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International Financial Reporting Standards adoption and accounting quality: Evidence from Ghanaian listed firms

Benjamin Yeboah^a and Cláudio António Figueiredo Pais^b

^a Kumasi Technical University, Accountancy Department, Ghana and Phd student at ISCTE-IUL, Lisbon, Portugal, correspondence author: benjabinyeboah@yahoo.com

^b University Institute of Lisbon (ISCTE-IUL), Accountancy Department, Avenida das Forças Armadas, 1649-026, Lisbon, Portugal, claudio.pais@iscte.pt

ABSTRACT

The adoption of International Financial Reporting Standards (IFRS) by Ghanaian listed firms form the basis of higher accounting quality and reliability of accounting information from IFRS application. Existing literature suggests that the adoption affects the level of accounting quality. The aim of this paper is to examine whether the shift to IFRS minimizes weaknesses in Ghana National Accounting Standards (GNAS) in measuring accounting quality. The paper employs research design metrics of discretionary accruals, accrual quality, earnings smoothness, small loss avoidance and price-earnings to compute accounting quality of Ghana Stock Exchange (GSE) firms. The results suggest that accounting quality has improved after the shift to IFRS. This research fills the gap in Ghana level, given that there was no such study. Also, this study gives evidence of improvement in the information environment of GSE capital market after the shift in terms of information quality and accounting comparability.

Keywords: IFRS Adoption, accounting quality, earnings management, Ghana

1. Introduction

The main rationale for designing International Financial Reporting Standards (IFRS) is to enhance the comparability of financial statements, to improve corporate transparency, and to increase the quality of financial reporting for informed investment decisions and effective operations of capital markets (Armstrong, Bart, Jagolinzer & Riedl, 2010; Li, 2010). The government of Ghana requires all listed firms, government business enterprises, banks, and insurance firms to apply IFRS, effective 2007, for the establishment of consolidated financial statements in order to improve both domestic and foreign investors understanding of

transparency in financial statements produced by the Ghana Stock Exchange (GSE) firms. This study aims at examining the relationships between the IFRS adoption by GSE firms and accounting quality, given that Ghana is a common-law nation, but lower stakeholder-oriented. The inception of IFRS adoption on a global scale has provoked considerable debate on the quality of corporate information (Daske et al. 2008) of GSE listed firms. Several empirical studies on the adoption offer evidence of improved accounting quality of financial information disclosed by firms (Zeghal et al. 2012; Barth et al. 2008; Capkun et al. 2008) to promote efficiency and transparency of financial statements which, in turn, reduce the cost of capital of firms. Most of such studies focus on both developed (Barth et al. 2008; Bryce et al. 2015) and emerging markets (Alali & Foote, 2012; Ismail et al. 2013), with few from the African perspective (Onalo et al. 2014; Rao & Warsame, 2014; Hessayri & Saihi, 2015; Outa, 2011; Ozili, 2015). Various schools of thought are of the view that, even though IFRS is necessarily of high quality, it may not be sufficient due to differences in countries' institutional settings and individual firm's incentives (Chen et al. 2010). Contrarily, other studies prove that the adoption of IFRS has not improved accounting quality (Paananen & Lin, 2009). Mixed empirical results of the IFRS adoption pose a fundamental question about whether the new standards will enhance accounting numbers of GSE firms. Therefore, the motivation for this paper is to determine whether, after 10 years of adoption, interest groups have carried out extensive appraisal and accepted IFRS as unanimous improvement in accounting quality of listed firms of Ghana. Also, this paper seeks to validate improvement in financial reporting under the IFRS regime against the background of the weaknesses in Ghana National Accounting Standards (GNAS) as identified by the UN Report. Although, several studies have examined IFRS adoptions, focusing mainly on developed (Barth et al. 2008; Bryce et al. 2015) and developing nations (Alali & Foote, 2012; Ismail et al. 2013) with a few ones on Africa (Hessayri & Saihi, 2015; Outa, 2011; Ozili, 2015), the situation in Ghana remains unexplored, and therefore this study fills a gap in IFRS literature on Ghana.

Undoubtedly, the adoption improves the information environment of GSE market in terms of enhancing accounting quality and value-creation of a wider group of stakeholders for informed decision making. This study is confined to Ghana to avoid problems associated with inter-country comparisons. In view of GNAS that identifies a rule-based approach with lapses, it is

imperative that we focus on examining the effects on financial statements of IFRS adoption, given the contemporary business environment. It also makes economic sense that such study is expected to continue in one jurisdiction. Consistent with expectations, we find evidence of improvement in accounting quality after the switch to IFRS in proxies the study employed.

The study contributes to the literature in two folds; first, the study provides prime evidence regarding the effect of Ghana's IFRS adoption on accounting quality using more recent data, though the sample of firms is narrowed; and second, these results contribute to comprehend that quality of financial information of GSE is enhanced by IFRS and could shape both regulators and standard-setters in policy decisions. The study adds up to focus on a more direct effect of IFRS transition in terms of accounting quality.

The remainder of this study is structured as follows. Section two discusses prior literature review which is of interest to accounting quality relative to earnings management and value relevance. Section three specifies a methodology which includes sample, hypothesis and research design to estimate and evaluate earnings quality. Section four presents detailed empirical results, and section five offers the conclusion.

2. Literature review

The improved accounting quality resulting from IFRS is manifested in the academic literatures on both developed and emerging markets (Capkun et al. 2008; Barth et al. 2008; Bowa & Pereira, 2012; Tanko, 2012; Riro et al. 2016), with few studies on African perspective (Onalo et al. 2014; Rao & Warsame, 2014; Hessayri & Saihi, 2015; Outa, 2011; Ozili, 2015). Voluntary IFRS adoption of the developed and emerging economies has documented similar findings of improved accounting quality, to mandatory adoption by the developing nations (Barth et al. (2008). The importance of having improved accounting quality under IFRS is for informed decision-making by investors which facilitates accounting information that better reflects the economic substance over form and therefore enhances greater transparency (Chua, Seng Cheong & Gould, 2012). The setbacks to the realization of improved quality include reporting incentives barriers, inability to maintain full right and power over the effective functionality of the accounting standard and difference in legal and political system regimes that affect IFRS

compliance and enforcement (Ahmed, Chalmers & Khelif, 2013). Nonetheless, prominent papers in the area of study are supportive of the improved accounting quality concept (Christensen et al. 2015; Barth et al. 2008; Aubert et al. 2012). Regarding the positive effect of IFRS adoption on accounting quality, Barth et al. (2008); Chua et al. (2012); Zeghal et al. (2011); Kabir, Laswad and Islam, (2010) assert that firms applying IFRS generally exhibit an improvement in accounting quality under post-adoption periods, in terms of less earnings management, early loss recognition and increased value relevance (i.e. total assets, equity book value, and income variability) as well as higher earnings persistence.

Using small loss avoidance (SLA) earnings proxy, Leuz et al. (2003) demonstrate that the greater incidence of earnings discretion significantly lower earnings management levels. Hayn (1995) argues that small loss avoidance of earnings are unevenly clustered around decreased small earnings and small positive profits and would reflect in the form of unusually low frequencies of small losses and unusually high frequencies of small positive earnings in persistence form. This could cause earnings management in tandem with the findings of Shen and Chih (2005) and Ebaid (2012).

Regarding value relevance of IFRS adoption, Barth, Landsman, Young and Zhuang (2014); Young and Zhung (2014) applying financial instruments of IAS 39 conclude that amounts of net income and equity book value are value relevant for financial companies compared to non-financial firms. Similarly, Ismail et al. (2013); Berti and Moya (2013); Mironiuc, Carp and Chersan (2015) examine whether IFRS adoption has achieved higher accounting numbers, improves the relevance and reliability of the corporate financial reporting and value relevance of comprehensive income in relation to the net income, and conclude that indeed value reliance has improved after the switch to IFRS in terms of comprehensive income, net income and share price. Using DAX-30 firms for the periods 1995-2004, Jermakowicz et al. (2007) demonstrate that explanatory power of earnings and book value of equity increase under IFRS adoption (Abeifaa et al. 2015). Beisland and Knivsfla (2015) analyze the effect of IFRS adoption on stock prices in association with earnings and book values of Norway listed companies and find that value relevance of book values increase under the National GAAP, while value relevance of earnings decrease under IFRS. On the contrary, Clarkson, Hanna, Richardson and Thompson

(2011) argue that there is no evidence to show that equity book value and earnings under either a national GAAP or IFRS improves in a common law or coded law country. Agostino, Drago and Silipo (2011) examining European banks show that IFRS adoption causes increase in earnings but reduce the book value. While Morais and Curto (2008) find that earnings and book value of equity decline under IFRS adoption, Oliveira, Rodrigues and Craig (2010) demonstrate no effect on book value of equity, but a decrease in earnings of Portuguese firms.

As regards value relevance and earnings management of IFRS adoption in the emerging markets of Africa and Asian regions, Sellami and Slimi (2016), Chebaane and Othman (2014), Ismail and Kamarudin (2013), and Zeghal and Mhedhbi (2012) observe that value relevance of earnings per share and equity book value per share is positively associated with mandatory IFRS adoption, and improves the quality of financial information (Riro et al. (2016).

Liu, Yao, Hu and Liu (2011) empirically examines the extent to which a rule-based US GAAP and the more principle-based IFRS provide opportunities for earnings management, using German listed firms' for the fiscal years 1999–2004. They demonstrate that earnings management is significantly higher for IFRS adopted-firms in research and development investment. Lin, Riccardi and Wang (2012) and Kabir et al. (2010) suggest a decline in accounting quality especially in the mandatory adoption environment. Overall evidence surrounding IFRS adoptions in the emerging markets provides similar results to that of the developed markets. Nonetheless, it is established that the impact of IFRS adoption on accounting quality exhibits mixed results relative to value relevance proxy (Gunther et al. 2009; Christensen et al. 2008).

2.1 IFRS adoption and capital markets in Africa

African capital markets in recent years have been attracting foreign investors' attention (Chatterjee, 2013), partly due to liberalization of the market regulation and assurance of liquidity growth. The capital markets exhibit more characteristics such as high trading costs, lack of counters listed on the exchanges, lack of standardization in products and documentation, fragmented interest rate market, restrictive limits on short-selling, and the absence of retail investors from the markets (JSE, 2014; DB Research, 2013). Notwithstanding, countries such as:

South Africa, Nigeria, Kenya, Mauritius and Zimbabwe have improved liquidity. Historically, African markets have been dominated by both institutional and family concentration (DB Research, 2013; Yartey, 2009; Chatterjee, 2013). Although capital market research on Africa is heightened as a result of African countries adoption of IFRS and economic pressures from International Finance Corporation (IFC), International Monetary Fund (IMF) and the World-Bank for ensuring greater accountability and transparency in the financial reporting process (Ozili, 2016), there is still limited extant literature on earnings quality relative to earnings management and value relevance of IFRS adoption in Africa. Most of the literature on Africa confirm the findings from the developed and emerging markets (Onali, Lizam & Kaseri, 2014; Ozili, 2015; Bowa and Pereira, 2012; Tanko, 2012; Onalo et al. 2014; Yeboah and Yeboah, 2015; Rao and Warsame, 2014; Ames, 2013; Hessayri & Saihi, 2015; Outa, 2011; Elbannan, 2011).

Ghana as a British colony operates on common-law with perceived sufficient investor protection. However, Ghana National Accounting Standard (GNAS) was perceived as lower in quality in the equity market perspective compared with IFRS (ROSCA A & A, 2004). With IFRS, growth in equity markets is facilitated to restore the confidence of investors (Mhedhbi, 2012; Kothari et al. 2010).

3. Methodology

3.1 Sample

We use secondary data source of audited financial statements of listed-firms. The initial sample for this study is selected from listed companies traded on the GSE between 2003 and 2013 periods. The number of initial sample is 34 companies (see Table 3). Categories of manufacturing firms include soap/detergents, sale and servicing of cars, production of dairy products, importing of papers and commercial rolls, dealers of aluminum based products, financial institutions, mining and processing of agriculture products. Financial institutions, insurance firms and those firms with missing data are excluded. The exclusion of financial institutions and insurance firms is explained by the different reporting requirements outlined by IFRS. My final sample consists of 16 GSE listed firms; representing 47.06% (see Table 3). The main source of data is hand-collected, but supplemented to others from DataStream database.

The sample firms have a December fiscal year end (Alali & Foote, 2012). The justification for this data source is the fact that it addresses specific accounting data required for computing accounting quality proxies. The selected listed companies are those of reporting standards which comply with both the GNAS and IFRS, indicating pre-IFRS adoption period of 2003-2006, and post-adoption period of 2007-2013. The study merges this data with stock return data of selected firms. We include 2007 fiscal years in the post-adoption for pooled approach, as in most cases exclusion results show minimal differences (Suh & Byard, 2015; Castillo-Merino, Menendez-Plans & Orgaz-Guerrero, 2014). Pooled regression approach is applied for discretionary accruals, small loss avoidance and price-earnings proxies, while pre-and post-adoption for the same firms is applied on accrual quality and earnings smoothness proxies.

Table 1: Sample of GSE listed firms

	Number of firms	%
Listed-firms at GES	34	100
Less: Banks	9	-26.50
Less: Insurance firms	4	-11.76
Less: firms with missing data	5	-14.71
Final sample	16	47.06

3.2 Hypothesis

Undoubtedly, most empirical studies show that, on average, accounting quality appears to have increased after IFRS adoption by most countries (Barth et al. 2008; Chua et al. 2012; Zeghal et al. 2012). On the contrary, few studies evidence mixed finding of their results (Paananen & Lin, 2009). Some attribute the reasons for mixed results to poor compliance, differences in institutional settings (Daske et al. 2008) and inadequate reporting incentives in few countries (Ball, Robin & Wu, 2003). Other research work attribute mixed findings to the fact that Africa has low IFRS enforcement and weaker reporting incentives that sufficiently limit the benefits Africa derives from new standards adoption. Examples of reporting incentives include the financial market development, the capital structure and the tax systems (Christensen et al. 2008; Daske et al. 2008). This makes the current IFRS adoption effect still uncertain in Africa (Byard & Yu, 2011). Ghana's financial reporting environment exhibits existence of inferior quality

national accounting regime before the transition to IFRS (ROSCA A & A, 2004). Based on the general affirmative conclusions of IFRS adoption and little mixed findings of the accounting quality of developing countries, the study proposes this hypothesis:

H1: The adoption of IFRS by GSE listed firms will lead to higher accounting quality.

3.3 Research design

Accounting quality is so complex a concept that it defies any strait-jacketed definition in the literature; hence, there is on-going debate about the subject in a wider scope. The study focuses on five accounting quality proxies that are predominantly applied in the contemporary studies: discretionary accruals, accrual quality, earnings smoothness, small loss avoidance and value relevance (Christensen, Lee, Walker & Zeng, 2015; Leuz et al. 2003). We apply these measures to examine accounting quality on IFRS adoption by GSE listed firms.

Discretionary accruals

The computation of the discretionary accrual is based on performance-matched Jones (1991) modified model (Kothari et al. 2005). Performance-matched Jones (1991) modified model of accruals (see equation 1) stipulates that firms with extreme performance are likely to pursue earnings management.

$$TA_{i,t} / A_{i,t} = \beta_0 1 / A_{i,t} + \beta_1 \Delta REV_{i,t} / A_{i,t} + \beta_2 PPE_{i,t} / A_{i,t} + \beta_3 ROA_{i,t} / A_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where:

T	Period.
I	Company.
TA	Total accruals are income before extraordinary items minus cash flow from operations.
ΔREV	Change in revenues as revenue of period t less revenue of the period t-1.
ROA	Return on assets measured by the quotient of net income and total assets.
PPE	Gross value of property, plant and equipment.
$A_{i,t-1}$	Total asset as deflator of all the variables.

$\varepsilon_{i,t}$ Error term.

The prediction error from the equation (1) regression is $\varepsilon_{i,t}$, which is the estimate of the residuals from the regressions that are to be used as a proxy for discretionary accruals (DA), (Morais & Curto, 2009; Sam, Kang, Salter & Yoo, 2010), as Francis et al. (2005) deem it as earnings management. The lagged total asset scale is for the purpose of mitigating heteroscedasticity of the regression residuals (Kothari et al. 2005). The justification for Kothari et al. (2005) sees this model recognizes firm performance to cause reduction in misspecification issues under discretionary accrual (DA) computation. We estimate the regression equation (2) that addresses the discretionary accruals (DA) with the IFRS as the interest variable. Other variables serve as control ones that have an influence on discretionary accruals (Atwood et al. 2011). The model then is shown in equation (2):

$$DA_{i,t} = \beta_0 + \beta_1 IFRS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 GRTH_{i,t} + \beta_5 CFO_{i,t} + \beta_6 ROA_{i,t} + \beta_7 AQ_{i,t} + \varepsilon_{i,t} \quad (2)$$

Where:

<i>DA</i>	Discretionary accruals scaled by lagged total assets.
<i>T</i>	Period.
<i>I</i>	Company.
<i>IFRS</i>	IFRS adoption periods that takes a value of 1, otherwise 0.
<i>SIZE</i>	Company size measured as log of total assets.
<i>LEV</i>	Leverage is measured as total liabilities lagged by total assets.
<i>GRTH</i>	Change in sales measured as growth.
<i>CFO</i>	Cash flow from operations measured by lagged of total assets.
<i>ROA</i>	Return on assets measured by the quotient of net income and total assets.
<i>AQ</i>	Audit quality, foreign audit firm as part of Big 4 that takes a value of 1, otherwise 0.
ε	Error term.

The variable of interest is IFRS and we expect a negative relationship with discretionary accruals. We use residuals of DA (dependent variable) as a proxy for earnings management to estimate multivariate regression using the CFO (cash flow operations) as expectation of firm performance is reflected in changes in cash flow (Sellami & Slimi, 2016); GRTH (growth) which aims to control for growth as firm's performance (Penman & Zhang, 2002), LEV (leverage) is included as highly geared firms may have incentive to reduce earnings management (Watts & Zimmerman, 1986); ROA (return on assets) as variables included for controlling firm growth, SIZE (size) in controlling for firms size effect on DA (DeFond & Park, 1997) as large firms might have more earnings to affect IFRS applications and audit quality as control variables. The justification for selecting these independent variables is that they provide evidence of firm operating characteristics that are associated with measuring accounting quality and therefore tend to correlate, hence the need to control them. This reduces bias and serves to reduce misspecifications in specific control variables that explain differences in firm behavior.

Accrual quality

Francis et al. (2004) conclude that accrual quality metric of measuring accounting quality tends to recognize both the cost of debt and equity capital. This proxy points out that accruals have direct influence on past, present and future earnings and cash flows. As modified by McNicholas (2002) and Dechow and Dichev (2002), the model for the regression estimation is given by equation (3) for computing the accrual quality:

$$Accrual_{i,t} = \beta_0 + \beta_1 CFO_{i,t+1} + \beta_2 CFO_{i,t-1} + \beta_3 CFO_{i,t} + \beta_4 \Delta REV_{i,t} + \beta_5 PPE_{i,t} + \varepsilon_{i,t} \quad (3)$$

Where:

<i>ACCRUALS</i>	Net income minus cash from operations.
<i>T</i>	Period.
<i>I</i>	Company.
<i>CFO_{i,t+1}</i>	Cash flows from operation of leap year.
<i>CFO_{i,t-1}</i>	Cash flows from operation of last year.
<i>CFO_{i,t}</i>	Cash flows from operation of current year.
<i>ΔREV</i>	Change in sales.

PPE

Gross property, plant and equipment.

We include a change in sales (ΔREV), and gross property, plant and equipment (*PPE*) to explain the firms' opportunity for growth due to sales expansion. All variables are deflated by initial total assets. We expect lower standard deviation, which is the variable of interest under post-adoption period, representing improved accounting quality. For convenience in interpretation, the result is multiplied by negative one so that higher value of the standard deviation indicates higher accrual quality.

Earnings smoothness

Smoothing transitory cash flows improve earnings persistence and earnings informativeness depending on time interval earnings are realized (Dechow, Grraham, Harvey & Rajgopa, 2010; Leuz et al. 2003). We employ the ratio of the standard deviation of net income over the ratio of standard deviation of cash flows from operations as contemporaneously lagged by total assets (Ewert & Wagenhofer, 2011). This measure is the 'median ratio of the firm-level standard deviation of operating earnings scaled by the firm-level standard deviation of cash flow from operations (i.e. ratio of income variability to cash flow variability, (Leuz et al. 2003. p. 509) as a given model of equation (3):

$$SR_{i,t} = \frac{\delta \text{Netincome}_{i,t}}{\delta \text{CFO}_{i,t}} \quad (3)$$

Where:

SR Smoothness ratio of firm.

T Period.

I Company.

$\delta \text{NETINCOME}$ Standard deviation of net income scaled by lagged total assets.

δCFO Standard deviation of cash flow from operation scaled by lagged total assets.

The variable of interest in this metric is the ratio value of the regression outcome (*SR*). This refers as the variability of change. A higher smoothing ratio implies less earnings smoothing,

which explains improved earnings quality (Leuz et al. 2003; Zeghal et al. 2012), and the reverse is quite true, where the SR is low. The study expects higher SR.

Small loss avoidance

Small loss avoidance is another proxy for measuring earnings management of accounting quality (Hayn, 1995). In this model, small losses avoidance is used as the dependent variable instead of discretionary accruals as a proxy for earnings management. Small losses avoidance is computed as a dummy variable coded as 1, where the firm's earnings level is scaled by lagged total assets in the first positive interval (0, 0.01) in a given year and, 0 otherwise. In this circumstance, the estimate to use is the pooled logistic regression as equation (4):

$$SLA_{i,t} = \beta_0 + \beta_1 DA_{i,t} + \beta_2 DAO_{i,t} + \beta_3 IFRS_{i,t} + \beta_4 ROA_{i,t} + \beta_5 GRTH_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 LEV_{i,t} + \beta_8 CFO_{i,t} + \beta_9 AQ_{i,t} + \varepsilon_{i,t} \quad (4)$$

Where:

<i>T</i>	Period.
<i>I</i>	Company.
<i>SLA_L</i>	Dummy variable coded as 1, if the firms have earnings level scaled by lagged total assets in the first positive interval (0, 0.01) in a given year and 0 otherwise.
<i> DA </i>	Absolute discretionary accruals scaled by lagged total assets, with outliers.
<i> DAO </i>	Absolute discretionary accruals scaled by lagged total assets, without outliers.
<i>IFRS</i>	Dummy variable denoted as 1 IFRS adoption period, and otherwise 0.
<i>ROA</i>	Net income scaled by lagged total assets.
<i>GRTH</i>	Growth as change in sales.
<i>SIZE</i>	Natural logarithm of total assets.
<i>LEV</i>	Total assets scaled by lagged total assets.
<i>CFO</i>	Cash flow from operations scaled by lagged total assets.
<i>AQ</i>	Audit quality as BIG4 firms denote as 1, and otherwise 1.

Within the regression model are both ROA as return on assets and GRTH as change in sales to exhibiting firms' growth and performance opportunities in the future. Small losses avoidance

(SLA) measures the distribution of earnings before extraordinary items are scaled by lagged total assets in relation to IFRS (interest test variable) adoption. IFRS equals 1 for firms reporting under IFRS regime, and equals 0 for the same firms reporting under GNAS period. We expect small losses avoidance and IFRS adoption to depict a significant positive relationship (Leuz et al. 2003).

Value relevance

The value relevance of earnings designed for measuring accounting quality is based on the association between either share prices or returns and accounting numbers (Zeghal et al. 2012). However, we do not take the value relevance of return-earnings as both earnings and change in earnings do not test favorably. The return-earnings are inconsistent with Ball and Beaver (1968) study conclusion. Share price of value relevance model is used for measuring accounting quality (Ohlson, 1995). Share price is divided by the number of shares outstanding in a sense of scale effects (Bushman et al. 2004). We apply the natural logarithm on GSE share price to solve the scale problem of share price bias and noise, and also to achieve homogeneity to establish normality (Liang et al. 2014). We measure price-earnings model using this estimated regression in equation (5):

$$\ln p_{i,t} = \alpha_0 + \beta_1 IFRS_{i,t} + \beta_2 NI_{i,t} + \beta_3 BVE_{i,t} + \beta_4 NI * IFRS_{i,t} + \beta_5 BVE * IFRS_{i,t} + IND_{i,t} + YR_{i,t} + \varepsilon_{i,t} \quad (5)$$

Where:

<i>T</i>	Period.
<i>I</i>	Company.
<i>LNP</i>	Natural logarithm of share price at the end of fiscal year of December.
<i>BE</i>	Equity book value scaled by lagged the number of shares.
<i>NI</i>	Net income scaled by lagged the number of shares.
<i>IFRS</i>	Dummy variable denoted as 1 for IFRS adoption period, and otherwise 0
<i>NI*IFRS</i>	Interaction effect of IFRS adoption and net income
<i>BVE*IFRS</i>	Interaction effect of IFRS adoption and book value of equity
<i>IND</i>	Dummy industry effect

<i>YR</i>	Dummy year effect
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The study employs IFRS with its interactive effects on net income and book value of equity as the interest variables of the regression estimation. We expect the interest variables to depict positive coefficients and significance. The dataset for pooled price-earnings regressions of IFRS adoption computation recognizes both year and industry dummy variables in the regression to control for time and fixed-industry effects to minimize the presence of correlated omitted variables that are time-invariant (Gow, Ormazabal & Taylor, 2010; Atwood et al. 2011). We opt not to include the control variables within price-earnings computations so as to minimize the possibility of potential multicollinearity problems (Greenberg & Robert, 1997). Moreover, the number of shares outstanding is used as deflator to minimize coefficient bias and heteroscedasticity effects (Barth & Kallapur, 1996), and to depict valuation relevance and growth opportunities (Hann et al. 2007) that are not reflected in equity book value and earnings (Derek et al. 2008; Akbar & Stark, 2003; Hirschey, 1985).

4. Results

Findings of discretionary accruals, small loss avoidance, and price-earnings of proxies used the pooled sample regressions; while accrual quality and earnings smoothing proxies compare accounting-based attributes in the pre-and-post periods of a separate sample of IFRS adoption.

The descriptive statistics relating to the test and control variables of the sample are presented in table 6 of Panel A and B for pooled regression of discretionary accruals and small loss avoidance. Discretionary accruals without outliers (DAO) depict 162 firm-year observations, whereas those with outliers (DA) reveal 176 (see Panel A of Table 6). Discretionary accruals with outliers reveal negative mean amounts of 0.036 as against lower positive mean value (0.011) of DAO. The mean values of IFRS and SLA show higher values in relationship with DA and DAO. This suggests that most of the firms might experience positive minimal earnings under the small loss avoidance proxy. This is not consistent with the intended objective of introducing IFRS. Moreover, the control variables (e, g, GROWTH, CFO, LEV, SIZE, ROA, and AQ of

Table 6, Panel B) showing the firm's characteristics reveal positive means to signify a better association with the adoption indicator.

INSERT TABLE 6 HERE

Descriptive statistics of pooled price-earnings of accounting quality of Table 7 show relatively large positive stable mean and standard deviation figures for all the variables, except share price that shows negative mean amount. The negative share price means could be a sign of minimal performance of GSE capital market under IFRS. Furthermore, the mean value for net income depicts smaller amount after IFRS adoption, suggesting that net income has a negligible contribution to the share price. The smaller value of net income measures may also explain that GSE investors' reaction to accounting information after IFRS regime does not explain the share price of the capital market. Share price is the sole variable that proves a higher standard deviation figure of 1.734, suggesting more or less an extreme spread, even after natural log transformation. This welcomes the fact that share price figures depict prejudice. International Financial Reporting Standards adoption achieves mean value of 0.624, suggesting a higher average value of the sample.

INSERT TABLE 7 HERE

Table 8 shows descriptive statistics for accrual quality and earnings smoothness. It depicts pre-adoption and post-adoption mean and standard deviations of the variables used in the analysis of the sample firms. As showed in Table 8, the mean values of the net income (NI), accruals (ACR), property, plant and equipment (PPE) and cash flow from operations (CFO) are significantly smaller after the adoption of IFRS. This serves as a sign of lower growth in business operations after IFRS adoption.

INSERT TABLE 8 HERE

Correlation matrix

Table 9 shows the spearman correlation matrix of the variables used to measure discretionary accruals and small loss avoidance under pooled regression. The test result of small loss avoidance has a negative correlation with leverage and IFRS adoption as coefficients of - 0.330 and -0.190 respectively. This implies that leverage and IFRS adoption by GSE-listed firms achieve a decrease in small loss avoidance, leading to improvement in accounting quality. In addition, small loss avoidance has a positive association with growth; cash flow, size, and audit quality (see Table 9). This relationship may mean that the control variables tend to assume affirmative association with IFRS adoption. International Financial Reporting Standards adoption reveals positive correlation with size (0.249), and leverage (0.226) at 5% significant level. It may imply that large amounts of total assets (size) and high intensity to utilize total assets to meet short-term obligations (leverage) cause improvement in IFRS amounts, but the relationships (R2 of 6.2% and R2 of 5.1%) are not strong.

In a similar result, discretionary accruals without outliers (DAO) reveal a test result of 5% significant coefficient of -0.179 under IFRS adoption period (see Table 9). The strength of the relationship is small (Cohen, 1988). The coefficient of determination (R2) is 3.2%, suggesting that IFRS adoption under DAO is not much explained. This result indicates that the adoption of IFRS leads to decreased earnings management practices managers might pursue. This has the ultimate effect of improving accounting quality, all things being the same. In the same way, that of DA reveals the coefficient of determination of 2.9%, which is very minimal under IFRS adoption by GSE-listed firms

INSERT TABLE 9 HERE

Panel B of Table 10 reports spearman correlation matrix on pooled price-earnings regression. It shows that the degree of linear association between IFRS adoption and BVE (0.170) is quite reasonable, but achieves a low association with share price (0.044), suggesting a reduced multicollinearity in the regression model. Again, there is moderate strength of association between the equity book value, net income and share price at 5% significance level.

INSERT TABLE 10 HERE

Panel A of Table 10 shows the spearman correlation results of variables included in accrual quality's simultaneous equation for both pre-adoption and post-adoption periods. As expected, high correlations exist between the CFO_{t+1}, CFO_{t-1} and CFO in both periods, suggesting that accrual quality is being manipulated to manage earnings. The negative correlation between accruals (ACR) and CFO_{t+1}, CFO_{t-1} and CFO for both periods confirms findings that cash flow from operations could predict accruals, suggesting improvement in accounting information after IFRS adoption at 5% significant level.

INSERT TABLE 10 HERE

Multivariate regressions

Discretionary accruals

Table 11 depicts the test results of pooled discretionary accruals with outliers (DA) and without outliers (DAO) estimation by using ordinary least square (OLS) method under IFRS adoption. Discretionary accrual and DAO results have an explanatory power (Adjusted R²) of 4.44% and 3.58% respectively. The results explain the IFRS adoption negative coefficients (-0.090 and -0.064) at 10% significant levels respectively in association with DA and DAO as dependent variables. The negative coefficient values signify that IFRS adoption by GSE-listed firms has an inverse relationship with the level of DA and DAO, which explains the reduced earnings management. A decreased in earnings management practices by managers tends to give reasonable assurance for quality financial information about GSE firms. This information could be relied on by investors for meaningful investment decisions. This result is in agreement with Barth et al. (2008), Chua et al. 2012, Zeghal et al. 2012 and Gassen and Selhorn (2006), but inconsistent with De Besten et al. (2015). Findings from DA and DAO results emphasise that the adoption of IFRS has decreased earnings management, suggesting an increase in accounting quality of GSE-listed firms.

Moreover, the result of cash flow from operations (CFO) reveals a negative coefficient (-0.106 and -0.068) at 5% and 1% level of significance in relation to DA and DAO as dependent variables. This shows a marginal growth in SIZE under IFRS adoption by GSE-listed firms at 10% significant levels of DA and DAO respectively. This is in agreement with the theory that downward discretionary accrual results in a contemporaneous increase in the amount of total assets, especially where firms manage their incomes through acquisition of assets (Penman, 2001; Sweeney, 1994). This result is in line with expectations as there is a considerable difference between the GNAS and IFRS. This results in a huge impact on actual cash stream and investment in assets. This may mean that the IFRS adoption by GSE-listed firms perhaps face less implementation difficulties; hence, there is effective adherence to new standards. Contrary to expectations, Table 25 shows that GRTH depicts negative coefficient, but AQ, ROA and LEV reveal positive coefficients but are not significant in explaining the IFRS adoption, except AQ under DAO at 10% level of significant. There is also significant inverse relationship between CFO and DA, suggesting improvement in cash flow amount under IFRS (Dechow & Skinner, 2000). It is submitted that a firm with lower growth hesitates to adopt IFRS, explaining the strong motivation by GSE-listed firms to adopt IFRS. The results of audit quality (AQ) indicate positive relationships with discretionary accruals without outliers at 10% significance levels. The mandatory IFRS adoption compels listed firms to have their financial accounts audited, but the results prove that most firms engage the local auditing firms as opposed to the BIG4 firms. This is, perhaps, due to high audit fees that are charged by BIG4 audit firms comparatively.

INSERT TABLE 11 HERE

Accrual quality

The results reveal that accrual quality for pre-adoption period measures a standard deviation of 1.433 higher than the post-adoption period's standard deviation of 0.918 (see Table 12). The results are multiplied by -1 so that an increase in accrual quality reflects a decrease in cash flows. Findings reveal that IFRS period yields more predictive ability about future earnings as it depicts low variance with associated high accrual quality. The pre-adoption period has a low fit between accruals and operational cash flows, due to a high variance estimator of accrual quality as

compared to post-adoption period. Post-adoption period accruals are more relevant for predicting cash flow in the future and are likely leading to high accounting quality financial information about GSE listed firms (Francis et al. 2006). Other researchers are of the view that high variance is a signal that the accounting standards are operating in a volatile business environment and could be inimical to earnings (Dechow & Dichev, 2002).

INSERT TABLE 12 HERE

Smoothness

Earnings smoothness results of Table 13 shows lower pre-adoption ratio of 0.959, as compared to post-IFRS ratio of 1.095. This means that variability of change in earnings increases significantly after IFRS adoption. A higher ratio of 1.095 under IFRS indicates less smoothing of earnings stream as compared to cash flows and, therefore, could discourage earnings management incentives by managers (Dechow et al. 2010) after IFRS adoption. This test suggests that IFRS adoption period exhibits higher earnings in cash flow variability of GSE listed firms and therefore may give assurance of improved accounting quality of financial reporting information (Leuz et al. 2003). This enables investors and other users to make consequential investment decisions.

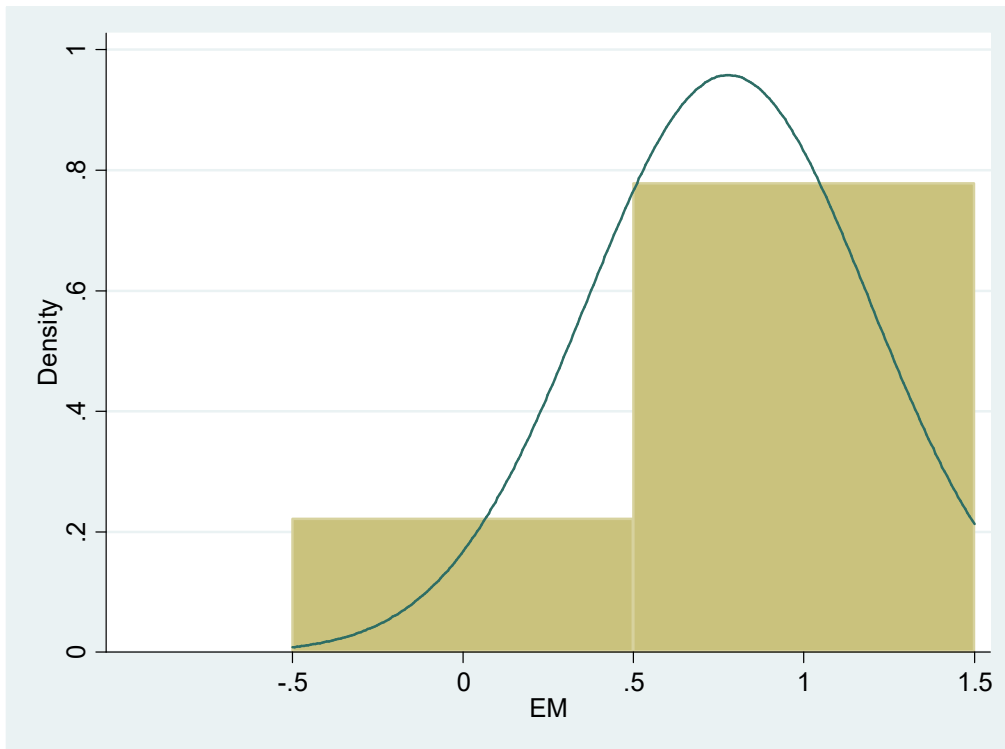
INSERT TABLE 13 HERE

Small loss avoidance

The graphical presentation (see Figure 1) for the earnings smooth distribution level of small loss avoidance confirms the interval to the immediate right of zero. Figure 1 depicts that earnings that are higher than zero occur slightly more frequently. Earnings management hypothesis to achieve small positive profits is contrary to earnings smooth distribution graph (see Figure 1). In other words, the graph reveals that firms with slightly positive earnings portray higher expected frequency as against firms with slightly negative earnings with associated lower expected

frequency (Burgstahler & Dichev, 1997). The graph (figure 1) of the earnings distribution suggests that when earnings are managed well it paves a way for meeting earnings targets.

Figure 1: Distribution of earnings for detection of earnings management



The larger peak shown by the graph is a sign of the requirement for earnings management. It shows the earnings interval of the distribution of the sample firms. This finding provides evidence consistent with the result of Leuz et al. (2003), and also concludes that the graph shows a decline in earnings management under the IFRS adoption.

Table 14 shows the logit results of earnings distribution approach for detecting earnings management in tandem with Burgstahler and Dichev (1997) and Leuz et al. (2003). The result reveals that IFRS adoption achieves a negative coefficient of -2.666 at a 1% significant level. This may suggest that the adoption of IFRS causes reduction in earnings management, thereby enhancing earnings of GSE listed firms. In other words, there is less small avoidance, indicating improved accounting quality after IFRS adoption. This result supports prior findings by Tanko (2012) of Nigeria, Ozili (2015) of Nigeria, and Outa (2011) of Kenya. The p-value for IFRS

adoption is 0.001, which is less than alpha value of 0.05. This suggests that IFRS adoption has a strong impact on earnings of the listed firms in Ghana. This finding is supported studies on most developed countries (Chua et al. 2012; Barth et al. 2008; Leuz et al. 2003). Nevertheless, the relationship between earnings management and CFO, DAO, and GROWTH, depicts a positive relationship at both 1% and 10% levels of significance respectively. The exceptions are ROA, SIZE, and AQ that are statistically insignificant. The results suggest that substantial losses are recognized after the shift to IFRS. This signifies that the change has positive improvement on earnings of firms, thereby giving assurance of high-quality earnings information after IFRS (Sloan, 1996).

In addition, the results indicate that, with the exception of LEV, there are negative coefficients for relationships between the DA, and small loss avoidance at a range of 5% levels of significance,. This relationship suggests that DA decreases due to adoption of IFRS; it has a negative reduction effect on earnings management to pave the way for increased financial performance, thereby improving accounting numbers. The Pseudo R-squared explains 50.66% of the model, which is befitting the outcome of the estimation. The model further achieves a high likelihood ratio chi-square test of 90.59, with 9 degrees of freedom for the chi-square distribution. Overall, small loss avoidance metric reveals that IFRS recognizes more losses after the shift to IFRS.

INSERT TABLE 14 HERE

Value relevance

Table 15 reveals pooled summary results of price regression (with and without outliers) of value relevance within IFRS adoption of GSE-listed firms. Summary results of Table 15 reveal that the interaction effects of NI*IFRS and BVE*IFRS of the model depict both positive and negative coefficients of outliers and non-outliers respectively. The NI*IFRS reveals positive coefficients (6.586 and 4.385) under 1% significant level. This means that net income and IFRS adoption combined to significantly explain the share price of GSE-listed firms, and is value relevance

after the IFRS adoption. Consistently, $BVE \cdot IFRS$ achieves negative coefficients (-0.778 and -0.970) at 1% significant level in consistence with Zeghal et al. (2012). This means that the combined effect of book value of equity and IFRS adoption may lead to reducing the share price of GSE listed firms after IFRS adoption

Table 15 depicts negative coefficients (-0.683 and -0.785) of IFRS adoption on insignificant and 10% significant levels respectively. Finding of price regression with outliers is contrary to Zeghal et al. (2012), Chua et al. (2012), and Iatridis (2010) results, as GSE firms behave differently due to the effect of IFRS adoption. This finding confirms the IFRS adoption implementation problems such as under-development of the accounting profession and regulation, and insufficient control mechanism like security commission to supervise IFRS adherence, resulting in low incentives enforcement firms. Other culminating reasons may be lower income per capita, fragile and highly volatile political and economic issues and perhaps high institutional GSE shares ownership. International Financial Reporting Standards adoption seems to have minimal impact on the share price of GSE listed firms for the period of the study. The result of a negative relationship between IFRS adoption and share price means that adoption does motivate share price. The result is in agreement with Brochet et al. (2012), but contrary to Daske et al (2007). On the other hand, coefficients of NI and BVE of the model reveal positive values at 1% significant levels. This means that net income and book value of equity explain the share price of GSE-listed firms of IFRS adoption. Share price of GSE firms reveals valuable information as the quality of accounting reporting increases (Iatridis & Rouvolis, 2010) in relation to NI, BVE. Therefore NI, BVE and $NI \cdot IFRS$ are value-relevant in performance assessment of GSE-listed firms after IFRS adoption in support for the hypothesis. The trend of values of adjusted R-squared under non-outliers achieves 16.78% higher than R-square of outliers. This means that an independent variable accounts for a high proportion of the GSE share price.

INSERT TABLE 15 HERE

5. Conclusion

Building on previous research, we focus on five proxies that are predominant in the literature to examine accounting quality on GSE-listed firms. Our proxies are discretionary accruals, accrual quality, earnings smoothness, small loss avoidance and price-earnings return of value relevance (Luez et al. 2003; Francis et al 2005; Zeghal et al. 2012). We fine-tune the adoption against these proxies to ascertain the relative effects of the shift to the new standards.

This study examines whether or not the accounting quality of financial reporting of GSE-listed firms has increased after the adoption of IFRS in 2007. Specifically, we ascertain that the application of IFRS in Ghana exhibits less discretionary accruals, high accrual quality, more small loss recognition, higher earnings smoothness ratio and higher value relevance of accounting numbers. Consistent with the general hypothesis that ‘adoption of IFRS by GSE firms’ lead to higher accounting quality’, findings from the discretionary accruals results indicate that the adoption of IFRS has decreased earnings management, suggesting an increase in accounting quality. Price-earnings regression results of interaction effect of net income and IFRS (NI*IFRS) reveal affirmative value relevance after the switch to IFRS. Small loss avoidance test result reveals that, as more firms are likely to adopt the IFRS. Earnings management practice experience decreased trends, suggesting an increase in earnings’ capacity of the firms, which in turn can lead to improving accounting numbers. Results of earnings smoothness confirm that IFRS adoption by GSE firms under achieves higher accounting quality of information in accordance with the intended aim of IFRS. Accrual quality test result clearly shows an improvement in earnings quality. Findings of this study support the agency theory, efficient capital hypothesis and the residual income valuation model (RIVM). This is because the results generally lead to enhancing disclosure of accounting information on GSE listed-firms in terms of quality liquidity for financial reporting standards to assure investors of reduced transaction costs and to inform financial analysts about the value of the firm.

The limitation is that, our results focus on data from Ghana, where adoption of IFRS has supervision problems. However, the results are significant for local standard-setters, investment

decisions of financial and credit analysts as well as other African countries that have adopted the new standards and ones that have not yet decided to move to IFRS. Further research could examine additional data from other African countries. Another avenue for future research would be to examine a much longer period of the IFRS post-adoption regime so that the results would be much more comprehensive.

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Appendix

Table 6: Descriptive statistics: discretionary accruals and small loss avoidance (SLA)

Panel A: Interest variable

Variable	Obs	Mean	Std. Dev.
<i>SLA</i>	176	0.778	0.417
<i>IFRS</i>	176	0.636	0.482
<i>DA</i>	176	-0.036	0.298
<i>DAO</i>	162	0.011	0.229

Panel B: Control variable

Variable	Obs	Mean	Std. Dev.
<i>GRTH</i>	176	0.403	1.878
<i>LEV</i>	176	2.281	21.177
<i>CFO</i>	176	0.064	0.576
<i>SIZE</i>	176	10.094	1.260
<i>ROA</i>	176	0.647	6.000
<i>AQ</i>	176	0.750	0.434

SLA is small loss avoidance; *IFRS* is International Financial Reporting Standards; *DA* is discretionary accrual with outlier; *DAO* is discretionary accrual without outlier; *CFO* is cash flow from operation; *GRTH* is growth; *AQ* is audit quality; *SIZE* is size; *ROA* is return on asset; *LEV* is leverage.

Table 7: Descriptive statistics

Variables	Obs	Mean	Std. Dev.
<i>LNPRICE</i>	173	-1.126	1.734
<i>NET INCOME</i>	173	0.028	0.158
<i>BVE</i>	173	0.250	0.283
<i>IFRS</i>	173	0.624	0.485

LNPRICE is natural log of share price; *NET INCOME* is net income; *IFRS* is International Financial Reporting Standards; *BVE* is book value of equity.

Table 8: Descriptive statistics of accrual quality and earnings smoothness

Variable	Pre-IFRS			Post-IFRS		
	Obs.	Mean	Std. Dev	Obs.	Mean	Std. Dev

<i>NI</i>	64	0.140	0.577	64	0.058	0.134
<i>ACR</i>	64	0.741	4.582	64	0.016	0.331
<i>CREV</i>	64	1.795	11.098	64	0.249	1.037
<i>PPE</i>	64	5.825	39.647	64	0.038	0.180
<i>CFO</i>	64	0.096	0.907	64	0.067	0.271
<i>Nit-1</i>	64	3.748	13.730	64	1.895	6.483
<i>CFO_{t+1}</i>	64	0.096	0.907	64	0.067	0.271
<i>CFO_{t-1}</i>	64	0.284	2.280	64	0.069	0.259

NI is net income; ACR is accruals; CREV is change in revenue; PPE is property, plant and equipment; CFO is cash flow; Nit-1 is net income lagged prior year; CFO_{t+1} is cash flow scaled leap year total assets; CFO_{t-1} is cash flow scaled last year total assets.

Table 9: Spearman correlation matrix for determinants

	SLA	IFRS	DA	DAO	GRTH	LEV	CFO	SIZE	ROA	AQ
SLA	1.000									
IFRS	-0.190***	1.000								
DA	0.219***	-0.169**	1.000							
DAO	0.206***	-0.179**	0.940***	1.000						
GRTH	0.178**	0.088	0.006	-0.057	1.000					
LEV	-0.330***	0.226***	-0.044	0.021	0.035	1.000				
CFO	0.402***	0.041	-0.333***	-0.417***	0.144	-0.245***	1.000			
SIZE	0.270***	0.249***	0.195***	0.181**	0.212***	-0.176**	0.202***	1.000		
ROA	0.097	-0.086	0.259***	0.267***	0.016	-0.107	-0.184***	0.096	1.000	
AQ	0.278***	-0.048	0.086	0.118	0.031	-0.305***	0.244***	0.161**	-0.079	1.000

*** 1% significant level, ** 5% significant level, and * 10% significant level.

SLA is small loss avoidance; IFRS is International Financial Reporting Standards; DA is discretionary accruals with outliers; DAO is discretionary accruals without outliers; GRTH is growth; LEV is leverage; CFO is cash flow from operations; SIZE is size; ROA is return on assets; AQ is audit quality

Table 10: Spearman/Pearson's (below/above diagonal) correlation matrix for price-earnings

PANEL B

	LNPRICE	NET INCOME	BE	IFRS
LNPRICE	1.000	0.403	0.522	0.044
NET INCOME	0.403	1.000	0.306	0.118
BVE	0.522	0.306	1.000	0.169
IFRS	0.044	0.118	0.169	1.000

BVE is book value of equity; IFRS is International Financial Reporting Standards.

Table 10: Spearman's correlation for accrual quality and conservatism

Panel A: Accrual quality

	ACR	CFO _{t+1}	CFO _{t-1}	CFO	CREV	PPE
Pre-adoption						
ACR	1.000					
CFO _{t+1}	-0.392*	1.000				
CFO _{t-1}	-0.390*	0.928*	1.000			
CFO	-0.392*	1.000*	0.928*	1.000		
CREV	-0.200	0.058	0.081	0.058	1.000	
PPE	0.065	0.301*	0.338*	0.301*	0.097	1.000
Post-adoption						
ACR	1.000					
CFO _{t+1}	-0.259*	1.000				
CFO _{t-1}	-0.301*	0.956	1.000			
CFO	-0.259*	1.000*	0.956*	1.000		
CREV	0.232	-0.001	0.018	-0.001	1.000	
PPE	0.275*	0.173	0.173	0.168	0.032	1.000

Table 11: Discretionary accruals pooled results using OLS

$$DA/DAO = \alpha_0 + \beta_1 IFRS_{i,t} + \beta_2 ROA_{i,t} + \beta_3 GRTH_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 CFO_{i,t} + \beta_7 AQ_{i,t} + \varepsilon_{i,t}$$

Variable	Sign	OLS with outliers (DA)			OLS without outliers (DAO)		
		Coeff	T-test	P-value	Coeff	T-test	P-value
<i>Intercept</i>		-0.354	-1.95	0.053**	-0.276	-1.91	0.058**
<i>IFRS</i>	+	-0.090	-1.87	0.063*	-0.064	-1.63	0.105*
<i>GRTH</i>	+	-0.013	-1.16	0.246	-0.006	-0.61	0.542
<i>SIZE</i>	+	0.033	1.80	0.074*	0.027	1.86	0.065*
<i>LEV</i>	-	0.000	0.42	0.677	0.000	0.16	0.871
<i>CFO</i>	+	-0.106	-2.70	0.008***	-0.068	-2.20	0.029**
<i>AQ</i>	+	0.061	1.18	0.239	0.076	1.78	0.078*
<i>ROA</i>	+	0.000	0.14	0.887	0.000	0.20	0.839
N		176			162		
R ²		0.0826			0.0777		
Adj. R ²		0.0444			0.0358		
Prob>F		0.0401			0.0807		

***, **, * coefficients significant at the 1%, 5%, 10% level of confidence respectively.

IFRS is International Financial Reporting Standards; *GRTH* is growth; *SIZE* is size; *LEV* is Leverage; *CFO* is cash flow from operation; *AQ* is audit quality; *ROA* is return on Asset; *DA* is discretionary accruals with outliers; *DAO* is discretionary accruals without outliers.

Table 12: Tests for accrual quality on accounting quality of IFRS adoption

Accrual quality	Pre-adoption	Post-adoption	Pred.	Diff
Accrual quality (std. dev.)	41.433	0.918	+	-0.515

Accruals quality is the standard deviation of the residuals from the regression of accruals on future year, current year, and previous year's cash flows from operations multiplied by $- (\text{Accrual} = \beta_0 + \beta_1 \text{CFO}_{t+1} + \beta_2 \text{CFO}_{t-1} + \beta_3 \text{CFO}_{i,t} + \beta_4 \Delta \text{REV}_{i,t} + \beta_5 \text{PPE}_{i,t} + \varepsilon_{i,t})$.

Table 13: Tests for earnings sustainability on accounting quality of IFRS adoption

Measures of earnings sustainability	Pre-adoption	Post-adoption	Pred.	Diff
Earnings smoothness (SR)	0.959	1.095	+/-	0.136

All measures are constructed in a way that higher values are indicative of better earnings quality. Earnings smoothness is the ratio of the standard deviation of net income before extraordinary items (scaled by assets) to the standard deviation of cash flows from operations (scaled by assets) multiplied by -1.

Table 14: Pooled logistic result of small loss avoidance

$$SLA = \alpha_0 + \beta_1 DA_{i,t} + \beta_2 DAO_{i,t} + \beta_3 IFRS_{i,t} + \beta_4 ROA_{i,t} + \beta_5 GRTH_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 LEV_{i,t} + \beta_8 CFO_{i,t} + \beta_9 AQ_{i,t} + \varepsilon_{i,t}$$

Log Likelihood = -44.117298					
Variable	Sign	Coeff.	Z	P-value	Odds ratio
Intercept	?	2.636	1.11	0.265	13.968
IFRS	+	-2.666	-3.18	0.001***	0.069
DA	+	-10.578	-1.92	0.054**	0.000
DAO	+	21.996	3.09	0.002***	0.000
GRTH	+	0.736	1.69	0.091*	2.087
LEV	-	-0.076	-1.50	0.134	0.926
CFO	+	17.473	4.97	0.000***	0.000
SIZE	+	0.019	0.09	0.929	1.019
ROA	+	0.021	0.27	0.789	1.021
AQ	+	0.400	0.66	0.510	1.492
N		162			
LR Chi2(9)		90.59			
Prob>chi2		0.000			
Pseudo R ²		0.5066			

***, **, * coefficients significant at the 1%, 5%, 10% level of confidence respectively.

IFRS is dummy variable denoted as 1 for IFRS adoption period between 2008-2013, and otherwise 0, DA is discretionary accrual with outliers; DAO is discretionary accrual without outliers; GRTH is growth as change in sales; SIZE is size as natural log of total assets; LEV is leverage; CFO is cash flow from operation; AQ is audit

quality as BIG4 firms denote as 1, and otherwise 0; ROA is return on Asset; dependent variable SLA is dummy variable denoted as 1, if the firms earnings level has a positive (0, 0.01) interval in a given year, and 0 otherwise.

Table 15: Pooled price regression of IFRS adoption (with and without outliers)

$$Inp_{i,t} = \alpha_0 + \beta_1 IFRS_{i,t} + \beta_2 NI_{i,t} + \beta_3 BVE_{i,t} + \beta_4 NI * IFRS_{i,t} + \beta_5 BVE * IFRS_{i,t} + IND_{i,t} + YR_{i,t} + \varepsilon_{i,t}$$

Variable	Sign	With outliers			Without outliers		
		Coeff.	T.test	P-value	Coeff.	T-test	P-value
<i>IFRS</i>	+	-0.683	-1.40	0.163	-0.785	-1.83	0.069*
<i>NI</i>	+	1.799	2.23	0.027**	2.405	3.48	0.000***
<i>BVE</i>	+	2.419	5.12	0.000***	4.242	8.80	0.000***
<i>NI*IFRS</i>	+	6.586	4.08	0.000***	4.385	2.90	0.004***
<i>BVE*IFRS</i>	+	-0.778	-3.67	0.000***	-0.970	-5.27	0.000***
<i>CONS.</i>	?	-2.277	-4.48	0.000	-2.208	-5.03	0.000
<i>IND EFFECT</i>		YES	YES	YES	YES	YES	YES
<i>YR EFFECT</i>		YES	YES	YES	YES	YES	YES
N		173			165		
Prob>F		0.0000***			0.0000***		
R ²		0.4707			0.6232		
Adj. R ²		0.4146			0.5824		

***, **, * coefficients significant at the 1%, 5%, 10% level of confidence respectively.

LNP is natural logarithm of share price; *IFRS* is International Financial Reporting Standards; *NI* is net income lagged by shares outstanding; *BVE* is book value of equity lagged by shares outstanding; *NI*IFRS* is interaction effect of IFRS adoption and net income; *BVE*IFRS* is interaction effect of IFRS adoption and book value of equity; *IND* is dummy industry effect; *YR* is dummy year effect.

Appendix: Summary of Africa empirical studies about accounting quality

Study	Sample	Research design	Findings
Tanko (2012)	5 Nigerian banks between 2007 and 2010 at voluntary adoption.	Accrual measurement following Barth et al. (2008).	IFRS adoption period achieves decreased earnings variability and loss recognition is improved.
Outa (2011)	Mandatory adoption by Nairobi Stock Exchange listed firms between 1995 and 2004.	The study follows Barth et al. (2008) for IFRS adopted firms and non-IFRS adopted firms.	Post-IFRS period sees decreased earnings smoothing and discretionary accruals.
B. Yeboah & M. Yeboah (2015)	Mandatory IFRS adoption of 181 listed firms of South Africa between 1998 and 2012.	The study follows Barth et al. (2008) and Jones Model (1991), using linear regressions.	Post-IFRS period sees decreased earnings smoothing and discretionary accruals.
Onali et al. (2014)	Voluntary adoption of 8 Malaysia banks and 15 Nigerian banks between 2009 and 2012.	The study is based on Jones (1991) model. Findings reveal a positive accounting quality.	Findings reveal a positive accounting quality.
Ames (2013)	Mandatory adoption of JSE listed firms for a period of 2000-2011.	The study follows Barth et al. (2008) and Morai and Curto (2008) design.	Post-IFRS adoption sees informativeness of EPS being improved.
Rao and Warsame (2014)	Both mandatory and voluntary adoption of capital markets of Africa between 1995 and 2005.	Accrual measurement follows Kothari et al. (2005) and Barth et al. (2008).	Post-IFRS adoption sees informativeness of EPS being improved.
Hessayri and Warsame (2014)	The sample involves listed firms of UAE, Morrocco, South Africa, and Philippines for a period of 8 years.	Accrual measurement follows Jones model to deal with earnings management.	Findings reveal that earnings management of post-IFRS decreased.
Ozili (2015)	Sample involves	Using specific accrual	Findings reveals

	voluntary adoption of Nigeria listed firms between 2002 and 2013.	approach (Ahmed et al. 1999).	increased in earnings management at post-IFRS period.
Fiador (2011)	Sample of non-financial firms listed on the GSE in Ghana.	Design approach is Ohlson valuation model using panel dataset with non-pooled regression analysis of random effect.	Findings reveal that net asset per share shows value relevant. Non-executive directors are relatively irrelevant in the market shares valuation.
Amidu et al. (2016)	Sample of non-financial listed and non-listed firms in Ghana.	Design approach is Jones discretionary accrual to measure earnings management, augment the design with GMM estimators.	Findings reveal that IFRS adoption increases earnings quality, leading to increase in profitability with low tax avoidance incidence under internal and debt funding sources.

Adapted: Ozili (2016)