerland, [31] report a low level of discretionary provisions following the transition to IFRS. By contrast, in the German context, [32] report stagnation in earnings management in companies adopting IFRS.

On the other hand, [25, 33] show that IFRS are based on fairly flexible principles that can give financial statement preparers greater latitude in assessing accounting data. Indeed, the measurement of accounting data at fair value depends on management's judgment and estimates, which can lead to high variability in results and, consequently, low quality of accounting data. They also point out that this scalability and flexibility can be detrimental to the quality of information, and that the creation of a common international business language can be achieved by other means, adding that accounting harmonization appears to be an insufficient condition for achieving this goal. [34] Believe that the introduction of these new standards should increase the volume of information in financial statements, but it must be acknowledged that subjectivity in the valuation of certain assets, such as goodwill, has increased management discretion in profit smoothing. Valuing balance sheet items at fair value rather than historical cost can lead to manipulation of results by financial statement preparers, and to instability in accounting data, particularly for the valuation of goodwill. The choice of such valuation models allows for inherent bias and subjectivity, and can undermine the comparability and transparency of accounting information prepared and published by companies.

[35] Show that, despite the unification of accounting rules and practices, the financial statements of European and American companies are still not comparable, and that earnings management is not yet complete. They add that IFRS do not therefore constitute an obstacle to earnings management; on the contrary, their adoption seems to increase managers' room for man oeuvre by allowing a variety of alternative accounting options. Furthermore, [36] show, through a contextual analysis of Finland, Greece, the Netherlands, Sweden and the UK, those discretionary accruals under IFRS are higher in Finland, Greece and Sweden and lower in the other countries.

[37] Show a significant increase in earnings smoothing and accrual aggressiveness, as well as a significant decrease in the speed of loss recognition for companies in IFRS countries compared with benchmark companies, and no change was found in earnings targets for companies in IFRS countries after controlling for changes in benchmark companies. [38] Show that in the post-IFRS period, Chinese companies are less likely to engage in accrual-based earnings management. In return, companies are turning to actual business manipulation as an alternative to accrual-based earnings management.

[8] Find that earnings management increased after IFRS adoption in Europe, with an increase in discretionary provisions in the post-IFRS period. However, [39] concludes that mandatory IFRS adoption had no significant impact on earnings management practices, whether actual or based on discretionary provisions, in 22 European countries. [40] Show that most measures of accounting quality, notably those based on the characteristics of liabilities often used in the literature, improved after the mandatory switch to IFRS in 2005. [41] Find that the regulatory environment contributes to the extent to which IFRS has a restrictive effect on earnings management. [42] Found that test results on the quality of earnings attributes were mixed and varied according to institutional factors.

It is clear from the literature review that the impact of IFRS on the quality of results remains ambiguous. While some authors such as [6, 32, 43, 7] confirm the decisive role of IFRS in improving accounting quality, other studies confirm opposite results and indicate that IFRS adoption contributes to the deterioration of accounting quality [25, 33, 8, 28, 9, 19]. Finally, other authors, including [44, 42, 27], obtain mixed results and emphasize the role of institutional factors in determining the quality of accounting figures.

III.HYPOTHESIS

It is important to remember that the concept of earnings quality is a vague one, encompassing several dimensions and measures. In fact, to address the research problem, we retain two measures of earnings quality: firstly, earnings management, measured by earnings smoothing and earnings management towards small positive amounts. Secondly, the quality of earnings attributes, estimated by the quality of accruals, the persistence and predictability of net earnings and operating cash flows. This section develops the various hypotheses we are attempting to test empirically.

1. EARNINGS MANAGEMENT HYPOTHESIS

It should be noted that one of the reasons for introducing IFRS was to reduce earnings management practices following the failure of local standards. Numerous studies confirm this, including [29], who examined the extent of earnings management when US GAAP was replaced by IFRS. The results show that earnings management is considerably reduced, or even non-existent, in some German and French companies, compared with companies using US GAAP. In addition, [32] report a stagnation of earnings management in companies adopting IFRS. Examining the impact of IFRS on the earnings quality of companies listed on the Moroccan financial market. [43] Showed that the use of IFRS contributed less to earnings management than local accounting standards. These findings are supported by [6], who noted a reduction in earnings management dynamics following the transition to IFRS. In this context, [45] identify three reasons why IFRS adoption improves the quality of accounting data, including those relating to earnings management. The authors point out that IFRS limits the opportunistic power of management in earnings management that can be practiced under local standards.

On the basis of the above results and the IFRS conceptual framework, our first assumption can be formulated as follows:

H.1. The adoption of IFRS contributes to the reduction in earnings management for listed Moroccan companies.

In addition, the IASB's conceptual framework indicates that these new standards should reduce earnings smoothing practices and ensure better quality by providing useful information to investors. Authors such as [46, 35, 47, 48, 29] confirm the increase in earnings variability following the transition to IFRS. [20] Report a reduction in earnings smoothing following the mandatory adoption of IFRS. The first research sub-hypothesis is therefore formulated as follows:

H1.1. Earnings variability is greater after the transition to IFRS for listed Moroccan companies.

The accounting literature asserts that achieving positive results is the ultimate goal of all earnings management. [49, 48] indicate that earnings management is a particularly common phenomenon when results are close to zero. [40] Found that earnings management was less important after the adoption of IFRS. Furthermore, [37] showed that companies adopting IFRS are less likely to manage earnings towards small positive amounts. Indeed, this study hypothesizes that companies using IFRS are less likely to disclose small profits than companies using local accounting standards. The second hypothesis can be formulated as follows:

H1.2. The frequency of disclosure of small positive amounts is lower under IFRS than under Moroccan accounting standards.

2. THE QUALITY OF BENEFIT ATTRIBUTES HYPOTHESIS

The impact of IFRS on the quality of earnings has been the subject of several studies. The choice of earnings quality measures depends on the approach used, the objectives of each author and the conclusions they wish to reach. Indeed, [42] examined the effect of the introduction of IFRS on five earnings attributes (quality of accruals, predictability and persistence of net income and operating cash flow), arriving at mixed and divergent results depending on institutional factors. [37] Sought to determine the extent to which IFRS adoption improves accounting quality by following an empirical approach that predicts a range of accounting indicators, including those relating to accrual aggressiveness, speed of loss recognition and adherence to earnings targets. In addition, [19] chose accrual aggressiveness and loss recognition timeliness as indicators to study the effect of IFRS on information quality.

Our empirical work considers the use of five earnings attributes as indicators of earnings quality, in addition to those relating to earnings management. It should be noted that the IASB's objective behind the development of IFRS is above all to meet investors' expectations by offering them quality information. Indeed, we assume that the adoption of IFRS by the Moroccan companies targeted by our study will guarantee better quality results than those prepared under local standards. Our second research hypothesis can be formulated as follows:

H.2. The adoption of IFRS by Moroccan listed companies is helping to improve the quality of earnings attributes.

The first sub-hypothesis aims to determine whether IFRS improve the quality of accruals. The literature deals with this concept repeatedly and cautiously, given its sensitivity. Executives use it to develop their managerial opportunism in managing earnings, which reduces accounting quality. Numerous previous studies have examined the effect of IFRS adoption on earnings quality, with particular emphasis on the quality of accruals. [31] Found a decrease in the level of discretionary accruals after the transition to IFRS. [7] Examined the impact of IFRS adoption by companies in Indonesia on the quality of accruals. The author finds an improvement in their quality after IFRS adoption. Based on these results, our first sub-hypothesis can be reformulated as follows:

H.2.1. The introduction of IFRS improves the quality of listed Moroccan companies' accruals compared with local standards.

The persistence of net income and cash flows is considered a relevant indicator for assessing earnings quality in the context of the adoption of these international accounting standards. [42] Find an increase in the persistence of net income in countries with high investor legal protection, and an improvement in the persistence of cash flows in countries with low legal protection. They add that the persistence of net income and cash flow increases in countries where there are few differences between IFRS and local standards. Based on an analysis according to the degree of disclosure incentives, the author observes an improvement in the persistence of net income and operating cash flows in countries with strong financial disclosure incentives. [6] Confirms the hypothesis that IFRS contribute to the improvement of accounting quality through earnings persistence and finds an improvement in earnings persistence in the post-IFRS period compared to the pre-IFRS period in a study conducted on companies belonging to the Indonesian context. Consequently, our second sub-hypothesis is formulated as follows:

H.2.2. The introduction of IFRS improves the persistence of net income and cash flows compared with local standards.

As in the case of persistence, the predictability of the various earnings categories selected enables accounting quality to be judged. Studying the effect of IFRS on earnings attributes, focusing on the predictability of net income and operating cash flows, [42] confirms that cash flow predictability increases in countries characterized by small differences between IFRS and local standards. Referring to the results of this study and the IASB accounting framework, our third sub-hypothesis to be tested can be summarized as follows:

H.2.3. The introduction of IFRS improves the predictability of net income and cash flows of listed Moroccan companies compared with local standards.

IV.METHODS

1. SAMPLING

To assess the impact of IFRS adoption on the earnings quality of Moroccan companies listed on the Moroccan market, the initial sample is made up of all companies listed on the Casablanca Stock Exchange, i.e. 76 groups at the end of 2020. However, the final sample consists of only 27 companies, after elimination of more than half of them, for the following reasons:

Financial and insurance companies have been excluded for reasons of comparability of financial statements;

- Companies publishing their financial statements solely in accordance with Moroccan standards have not been included, due to the nature of the study, which requires the adoption of IFRS;
- Companies that only adopted IFRS after 2014 and those that only went public after 2014 are excluded, as data collection began at that date;
- Companies with missing data have been excluded to ensure consistency of results.
- Companies whose financial statements are prepared in accordance with standards other than Moroccan standards have been excluded, given that our objective is to compare IFRS with Moroccan standards.
- Finally, only companies that have published their financial statements since 2014 under both Moroccan GAAP and IFRS were included, i.e. 27 groups.

The following table summarizes the rule adopted for selecting the study sample:

Table 1. Sample selection rule.

Companies	Number
Number of companies listed on the Casablanca Stock Exchange	76 companies
- Finance companies (credit institutions and similar)	16 companies
- Companies not adopting IFRS	14 companies
- Companies with missing data	3 companies
- Companies listed after 2014	6 companies
- Companies adopting IFRS after 2014	9 companies
- Companies whose financial statements are prepared in accordance with foreign standards	1 Company
= Final company sample	27 companies

Data are collected from various sources: either the Casablanca Stock Exchange database, the official website of the Moroccan Capital Markets Authority, or the official websites of the companies making up the final sample.

2. STUDY PERIOD

In order to assess the differences in earnings quality of listed Moroccan companies between periods before and after IFRS adoption, we conducted this study over six accounting periods [2015-2020]. In order to obtain a large number of observations, we chose 2015 as the start date of the study. At that date, the number of companies applying IFRS increased to 27 groups using the sample selection rule.

Given that Moroccan groups prepare their consolidated financial statements according to both IFRS and national standards, we carried out the study over the same period and with the same sample, using the following rule:

- Post-IFRS period: preparation of financial statements in accordance with IFRS.
- Pre-IFRS period: preparation of financial statements in accordance with Moroccan standards.

3. AN EMPIRICAL APPROACH TO STUDYING THE IMPACT OF IFRS ON EARNINGS MANAGEMENT PRACTICES

3.1. Defining Control Variables

Examining the impact of IFRS adoption on earnings management practices requires controlling for certain potentially significant variables and factors, known as control variables, which could influence the results of this study. The control variables used in this study are: audit quality, growth opportunities, changes in shareholders' equity and the ratio of total liabilities to total shareholders' equity.

A. Audit Quality

Audit quality plays an essential role in limiting results management practices. Audit quality translates into the auditor's ability to be rigorous and independent, and is generally measured by the size and reputation of the firm [50, 51]. Thus, corporate financial statements audited and attested by the Big 4 are assumed to be more reliable than those audited by other entities [52, 53, 54, 55]. We use the variable (AUD) to define the audit firm's affiliation with one of the firms most renowned for the quality of their audit work, namely Deloitte, ERNST and YOUNG, KPMG and PwC.

B. Growth Opportunities

The company's growth opportunities are supported by a very high turnover rate of current assets; a company with growth opportunities shows positive results, which encourages investors to contribute their funds to the company. Indeed, [56] point out that this type of company is subject to pressure from financial analysts, who set performance thresholds that these companies must meet to avoid being punished by the financial market. To prevent these high-growth companies from falling into this situation, managers often adopt earnings management practices to show the market that targets are being met. On the other hand, [57] point out that these companies' lack of visibility facilitates the practice of manipulating accounting results. We introduce the CROIS variable, which is the percentage annual variation in sales.

C. Changes in Shareholders's Equity

As soon as a company decides to proceed with an acquisition financed by an exchange of shares, the managers systematically direct the gains towards high profits. [58] Have shown that, before proceeding with an acquisition, the managers of the acquiring company are driven to increase the profits of their company in order to reduce the number of shares to be issued and thus reduce transaction costs and, on the other hand, increase the value of the company's shares. Likewise, when raising capital by issuing new shares, we very often observe that managers carry out accounting manipulations of the results obtained in order to obtain high profits, with the aim of reflecting a better performance on the market, since the higher the market value of the shares, the greater the financial returns for current and potential investors. We use the variable (EMM) to indicate the annual percentage change in shareholders' equity.

D. Total Debt to Equity Ratio

The ratio of total debt to total equity is a measure of a company's financial autonomy, and can be defined as an indicator of its degree of dependence on external creditors, particularly banks. In general, the higher the ratio, the more independent the company is of external financing. A company's lack of financial autonomy, justified by the level of debt and associated costs, can lead managers to manage earnings to avoid conditions that could make the company vulnerable to bankruptcy. [14] Argue that a very high level of indebtedness can play an important role and is a sufficient indicator to motivate company managers to improve performance in order to overcome the risk of bankruptcy. In this respect, [59, 60, 61, 62] add that managers who resort to external financing and have a high debt ratio are more likely to make accounting decisions that enable them to avoid contractual penalties and free themselves from the restrictions imposed by debt contracts. We introduce a variable (LEV) to measure the company's financial independence.

3.2. Defining Empirical Models

A. Smoothing Results

Earnings smoothing or creative accounting is a technique used by business leaders to reduce earnings fluctuations. The first measure of earnings management is the variance of the change in net income relative to total assets (ΔNI). [45] Find that a variance tending towards zero reflects the presence of earnings management. As mentioned earlier, a company's net profit can be affected by a variety of factors related to the specific characteristics of the company. Consequently, we use the variable (ΔNI*) corresponding to the residual variation in net income from the model including the above-mentioned control variables, and we believe that this variable provides better results. Based on previous studies, we can derive our model, which includes several control variables and is used by several researchers [63, 18, 45, 64, 42]. Our first model is as follows:

$$\Delta NI\ it = \alpha 0 + \alpha 1\ CROISit + \alpha 2\ EMMit + \alpha 3\ LEVit + \alpha 4\ AUDit + \varepsilon it \qquad (1)$$

Where *CROIS*: percentage change in annual sales; *EMM*: annual percentage change in shareholders' equity; *LEV*: total liabilities over total shareholders' equity at the end of year *t*; *AUD*: dichotomous variable equal to 1 if the company is audited by at least one of the following audit firms: Deloitte, ERNST and YOUNG, KPMG and *PwC*, otherwise a value of 0 is scored.

The second measure of earnings management is the variance of the change in operating cash flow relative to total assets (ΔCF). The principle is that a variance tending towards zero reflects the presence of earnings management. However, operating cash flow is likely to be affected by a number of factors that are part of the company's characteristics. In this context, we also hypothesize that the residual of the change in operating cash flow (ΔCF*) derived from a regression model with multiple control variables, provides a better and unbiased estimate of earnings management. Our second model is as follows:

$$\Delta CFit = \alpha 0 + \alpha 1\ CROISit + \alpha 2\ EMMit + \alpha 3\ LEVit + \alpha 4\ AUDit + \varepsilon it \qquad (2)$$

The third measure of earnings management is the ratio of corporate earnings variability (ΔNI*) to operating cash flow variability (ΔCF*). The literature suggests that companies with high operating cash flow variability tend to have high net income variability, and it's also worth pointing out that if companies use accruals to manipulate its earnings, the variance of net income variability should not be greater than the variance of operating cash flow volatility.

B. Managing Results Towards Small Positive Amounts

To test the earnings management hypothesis towards small positive sums, we use Model 3, which is the most widely used in the literature [45, 18, 42]. Earnings management is measured using the regression coefficient for small positive sums SPOS derived from this model. A negative coefficient means that companies manage their profits towards small positive sums in the earlier period compared with the later period.

This model combines all observations from the pre- and post-IFRS periods. The aim is to compare the management of results towards small positive amounts between the two periods. The model can be interpreted as follows:

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$$\text{POST }(0,1) = \alpha 0 + \alpha 1 \text{ SPOSit} + \alpha 2 \text{ CROISit} + \alpha 3\ EMMit + \alpha 4\ LEVit + \alpha 5\ AUDit + \varepsilon it \qquad (3)$$

Where *POST (0,1)*: dichotomous variable equal to one for observations in the post-adoption period and zero for the pre-adoption period. SPOS: dichotomous variable equal to 1 if net income over total assets is between 0 and 0.01, otherwise equal to 0.

4. EMPIRICAL APPROACH TO THE STUDY OF THE EFFECT OF IFRS ON THE QUALITY OF THE ATTRIBUTES OF RESULTS

4.1. Defining Empirical Models

A. Measuring the Quality of Accruals

By definition, accruals are revenues earned or expenses incurred that have an impact on the company's net income in the income statement, while the cash related to the transaction has not yet changed hands. Determining the quality of accruals is based on the definition of [65], taken up by other authors such as [66, 42]. According to these authors, the degree of relationship between working capital or total accruals and current, past and future operating cash flows interprets the quality of accruals. However, any variation not explained by operating cash flows in current, past and future periods indicates the degree of error in estimating accruals, and is therefore an opposite measure of earnings quality.

We use total accruals determined by the difference between net income and operating cash flow as the dependent variable, and operating cash flow for the current, past and future period as the independent variable. The empirical version of the [65] model is written as follows:

$$ACCj,t,s = \emptyset 0,s + \emptyset 1,s\ CFOj,t+1,s + \emptyset 2,s\ CFOj,t,s + \emptyset 3,s\ CFOj,t-1,s + \vartheta j,t,s \qquad (4)$$

Where *ACC*: total accruals of company j for year t; *CFO*: company j's operating cash flow for year t; ν: model residuals for year t; j,t,s: j is the company, t is the year, s is the accounting standard used.

In the literature, the quality of accruals is assessed on the basis of the standard deviation of the error term from the previous regression, i.e. the following equation:

$$\text{Quality of accruals } = \sqrt{\sigma^2(\vartheta j,t,s)}$$

The underlying idea is that a relatively high standard deviation of error terms means low quality accruals.

B. Measuring the Persistence and Predictability of Net Income

These two measures are more widely used in the literature, notably by [67, 66]. Analyzing yield quality through persistence allows us to estimate the extent to which the current yield reappears and persists into the future. Yield persistence is measured by the coefficient of recorded slope (∅1, s) derived from a regression that estimates the net results of one year relative to the previous year. The general rule is that the higher the persistence of results, the higher the quality of the results. It's important to recognize that earnings are an important source of information for investor decision-making. Persistence indicates lasting stability and low volatility in the company's earnings generation process.

Outcome predictability is measured by the standard deviation of the error term derived from the same regression as persistence. The study of outcome predictability reflects the idea that the higher the predictability, the better the quality of the prediction of future outcomes. In other words, a high standard deviation implies poor quality results, and vice versa. In summary, the basic model for measuring the persistence and predictability of bottom-line results takes the following form:

$$NI\ j,t,s = \emptyset 0,s + \emptyset 1,s\ NI\ j,t-1,s + \nu\ j,t,s \qquad (5)$$

Where *NI j,t,s*: net income of company j in year t based on accounting standard s ; *ν j,t,s:* model residuals for year t ;

C. *Measuring the Persistence and Predictability of Cash Flows*

Studying the quality of performance also involves studying the persistence and predictability of operating cash flows. From this point of view, performance quality can be studied by analyzing the relationship between operating cash flow and operating income. Some authors, notably [68], argue that decomposing earnings into cash flows and accruals significantly improves the model's predictive ability. Indeed, the basic principle is that the higher the persistence value, the better the quality of the results. To study the persistence of operating cash flows, it is necessary to estimate whether current operating cash flows persist into the future. Cash flow persistence is projected by the slope coefficient (∅1, s), which is a multiple regression of current cash flows on cash flows and accruals from the previous year.

The empirical version of this model is written as follows:

$$CFO\ j,t,s\ =\ \emptyset 0,s+\ \emptyset 1,s\ CFO\ j,t-1,s\ +\emptyset 2,s\ ACC\ j,t-1,s+\nu\ j,t,s \qquad (6)$$

Where *CFO j,t,s*: operating cash flow of company j in year t according to accounting framework s. *ACC j,t-1,s*: total accruals of company j for year t-1 according to accounting standard s. *ν j,t,s*: model residuals for year t.

The predictability of the result is measured by the standard deviation of the residuals from the previous regression, in this case$\sqrt{\sigma^2(\vartheta j,t,s)}$.

V. RESULTS

This section presents the results of regressions on the effect of IFRS on earnings quality. We first present the results of the effect of IFRS on earnings management practices, followed by the tests of IFRS on the quality of the various retained earnings attributes.

1. *RESULTS OF THE IMPACT OF IFRS ON EARNINGS MANAGEMENT PRACTICES*

1.1. *Descriptive Statistics*

Table 2 below shows the descriptive results of the various variables for the periods before and after IFRS.

Table 2. Descriptive statistics for variables and control variables.

	Pre-adoption (obs=162)			**Post-adoption (obs=162)**		
	Average	Median	Standard deviation	Average	Median	Standard deviation
ΔNI	-0.004	0.000	0.050	-0.004	0.001	0.002
ΔCF	-0.014	-0.003	0.250	0.003	0.004	0.009
SPOS	0.105	0.000	0.307	0.080	0.000	0.273
			Control variables			
CROIS	2.677	3.027	23.384	1.670	3.175	28.068
EMM	3.821	2.671	30.077	2.180	3.159	23.867
LEV	6.815	2.049	53.915	4.283	2.341	19.785
AUD	0.630	1.000	0.484	0.630	1.000	0.484

Note: ΔNI is the annual change in net income divided by total assets; ΔCF is the change in operating cash flow over total assets. CROIS is the percentage annual change in sales, EMM is the percentage annual change in shareholders' equity, LEV is total Liabilities over total Shareholders' Equity at year-end, AUD is a Dichotomous Variable which equals one if the company is audited by one of the following firms: Deloitte, ERNST And YOUNG, KPMG and PwC, otherwise equal to 0.

Firstly, if we focus on median values, which are less likely to show extreme values, we find that all three variables (ΔNI, ΔCF and SPOS) as well as the control variables considered in this study (CROIS, EMM, LEV and AUD) are higher in the post-IFRS period than in the pre-IFRS period, with the exception of the SPOS and AUD variables, which showed similar values, indicating weaker earnings management after the transition to IFRS.

Secondly, analysis in terms of average values shows that the average change in net income over total assets ΔNI is lower in the post-IFRS period than in the pre-IFRS period. On the other hand, comparison of the average change in operating cash flow ΔCF during the post-IFRS and pre-IFRS periods marks a statistically higher value after the changeover to IFRS.

1.2. EMPIRICAL TEST RESULTS

A. Results Of Empirical Tests of the Effect of IFRS on Earnings Smoothing

Table 3 shows the results of our tests of the impact of IFRS on the variability of net income, cash flow from operations and the ratio between the variability of net income and the variability of cash flow from operations.

Table 3. Results of IFRS impact tests on the smoothing of results.

Variable	Pre-adoption	Post-adoption	Difference	Probability
Variability of net income (ΔNI*)	-0.00365	-0.00448	-0.00083	0.620
Variability of operating cash flow (ΔCF*)	-0.014	0.003	0.017	0.432
Variability of ΔNI* on ΔCF*.	-0.025	1.252	1.277	0.380

The results presented in the table above can be broken down into three parts: firstly, we find a reduction in the variability of changes in net income ΔNI* after the switch to IFRS, a statistically insignificant difference of (-0.00083). Secondly, the test of the effect of IFRS on the variability of operating cash flows indicates that the hypothesis that earnings management practices decreased after the transition to IFRS is confirmed by the greater variability of operating cash flows in the post-IFRS period compared with the pre-IFRS period, although the t-test is not significant. Thirdly, we observe an increase in the variability of changes in net income relative to changes in cash flow after the switch to IFRS, from (-0.025) for the pre-IFRS period to (1.252) for the post-IFRS period, confirming the reduction in earnings management after the switch to IFRS. However, the difference observed is not significant.

B. Results Of Empirical Tests of the Effect of IFRS on Earnings Management Practices Towards Positive Amounts

The results of the test of the effect of IFRS on the practice of managing results towards low positive amounts are presented in table 4 below:

Table 4. Empirical test results.

Variable	Pre-adoption Post-adoption	Probability
SPOS	-0.073	0.445

The test on earnings management towards small positive amounts shows a negative coefficient, indicating that there is no earnings management in the period following IFRS adoption. On the contrary, companies practice earnings management for small amounts more often in the period preceding the introduction of IFRS than in the period following adoption.

2. RESULTS OF THE EFFECT OF IFRS ON THE QUALITY OF EARNINGS ATTRIBUTES

Table 5 below summarizes the results of empirical tests of the effect of IFRS on various earnings attributes, in particular the quality of accruals, the predictability and persistence of net income and cash flows.

Table 5. Test results for the effect of IFRS on the quality of earnings attributes.

Variables	Pre-adoption	Post-adoption	Difference	Probability
Quality of accruals	0.1304	0.0726	-0.0578	0.152
Persistent net income	0.296	0.2008	-0.0953	0.4287
Predictable net income	0.4407	0.4469	0.0062	0.8585
Persistent cash flows	0.2815	-0.6262	-0.9077	0.1906
Predictable cash flows	0.1855	0.1686	-0.0169	0.7456

The tests presented in the table above give the following results:

- The quality of accruals is better in the post-IFRS period, confirming the hypothesis that IFRS improves the quality of accruals, although the difference does not appear to be statistically significant.

- Net income persistence and predictability deteriorated after the transition to IFRS, with insignificant differences of (-0.0953) for net income persistence and (0.0062) for net income predictability.
- Cash flow persistence appears to be of better quality in the pre-IFRS period. Cash flow predictability, on the other hand, is of better quality in the post-IFRS period. Nevertheless, the differences observed for the different measures are not statistically significant.

VI.DISCUSSION

The results of empirical tests of the effect of IFRS adoption on earnings management practices can be divided into two broad categories, the first concerning earnings smoothing and the second concerning earnings management towards small positive amounts. The tests relating to the earnings smoothing hypothesis show that the first measure confirms the existence of earnings management after the transition to IFRS, while the second and third measures show a decrease in earnings management after the transition due to an increase in the variability of the change in net income versus the change in cash flows and the variability of operating cash flows after IFRS adoption; however, the differences found are not statistically significant. On the other hand, the test of earnings management towards small positive amounts supports the hypothesis that companies are more likely to practice earnings management towards small positive amounts in the pre-IFRS period than in the post-IFRS period, however, the t-test is not significant. This indicates that Moroccan companies use earnings management practices after the introduction of IFRS, which is in line with the results of [44, 3, 46, 1]. These results may be explained by the fact that the introduction of IFRS in the Moroccan context is still optional, which may lead to non-exhaustive application on the part of account preparers in order to serve their personal needs to the detriment of others. However, careful and serious adoption, accompanied by training in IFRS accounting, can lead to significant changes, thereby improving the quality of the information provided.

Tests relating to the effect of IFRS on the quality of earnings attributes indicate that the various measures used appear to be of better quality in the pre-IFRS period than in the post-IFRS period, which runs counter to the IASB's objectives. It should be noted that the empirical tests carried out rely heavily on estimation errors to assess the quality of the various earnings attributes. However, the quality of accruals, the predictability and persistence of results are likely to be systematically linked to observable and reproducible characteristics of the business, such as the volatility of operations, since greater volatility is accompanied by a higher incidence of unavoidable estimation errors and, consequently, deterioration in the quality of results.

It should also be pointed out that the results found are based on a relatively short timeframe, as well as the focus on a specific market characterized by an emerging economy and the gradual adoption of IFRS by groups listed on the Casablanca Stock Exchange, all of which could affect the generalizability of the results of this study to all companies listed on this financial market and to the economies of emerging countries.

VII. CONCLUSION

The aim of this study is to examine whether the adoption of IFRS by companies listed on the Casablanca Stock Exchange has a positive impact on earnings quality in a context characterized by the separation of ownership and management and in an environment marked by information asymmetry. To this end, we divided earnings quality into two main dimensions: firstly, earnings management, measured by earnings smoothing and earnings management towards small positive amounts; secondly, earnings attribute quality, assessed by accruals quality, the persistence and predictability of net earnings and operating cash flows. The results indicate that the introduction of IFRS in the Moroccan context does not meet the objectives predefined by the IASB, and suggest that national accounting standards offer better earnings quality than IFRS, thus invalidating all the research hypotheses.

The present study was carried out using methodological and theoretical choices recognized and used in previous work. Nevertheless, there are important limitations, some of which suggest that this study should be extended. Firstly, research into the quality of accounting results under IFRS covers a relatively limited period (six years); to remedy this problem, it would be interesting to extend this research over a longer period, with reference to the work of [69], which covers a ten-year period. On the other hand, this study focuses on companies listed on the Casablanca Stock Exchange. However, this study can be extended in the years to come by comparing the earnings quality of several emerging markets such as those in Asian countries, etc. Thirdly, we do not take into account certain characteristics that may lead companies to manage their earnings more specifically, such as mergers and acquisitions, and changes in governance bodies.

This study contributes to the literature and practice by providing important elements for testing earnings management practices and the various attributes of earnings as useful indicators for assessing accounting quality. Firstly, research into the quality of earnings as a benefit of accounting information is very important, both in academia and in practice. Indeed, such measures are an indispensable factor in corporate decision-making and valuation, including the selection of investment securities, the evaluation of merger and acquisition transactions and the assessment of initial public offerings, etc. However, any earnings management practices on the part of managers will have negative effects on the financing of their companies, which could jeopardize their long-term survival. Secondly, to our knowledge, the impact of IFRS on earnings quality has not been sufficiently studied in the Moroccan context. Consequently, this study provides useful information to support rational investment decisions, etc.

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Author Contribution

First Author: Conceptualization, Data collection, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, writing –review & editing, Writing –original draft. Second Author: Design, Methodology, Supervision, Validation, Visualization, writing –review & editing. Third Author: Design, Methodology, Supervision, writing –review & editing.

Conflict of Interest

The authors declare no conflict of interest.

Data Availability Statement

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APPENDIX

Table 6. List of sample companies.

Company name	Sectors of activity
AFRIQUIA GAZ	Oil & Gas
ALLINACES	Participation and real estate development
AUTO HALL	Distributors
CIMENTS DU MAROC	Building and Construction Materials
COSUMAR	Food and Production
CTM	Transport
DELATTRE LEVIVIER MAROC	Engineering and Industrial Capital Goods
DELTA HOLDING	Holding Companies
DISWAY	Hardware, Software & IT Services
DOUJA PROM ADDOHA	Participation and real estate development
HPS SA	Hardware, Software & IT Services
ITISSALAT AL-MAGHRIB	Telecommunications
JET CONTRACTORS	Building and Construction Materials
LABEL VIE	Distributors
LAFARGEHOLCIM MAROC	Building and Construction Materials
LESIEUR CRISTAL	Food and Production
M2M GROUP	Hardware, Software & IT Services
MAGHREB OXYGENE	Chemicals
MANAGEM	Mining
MINIERE TOUISSIT	Mining
OULMES	Beverages
RES DAR SAADA	Participation and real estate development
RISMA	Leisure and Hotels
SOCIETE DES BOISSONS DU MAROC	Beverages
SONASID	Building and Construction Materials
TAQA MOROCCO	Electricity
UNIMER	Food and Production