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Does the International Financial Reporting Standard Impact Earnings Management of the JSE Firms?

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Abstract

Purposes: The paper considers how IFRS impacts discretionary accruals under the assumption that managers do not exercise discretion over revenue when involve in earnings management. The paper verifies whether the change in earnings management is due to time variation and should not be attributed the implementation of IFRS.

Methods: The paper employs random effects regression to examine the relationship between Jones model based discretionary accruals and IFRS-adoption, alongside other time-varying firm's specific covariates including financial leverage, cash flow from operations, asset returns, equity returns, firms' growth, firm's size, and boot to market value.

Findings: The paper finds that the estimate for the IFRS dummy was negative and significant, an indication that IFRS causes significant reduction in the discretionary accruals. Since earnings management is reduced after the adoption, this implies that IFRS has positive effects in practices. The paper further finds that earnings management is not purely time-driven and that it is robust to some specific covariates such as firm size, growth, and leverage.

Novelty: The paper is novel because findings have importance for regulations, firm's operations and future investigations. The evidence provides guidance to auditors in financial reporting, policy makers during policy formulation, investors in making informed decisions and regulators in their enforcement processes for the capital market.

Keywords*: IFRS, Financial Report, Earnings Management, Discretionary Accruals, Random Effects.*

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INTRODUCTION

There is need for research and regulation to consider the issue of earnings management amongst firms to ensure improvement and fairness in earnings information reported in the capital market. Earnings management involves managers exercising discretion in voluntarily manipulating earning's items such as asset write-offs, debts, profits, income, in order to misstate the firm's true earnings position (Adedokun et al., 2022; Brennan, 2022; Capkun et al., 2016). In practice, the managers may engage discretions by means of managing accruals or real earnings management (REM) to distort reported earnings information in order to conceal the intents. Accruals earnings management (AEM) includes the manipulation of accounting operations

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activities such as bias selection of earnings estimates and policies (Kim, & Lin, 2019), whereas REM involves misreporting of actual economic activities of the firm (Eiler et al., 2021; Irani, & Oesch., 2016; Pacheco-Paredes & Wheatley, 2021).

Literature argues that change in accounting standard can lead to the reduction in earnings management and improve the quality of accounting information (Ahmed et al., 2013; Tawiah, 2019; Tawiah, & Boolaky, 2020). Different accounting standards have been implemented to achieve improve accounting information quality. The International Financial Reporting Standards (IFRS) was formulated due to rising requests for more reliable accounting information system instigated by high-profile corporate fraud in the United States that contributed to the global economic meltdown in 2008. IFRS allows managers and accountants to use professional judgments in reporting financial indices that reflect companies' performance. The Standard is considered as a high-quality reporting standard and its adoption based on historical-cost values has been shown to improve accounting quality (Isaboke & Chen, 2019; Ma et al., 2022). Because IFRS may improve information quality, its usage has become popular in global capital markets (Bertrand et al., 2020; Gaganis et al., 2016; Tawiah, 2019).

IFRS affects information quality due to the standards' core features that centre on principle-base rather than rule as well as valuation instead of contractibility (Ball et al., 2015; Bhatia, & Mulenga, 2019; Li & Yang, 2016; Uthman, & Salami, 2021) The effects of IFRS implementation on earnings information quality remains an integral issue for research. Empirical studies have tried to explore the effects of IFRS adoption on value relevance, accounting conservatism, income smoothing, reporting quality, voluntary disclosure and earnings management (Bryce et al., 2015; Cadot et al., 2020; Chimonaki & Konstantinos, 2020; De-Moura et al., 2020; Gaganis et al., 2016; Guermazi & Khamoussi, 2018; Isaboke & Chen, 2019; Klish et al., 2021; Kousay, 2019; Malofeeva, 2018; Mongruta & Winkelried, 2019; Rathke et al., 2016; Ugrin et al., 2017).

Most previous research on the effects of IFRS on earnings management focused on Asia, Europe, and Latin America, and only few studies have investigated African countries (Adedokun et al., 2022; Mensah, 2020; Odoemelam et al., 2019), leaving the region still largely understudied despite the prevalent usage of the Standard (Tawiah & Boolaky, 2020). Yeboah and Yeboah (2015) find that IFRS reduces income smoothing and improves accounting quality in South Africa. Ozili and Outa (2019) show that among Nigerian banks, IFRS develops reliability and informativeness of loan-loss provisions and lowers earnings smoothing. Mensah (2020) indicates that IFRS reduces earnings management and enhances the quality of firms' financial reports in Ghana. Adedokun et al. (2022) report significant difference between the pre- and post-IFRS earnings management in Nigeria. The effects of IFRS on earnings management in South Africa has not been well explored. Therefore, the paper contributes to the scanty literature on the subject matter for the South Africa.

This paper pursues two objectives: (a) to examine the impacts of IFRS on earnings management amongst the Johannesburg Securities Exchange (JSE) firms under the situation that the managers exclude managerial discretion over revenue and (b) to verify whether change in earnings management since IFRS adoption is not due to natural time variation. The paper examines the aims using the discretionary accruals earnings management (AEM) in line with recent studies (Adedokun et al., 2022; Baig & Khan, 2016; Bryce et al., 2015; Kousay, 2019; Malofeeva, 2018; Mensah, 2020). Discretionary AEM approach is important for these two reasons underscored. First, the compositions of accruals inform firms' stakeholders on the optimal use of their resources, and second, discretionary accruals reliably explain value relevance, including earnings quality and earnings management (Dechow, Sloan & Zha, 2014).

In achieving the aims, the paper employs random effects regression to examine the relationship between Jones model' based discretionary accruals and IFRS-adoption, alongside other time-varying firm's specific covariates. The paper finds that the estimate for the IFRS dummy was negative and significant, an indication that IFRS causes significant reduction in the discretionary accruals. Since earnings management is reduced after the adoption, this implies that IFRS has positive effects in practices. The paper further finds that earnings management is not

purely time-driven and that it is robust to some specific covariates such as firm size, growth, and leverage. The findings have importance for regulations, firms' operations and future investigations.

A number of studies have examined how IFRS adoption relates to earnings management. Some identify that IFRS adoption lowers earnings management (positive impacts) (De-Moura et al., 2020; Klish et al., 2021; Rahmaningtyas & Mita, 2017). Rahmaningtyas and Mita (2017) note that the influence of IFRS on earnings management is lower in Asian countries with strong investor protection. De-Moura et al. (2020) identify that relative to the local accounting standards, the adoption of IFRS have enhanced volumtary disclosure in Latin America. Chimonaki and Konstantinos (2020) note that the Standard has reduce information costs and enhanced transparency in Greece. Klish e al. (2021) show how earning management has reduced among firms that use IFRS in Middle East and North Africa (MENA) countries. Some papers show IFRS reduce the quality of accounting information (negative impacts) (Baig & Khan, 2016; Malofeeva, 2018; Udayakumara & Weerathunga, 2016). Baig and Khan (2016) find that IFRS-adoption explains decrease in managed earnings. IFRS adoption contributes to improvement in the quality of accounting information. Udayakumara and Weerathunga (2016) find that firms in Sri Lankan exhibit increase income smoothing after IFRS adoption. Malofeeva (2018) note that in Russia, large firms resort to more earnings management than small ones. Chimonaki and Konstantinos (2020) observe that IFRS enhance transparency and lower information costs in Greece.

A strand of studies shows inconclusive outcomes (mixed impacts) (Cadot et al., 2020; Rathke et al., 2016; Ugrin et al., 2017). Rathke et al., (2016) associate higher earnings smoothing in Latin American relative to Continental Europe and Anglo-Saxon. Ugrin et al. (2017) show that the link between earnings management and IFRS is not uniform across European countries. Cadot et al. (2020) reveal that although the flexibility of IFRS motivates earnings management for derivatives firms, the practice has faded among other firms in the European Union. Some studies observe no significant effect (neutral impacts) (Abuda & Rudiawarni, 2014; Bryce et al., 2015; Kousay, 2019; Mongruta & Winkelried, 2019). Abuda and Rudiawarni (2014) observe no significant changes in earnings management after IFRS adoption in Indonesia. Mongruta and Winkelried (2019) note that IFRS adoption provide no sufficient guarantee on transparency in emerging markets. Bryce et al. (2015) note that accounting quality continue to be stable under local Generally Accepted Accounting Practices (GAAP) and post-IFRS in Australian. Kousay (2019) could not identify any direct impact of IFRS on earnings management used among public firms in Canada. To save space, Table 1 reports highlights of empirical reviews.

The consequence of IFRS-adoption remains of research interests. There are numerous evidences of increase inadequate disclosure, earnings anomalies, and managed earnings amongst corporations (Ozili & Outa, 2019; Ofoegbu & Odoemelam, 2018; Ugrin, 2017). DeFond et al. (2019), De-Moura et al. (2020), Kousay (2019) and Rathke et al. (2016) consider that IFRS may lead to precise reporting and lower earnings management. Cadot et al. (2020), DeFond et al. (2018), Harakeh et al. (2019), and Mongruta & Winkelried (2019) suggest that countries that have much differences between the domestic standards and the IFRS are expected to obtain more benefits from adoption. Hence, such country would observe significant decrease in managed earnings due to adoption. Lam et al. (2023) find that earnings management-increasing effect adoption is more in countries with low trust countries after control for institutions, and that IFRS decreases earnings management in countries with high trust.

South Africa falls under this category because at the inception of the official adoption the South Africa domestic GAAP aligned closely with the IFRS. South Africa harmonised her GAAP with the International Accounting Standard (IAS) framework before the mandatory adoption in 2005. Some firms already pulled resources for acquisition of facilities to smooth implementation, such that by the time of announcement, benefits of IFRS are assumed to immediately materialise (Cadot et al., 2020; DeFond et al., 2019; Harakeh et al., 2019; Mongruta & Winkelried, 2019; Yeboah & Yeboah, 2015). Studies by Yeboah and Yeboah (2015), for South Africa show that the implementation of IFRS results in improved accounting quality. The earnings smoothing and

Table 1. Summary of Empirical Review

Author(s)	Country	IFRS Year	#Firm	Method /Data	Variables	Remarks
Lam et al. (2023)	27 countries		7,936 firm-year	Panel regression	Earnings Management, trust, IFRS	Earnings management-increasing effect of IFRS is more in countries with low trust
Adedokun et al. (2022)	Nigeria	2012	125	Welch – Satterthwaite (2003–2020)	Discretionary accruals; leverage, IFRS dummy, growth, book-to-market value	Significant difference between earnings management of pre- and post-adoption.
Klish, Shubita and Wu (2021)	9 Countries	NA	3,040 firm-year	Bootstrapping approach (2006 to 2015)	Change in net income scaled by total assets; change in cash flow; change in liabilities, change in sales, change in stock, market value of equity	There is reduction in earnings management relative, after IFRS hence supposing that IFRS-adopters benefited from IFRS in MENA.
Chimonaki and Konstantinos (2020)	Greece	2005	231	FE (2002–2015)	Change regression in net income; market equity, leverage, change in liabilities, net cash flow, auditor's dummy	IFRS enhanced transparency and reduce information costs.
Mensah (2020)	Ghana	2006	120	FE, Pooled (2001–2014)	Modified Jones' discretionary accrual cash flows; firm size, profitability, growth, asset returns, leverage	IFRS adoption reduced earnings managed. IFRS enhanced the quality of firms' financial reports.
Kousay (2019)	Canada	2011	791	FE (2000–2018)	Discretionary accruals, Abnormal discretionary expenses; leverage, returns on assets, change in income, earning smoothing, gross property plant and equipment (PPE)	IFRS has no direct influence on earnings management used among publicly listed firms.
Odoemelam et al. (2019)	Nigeria	2012	101	FE (2006–2017)	Share Price; earnings, book value, post-IFRS earnings, firm-age, book value, size, leverage, auditor size	IFRS results in higher earning value relevance.
Malofeeva (2018)	Russian	2012	361	Panel OLS (2010–2015)	Discretionary accruals; IFRS adoption dummy, size, leverage, risk, percentage change in income, asset returns	IFRS has positive effect on discretionary accrual. Large firms resort to EM than small firms.
Baig and Khan (2016)	Pakistan	2004	100	Time series, Cross section (2001– 2009)	Total accruals, non-discretionary accruals; gross PPE, total assets, change in receivables, change in revenues	IFRS adoption led to less pervasiveness of earnings management.

Table 1 continues...

Author(s)	Country	IFRS Year	#Firm	Method /Data	Variable	Remark
Udayakumara and Weerathunga (2016)	Sri Lanka	2012	157	Pooled (2009–2014)	Change in annual net cash flow, change in net income; log of book value of total asset, leverage, %change in sales, auditor dummy, %change in book value of equity turnover, net cash flow	Higher earnings smoothing due to mandatory IFRS adoption, an indicative of higher level of earnings management.
Bryce, Jahangir, and Mather (2015)	Australia	2005	200	FE, Pooled (2003–2008)	Discretionary accruals, accruals quality; turnover, growth, company size, auditor's dummy	Accounting quality are reported to be stable under GAAP and IFRS.
Martínez (2015)	Mexico	2010	75	Pooled (2010–2011)	Ratio of cash flows to total assets, Ratio of the operating accruals by the total assets; total assets by book value equity ratio, total assets, revenue difference, total liability difference, difference in number of shares, big4 dummy	There was significant decrease in earnings managed due to convergence of IFRS adoption.
Yeboah and Yeboah (2015)	South Africa	2005	181	FE, Pooled (1998–2012)	Correlation between accruals and cash flow, absolute discretionary accruals, change in net income over small positive target; leverage, net cash flow divided by total assets, percentage change in sales, turnover, dummy for time fixed effects, total assets	The implementation of IFRS resulted in improved accounting quality. The earnings smoothing and discretionary accruals reduced within post adoption period.
Abuda and Rudiawarni (2014)	Indonesia	2012	169	Pooled (2010–2012)	Earnings volatility and discretionary accruals; share price and book value per share, liquidity, profitability, size, net profit, leverage	No significant change in managed earnings report following the mandatory IFRS adoption.
Dimitro-poulos et al. (2013)	Greece	2005	101	FE Pooled (2001–2008)	Discretionary accruals; net income per share, book value of common equity per share, dummy for IFRS.	IFRS contribute to less managed earnings larger value relevance, and time-loss recognition as compared to the domestic standards.

Note: Bold variable is a dependent variable. FE: Fixed effects, Pooled; Ordinary least square (OLS) pooled regression.

discretionary accruals reduced within post adoption period. On the basis of these the paper conjectures two null hypotheses:

H_1: The implementation of IFRS reduces earnings management amongst the JSE managers.

H_2: The reduction in earnings management since IFRS era is not due to time variation.

The rest of the study is organised as: Section 2 presents the methods, section 3 is the results and section 4 is the conclusion.

METHODS

2.1. Data

The paper employs annual financial information for JSE listed firms from 2000 to 2018 financial periods. The data, from the McGregor BFA database and firm's consolidated reports, span across window involving the periods of the SA-GAAP (South African GAAP) (2000-2004) and the IFRS (2005-2018). Based on the Industry Classification Benchmark (ICB) framework, the JSE-firms are enlisted into Industries (10), Supersectors (19), Sectors (41) and Subsectors (114). The initial sample includes 340 firms involving 38 sectors, but in assembling the final firm-year, some sectors including electricity, beverages, oil equipment, tobacco, utility and financial services are excluded. Others are excluded due to unavailable of the minimum sample of 10 observations needed to cross-sectionally estimate discretionary accruals for each firm (Dechow et al., 1995; Coulton et al., 2005). The design leaves the study with a final sample of 3,819 firm-years and 201 non-financial firms. Table 2 presents the snapshot of the sampling.

2.2. Earnings Management Models

For the aim, the study uses the Jones (1991)' model to estimate discretionary accruals, which is a viable proxy for earnings management (Adedokun et al., 2022; DeFond et al., 2019; Malofeeva, 2018; Ugrin et al., 2017). Discretionary accruals are fragment of total accruals that managers exercise discretions upon in reporting earnings. Larger discretionary accruals suppose higher earnings management in practice. The variables including the intercept are scaled by lagged of assets to measure against heteroscedasticity in both discretionary accruals models. The

Table 2. Sample Breakdown

	#Sectors	#Firms	#Sample	%Distr.
Sample Construction:				
Full initial sample	41	340	7,030	100.00%
Less: Financial, utility and other overregulated sectors	11	302	5,738	81.62%
Less: Missing observations (Final sample)	30	201	3,819	54.32%
Reporting Standard:			-	
Pre-IFRS firm-year: 2000 – 2004	30	201	1,005	26.32%
Post-IFRS firm-year: 2005 – 2018	30	201	2,814	73.68%
Full sample	30	201	3,819	100.00%
Industry-wise:				
Real Estates	2	26	494	12.94%
Basic Materials	4	19	361	9.45%
Consumers**	6	55	1045	27.36%
Health Care	2	8	152	3.98%
Industrials	7	39	741	19.40%
Energy, Oil & Gas	3	29	551	14.43%
Tech. & Telecom.	6	25	475	12.44%
Full Sample	30	201	3,819	100.00%

Note: #Sectors – No. of sectors in the group; #Firms – No. of firms in the sector; #Sample – No. of firm-year; %Distr. – percent of the associated group.

Jones model to estimate discretionary accruals is specified by equation (1).

$$\frac{TA_{i,t}}{A_{i,t-1}} = a_0\left[\frac{1}{A_{i,t-1}}\right] + \alpha_1\left[\frac{\Delta REV_{i,t}}{A_{i,t-1}}\right] + \alpha_2\left[\frac{PPE_{i,t}}{A_{i,t-1}}\right] + e_{1i,t} \quad \ldots\ldots(1)$$

Where, for each firm i, $TA_{i,t}$ is the total accruals, $\Delta REV_{i,t}$ is change in revenues (revenues in year t minus revenue in year t-1), $PPE_{i,t}$ is gross property, plant and equipment, $A_{i,t-1}$ is the total assets in year t - 1. To estimate equation (1), the paper first computes the total accruals. Existing research accommodate using financial statement to measure the total accruals (Dechow et al., 1995). The total accruals ($TA_{i,t}$) is the difference between operating profit ($PAT_{i,t}$) and cash flow from operations, ($CFO_{i,t}$):

After obtaining total accruals, all variables in equation (1) are normalised using the total assets as a scaler. Thereafter, equation (1) is estimated for each firm using OLS method, and the

$$TA_{i,t} = PAT_{i,t} + CFO_{i,t} \quad \ldots\ldots(2)$$

estimates of the residuals, which are the Jones discretionary accruals ($DAC_{i,t} = \hat{e}_{1i,t}$) (equation 3), are obtained.

Because Jones model is developed based on the implicit assumption that managers do not exercise discretion over revenue, the model undoubtedly best evaluates the study's first null.

$$\hat{e}_{1i,t} = \frac{TA_{i,t}}{A_{i,t-1}} - \hat{a}_0\left[\frac{1}{A_{i,t-1}}\right] + \hat{a}_1\left[\frac{\Delta REV_{i,t}}{A_{i,t-1}}\right] + \hat{a}_2\left[\frac{PPE_{i,t}}{A_{i,t-1}}\right] \quad \ldots\ldots(3)$$

2. 3. Empirical Models

To establish the impact IFRS-adoption on earnings management, and evaluate the stated hypotheses, according to prior studies (Adedokun et al., 2022; Eiler et al., 2021; Isaboke & Chen, 2019; Kousay, 2019; Malofeeva, 2018; Pacheco-Paredes, & Wheatley, 2021), the paper adapts two multivariate static models, with the generic form:

The inclusion of a trend-variable ($Time_{i,t}$) captures the trend variations in accessing the co-movements of $DAC_{i,t}$ with other covariates modifies: The time-trend evaluates whether the

$$DAC_{i,t} = \beta_0 + \beta\rangle Cvar_{i,t} + \sum_{2005}^{2018} \tau_i T_i + \eta_i + \varepsilon_{i,t} \quad \ldots\ldots(4)$$

perceived change in $DAC_{i,t}$ are purely time-driven, and not due to the impact of IFRS, supposing that discretionary accruals would be anticipated to decrease overtime.

Where, intercept term (θ_0), vector of covariates or control variables (Cvar), trend included ($\phi Time_{i,t}$), dummy capturing unobserved firm-invariant effects (T_i). Only time dummies of 2005-

$$DACi,t = \theta_0 + \theta\,'Cvar_{i,t} + \phi Time_{i,t} + \sum_{2005}^{2018} \tau iTi + \eta i + \varepsilon_{i,t} \quad \ldots\ldots(5)$$

2018 are included to circumvent multicollinearity trap. Firm-specific characteristics constant over-time but vary across firms (ηi), and white noise stochastic error ($\varepsilon_{i,t}$).

The 'specific model' that represent the equations (6):

$$DAC_{i,t} = \beta_0 + \beta_1 LEV_{i,t} + \beta_2 CFO_{i,t} + \beta_3 GRW_{i,t} + \beta_4 ROE_{i,t} + \beta_5 ROA_{i,t} + \beta_6 BTM_{i,t} + \beta_7 SIZE_{i,t} + \beta_8 IFRS_{i,t} + \sum \tau_i T_i + \eta_i + \varepsilon_{i,t} \quad \ldots\ldots(6)$$

The inclusion of a trend-variable ($Time_{i,t}$) with the other covariates provides the specific model for the generic static Equations (7):

$$DAC_{i,t} = \theta_0 + \theta_1 LEV_{i,t} + \theta_2 CFO_{i,t} + \theta_3 GRW_{i,t} + \theta_4 ROE_{i,t} + \theta_5 ROA_{i,t} + \theta_6 BTM_{i,t} + \theta_7 SIZE_{i,t} + \theta_8 IFRS_{i,t} + \phi TIME_{i,t} + \Sigma \tau_i T_i + \eta_i + \varepsilon_{i,t} \quad (7)$$

Equation (6) and (7) examine how the primary variable of interest, $IFRS_{i,t}$, as well as some included control (continuous and dichotomy) variables explain the variations in discretionary accruals. $DAC_{i,t}$ are the discretionary accruals for the Jones model, and are obtained as residuals from OLS regression model (1), in line with previous studies (Adedokun et al., 2022; Malofeeva, 2018; Ugrin et al., 2017).

In including the co-variants and controls, and defining their apriori (expected) signs, the paper follows prior research. Financial leverage ($LEV_{i,t}$), obtained as total liabilities divided by total assets, and is expected to be either positive or negative (±) (DeFond, 2019; Rathke et al., 2016). The operation' cash flow volatility ($CFO_{i,t}$), measure as the standard deviation of cash flow from operations divided by total assets is included in line with Rathke et al. (2016), and is expected to be + in sign. The Firm growth rate ($GRW_{i,t}$), expected to yield positive coefficient measures year-by-year percent changes in revenue, and computed as sales in year t minus sales in t – 1, divides by sales in year t – 1 (Adedokun et al., 2022; Malofeeva, 2018; Ugrin et al., 2017). Return on equity ($ROE_{i,t}$), measure as firm's revenue divides by total assets, is expected to offer a negative result (-) (DeFond et al., 2019; Malofeeva, 2018).

Based on De-Moura et al. (2020) and Ugrin et al. (2017), the Return on assets ($ROA_{i,t}$), which is measured as net profit to lagged total assets, is expected to positively impact discretionary accruals and earnings management. Also, according to DeFond et al. (2019) and Rathke et al. (2016), the Book market value ($BTM_{i,t}$), measured as the ratio of firm's book value to market value of total assets is captured, and expected to negatively affect earnings management. Firm size ($SIZE_{i,t}$), resented as the natural logarithm of market value of equity at year end. The effect of size is ambiguous., and would be expected to yield positive or negative result (Adedokun et al., 2022; Malofeeva, 2018; Ugrin et al., 2017).

Based on Adedokun et al. (2022), Time trend ($Time_{i,t}$), which measures the overall direction $DAC_{i,t}$ across time, is included. Since our aim to determine whether the apparent trend over-time is statistically significant, we simply assumed the time as linear and ignores concerns over the nonlinear dynamics of time-trend in complex (higher-order parabolic, noisy or 'wavy') situations. Aside, the simpler linear or quadratic time-trend variables would provide better parsimony of the model. The adoption variable ($IFRS_{i,t}$), represents a dummy coded 1 for periods of the adoption of IFRS, 0 otherwise. The coefficient α_8 is the estimate for $IFRS_{i,t,}$ and would be used to evaluate the H_1 and H_2 relative to the 'apriori' signs. A negative (positive) coefficient indicates IFRS has decreased (increase) in discretionary accruals (DeFond et al., 2019; De-Moura et al., 2020; Rathke et al., 2016).

During the estimation, the year of adoption is included contrary to some studies (Cadot et al., 2020; Odoemelam et al., 2019; Ozili & Outa, 2019). The inclusion is motivated by the fact that South Africa harmonised her GAAP with the International Accounting Standard (IAS) framework before the mandatory adoption in 2005. Some firms already pulled resources for acquisition of facilities to smooth implementation, such that by the time of announcement, benefits of IFRS are assumed to immediately materialise (Cadot et al., 2020; DeFond et al., 2019; Harakeh et al., 2019; Mongruta & Winkelried, 2019; Yeboah & Yeboah, 2015). The paper pooled the cross-section of all variables to replete a stacked firm-level panel data. Before the main estimation, some pre-tests on the natures if data and model to be adopted is completed. First, the OLS pooled regression is compare with the random effects (RE) estimation. Usually, if random effect checks out, the paper employs the Hausman test with the null of fixed effect (FE) to compare the RE to the FE. The most appropriate model of the pooled regression, RE or FE is adopted for the final analysis and policy formulations.

RESULTS AND DISCUSSION

3.1. Pre-Test Estimations

The study first presents the required pre-estimation (descriptive statistics and correlation) information for all the attendant variables of equation (6). Table 3 [Table 4] reports the basic statistics [Correlation]. The sample shows that both the Pre-IFRS (SA-GAAP) regime and the post-IFRS' control variables, including LEV_i, CFO_i, GRW_i, ROE_i, ROA_i, and BTM_i, all have positive average value (μ). For the covariates, the scaled cash flow from operations and scaled returns on assets show evidence of decline, from 0.13 to 0.11, and 0.21 to 0.15, from the pre- to the post- IFRS respectively. The other control covariates increased over the period possible due to adoption. For instance, the mean of the scaled-leverage, firm growth, return on equity, book to market value volatility all increase as can be seen on the Table.

The mean of the discretionary accrual's variable is positive for the reporting standard's regimes, and relatively lower for the post-IFRS compare to the pre-IFRS. This appears to be an indication that earnings management have reduced due to IFRS. The data identify that the mean of discretionary accruals decline from 0.07 in the pre-IFRS to 0.05 in the post-IFRS. While the

Table 3. Descriptive Statistics

Stat. (y_i)	**DAC**	**LEV**	**CFO**	**GRW**	**ROE**	**ROA**	**BTM**	**SIZE**	**IFRS**
Pre-IFRS									
μ	0.07	0.20	0.13	1.86	0.11	0.21	0.12	6.21	0.00
Med(y_i)	0.10	0.15	0.08	1.10	0.09	0.09	0.54	8.12	0.00
Max(y_i)	10.65	2.83	25.21	235.97	2.78	49.72	69.18	15.01	0.00
Min(y_i)	-15.15	0.00	-2.41	-0.10	-11.36	-7.65	-13.94	2.10	0.00
σ	1.01	0.25	0.88	9.66	0.44	1.63	4.42	2.42	0.00
$\tilde{\mu}_3$	-8.45	4.82	23.77	19.09	-16.57	28.06	11.08	0.17	NA
$\tilde{\mu}_4$	303.50	37.38	667.44	407.53	467.85	856.06	138.44	3.03	NA
Nobs	1,005	1,005	1,005	1,005	1,005	1,005	1,005	1,005	1,005
Post-IFRS									
	0.05	1.35	0.11	2.38	0.16	0.15	0.44	8.14	1.00
Med(y_i)	0.09	0.34	0.08	1.10	0.10	0.08	0.62	8.10	1.00
Max(y_i)	6.31	91.94	38.55	1644.49	17.38	155.70	269.47	17.94	1.00
Min(y_i)	-25.79	-91.77	-10.43	-0.10	-16.97	-15.32	-13.94	-2.04	1.00
σ	0.69	5.03	1.08	32.20	0.66	2.98	6.95	2.44	0.00
$\tilde{\mu}_3$	-17.25	4.54	31.12	47.57	2.56	50.64	26.52	0.19	NA
$\tilde{\mu}_4$	360.76	155.40	1133.79	2408.76	373.40	2650.89	902.70	3.15	NA
Nobs	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814	2,814
Full sample									
μ	0.06	1.05	0.12	2.24	0.18	0.16	0.38	8.16	0.74
Med(y_i)	0.09	0.26	0.08	1.10	0.09	0.09	0.60	8.11	1.00
Max(y_i)	10.65	91.94	38.55	1644.49	17.38	155.70	269.47	17.94	1.00
Min(y_i)	-25.79	-91.77	-10.43	-0.10	-16.97	-15.32	-13.94	-2.04	0.00
σ	0.98	4.35	1.03	28.08	0.61	2.69	6.38	2.43	0.44
$\tilde{\mu}_3$	-17.06	5.38	30.26	53.06	0.75	52.30	26.22	0.19	-1.08
$\tilde{\mu}_4$	389.53	206.37	1100.73	3070.71	410.81	2966.41	944.70	3.12	2.16
Nobs	3,819	3,819	3,819	3,819	3,819	3,819	3,819	3,819	3,819

Note: NA = Not Applicable, each variable y_i (DAC, LEV, CFO,GROW, ROE, ROA, BTM, SIZE, IFRS), μ mean of the pooled data y_i $Med(y_i)$ = Median for each of y_i, σ = Standard deviation $\tilde{\mu}_3$ = Skewness and $\tilde{\mu}_4$ = Kurtosis.

Table 4. Pearson Correlation Coefficient ($r_{y1,y2}$)

y_i	DAC	LEV	CFO	GRW	ROE	ROA	BTM	SIZE	TIME
Pre- and Post IFRS									
DAC	1.000	0.006	-0.081	0.029	-0.010	0.119	0.001	0.021	-0.029
LEV	0.004	1.000	-0.007	-0.003	0.007	-0.006	-0.013	-0.020	-0.115
CFO	-0.107	-0.001	1.000	0.642	0.012	0.671	-0.006	-0.061	-0.035
GROW	0.364	-0.024	0.823	1.000	-0.002	0.948	-0.004	-0.078	-0.021
ROE	0.065	0.032	0.049	0.002	1.000	-0.021	-0.007	-0.026	-0.019
ROA	-0.063	-0.015	0.929	0.793	0.222	1.000	-0.002	-0.085	-0.018
BTM	0.012	-0.015	0.035	0.007	0.013	0.007	1.000	-0.002	0.002
SIZE	0.095	-0.090	-0.093	-0.080	-0.024	-0.081	-0.030	1.000	0.084
TIME	-0.010	0.041	0.009	0.010	0.043	0.012	0.023	0.013	1.000
Full sample									
DAC	1.000								
LEV	0.008	1.000							
CFO	-0.052	-0.007	1.000						
GROW	0.003	-0.002	0.632	1.000					
ROE	0.000	0.006	0.018	-0.002	1.000				
ROA	0.098	-0.007	0.700	0.931	0.007	1.000			
BTM	0.002	-0.010	0.000	-0.003	-0.005	-0.001	1.000		
SIZE	0.035	-0.020	-0.068	-0.074	-0.025	-0.082	-0.007	1.000	
TIME	-0.033	0.017	-0.027	-0.007	-0.012	-0.018	0.015	0.036	1.000

Note: **Bold** figures display statistical significance based on the probability p|t|= 0, and it indicates significance at 1%, 5% or 10%. The values above the diagonal in Panel A are correlation coefficients for the post-IFRS, whereas those below is correlation for the pre-IFRS.

median is positive in both regimes, it remains larger for the post-IFRS (0.35) compare to 0.15 of the SA-GAAP values. The data indicate a lower spread (standard deviation, σ=1.01), relative to a higher spread of 0.69 for the post-IFRS discretionary accruals. This substantial reduced evidence of earnings management practices the IFRS periods. Overall, the univariate and statistics information provide much evidence that the JSE firms managed earnings lesser during the IFRS usage than they do in the SA-GAAP periods. This supposes that IFRS may have a positive impact period, consistent with Adedokun et al. (2022) for the case of Nigeria. Further test must be confronted to establish more viable evidence.

Table 4 reports the results of the correlation evaluation based on the Pearson (ordinary) correlation presented is the Centered correlation coefficients. The values above the diagonal in Panel A are correlation coefficients for the post-IFRS, whereas those below is correlation for the pre- and post-IFRS. The estimates offer indication of direction and strength of the relation amongst the variables and covariates. The matrix shows the correlation for DAC_i, LEV_i, CFO_i, GRW_i, ROE_i, ROA_i, BTM_i, and $SIZE_i$. In line with the expectations, the pre-IFRS periods in Panel A (values below the principal diagonal) identify that LEV_i, ROA_i, and TIME are positively correlated with DAC_i, although only CFO_i is significant. In the post-IFRS, both CFO_i and time trends are significant. A negative correlation degree with tine trend supposes reduced earnings managements because it means the managers manipulate the accruals when cash-flow seem to be lower (Iatridis, 2010).

Based on the full sample (Panel B), discretionary accruals (DAC_i) is positively correlated with LEV_i, GRW_i, ROE_i, ROA_i and $SIZE_{i,t}$ as would be expected, and negatively correlated with

Table 5. Pre-test for the Multivariate Panel Regression

LM Tests for Random Effects			
Test	Cross-section	Time	Both
Breusch-Pagan LM*	21.66*	0.944	15.892*
	(0.000)	(0.284)	(0.000)
Hausman Test			
Test	X^2-stat		
Cross-section random, X^2	0.539		
	(0.681)		

Note: [a] Test is presented for the 3 cases: no time, cross-section and for both cross-section and time effects.
*p 1% with a 2-tailed test. LM = Lagrange Multiplier. The LM Tests for Random Effects null (H_0): No effects, whether Time, or both Cross section and Time. Values in parathesis are the test's probability. The null for the Hausman test is random effect.

CFO_i and the time variable, an indication of declining trend. The basic statistical evidence offers the snapshot of information for the criterion and control variables. However, since these descriptions are unable to accommodate deterministic- and noisy factors that usually influence accruals behaviours, further analysis is required.

Table 5 reports the outcome of the pre-estimation test for the multivariate panel regression. The paper verifies the existence of the individual and time unobserved random effects inherent in pooled data. The procedure for the Breush-Pagan LM (1980) test performed reject the test null, supposing that the random effects is more suitable over the pooled regression for capturing the relation between discretionary accruals and the attendant variables. Afterwards, the study completes the Hausman Test, under a null of random effects to approve whether the IFRS linked earnings management model can be best fitted with either the fixed effects or the random effects. The test returns Chi-Square (χ^2) statistic of 0.539, not significant, and unable to reject the null. In sum, the paper finds that the connection between discretionary accruals and the covariates is best captured with the random effect over the fixed effect. Table 6 presents the outcome of the random effects estimation for equations (6), for the evaluation of the study's first aim and null. Table 7 presents the random effects estimation for equation (7) presents, for the evaluation of the study's second aim and null.

3.2. Earning Management and IFRS-Implementation: Evaluation of Hypothesis H_1

Table 6 presents the model for discretionary accruals and equation 6, when the trend is not controlled. Panel [1] is the outcome of the model without the consideration of the IFRS dummy. The estimates identify variables that are well signs, and the overall model significant. The explanatory power ($\bar{R}^2$) was improved, increasing from 24.1% to 24.6%, when the IFRS covariant was introduced in panel [2] without controlling for fixed effect as well as increases to 25.7% (panel [3]), when only the time effects are controlled for with dummies for the post-adoption, $\sum_{2005}^{2018} \tau_i T_i$, included to circumvent multicollinearity trap. For cases reported in panel [2] and panel [3], the estimates identify variables that are well signs, and significant. The estimate of adoption dummy, been negative, indicates that IFRS reduces earnings management. Surprisingly, the most parsimonious model is the estimates of panel [4] which includes both fixed effect: capturing dummies for the unobserved time-invariant effects ($\Sigma\tau_i T_i$), and the varying firm-specific characteristics (η_i).

The model shows that most variables are well signed and the explanatory power is improved to 26.1%. This could be attributed to spill-over impact of the unobserved time- and firm-specific effects after the adoption (Adedokun et al., 2022; DeFond et al., 2019; De-Moura et al., 2020; Ugrin et al., 2017). The return on assets (ROA_i) and equity (ROE_i) estimates are consistent with literature (De-Moura et al., 2020) that support their impact will significantly increase the earnings management. The signs of firm growth (GRW_i) is consistent with literature that weak

performance result in greater tendency to managed earnings (Ugrin et al., 2017).

According to the expected sign, financial leverage, cash flow from operations, as well as book to market volatility may cause reversionary effects, and therefore motivate decrease in earnings management consistent with the expectations (Malofeeva, 2018; Rathke et al., 2016; Ugrin et al., 2017). As expected, firm growth, assets return, equity return and firms size are all significant. The primary variable of study, the IFRS-adoption significantly cause decline in earnings management. Because the paper evaluates the first null on the basis of the most parsimonious model, the result supposes that the first null holds. By having a negative coefficient, and causing reduction in discretionary accruals, IFRS has a positive influence since earnings management has reduced consistent with some studies (Chimonaki & Konstantinos, 2020; Klish e al., 2021; De-Moura et al., 2020; Rahmaningtyas & Mita, 2017). Rahmaningtyas and Mita (2017) reveal that IFRS influence on earnings management is lower in Asia with strong investor protection. De-Moura et al. (2020) identify the adoption of IFRS enhance disclosure in Latin America.

Chimonaki and Konstantinos (2020) show that IFRS reduce information costs and enhanced transparency in Greece. Klish et al. (2021) show that earning management reduce among firms that use IFRS in MENA countries. Malofeeva (2018) reveal on firm basis that IFRS reduces earnings management for large firms relative to small firms in Russian. Yeboah and Yeboah (2015) reported similar evidence that IFRS adoption may have reduced earnings managed for South Africa based on earlier data. However, the paper's finding is inconsistent other studies (Baig & Khan, 2016; Mensah, 2020; Yeboah & Yeboah, 2015). Mensah (2020) identifies negative effects due to convergence phase in Ghana. Martínez (2015) observe significant decrease in managed earnings that stems from the IFRS usage in Mexico.

3.3. Time Variation in Earnings Management since IFRS: Evaluation of Hypothesis H_2

Table 7 presents the parsimonious models based on the estimation of equation (7) which evaluates the second null hypothesis (H_2) to test the importance of trend in the considered

Table 6. Model for DAC_i with No Time Trend [equation 6]

	[1]		*[2]*		*[3]*		*[4]*	
y_i	β_i	*Prob(β_i)*	β_i	*Prob(β_i)*	β_i	*Prob(β_i)*	β_i	*Prob(β_i)*
Estimates (								
C (β_0)	0.192	0.000	0.195	0.000	0.192	0.000	0.197*	0.000
LEV (β_1)	0.075	0.635	0.081	0.644	0.078	0.638	0.078	0.654
CFO (β_2)	-0.069	0.313	-0.064	0.276	-0.065	0.176	-0.067	0.266
GRW (β_3)	0.059	0.004	0.066	0.015	0.060	0.051	0.061**	0.050
ROE (β_4)	0.038	0.039	0.041	0.035	0.039	0.035	0.041**	0.055
ROA (β_5)	-0.006	0.001	0.000	0.001	-0.003	0.001	0.004*	0.001
BTM (β_6)	0.046	0.092	0.053	0.135	0.048	0.115	0.050	0.115
SIZE (β_7)	0.071	0.088	0.073	0.050	0.072	0.093	0.073***	0.093
IFRS (β_8)			-0.092	0.084	-0.093	0.084	-0.094***	0.068
Fixed effects								
$\Sigma\ \tau_i T_i$	N		N		Y		Y	
	N							
η_i			N		N		Y	
Statistics								
$\bar{R}^2$	24.161		24.660		25.661		26.110	
F-stat.	10.207		12.106		14.099		15.171	
(F)	0.000		0.001		0.000		0.001	
DW	2.131		2.131		2.138		2.133	

Note: The models provide estimates for Equation 9. Y (= Yes) means the fixed effects ($(\sum_{2012}^{2020} \tau_i T_i + \eta_i)$ is included), while N (= No) indicates excluded. Value (in parenthesis) is a *p*-values (probability of the t-statistic) using prob|t|=0 *p 1%; **p ; ***p 10%, with a 2-tailed test. $\bar{R}^2$: Adjusted R-square, and DW: Durbin Watson statistic.

Table 7. Model for DAC_i with Time Trend [equation 7]

	[5]		[6]		[7]	
	θ_i	Prob(θ_i)	θ_i	Prob(θ_i)	θ_i	Prob(θ_i)
Estimates (θ_i)						
C (θ_0)	0.097	0.000	0.101	0.000	0.102	0.000
LEV (θ_1)	0.002	0.662	0.004	0.631	0.004	0.645
CFO (θ_2)	-0.004	0.280	-0.007	0.242	-0.010	0.294
GRW (θ_3)	0.005	0.017	0.010	0.015	0.007	0.014
ROE (θ_4)	0.005	0.037	0.009	0.050	0.006	0.045
ROA (θ_5)	0.029	0.001	0.031	0.001	0.033	0.001
BTM (θ_6)	0.003	0.685	0.008	0.794	0.009	0.829
SIZE (θ_7)	0.005	0.120	0.006	0.746	0.010	0.095
IFRS (θ_8)	-0.004	0.084	-0.006	0.067	-0.002	0.080
Trend Inclusion						
Time (ϕ)	-0.001		-0.001		-0.001	
	0.658		0.658		0.654	
Fixed Effects						
$\sum \tau_i T_i$	N		N		Y	
η_i	N		Y		Y	
Statistics						
$\bar{R}^2$	28.235		28.236		28.231	
F-stat.	10.207		10.106		10.099	
(F)	0.000		0.001		0.000	
DW	1.988		2.033		2.038	

Note: The models provide parsimonious estimations for Equation 9. Y (= Yes) means the associated effects (e.g., η_i, is included), while N (= No) indicate excluded. Value (in parenthesis) is a *p*-values (probability of the t-statistic) using prob|t|=0.

relationship between earnings management and IFRS-adoption. panel [5], [6] and [7] are respectively model without the fixed effects, model with only the time-invariants effect ($\sum \tau_i T_i$), as well as the model which captures both fixed effects – time invariant ($\sum \tau_i T_i$), and firms-specific characteristics (η_i). As would be observed, the most parsimonious model (based on the explanatory power) with the highest $\bar{R}^2$ (28.23%) is the panel [6], therefore considered for the evaluation of the second null. The parsimonious model involves only the unobserved firms-specific characteristics (η_i) and is used to test whether firm's earnings management is time-driven, and not motivated by IFRS-adoption. The model excludes interactions involving the inclusions of 'trend' (a specific time variable) and the time 'dummies' (that controls the time-invariants for the year). The aim is to evaluate the estimate (ϕ) for the trend ($TIME_i$).

The result (panel 6) identifies that the coefficient of post-adoption - is negative, significant and consistent with findings according to DeFond et al. (2019), De-Moura et al. (2020), and Rathke et al. (2016). The coefficient of time-trend assumes the expected negative sign and significant, hence rejecting the second null [H_2]. Overall, the passage of time could not explain the reason for the decline in the discretionary accruals-based earnings management. A major implication of this is that since [H_1] hold, the IFRS is supposedly an important control for the earnings management criterion. The estimate for the trend variable is small, well sign been negative but insignificant. This supposes that although the discretionary accruals slightly decline overtime but it is not

purely time driven. This finding is inconsistent with the univariate test on the importance of time by Adedokun et al. (2022) for Nigeria.

CONCLUSIONS

Accounting standards have been implemented with expectation to achieve improve the quality of accounting information. IFRS was formulated due to rising requests for more reliable accounting information system. Unlike other reporting frameworks, the standard involves more flexibility, allowing managers greater use of discretions in reporting financial indicators that reflect firm's performance. With more professional judgments been accommodated in the framework, there are concerns that some managers misused the flexibility to manage earnings. The paper examines whether the adoption-IFRS in South Africa has implication for earnings management among the JSE firms. Because discretionary accruals reliably explain value relevance, including earnings quality, the study examines how IFRS impacts discretionary accruals under the assumption that managers do not exercise discretion over revenue when involve in earnings management. In addition, the paper verifies whether the change in earnings management is due to time variation, and should not be attributed the implementation of IFRS in the country.

The paper employs random effects regression to examine the relationship between Jones model' based discretionary accruals and IFRS-adoption, alongside other time-varying firm's specific covariates including financial leverage, cash flow from operations, asset returns, equity returns, firms' growth, firms' size, and boot to market value. Because the estimates for the IFRS dummy was negative and significant indicating causing reduction in the discretionary accruals. The evidence supposes IFRS has positive effects in practices since the earnings management is reduced amongst for the firms. In accessing the importance of time passage, the study finds that earnings management is not purely time-driven.

These findings have importance for regulations, firms' operations and empirical research. Because earnings management can cause investors to make undesirable decision, and possible loss of capital, the outcome of the research offers investors guide to make informed market decision. However, since the result suppose that earnings management has decline, this reposes confidence in financial reporting amongst firms in the South African capital market, and may promote capital inflow from foreign institutional investments. Hence, multinational firms amongst the JSE companies would benefit from capital inflow from the global financial market. IFRS adoption ensures transparent documentation that will assist international investors to make best investment decision.

The study has limitations. It considers only the impact of mandatory adoption made in 2005. Before the official announcement, some firms had report financial statements on the basis of IFRS. Because information on the applicability was unavailable the paper is unable to examine the effects on earnings management. With respect to methods, the paper defines the discretionary accrual on the basis of linear assumption. The Jones models but designed accrual pattern in simple linear forms. There is evidence that discretionary accruals can assume asymmetric recognition (Anderson, et al., 2009) as well as nonlinear dynamics (Balboa et al., 2013). The study suggests that future research can investigate how such pattern would affect the relations between earnings management and IFRS.

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