# The effect of the mandatory adoption of IAS/IFRS on earnings management: Empirical evidence from South Africa

**Yosra Mnif Sellami [1]\*, Imen Slimi [2]**

[1]*Assistant Professor in Accounting and Director of Department Accounting, Taxation and Law in High Institute of Business Administration of Sfax, University of Sfax, Tunisia. Laboratory GFC, Faculty of Economics and Management, University of Sfax, Tunisia.*
[2]*PhD Student at Faculty of Economics and Management, University of Sfax, Tunisia. Laboratory LARTIGE, Faculty of Economics and Management, University of Sfax, Tunisia.*
*\*Corresponding author E-mail:yosra.mnif.sellami.isaas@gmail.com*

### Abstract

This research investigates the effect of mandatory transition of South African companies to IFRS on earnings management, essential attribute of accounting quality. Specifically, the study examines whether the mandatory adoption of IFRS is associated with reduction of earnings management and therefore, an improvement of accounting quality. In addition, the paper focuses on the effect of corporate governance factors on earnings management.

Earnings management is assessed by the magnitude of discretionary accruals and accruals quality. The paper compares earnings management in the pre-mandatory IFRS adoption period; 2002-2004 and the post IFRS adoption period; 2010-2012. This study focuses on a sample of 276 firm-year observations, 46 firms drawn from the 413 South African listed companies. A regression model was applied to examine the relation between mandatory adoption of IFRS, corporate governance mechanisms and discretionary accruals controlling for other some factors explaining earnings management.

Our findings show that mandatory adoption of IFRS by South African companies is associated with lower earnings management. This result suggests that mandatory transition to IFRS contribute to an improvement in the quality of accounting information. Furthermore, results show that the percentage of independent outside directors, the separation of roles of CEO and Chairman of the board and company size have significant influence on reducing discretionary accruals.

*Keywords*: *IFRS; Earnings Management; Corporate Governance; South Africa.*

## 1. Introduction

With the globalization of international financial markets, the idea of adopting a common language for financial reporting to develop international comparability has become widespread (Jeanjean and Stolowy, 2008). The International Accounting Standards (IAS), now renamed as International Financial Reporting Standards (IFRS), have been developed to harmonize corporate accounting practice and to answer the need for high quality standards to be adopted in the world's major capital markets (Van Tendeloo and Vanstraelen, 2005). Consequently, the mandatory adoption of IFRS should ensure greater comparability and transparency of financial statements and should improve the quality of financial information disclosed by companies.

The adoption of IAS/IFRS has been made mandatory for listed groups in the EU and other countries around the world for the establishment of their consolidated financial statements since 2005. This mandatory transition to international standards is the most significant change in terms of financial information for both the European Union and the other countries. Much research has been undertaken which addresses the question whether IAS/IFRS are associated with higher accounting quality (e.g., Barth et al., 2008; Zeghal et al., 2011; Zeghal et al., 2012; Ismail et al., 2013; Pelucio-Grecco et al., 2014; Bryce et al., 2015). Indeed, a number of prior studies use various measures such as earnings manage-

ment, conservatism, timely loss recognition, value relevance to investigate the effect of the adoption of IFRS on accounting quality. These studies are distinguished between those who have analyzed the effect of voluntary adoption (Van Tendeloo and Vanstraelen, 2005; Barth et al., 2008; Aussenegg et al., 2011) and those who have analyzed the effect of mandatory adoption of IFRS on the quality of accounting information (e.g., Iatridis and Rouvolis, 2010; Chen et al., 2010; Zeghal et al., 2011; Zeghal et al., 2012; Ismail et al., 2013, Bryce et al., 2015).

Although other countries have required the adoption of IFRS, we note that most previous researches have been made in the European context. Nevertheless, it is difficult to generalize the findings of these EU studies to non EU adopting countries, as harmonization efforts within the EU may have resulted in a significantly larger impact following the EU adoption than other non EU adopting countries (Daske et al., 2008). Thereby, as most of the existing studies on accounting quality and IFRS have been conducted on the U.S and European contexts, our study fills a gap in the existing literature by studying the effect of mandatory adoption of IFRS on the quality of accounting information in an emerging country which is South Africa.

Note that recently, some studies have started to investigate this topic in emerging countries (e.g., Alali and Foote, 2012; Ismail et al., 2013; Pelucio-Grecco et al., 2014; Bryce et al., 2015).

Earnings management remains a concern for investors, regulators and other stakeholders. In fact, the issue of earnings management

has always been an anxiety for the reliability of reported financial statements. Our paper examines the effect of mandatory adoption of IFRS on one of the measures of accounting quality, namely earnings management, by South African companies. The objective of this paper is to analyze the effect of mandatory adoption of IFRS by South African companies on accounting quality by comparing earnings management in the pre-mandatory IFRS adoption period; 2002-2004 and the post mandatory IFRS adoption period; 2010-2012. According to previous literature, there are many proxies to appreciate earnings management. In this study, we are limited to the magnitude of discretionary accruals and accruals quality. In addition, we have also analyzed the effect of corporate governance mechanisms on discretionary accruals.

Our study shows that earnings management is reduced after the mandatory adoption of IFRS by South African companies. Indeed, following the mandatory transition to IFRS, companies of our sample show a lower discretionary accruals magnitude and a higher accruals quality, thereby, an improvement in the accounting quality. In addition, our findings reveal that independence of the directors' board, separation of roles of CEO and Chairman of the board and company size are negatively related to discretionary accruals, suggesting that these are also important factors for constraining earnings management.

The remainder of this paper is organized as follows. Section 2 provides theoretical background and the hypotheses of the study. More precisely, this paper explores the literature which is relevant to accounting quality and more specifically to earnings management. Section 3 presents the research methodology. The empirical findings of our paper are discussed in section 4. Finally, conclusion is reported in section 5, where we outline our results; discuss the implications and limitations of this study.

## 2. Theoretical background

International Financial Reporting Standards are accounting standards issued by the International Accounting Standards Board; IASB. The main objective of the IASB is "to develop, in the public interest, a single set of high quality, understandable and enforceable global accounting standards that require high quality, transparent and comparable information in financial statements and other financial reporting to help participants in the world's capital markets and other users make economic decisions" (Epstein and Mirza, 2002, p. 11). The transition to international standards is the most significant change in terms of financial information for both the European Union and the other countries. In this context, several researchers have examined the impact of the adoption of IFRS on the quality of financial information measured by earnings management, conservatism, timely loss recognition, value relevance, etc. In this section, we explore the literature which is relevant to accounting quality and more specifically to earnings management.

### 2.1. Mandatory adoption of IFRS and earnings management

Several previous studies have examined the effect of mandatory adoption of IFRS on earnings management. These researches reveal mixed results. In this context, using a sample of 1,146 firm-year observations from Australia, France, and the United Kingdom from 2005 to 2006, Jeanjean and Stolowy (2008) found that the pervasiveness of earnings management did not decline after the introduction of IFRS, and in fact increased in France.

Iatridis and Rouvolis (2010) report that the effect of mandatory adoption of IFRS by a sample of 254 Greek companies in the first year 2005 appears to be unfavorable. However, there has been an improvement in firms' financial measures in the subsequent period. Indeed, Greek firms tend to manage their results during 2005 to mitigate IFRS transition costs, in 2006; the level of earnings management is significantly reduced.

Focusing on a sample of companies from 15 EU countries to investigate the effect of IFRS on accounting quality, the study of Chen et al (2010) reveals that the majority of accounting quality indicators is improved after IFRS adoption in the 15 EU states. Specifically, firms exhibit fewer incidences of managing earnings toward a target, a lower magnitude of absolute discretionary accruals, and higher accruals quality.

Furthermore, Callao and Jarne (2010) examine the effect of mandatory adoption of IFRS on earnings management by using 1,408 non-financial firms listed on the stock markets in 11 EU member states. Their results show that earnings management has intensified since the adoption of IFRS in Europe, as discretionary accruals have increased in the period following implementation.

In addition, the study of Iatridis (2010) on a sample of 241 UK companies reveals that the application of IFRS reduces the scope of earnings management.

Zeghal et al (2011) examine whether mandatory adoption of IFRS, by French companies is associated with lower earnings management. The final sample consists of 353 French listed groups for the period extending from 2003 to 2006. The results show that mandatory adoption of IFRS is associated with a reduction in the earnings management level, as measured by the magnitude of discretionary accruals.

Chua et al (2012) focus on the Australian context. Their final sample consists of 172 Australian listed firms for a period of four years. Their findings indicate that Australian companies present less earnings management by way of income smoothing following the mandatory adoption of IFRS, and therefore, a higher accounting quality.

Zeghal et al (2012) use a sample of 1547 companies from 15 EU countries between 2002 and 2007 to analyze whether the mandatory adoption of IFRS is associated with higher earnings quality. The results show that the mandatory adoption of IFRS is associated with less earnings smoothing, less managing toward a target, a decrease in absolute discretionary accruals and an increase in accruals quality, implying a higher earnings quality.

Ismail et al (2013) are interested in the effect of mandatory adoption of IFRS on earnings quality in an emerging country: Malaysia. Their study is based on a large sample that comprises 4010 firm-year observations. The findings confirm that IFRS adoption is associated with higher quality of reported earnings. Specifically, they found that earnings reported during the period after the adoption of IFRS is associated with lower earnings management.

Bsed on a sample of 317 Brazilian companies, Pelucio-Grecco et al (2014) found that the transition to IFRS had a restrictive effect on earnings management after its full implementation.

More recently, Bryce et al (2015) examine whether accounting quality has improved following adoption of IFRS by 200 Australian firms listed on the ASX for the period extending from 2003 to 2008. The results show that accounting quality is not significantly enhanced subsequent to the adoption of IFRS in Australia. Indeed, the authors find that both measures of accounting quality, namely discretionary accruals and accruals quality are reported to be stable under AGAAP and IFRS.

### 2.2. South Africa

In this section, we introduce the main events of the history of the accounting standardization and regulation in South Africa and the South African financial reporting system.

South Africa was settled by Europeans in 1652 and became a British Colony. In 1910, South Africa was granted colonial self-governance and became the independent Union of South Africa, although it remained a colony of Great Britain. In 1931, South Africa became independent and in 1961 left the Commonwealth Nations to become a republic. Consequently, as a result of the long association with Britain, South Africa's government and legal system reflect that of the British Common Law (Prather-Kinsey, 2006).

The legal framework for corporate reporting in South Africa is governed by the 1973 Companies Act (No. 61). However, the

standard-setting process is developed in South Africa outside the scope of the Companies Act. Indeed, Standard-setting in South Africa follows a two-level process. While the APB approves and issues accounting standards, the Accounting Practices Committee serves as an advisory body to the APB.

The objective of APC in this regard is firstly to propose to APB the issuing in South Africa of the international Statements of GAAP (AC 100 series) and Interpretations of Statements of GAAP (AC 400 series). A second objective of APC is to develop South African pronouncements of Statements of GAAP and Interpretation (AC 500 series) in instances where issues are relevant to the South African context only. The AC 500 series developed by APC also undergoes a process of exposure and review of comments before being recommended to APB.

In the mid-1990s, South Africa's standard setters agreed to use the international standards as the basis for new standards, adapted for local conditions. In fact, The South African Institute of Chartered Accountants (SAICA), the JSE and the Accounting Practices Board (APB) of South Africa have recognized the need to be part of a global economy with respect to financial reporting. SAICA has been adopting IFRS with occasional minor modifications since 1995 (Prather-Kinsey, 2006).

As of October 2000, JSE required listed companies to prepare their annual financial statements in accordance with the national law applicable to listed companies (the Companies Act) and to apply either South African statements of GAAP or International Accounting Standards. The JSE released its final amendments to the Listings Requirements on 15 May 2003. After this review, the JSE has required all listed companies to adopt International Financial Reporting Standards in financial years commencing on or after 1 January 2005 for the establishment of their financial statements. Thereby two groups of listed companies existed in South Africa in 2005: those that had already adopted IFRS before 2005 by voluntarily electing to convert, and those that had converted in 2005.

## 2.3. Hypotheses development

### 2.3.1. Effect of the mandatory adoption of IFRS on earnings management

As a set of high quality international accounting standards, the mandatory transition to IFRS should ensure greater comparability and transparency of financial statements and should improve the quality of financial information disclosed by companies.

As previously shown in the literature review, researches analyzing the impact of IFRS adoption on accounting quality show mixed results. Some studies reported that IFRS adoption is associated with an increase of earnings management and thus a decrease in the quality of accounting information. Some other studies have shown the opposite, namely a decrease in earnings management and therefore an improvement in the quality of accounting information.

Our research contributes to this debate by analyzing the effect of mandatory adoption of IFRS on earnings management in South Africa. According to Daske et al (2008), IFRS reduce the amount of reporting discretion relative to many local GAAP. Consistent with this argument, Ewert and Wagenhofer (2005) show that tightening the accounting standards can reduce the level of earnings management and therefore improve reporting quality.

In our study, we test the following hypothesis:

H1: The mandatory adoption of IFRS by South African companies contributes to the reduction of earnings management.

According to Aussenegg et al. 2008, earnings management is not directly observable for outside investors, and researchers. The existing literature suggests various measures to assess this essential attribute of accounting quality (e.g., earnings smoothing, earnings management by thresholds, accruals quality, and the magnitude of discretionary accruals).

In our research, we use two measures, namely the magnitude of discretionary accruals and accruals quality. More specifically, earnings management will be measured by discretionary accruals estimated by the Kothari et al. (2005) model and by accruals quality estimated by the Dechow and Dichev (2002) model modified by McNichols (2002).

In the next subsection, we test the effect of corporate governance factors on earnings management. Indeed, several research studies have addressed the issue of the impact of corporate governance mechanisms on earnings management (e.g., Jouber and Fakhfakh, 2011; Maria and Alves, 2011; Chen et al., 2015).

### 2.3.2. Effect of the board characteristics on earnings management

The board of directors is considered as the primary and important mechanism of corporate governance. Board of directors is responsible for monitoring the quality of the information contained in financial reports. Board effectiveness depends on several characteristics that include independence of board members, board size, separation of the roles of CEO and board Chairman and existence of an independent audit committee.

a)  Independence of board members

Agency theory suggests that board effectiveness increases with the proportion of independent outside directors. Therefore, boards with more independent outside directors are in a better position to increase monitoring and controlling the opportunistic behavior of managers (Jensen and Meckling, 1976). Several previous studies have argued that independent board constitutes a constraint on earnings management (Jouber and Fakhfakh, 2011; Maria and Alves, 2011; Zeghal et al., 2011; Alves, 2014; Chen et al., 2015).

In our research, we test the following hypothesis:

H2: The proportion of independent outside directors on the board is negatively related to earnings management.

Following previous studies, we measured the independence of the board of directors (IND.B) by the percentage of independent external directors serving on the board.

b)  Board size

According to Jensen (1993), board size is considered as an important characteristic that affect the board's performance and effectiveness in monitoring management. Previous studies analyzing the influence of board size on earnings quality reveals mixed results. For example, Dechow et al. (1996) found that firms engaging in earnings management have larger board using US data. Ball Shivakumar (2008) and Maria and Alves (2011) find that large boards are more likely associated with high earnings management. However, Xie et al. (2003); Kao and Chen (2004) and Ebrahim (2007) find that larger boards are associated with lower levels of discretionary accruals. We have not predicted the sign of this association.

In our research, we test the following hypothesis:

H3: There is a relationship between board size and the level of earnings management.

In accordance with previous studies (e.g., Jouber and Fakhfakh, 2011; Zeghal et al., 2011), we measure board size (SIZE.B) by the number of directors serving in the board.

c)  Separation of roles of CEO and Chairman of the board

According to Fama and Jensen (1983), separation of CEO and board chairman roles is effective in controlling and reducing agency problems. With regard to the influence of CEO duality on earnings management, previous studies have shown that the combination of functions has a negative effect on financial statement quality. For instance, Epps and Ismail (2009) argue that the combination of these functions increases the manager's authority by allowing him to satisfy his own interests over those of shareholders.

In our research, we test the following hypothesis:

H4: Separation of roles of CEO and Chairman of the board is negatively related to earnings management.

In accordance with previous studies, Separation of roles of CEO and Chairman of the board (SEP) was measured by a dummy variable taking a value of 1 if there is a separation of functions and 0 otherwise.

d) Independence of the audit committee

Among the different committees that can be created within boards of directors, several regulation and governance reports recommended the existence of an independent audit committee within the board (e.g., Cadbury, 1992; Vienot, 1995, 1999; Olivencia, 1998; Bouton, 2002; Sarbanes-Oxley, 2002). Prior empirical studies have shown that the existence of an independent audit committee enhances financial reporting quality and represents a good corporate governance mechanism. The findings of these researches show that audit committee exercises a constraint on earnings management practices, particularly when it is highly independent (Klein, 2002; Marra et al., 2011).

In our research, we test the following hypothesis:

H5: The independence of the audit committee is negatively related to earnings management.

According to previous studies (Jouber and Fakhfakh, 2012; Sun et al., 2014; Chen et al., 2015), the independence of audit committee (IND.AUDC) is measured by the percentage of independent outside directors serving on the audit committee.

### 2.3.3. Audit quality

Big 4 audit firms are assumed to provide higher audit quality than other audit firms and they should do a better job in financial reporting enforcement (DeFond&Jiambalvo, 1994; Van Tendeloo&Vanstraelen, 2005). Previous research has shown that being audited by a Big 4 audit firm imposes a constraint on earnings management (Ben Othman and Zeghal, 2006; Jiang et al., 2008; Chen et al., 2011).

In our research, we test the following hypothesis:

H6: Earnings management is reduced for firms audited by Big4 auditors.

According to previous literature (Zeghal et al., 2011; Chen et al., 2011) audit quality (BIG 4) is measured by a binary variable that takes the value 1 if the company is audited by a Big 4 firm and 0 otherwise.

### 2.3.4. Control variables

In addition, we control for some firm characteristics. According to previous literature, company size and leverage are two important characteristics that may affect earnings management.

a) Company size

The relationship between company size and earnings management is ambiguous. On the one hand, company size is often used as a proxy for political costs. The political cost hypothesis argues that large firms have a greater incentive to prefer downwards earnings management, because of the possibilities of increasing government control when the companies are larger and more profitable (Watts & Zimmerman, 1990). On the other hand, company size has often been used as an indicator of the importance of the company's internal control systems (DeFond&Jiambalvo, 1994). Indeed, some previous studies have found a positive relationship between company size and financial statement reliability (McMullen, 1996; Bédard et al., 2004). In addition, Meek et al. (2007) argue that earnings management may be lower in large firms. In fact, compared to other companies, they have lower information asymmetry, stronger governance structures and stronger external monitoring. In our study, we expect that the level of earnings management is related to company's size. According to previous studies (Street and Gray, 2002; Ben Othman and Zeghal, 2006; Chen et al., 2010; Zeghal et al., 2011; Chen et al., 2015), we used the natural logarithm of total assets as a proxy for company size (SIZE), but we make no predictions about the sign of the coefficient. The following factors will also be included as control variables:

- The growth opportunities (GROWTH): measured as the annual percentage change in sales.
- Turnover (TURN): measured as the ratio of sales to total assets.

- Cash-flows from operations (CFO): represents the operating cash flow normalized by total assets of the year end.

b) Leverage

Debt may also have an ambiguous effect on earnings management. Indeed, some empirical research documents that monitoring by the creditors may allow for better governance and thus contribute to the reduction of managers' flexibility when it comes to managing earnings (Lee et al., 2007). In addition, Jiang et al (2008); Maria and Alves (2011) find a negative relationship between leverage and earnings management. However, debt hypothesis predicts that highly leveraged firms are inclined to engage in income-increasing earnings management in order to avoid debt covenants violation (Watts and Zimmerman, 1986; DeFond and Jiambalvo, 1994). Therefore, in our research, we expect that the level of earnings management is related to the company's leverage. According to previous studies (Chen et al., 2010; Jouber and Fakhfakh (2011)), leverage variable (LEV) is measured by the debt-to- assets ratio.

## 3. Research methodology

In this section, we first present the selection procedure for our sample. We then describe the estimating procedure for the two measures selected for earnings management, namely the magnitude of discretionary accruals and accruals quality.

### 3.1. Data collection and sample

Our study focuses on the South African companies that have mandatorily adopted IFRS. The initial population consists of all listed companies referenced on the Bloomberg website (413 companies). From this sample, we have eliminated financial institutions such as banks and insurance (111) in view of the peculiarities of the financial industry, its specific regulation and because of the fundamental differences in their financial accounting relative to non-financial firms. We have also eliminated companies whose 2002's annual reports are not available on the websites (199). Then, we have excluded firms that have anticipated the adoption of IFRS (54). Finally, we have also excluded the resources sector which contains less than six (3). Thereby, the final sample consists of 46 South African companies. Table 1, below, summarizes the final sample by industry.

**Table 1:** Final Sample Distribution by Industry

| Industries | Classification code | Firms per year |
|---|---|---|
| Industrial | (10-20) | 13 |
| Cyclical Consumer Goods | (30) | 7 |
| Non-Cyclical Consumer Goods | (40) | 10 |
| Cyclical services | (50) | 10 |
| Information Technology | (90) | 6 |
| Total | | 46 |

The list of these companies is shown in the appendix.

Note that for the estimation of accruals quality, we also eliminated industries with fewer than ten firms, namely Cyclical Consumer Goods and Information Technology. So, for this measure we used 33 South African companies. Data's firm collection starts by reviewing annual financial statements contained in annual reports available on the websites of South African groups.

### 3.2. Estimation of discretionary accruals

Previous studies frequently used discretionary accruals to measure the extent of earnings management. Previous researchers have proposed various models to measure discretionary accruals (Dechowet al., 1995; Jones, 1991; Kothari et al., 2005). In this research, we adopted the Kothari et al. (2005) model to calculate the magnitude of discretionary accruals. The choice of this model is motivated by the fact that it is widely used in previous literature (e.g., Chen et al., 2010; Stubben, 2010; Zeghal et al., 2011; etc.). Consistent with previous studies, we have used a cross-sectional approach of the Kothari et al (2005) model rather than a time se-

ries one for the methodological advantages of this technique. The final sample that served for the estimation of discretionary accruals (DA) using Kothari et al (2005) cross-sectional model is 46 South African companies.

The Kothari et al (2005) model is the following:

$$TA_{ijt} = \beta_0 + \beta_1 (\Delta REV_{ijt} - \Delta AR_{ijt}) + \beta_2 PPE_{ijt} + \beta_3 ROA_{ijt} + \varepsilon_{ijt} \quad (1)$$

Where $TA_{ijt}$ is the total accruals for company i in industry j in year t, computed as the difference between net income before extraordinary items and cash flow from operations; $REV_{ijt}$ is the change in revenues for company i in industry j between year t and t-1; $AR_{ijt}$ is the change in accounts receivable for company i in industry j between year t and t-1; $PPE_{ijt}$ is the gross property, plant, and equipment for company i in industry j in year t; $ROA_{ijt}$ is the return on assets for company i in industry j in year t. All variables are deflated by lagged total assets.

According to the Kothari et al (2005) model, DA are equal to the error terms ($\varepsilon_{ijt}$) obtained from the estimation of this model. To calculate DA, we took the following steps:

First, we estimate the coefficients ($\beta_{0j}$, $\beta_{1j}$, $\beta_{2j}$ and $\beta_{3j}$) of the Kothari et al., 2005 model for each industry using ordinary least squares (OLS) method. Second, the estimated coefficients ($\beta_{0j}$, $\beta_{1j}$, $\beta_{2j}$ and $\beta_{3j}$) are applied to each company to determine the non-discretionary component of total accruals (NDA):

$$NDA_{ijt} = \beta_{0j} + \beta_{1j} (\Delta REV_{ijt} - \Delta AR_{ijt}) + \beta_{2j} PPE_{ijt} + \beta_{3j} ROA_{ijt}$$

Finally, DA of each company is obtained by calculating the difference between total accruals and estimated NDA, as follows:

$$DA_{ijt} = TA_{ijt} - NDA_{ijt}$$

### 3.3. Estimation of accruals quality

Dechow and Dichev (2002) argue that accruals shift or adjust the recognition of cash flow over time, so that the adjusted numbers, earnings, are a better measure of firm performance. Consistent with this notion, they developed a new measure of accruals quality, which is based on the past, current, and future cash flow from operations (Chen et al., 2010).

The Dechow and Dichev (2002) model is the following:

$$TCA_{i, t} = \beta_0 + \beta_1 CFO_{i, t-1} + \beta_2 CFO_{i, t} + \beta_3 CFO_{i, t+1} + \varepsilon_{i, t}$$

Where $TCA_{j;t} = \Delta CA_{j;t} - \Delta CL_{j;t} - \Delta Cash_{j;t} + \Delta STDEBT_{j;t} =$

Total current accruals in year t, CFO = cash flow from operations, $\Delta CA_{j;t}$ = firm j's change in current assets between year t-1 and year t, $\Delta CL_{j;t}$ = firm j's change in current liabilities between year t-1 and year t, $\Delta Cash_{j;t}$ = firm j's change in cash between year t-1 and year t, $\Delta STDEBT_{j;t}$ = firm j's change in current debt between year t-1 and year t.

Dechow and Dichev (2002) define accruals quality as the degree of earnings persistence in the following periods. This model suffers from a major limitation because it only considers the current accruals, or abnormal accruals contain both current and non-current accruals. McNichols (2002) adds to this original model two variables likely to influence the total of current accruals, namely the change in revenues ($\Delta REV$) and gross property, plant and equipment (PPE). In our research, accruals quality is estimated by the modified Dechow and Dichev (2002) model. In fact, McNichols (2002) proposes this combined model, arguing that the change in sales revenue and PPE are important in forming expectations about current accruals, over and above the effects of operating cash flows. She shows that adding these variables to the cross-sectional Dechow and Dichev regression significantly increases its explanatory power, thus reducing measurement error. Francis et al (2005) confirm the superiority of this model after the addition of two variables. Indeed, explanatory power increases from a mean of 39 % to a mean of 50 %. Consistent with the prior literature, firm's accruals quality is measured as the standard deviation of residuals from the following regression:

$$TCA_{i, t} = \beta_0 + \beta_1 CFO_{i, t-1} + \beta_2 CFO_{i, t} + \beta_3 CFO_{i, t+1} + \beta_4 \Delta REV_{i;t} + \beta_5 PPE_{i,t} + \varepsilon_{i, t} \quad (2)$$

Where $TCA_{j;t} = \Delta CA_{j;t} - \Delta CL_{j;t} - \Delta Cash_{j;t} + \Delta STDEBT_{j;t} =$

Total current accruals in year t, as previously defined. CFO = cash flow from operations, $\Delta REV$ = change in revenues; and PPE = gross property, plant, and equipment. All variables are deflated by total assets at the beginning of the year t.

According to Francis et al (2005), we estimate the preceding equation cross-sectionally for each industry groups with at least 10 observations per regression. Then we use residuals that emerge to calculate accruals quality. Larger standard deviations of residuals indicate poorer accruals quality.

### 3.4. Multivariate model

According to our theoretical framework and to the hypotheses that we have defined, we run the following regression to examine the impact of mandatory IFRS adoption and corporate governance mechanisms on earnings management, especially on discretionary accruals:

$$| DA |_{i,t} = \alpha_0 + \alpha_1 POST\_IFRS_{i,t} + \alpha_2 IND.B_{i,t} + \alpha_3 SIZE.B_{i,t} + \alpha_4 SEP_{i,t} + \alpha_5 IND.AUDC_{i,t} + \alpha_6 BIG4_{i,t} + \alpha_7 SIZE_{i,t} + \alpha_8 GROWTH_{i,t} + \alpha_9 TURN_{i,t} + \alpha_{10} CFO_{i,t} + \alpha_{11} LEV_{i,t} + \varepsilon_{i,t} \quad (3)$$

Where:| DA |: The absolute value of discretionary accruals is the dependent variable of our research. POST_IFRS: is an indicator variable that equals 1 for observations in the adoption period (2010–2012), 0 for the pre-IFRS adoption period (2002-2004). IND.B is the percentage of independent outside directors serving on the board. SIZE.B is the number of directors serving on the board. SEP is a binary variable that takes the value 1 if there is separation of the roles of CEO and Chairman and 0 otherwise. IND.AUDC is the percentage of independent directors serving on the audit committee. BIG 4 is a binary variable that takes the value 1 if the company is audited by a Big 4 audit firm and 0 otherwise. SIZE, GROWTH, TURN, CFO and LEV are the control variables as defined above. Table 2, below, presents the variable definitions.

**Table 2:** Definition of Variables

| Variables | CODES | Definition |
|---|---|---|
| Dependent variable | \| DA \| | The absolute value of discretionary accruals estimated by the Kothari et al. (2005) model |
| Independent variables | POST-IFRS | A dummy variable that takes the value 1 during the post-IFRS adoption period (2010-2012) and the value 0 for the pre-IFRS adoption period (2002-2004) |
| | IND.B | Independence of board members, measured as the percentage of independent external directors serving on the board |
| | SIZE.B | Board size, is measured as the number of directors serving in the board |
| | SEP | Separation of roles of CEO and Chairman of the board: a dummy variable taking a value of 1 if there is a separation of functions and 0 otherwise. |
| | IND.AUDC | Independence of the audit committee, measured as the percentage of independent directors serving on the audit committee |
| | BIG 4 | Audit quality, a binary variable that takes the value 1 if the company is audited by a Big 4 firm and 0 otherwise |
| Control variables | SIZE | Company size measured as the natural logarithm of total assets |
| | GROWTH | Growth, measured as the annual percentage change in sales |
| | TURN | Turnover is measured as the ratio of sales to total assets |

| | CFO | Cash-flowfromoperations, measured as cash-flowfromoperationsdeflated by total assets of the year end |
|---|---|---|
| | LEV | Leverageismeasured by the debt-to- assets ratio |

## 4. Empirical results

Our main hypothesis to be tested is that mandatory adoption of IFRS by South African companies contributes to the reduction of earnings management. In order to test this hypothesis, we compared earnings management of our sample between two periods: the period before mandatory adoption of IFRS (2002–2004), and the period after mandatory adoption of IFRS (2010–2012). In this section, we will first present the empirical results relating to the main hypothesis of our research. Next we will present the results of our empirical model.

### 4.1. Analysis of results relating to the main hypothesis

#### 4.1.1.Comparison of accruals quality before and after the mandatory adoption of IFRS

Accruals quality is assessed through the modified Dechow and Dichev (2002) model by McNichols (2002). To compare accruals quality before and after the mandatory adoption of IFRS, we used the Fisher- test of standards deviations difference to compare standards deviations of residuals of the two periods: the pre-mandatory IFRS adoption period (2002–2004), and the post-mandatory IFRS adoption period (2010–2012). Results relative to this test are presented in table 3.

Table 3: Accruals quality: Comparison between the two groups (IFRS Group (2010-2012) and non-IFRS Group (2002-2004)): F-test

| Variable | Non-IFRS group(2002-2004) | IFRS group (2010-2012) | F-test(signification) |
|---|---|---|---|
| $\sigma(\varepsilon)$ | 0.4793 (N=99) | 0.12028 (N=99) | 7.231*** (0.008) |

$\sigma(\varepsilon)$ Standards deviations of residuals.
*** Significant at the1% level.

Table 3 shows that the two groups are statistically different for the variable $\sigma(\varepsilon)$ In fact, standard deviation of residuals estimated by a cross-sectional modified Dechow and Dichev (2002) model of IFRS group is significantly smaller for the IFRS-group than for the non-IFRS group. Standard deviation of residuals decreased from 0.4793 in the period (2002-2004) before the mandatory adoption of IFRS to 0.12028 in the post-IFRS adoption period (2010-2012), which indicates better accruals quality.

#### 4.1.2.Comparison of the magnitude of discretionary accruals before and after the mandatory adoption of IFRS

We used the Kothari et al (2005) model to measure the magnitude of DA. Before beginning this analysis, it was important to check the normality of variables in order to choose the appropriate statistical tests. We used the Kolmogorov–Smirnov test to check the normality of variables in our study. The results of this test show that variables of our study follow the normal law. Consequently, we used the t-test of mean equality to compare earnings management before and after the mandatory adoption of IFRS. Table 4 reports the results relative to the t-test.

**Table 4:** Discretionary Accruals: Test Of Difference between the Two Groups (IFRS Group (2010-2012) and Non-IFRS Group (2002-2004))

| Variable | Non-IFRS group(2002-2004)mean (N) | IFRS group (2010-2012)mean (N) | t-test (signbi-lateral) |
|---|---|---|---|
| \| DA \| | 0.2929 (N=138) | 0.1541 (N=138) | 3.485*** (0.001) |

|DA|: the absolute value of discretionary accruals.
*** Significant at the 1% level.

Table 4 shows that the two groups are statistically different for the variable | DA |. In fact, the mean of the absolute value of DA of IFRS group is significantly smaller than for the non-IFRS group. More specifically, it decreased from 0.2929 in the pre-mandatory IFRS adoption period (2002-2004) to 0.1541 in the post-mandatory IFRS adoption period (2010-2012). Therefore, earnings management is less important after the mandatory transition to IFRS. This finding corroborates our hypothesis. Consequently, IFRS limit managers' opportunistic discretion by reducing the magnitude of DA.

Based on these two previous tests, the mandatory adoption of IFRS reduced the magnitude of discretionary accruals and improved accruals quality. Consequently, we can conclude that our hypothesis is verified: The mandatory adoption of IFRS by South African companies contributes to the reduction of earnings management. Specifically, companies of our sample exhibit a decrease in the magnitude of discretionary accruals and higher accruals quality after the mandatory adoption of IFRS, and therefore an improvement in the quality of accounting information of South African groups. As a set of high quality accounting standards, IFRS are likely to limit management's opportunistic discretion.

### 4.2. Multivariate results

The following Table provides results of the multiple regression used in testing our previously established research hypotheses.

**Table 5:** Results of the Multiple Regression

$| DA |_{i,t} = \alpha_0 + \alpha_1 POST\_IFRS_{i,t} + \alpha_2 IND.B_{i,t} + \alpha_3 SIZE.B_{i,t} + \alpha_4 SEP_{i,t} + \alpha_5 IND.AUDC_{i,t} + \alpha_6 BIG 4_{i,t} + \alpha_7 SIZE_{i,t} + \alpha_8 GROWTH_{i,t} + \alpha_9 TURN_{i,t} + \alpha_{10}CFO_{i,t} + \alpha_{11}LEV_{i,t} + \varepsilon_{i,t}$

| Variables | Coefficients | z -statistic (P-value) |
|---|---|---|
| Intercept | 0.419 | 5.37 (0.000)*** |
| POST-IFRS | -0.0504 | -2.06 (0.040)** |
| IND.B | -0.151 | -2.21 (0.027)** |
| SIZE.B | -0.001 | -0.54 (0.587) |
| SEP | -0.065 | -1.68 (0.094)* |
| IND.AUDC | 0.079 | 1.59 (0.112) |
| BIG 4 | 0.041 | 1.50 (0.133) |
| SIZE | -0.039 | -2.28 (0.023)** |
| GROWTH | -0.067 | -1.06 (0.290) |
| TURN | -0.010 | -0.81 (0.421) |
| CFO | 0.042 | 0.43 (0.665) |
| LEV | 0.003 | 0.04 (0.964) |

Wald Chi2 (11)=39.16
Prob> chi2 = (0.000) ***
Number of observations= 276

Note:
*, ** and *** indicates significance at the 10%, 5% and 1% levels, respectively.

From Table 5, we can conclude that our research model is generally significant. Indeed, the Wald Chi2 test has a value of 39.16 and is significant (Prob> chi2 = (0.000)).

Regarding the explanatory variables, Table 5 reveals that the mandatory adoption of IFRS (POST_IFRS) has a negative and significant influence in the magnitude of DA. It also appears that the percentage of independent outside directors (IND.B), the separation of roles of CEO and Chairman of the board (SEP) and company size (SIZE) have significant influence on reducing DA.

In accordance with our main hypothesis, table 5 shows that the variable POST_IFRS has a significant effect on the magnitude of DA. Indeed, we find a negative and significant coefficient at the

5% level (z= -2.06, p=0.040). This result indicates that companies have lower absolute DA in the adoption period than they do in the pre-adoption period. This finding is consistent with our expectation, South African companies engage in less earnings management in the adoption period, which indicate an improvement in the accounting quality after the adoption of IFRS.

According to the hypothesis H2, Table 5 shows that the percentage of independent outside directors (IND.B) is significantly negatively related to absolute DA at the 5% level (z= -2.21, p=0.027). This result suggests that the presence of a majority of independent directors constrain earnings management activity.

For hypothesis H3, results show no evidence that board size (SIZE.B) have any significant effect on earnings management.

According to the hypothesis H4, table 5 reveals that the coefficient on separation of roles of CEO and Chairman of the board (SEP) is negative and significant at the 10 % level (z= -1.68, p=0.094), supporting the previous view that separation of functions has influence in constraining management discretion.

According to H5 and H6, independence of the audit committee (IND.AUDC), and audit quality (BIG 4) are variables that do not appear to have any significant effect on reducing DA. These results are not consistent with prior studies which argue that the effect of the existence of an independent audit committee and being audited by BIG4 firms on earnings management is generally verified (BenOthman and Zeghal, 2006; Jiang et al., 2008; Chen et al., 2011).

Regarding control variables, the results from table 5 reveal that the coefficient of the variable SIZE is negative and significant at the 5% level (z= -2.28, p=0.023), suggesting that companies with larger size have lower absolute DA. This result could be explained by the idea that large companies usually have better internal control systems. In addition, large firms usually produce more information of better quality than smaller companies and their activities are monitored more closely by financial analysts, which could limit the earnings management. For the other control variables GROWTH, TURN and CFO, we do not find a significant relation with absolute DA. For the leverage variable, table 5 shows that it is not significant.

Overall, results reveal that independence of the directors' board, separation of roles of CEO and Chairman of the board and company size are negatively related to discretionary accruals, suggesting that these are also important factors for constraining earnings management.

Thereby, we can conclude that earnings management in South Africa is affected by the mandatory adoption of IFRS and also by the independence of board members, the separation of roles of CEO and Chairman of the board and by company size.

## 5. Conclusion and research contributions

The purpose of our study was to analyze the effect of mandatory adoption of IFRS by South African companies on earnings management, essential attribute of the quality of accounting information. Our study also analyzed the effect of corporate governance factors on earnings management.

The results of our research show that the mandatory adoption of IFRS by South African companies has contributed to the reduction of earnings management. In particular, companies of our sample exhibit a decrease in the magnitude of discretionary accruals and better accruals quality following the transition to IFRS. International accounting standards IFRS, considered to be of high quality, are likely to limit management's opportunistic discretion. Consequently, there has been an improvement in the quality of financial information. In addition, from our multivariate results, we can conclude that the independence of the board, the separation of CEO and board chair roles and company size constitute important constraints on earnings management in South Africa.

Our results could be useful, on the one hand, for standards setters to judge whether mandatory application of IFRS is actually associated with an improvement in the quality of financial reporting in countries other than EU, for investors and financial market's regulators that are very concerned about the reliability and relevance of published financial statements following the adoption of international standards, on the other hand.

Furthermore, contrary to the most previous researches examining the effect of IFRS adoption on the quality of financial reporting in EU countries, our study deals with an emerging country. Indeed, studies in the area of IFRS in emerging economies of African and Asian regions are limited; our study seems to be relevant to these countries because it can provide to them conclusions concerning the transition to IFRS. More precisely, our findings could contribute to the debate on whether adoption of IFRS is effective or not to emerging markets. Furthermore, our results could also aware governments in emerging economies, which are planning to adopt IFRS in the next few years, of the benefits or drawbacks of transition to international standards.

Our analysis is also relevant because it contributes to the prior literature examining the adoption of IFRS in several ways. First, South Africa is one of the first countries located outside of the EU that has mandated the adoption of IFRS since 2005. Consequently we contribute to the existing literature that has emphasized on the adoption of IFRS in the EU only. Second, our results provide more comparable evidence to other adopting countries, as their adoption is not similarly motivated by the EU harmonization efforts and so their degree of adoption impacts can vary from those in the EU (Daske et al., 2008).

In addition, strength of our study is that we have examined the effects of IFRS adoption more effectively. Indeed, most previous studies have been conducted too soon after the adoption of IFRS. Thus, their results may be biased by the choice of the period of transition to IFRS, because during the first years of adoption, companies are always trying to mitigate the costs of adverse effects of the adoption of IFRS. Moreover, regulations take years to unfold and take effect.

However, our paper has some limitations. We used earnings management as a measure of the quality of financial information. Or, the accounting literature provides other measures to capture this quality such as comparability, timeliness, predictability, earnings conservatism, relevance and persistence. Second, given that earnings management is a subtle aspect that is not directly observable; the previous literature suggests using different measures to assess this aspect such as earnings smoothing, earnings management by thresholds, discretionary accruals, and accruals quality.

Finally, our study focused on a single emerging country, namely South Africa, it is therefore necessary to wonder about the generalization of the results for other countries.

These limitations open the way for future research. Several perspectives can be suggested. First, it would be interesting to analyze the impact of mandatory adoption of IFRS on other financial reporting quality dimensions for several emerging countries. Furthermore, it is also preferable to include other indicators of earnings management.

Finally, further research could analyze the consequences of the mandatory adoption of IFRS on the quality of financial information for an heterogeneous international sample and verify the impact of institutional factors for emerging countries.

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# Appendix: list of the 46 South African companies

| |
|---|
| AFGRI |
| AFROX |
| ALTECH |
| ALTRON |
| ARGENT INDUSTRUAL LIMITED |
| ASPEN PHARMA |
| ASTRAL |
| BIDVEST |
| CITY LODGE GROUP OF HOTELS |
| CLICKS GROUP LIMITED |
| COMAIR LIMITED |
| COMPU-CLEARING |
| CONTROL INSTRUMENTS GROUP LIMITED |
| CULLINAM HOLDINGS |
| DATACENTRIX |
| DIGICORE |
| DISTELL |
| DISTRIBUTION AND WAREHOUSING NETWORK LIMITED |
| (DAWN) |
| EOH |
| GROUP FIVE |
| HUDACO |
| ILIAD AFRICA LIMITED |
| ILLOVO SUGAR LIMITED |
| KAGISO MEDIA |
| KWV |
| MASONITE AFRICA LIMITED |
| MASSMART |
| MEDICLINIC INTERNATIONAL |
| Mr PRICE GROUP LIMITED |
| MURRAY & ROBERTS |
| MUSTEK |
| NASPERS |
| NETCARE |
| OCEANA |
| OMNIA |
| ONE LOGIX |
| PHUMELELA |
| PIONEER FOODS |
| REMGRO LIMITED |
| REUNERT |
| SPURCORPORATION |
| STEINHOFF INTERNATIONAL |
| TONGAAT HULETT |
| TRENCOR |
| TSOGOSUN |
| WBHO |