

**Income smoothing and the cost of debt: Evidence from the United Kingdom and Nigeria**

Ahmed Aboud, PhD

University of Portsmouth, United Kingdom

[ahmed.aboud@port.ac.uk](mailto:ahmed.aboud@port.ac.uk)

**Baba Kura Haruna**

University of Portsmouth, United Kingdom

**Ahmed Diab**

**Prince Sultan University, SA**

This is the final peer-reviewed version of the following paper: [Aboud et al., (2023). **Income smoothing and the cost of debt: Evidence from the United Kingdom and Nigeria**

International Journal of Accounting and Information Management]. This paper may be used for non-commercial purposes in accordance with Emerald 's terms and conditions for self-archiving.

## **Income smoothing and the cost of debt: Evidence from the United Kingdom and Nigeria**

### **Abstract**

**Purpose:** This paper examines the relationship between income smoothing and the cost of debt in two different countries, namely: the U.K. and Nigeria.

**Design/Methodology/Approach:** We used a sample of 100 listed U.K. and 100 listed Nigerian companies during 2000-2019. The study hypotheses are examined by implementing quantitative methods, including the panel regression analysis, cross-sectional regression analysis, and parametric independent samples t-test.

**Findings:** Our results reveal that Nigerian companies have a substantially higher cost of debt and are more active in using income smoothing practices. However, the relationship between income smoothing and the cost of debt is not found to be statistically significant in both countries. Besides, the results of this study show that financial leverage, profitability, company size, and asset turnover are significantly associated with the cost of debt.

**Originality/value:** Our study contributes to the existing literature by providing new insights concerning the contrast between developed and developing countries in financial and reporting issues.

Keywords: Income smoothing, Cost of debt, U.K., Nigeria

## **1. Introduction**

Income smoothing is a process of deploying techniques to flatten out the fluctuations in the net income reported by a firm (Ge & Kim, 2010). Income smoothing can involve both fraudulent reporting methods and healthy business practices (Chaney & Jeter, 1997), and it can be done either by using discretionary accruals or alternative accounting rules (Ge & Kim, 2014). Corporate managers engage in such activities to meet their short- and long-term targets (Chen, 2013) and report a consistent income level to send a positive signal to investors (Prevost, Rao & Skousen, 2008). Since this technique is commonly used, it becomes imperative to examine its key consequences. Income smoothing could conceal real corporate performance from users of financial statements, decreasing the quality of financial reporting (Orazalin and Akhmetzhanov, 2019). Besides, engagement in such practices can have multiple consequences on a company, affecting the cost of capital, the return on investment, and the ability to attract new investors (Jiang, 2008). Debt investors are concerned about pricing income smoothing practices because the cost of debt could directly impact future corporate performance and, hence, its creditworthiness (Tucker & Zarowin, 2006; Lim & Lustgarten, 2002; Ge & Kim, 2014; Kwak and Park, 2015). Thus, this study investigates the potential impact of income smoothing on the cost of debt.

Additionally, income smoothing techniques can vary from country to country, especially in contexts where different accounting standards are used (Ozili & Outa, 2018; Ozili, 2019). That is, managers in different countries choose to apply different forms of income smoothing to meet their unique objectives. This may explain the mixed empirical results for the relation between the extent of income smoothing and the cost of debt (Kim et al., 2020). Therefore, it is beneficial to compare the accounting policies used in different countries to fully understand these policies' real impact, such as its implications for the cost of debt. Conducting comparative research helps achieve some generalisability of results and address or neutralize the potential bias of studies focusing on a single country or market (Gray, 1992). In doing so, we examine and compare income smoothing practices in the U.K. and Nigeria. Further, we examine the impact of these income smoothing practices on the cost of debt using data obtained from the listed companies in these two different countries.

A literature review indicates that the results obtained by previous scholars are mixed. While certain scholars found a direct and positive relationship between income smoothing and the cost of debt, others have reported an inverse relationship. In addition, there is a shortage of studies in the literature linking income smoothing with the cost of debt. Moreover, there is lack of research comparing the income smoothing practices in developed and developing countries. Thus, this paper contributes to the literature by comparing an advanced economy with an emerging economy.

These two countries are selected due to their unique institutional characteristics that worth special examination. The U.K. market has different requirements and features compared to other developed markets (for example, the U.S. market), such as less aggressiveness towards achieving earnings targets (Brown and Higgins, 2005; Sitanggang et al., 2019). Further, the U.K. market has adopted more debt conservatism, leading to lower leverage ratios than those in other developed markets such as the U.S. (Rajan & Zingales, 1995; Antoniou et al., 2008). Custódio et al. (2013) found that firms in the U.K. rely more on short-term debt than their U.S. counterpart firms. This is consistent with the studies reporting that the zero-leverage phenomenon is essential and common in the U.K. corporate sector (e.g., Dang, 2013; Strebulaev & Yang, 2013). Besides, the U.K. market is attributed with lower political involvement in accounting issues; lower litigation costs, and lower public debt issuance (Ball et al., 2000). It also has different governance, disclosure, and listing requirements (such as auditor liability and types of prohibited audit services) (Gerakos et al., 2013; Alhadab et al., 2018). With these different characteristics, it is expected that the U.K. capital market's regulatory environment can directly impact income smoothing.

In contrast, accounting practices have been permeated by the prevalent corruption in the broader society in Nigeria. (Wallace, 1992; Bakre, 2007; Abdul-Baki et al., 2019). Although the Securities and Exchange Commission develops corporate governance codes for companies on the Nigeria Stock Exchange, the dominant corruption and the accompanying weak regulations, conflicting requirements, and lack of human and financial resources contributed to weak accounting standards. This resulted in an apparent non-compliance with these accounting standards. Nigerian listed companies have engaged in different financial reporting irregularities, such as over or understatement of revenue, non-recognition of total liability for employee benefits, misclassification of leases, and nondisclosure of details of impairment review (World Bank, 2011).

This research shows that the cost of debt is significantly higher in Nigeria than in the U.K. Nevertheless, despite the differences in the cost of debt and income smoothing, there is no statistically significant relationship between these variables, as evidenced by the regression analysis. In both the U.K. and Nigerian firms, the most significant determinant of the cost of debt is financial leverage. Nigerian companies also demonstrate significant relation between profitability and cost of debt, whereas U.K. firms do not show such a relationship. With these various findings brought about from two highly different settings, this study contributes to the existing literature by providing new insights concerning the contrast between developed and developing countries in financial and reporting issues. This comparison can better help regulators and professional bodies in developing countries such as Nigeria locate the present shortages in the reporting environment and take the appropriate actions accordingly.

The paper is structured as follows. Sections 2 and 3 clarifies the theoretical framework and reviews the relevant literature to develop the study hypotheses. Sections 4 outlines the research methods. Section 5 presents the study findings. Finally, section 6 discusses the findings and concludes the paper.

## **2. Theoretical perspective**

Creditors are interested in assessing the financial performance and the potential default risks of borrowing companies based on the quality of their financial information, particularly earnings, to determine interest rates (Carmo et al., 2016). This indicates the quality of borrowing companies' financial reporting can decrease the cost of debt capital. Thus, corporate managers have an incentive to disclose more information and show improved financial performance and higher stability to shareholders to get the confidence of their creditors and decrease their cost of capital, along with the signaling theory (Mahadeo et al., 2011). In line with this theory, in the U.S. setting, Graham, Harvey, and Rajgopal (2005) reported that managers smooth earnings to convoy future growth projections and decrease investors' risk perceptions.

Besides, apart from the previously mentioned perspective, the adoption of income smoothing activities could be interpreted by the garbling theory. This is because managers may engage in these activities to fool the outside world (including analysts, investors, and employees), hide their actions, and avoid intrusions by external parties and monitors to enable private

benefits consumption (Acharya & Lambrecht, 2015). This could be achieved by avoiding the disclosure of any financial losses and, consequently, efficiently attaining their strategic goals (Aflatooni & Nikbakht, 2010; Li & Richie, 2016).

### **3. Literature review and hypotheses development**

#### **3.1 Income smoothing practices in the U.K. and Nigeria**

Several scholars worldwide have examined the use and effects of income smoothing and explained the various reasons behind the engagement in such activities, including achieving managers' own targets, and the goals of the firms (Elgers et al., 2003; Kanagaretnam, 2003; Athanasakou, Strong and Walker, 2007; Cahan, Liu, and Sun, 2008; Huang et al., 2009; Martinez and Castro, 2011). Some studies used international evidence to explain the use of these practices by different companies and their effects (Gonzalez, 2008; Shen and Huang, 2013; Kim et al., 2020). For instance, Shen and Huang (2013) draw on data from 85 countries worldwide, focusing on financial services firms. Recently, by analysing findings from 18 countries, Kim et al. (2020) found that real earnings management is positively related to the cost of debt.

However, the adoption of income smoothing practices and their effects should not be perceived as universal. The results of income smoothing studies can't be generalized to different contexts having different institutional and governance rules. We argue that the level of income smoothing and its consequences would vary depending on the context under study and its unique features. This is because a particular market's well-functioning is substantially affected by the different institutional aspects in such market, including investor protection and legal enforcement (Hail and Leuz, 2006; Li, 2015).

In the context of developing countries, the disclosed financial information is reported to be less accurate and less reliable compared to the situation in developed countries (Orazalin and Akhmetzhanov, 2019). In this kind of context, income smoothing practices are suggested to be more common due to the institutional features and the emerging nature of their emerging markets (Alexandri and Anjani, 2014). In this regard, using international evidence, Leuz et al. (2003) argued that income smoothing is common in contexts with poor country-level institutions, which are more likely to prevent managers' consumption of private benefits, as informed by the garbling theory. Gopalan and Jayaraman (2012) prove that firms

with more insider control exhibit relatively less income smoothing than non-insider-controlled firms in countries with poor investor protection.

In contrast, in developed markets, such as European and U.S. markets, income smoothing activities are not always easy to execute because of the regulatory hurdles in stable markets (El Sood, 2012). In the U.K. context, Zalata and Roberts (2017) found that most U.K. firms avoid negative earnings surprises by managing analysts' expectations rather than by earnings manipulation. Only a small subsample of large companies used classification shifting to meet/beat analysts' forecasts. Firms are less likely to manipulate their earnings to meet analysts' expectations because of their relatively high cost. Considering this, we formulate H1 as follows:

*H1: There are higher levels of income smoothing in Nigeria than in the U.K.*

### **3.2 Income smoothing and cost of debt**

Debt investors or creditors, on the one hand, tend to closely follow the income levels that are reported by firms. On the other hand, managers tend to engage in income smoothing activities to improve the firm's image and reduce their cost of capital—that is, they seek to raise funds at a lower interest rate (Rivard et al., 2003; Matsuura, 2008) to enhance the future performance of the firm (Kim et al., 2020). Ghosh and Moon (2010) argued that the quality of accounting information would be lower when private debt is high. This is because managers would probably engage in income smoothing practices to indicate higher financial performance and avoid costly debt covenant violations (Ghosh and Moon, 2010).

However, as indicated previously, the institutional environments of each country could play a crucial part in the pricing of income smoothing practices. Consistent with this view, using international evidence, Amiram and Owens (2018) found that income smoothing could reduce the cost of debt in cases of lower threats of private benefits consumption by management. In contrast, it could increase the cost of debt in cases of higher threats of private benefits consumption. This may explain the mixed empirical results reported in the literature concerning the association between the extent of income smoothing and the cost of debt capital (Kim et al., 2020). As Amiram and Owens (2018) suggested, the institutional features related to private loan contracts, along with the theoretical motivations for income smoothing, make it ambiguous whether income smoothing would positively or adversely affect loan spread. Thus, we investigate the impact of income smoothing on the cost of debt in both developing and developed markets, as follows.

Regarding the situation in developing markets, Nardi and Nakao (2009) found a positive association between income smoothing and the cost of debt for publicly-traded Brazilian firms. Moghadam et al. (2013) found a positive relationship between the Iranian firms' use of income smoothing practices and their overall credit rating. They concluded that Iranian firms use income smoothing to further their interests in the debt market, i.e., to reduce their cost of debt. In contrast, using data of listed companies in Kazakhstan, Orazalin and Akhmetzhanov (2019) showed that income smoothing is negatively associated with the cost of debt. Further, in the Korean debt market, Kwak and Park (2015) found that the level of income smoothing practices is negatively related to the cost of debt. In the context of Nigeria, it is reported that the prevalent corruption has permeated accounting practices at the state level (Abdul-Baki et al., 2019). This situation has resulted in many Nigerian firms' noncompliance with accounting regulations and engagement in several financial reporting irregularities, such as over or understatement of revenue, non-recognition of total liability for employee benefits, misclassification of leases, and nondisclosure of details of impairment review (World Bank, 2011). Considering this, we formulate H2 as follows,

***H2: There is a significant relationship between income smoothing and the cost of debt in Nigeria.***

Regarding the situation in developed markets, mixed findings are also reported. Some studies reported a negative relationship between income smoothing and the cost of debt. For instance, in the U.S. market, Bharath et al. (2008) found that increased financial reporting quality decreases the cost of debt. Further, focusing on the period 1970-2004, Liu et al. (2010) found that managers smoothing out income get a better chance of raising debt at a lower cost. Further, using evidence of public companies during 1988-2007, Li and Richie (2016) found that companies that tend to indulge in income smoothing to a greater extent have a lower cost of debt. Similarly, it was found that firms that reported their financial information in an opaque manner were able to reduce their cost of debt even further compared to transparent firms. In the European context, focusing on Portuguese firms, Carmo et al. (2016) reported a negative relationship between earnings quality and cost of debt.

Moreover, a few studies reported a positive relationship between income smoothing and the cost of debt in developed markets. Kim et al. (2020) found that debt investors impose more premiums on the cost of debt for companies operating in more advanced debt markets. Ge and Kim (2014) argue that companies' real earnings management raises the cost of capital for



recently issued corporate bonds in the U.S. bonds market. As Kim et al. (2020) suggest, as the debt market of a particular setting becomes more advanced in terms of efficiency or accessibility, creditors within that setting could easily detect and include the adverse impact of income smoothing into the cost of debt.

Apart from the findings of these studies, it was anticipated that the relationship between income smoothing and a lower cost of debt may not be generalizable to developed markets such as the U.S. bond market. This kind of market is populated by relatively high-quality financial reporting and more transparent borrowing companies. Thus, the garbling view of smoothing is unlikely to manifest in these markets (Bharath, Sunder, & Sunder, 2008). This view suggests that European nations with solid banking regulations would not record a significant impact of income smoothing on credit rating. For instance, Gray et al. (2009) observe no relationship between discretionary accruals and cost of debt and conclude that the high dependence of Australian firms on private debt decreases information risk and the impact of income smoothing on the cost of debt. Rivard, Bland, and Morris (2003) argue that in developed countries with more robust regulation, the effect of income smoothing on the cost of debt may be less pronounced or will be less due to efficient debt markets. By examining the impact of income smoothing on the cost of debt in different countries, Shen and Huang (2013) found that the negative impact of income smoothing on the cost of debt was not consistent in all countries. Considering the studies above, we anticipate no relationship between income smoothing and the cost of debt in the U.K. market. Thus, we formulate the final hypothesis as follows:

***H3: There is no significant relationship between income smoothing and cost of debt in the U.K.***

## **4. Research Design**

### **4.1 Sample**

The annual financial data of all listed U.K. and Nigerian companies have been downloaded from the WRDS (2020) database focusing on 2000 -2019. We analysed an extended period to have a sufficient number of observations for each firm and to reflect the most recent patterns in income smoothing practices. Thus, we cleaned the data by removing firms with missing

data. The final number of firm year observations is 1,190 from Nigeria and 2774 firm year observations from the UK.

	<b>UK</b>	<b>Nigeria</b>
Initial Sample	5850	1530
Missing data related Accruals	1050	290
Missing data related control variables	2026	50
Final number of observations	2774	1190

#### 4.2 Research model and variables measurement

Income smoothing refers to the application of discretionary accounting and management techniques to reduce earnings variability. This study employs a measure of income smoothing based on discretionary accruals and pre-discretionary income. Similar to the study of Leuz et al. (2003), income smoothing is measured as the negative relationship between the change in pre-discretionary income ( $\Delta PDI$ ) and the change in a company's discretionary-accruals proxy ( $\Delta DAP$ ). This measure implies the presence of an intrinsic uncontrolled income and that discretionary accruals are applied to flatten it over time. If an increase or a decrease in the pre-discretionary income occurs, a negative or positive discretionary accrual would emerge, respectively. Thus, a higher degree of a negative relationship between  $\Delta PDI$  and  $\Delta DAP$  is assumed to indicate a greater use of income smoothing. Following Tucker and Zarowin (2006), discretionary accruals are derived from Jones's (1991) empirical model of accruals, which was also previously used by Kothari et al. (2005), as follows:

$$Accruals_t = \alpha + \beta_1 \frac{1}{TA_{t-1}} + \beta_2 \Delta Sales_t + \beta_3 PPE_t + \beta_4 ROA_t + \varepsilon_t \quad (1)$$

where for firm  $i$  and year  $t$ ,  $TA$  represents the firm's total assets;  $Accruals$  are estimated as the difference between net income and operating cash flows, adjusted by lagged total assets.;  $\Delta SALES$  is the change in sales divided by lagged total assets.;  $PPE$  is property, plant, and equipment divided by lagged total assets.;  $ROA$  is the return on assets calculated as net income divided by lagged T.A. In contrast to the original Jones' (1991) specification, our regression model is augmented with an additional variable of profitability measured by ROA. This is based on the previous findings of Dechow et al. (1995), who found that accruals showed different patterns in profitable and loss-making companies. Unlike previous studies such as Tucker and Zarowin (2006), the present work has not omitted the constant term from

the regression specification because omitting the intercept is a risky practice in econometric models: it could lead to incorrect interpretations (Gujarati, 2003).

In the empirical model (1), non-discretionary accruals (NDAP) for each firm in each country are measured by estimating the fitted values. Discretionary accruals (DAP) are proxied by the residuals or the differences between observed values of the accruals and NDAP. Pre-discretionary income (PDI) is measured by the difference between net income and discretionary accruals. However, since discretionary accruals are scaled by total assets, ROA is used instead of net income to ensure that the units of measurement are the same. Thus,  $PDI = ROA - DAP$ .

The degree of income smoothing is assessed by the correlation coefficient between the change in DAP and the change in PDI. In contrast to Li and Richie (2016) who also used the same measure for income smoothing and estimated correlations for the past 4 years for each firm, the present work estimates the correlation coefficients for the past 20 years. This is important to have cross-sectional indicators with no period variations. This approach also decreases the errors in correlation coefficients due to the small number of observations. Since this research uses more than 100 cross-sections for each country, it will be possible to run efficient cross-sectional regressions, and it is a priority to attain more reliable correlations than to save the number of observations. The correlation coefficients as measures of income smoothing are interpreted as follows: negative correlations indicate high-income smoothing, whereas positive correlations indicate low-income smoothing.

Once income smoothing is identified, it is used as an independent variable in the cross-sectional regression along with the cost of debt used as the dependent variable. There are many ways to calculate the cost of debt, including the market-based cost of debt and the accounting-based yield. The Nigerian sample lacked sufficient data on corporate bond yields, making the market option unfeasible. Moreover, this option would have other limitations as each company usually has different types of debt with different maturities and debts issued in different volumes. Taking only one corporate bond yield as a measure of the cost of debt will not provide an objective assessment; whereas taking all corporate bond yields and assessing their weighted average yield is often unfeasible due to missing values. Given these limitations, it has been decided to use the accounting-based yield to measure the cost of debt. For this purpose, only interest-bearing debt has been singled out from short-term and long-term liabilities of companies. The cost of debt was then calculated by dividing the annual

interest expense by the total value of interest-bearing debt. There is also a third way to estimate the cost of debt by taking credit ratings of companies and assessing the credit spread based on this rating. However, since not all companies in the sample have credit ratings available, this method was not employed.

Then, the following cross-sectional regression is estimated to assess the statistical significance of the relationship between the study variables, controlling for the additional factors listed below:

$$Yield_{i,t} = \beta_0 + \beta_1 IS_{i,t} + \beta_2 Size_{i,t} + \beta_3 Leverage_{i,t} + \beta_4 ROA_{i,t} + \beta_5 Tang_{i,t} + \beta_6 Coverage_{i,t} + \beta_7 WC_{i,t} + \beta_8 RE_{i,t} + \beta_9 Turnover_{i,t} + \varepsilon_t \quad (2)$$

where for firm  $i$  and year  $t$ ,  $Yield_{i,t}$  is the cost of debt;  $IS_{i,t}$  is the income smoothing variable;  $Size_{i,t}$  is the natural log of revenue;  $Leverage_{i,t}$  is the ratio of total interest-bearing debt to total assets;  $ROA_{i,t}$  is the ratio of net income to total assets;  $Coverage_{i,t}$  is a dummy variable with the value of 1 when operating cash flows are higher than current liabilities and 0 otherwise;  $Tang_{i,t}$  is the ratio of property, plant and equipment to total assets;  $WC_{i,t}$  is working capital scaled by total assets;  $RE_{i,t}$  is retained earnings scaled by total assets; and  $Turnover_{i,t}$  is the total assets turnover estimated by dividing revenues over assets. Variable definition in Appendix A

## 5. Results

### 5.1 Descriptive statistics and correlation analysis

The analysis begins with assessing descriptive statistics for the inputs in the accruals model from which discretionary and non-discretionary accruals have been estimated. All variables are scaled by lagged total assets. As shown in Table 1, the average accruals have a more negative value in Nigeria than in the U.K. At the same time, the profitability of the two countries' companies was comparable and almost similar. However, asset turnover (sales) and tangible assets measured by PPE are significantly higher in Nigerian companies compared to the U.K.

**Table 1.** Descriptive Statistics

<b>UK Sample</b>				
<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Accruals	-0.056	0.119	-3.839	1.155
PPE	0.261	0.266	0.000	3.059
ROA	0.040	0.170	-4.441	1.058
Sales	0.086	0.298	-2.690	3.840
<b>Nigeria Sample</b>				
<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Accruals	-0.066	0.276	-4.091	3.152
PPE	0.597	2.291	0.000	79.733
ROA	0.046	0.303	-7.334	5.130
Sales	0.366	7.485	-2.583	265.421

The following tables show the correlation coefficients between the variables in the context of the U.K. As observed from Table 2, the most significant positive correlation is between ROA and PDI, whereas the most extreme negative correlation is between DAP and PDI. Table 3 shows the correlation coefficients for the sample of Nigerian companies. It is found that the highest positive correlation is between PPE and Sales. DAP and Accruals show the second highest correlation. At the same time, the most significant negative correlation is found between DAP and PDI.

**Table 2.** Correlations analysis in the U.K.

	IS	Size	Leverage	ROA	Tang	Coverage	WC	RE	Turnover	DAP	PDI	Accruals	PPE	Sales
IS	1.00													
Size	0.17***	1.00												
Leverage	0.11**	-0.01	1.00											
ROA	-0.02*	0.34***	-0.23***	1.00										
Tang	-0.07**	-0.36***	0.02*	-0.14***	1.00									
Coverage	-0.05**	0.01	-0.06**	0.13***	-0.02*	1.00								
WC	-0.05**	0.00	-0.45***	0.16***	-0.08**	0.08**	1.00							
RE	0.00	0.37***	-0.30***	0.55***	-0.08**	0.07**	0.13***	1.00						
Turnover	-0.19***	0.02*	-0.22***	0.12**	0.01	-0.19***	0.04*	-0.02*	1.00					
DAP	0.02*	-0.07**	0.02*	-0.30***	-0.03*	-0.14***	0.03*	-0.21**	-0.06**	1.00				
PDI	-0.02*	0.28***	-0.18***	0.88***	-0.09**	0.16***	0.10**	0.50**	0.11**	-0.72***	1.00			
Accruals	0.01	0.08**	-0.17***	0.41***	-0.08**	-0.13***	0.21***	0.10**	0.07**	0.65***	-0.02*	1.00		
PPE	-0.04**	0.04**	0.11**	0.11***	0.18***	0.29***	-0.20***	0.15**	-0.19***	0.13**	0.02*	-0.14**	1.00	
Sales	-0.11***	-0.01	-0.08**	0.16***	0.01	0.00	0.03*	0.04*	0.24***	0.00	0.11**	-0.01	0.05**	1.00

**Table 3.** Correlations analysis in Nigeria

	IS	Size	Leverage	ROA	Tang	Coverage	WC	RE	Turnover	DAP	PDI	Accruals	PPE	Sales
IS	1.00													
SIZE	-0.35***	1.00												
Leverage	0.08**	-0.11**	1.00											
ROA	-0.05*	0.18***	-0.22***	1.00										
Tang	0.20***	-0.53***	0.08**	-0.01	1.00									
Coverage	0.02	-0.01	-0.08**	0.05*	-0.03*	1.00								
WC	-0.14***	0.07**	-0.51***	0.20***	-0.26***	0.08**	1.00							
RE	-0.12**	0.39***	-0.55***	0.28***	-0.37***	0.09**	0.65***	1.00						
Turnover	-0.21***	0.35***	-0.15**	0.14**	-0.09**	-0.11**	0.14**	0.17**	1.00					
DAP	0.02	-0.01	0.02*	0.04	0.04*	-0.18***	0.08*	0.02*	0.06*	1.00				
PDI	-0.05*	0.13**	-0.16**	0.64***	-0.04*	0.18***	0.07**	0.17**	0.05*	-0.74***	1.00			
Accruals	0.04*	0.03*	0.02*	0.17**	0.03*	-0.18***	0.10**	0.04	0.08**	0.96***	-0.63***	1.00		
PPE	0.12**	0.04*	0.06**	0.26***	0.04*	0.01	-0.06*	-0.01	-0.03*	-0.02	0.19***	0.25***	1.00	
Sales	0.09**	0.07*	0.03*	0.29***	0.01	-0.01	-0.01	0.00	0.03*	0.00	0.19***	0.28***	0.99***	1.00

## 5.2 Main analysis

This paper examines the relationship between income smoothing and the cost of debt in two different countries, namely: the U.K. and Nigeria. Table (4) presents the findings

**Table 4.** Regression for discretionary and non-discretionary accruals

Accruals	U.K.	Nigeria
$\frac{1}{TA_{i,t-1}}$	0.2928*** (0.0300)	-3.7098 (7.9661)
$\Delta Sales_{i,t}$	-0.0503*** (0.0058)	0.0160** (0.0064)
$PPE_{i,t}$	-0.1171*** (0.0157)	-0.0238 (0.0207)
$ROA_{i,t}$	0.5854*** (0.0124)	0.0522 (0.0336)
Constant	-0.0509*** (0.0043)	-0.0577*** (0.0135)
R-squared	0.3904	0.0779
F-test	573.12***	23.72***
Fixed effect	Yes	Yes
Hausman test	121.74***	6.79*

\* significant at 10% , \*\* significant at 5% , \*\*\* significant at 1%

As shown in Table 4, in the U.K. sample, all predictors of accruals are statistically significant at the 1% significance level. In contrast, only the change in sales and the constant term are statistically significant in the Nigerian sample. This is predominantly explained by the presence of missing values and the smaller sample size for Nigeria. As a result, the regression line fit is much better in the U.K. than in Nigeria. The coefficients used for estimating the fitted values or non-discretionary accruals are calculated based on the fixed effect estimation. This decision has been determined based on the Hausman test at the 10% significance level. The test allowed for rejecting the null hypothesis that alternative random effect coefficients would be consistent. Fixed effect coefficients are always consistent even though they could be less efficient than coefficients from the random effect regression.



The discretionary accruals, pre-discretionary income, their first differences (change), and correlation as a measure of income smoothing are evaluated using the following summary statistics shown in Table 5.

**Table 5.** Summary statistics for income smoothing indicators

**U.K. Sample**

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
DAP	0.000	0.096	-1.193	0.860
PDI	0.040	0.210	-3.248	1.684
Change_PDI	0.001	0.144	-1.591	1.909
Change_DAP	0.001	0.099	-1.332	1.542
IS	-0.562	0.417	-0.994	0.933

**Nigeria Sample**

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Dap	0.000	0.265	-3.975	3.118
Pdi	0.046	0.414	-8.411	7.677
Change_PDI	-0.005	0.453	-7.456	6.110
Change_DAP	0.003	0.364	-4.361	4.127
IS	-0.816	0.297	-1.000	0.931

Table 5 shows that discretionary accruals have an expected value of zero in both samples. However, in Nigeria, the standard deviation and range of values for DAP are significantly higher, indicating a larger level of income smoothing than in the U.K. The average pre-discretionary income is higher in Nigerian companies than in the U.K. Similarly, the changes in DAP and PDI are more pronounced in Nigeria. As a result, Nigerian companies are much more active in income smoothing, as evidenced by the more extreme negative correlation between the changes in DAP and change in PDI compared to the U.K. sample.

The impact of the income smoothing practices on the cost of debt in the U.K. and Nigerian companies are assessed by the regressions shown in Table 6 with different specifications. The fixed effect specification could not be implemented since the income smoothing measure does not vary across years.

**Table 6.** Impact of income smoothing on cost of debt

	U.K.			Nigeria		
	Random Effect	Pooled OLS	Cross-Sectional	Random Effect	Pooled OLS	Cross-Sectional
IS	0.0061 (0.0059)	-0.0010 (0.0024)	-0.0045 (0.0061)	-0.0198 (0.0177)	-0.0164 (0.0119)	-0.0223 (0.0177)
Size	-0.0047*** (0.0010)	-0.0007 (0.0005)	0.0014 (0.0014)	-0.0007 (0.0027)	-0.0036* (0.0021)	-0.0014 (0.0041)
Leverage	-0.0942*** (0.0079)	-0.0655*** (0.0066)	-0.0535** (0.0233)	-0.1236*** (0.0182)	-0.1107*** (0.0165)	-0.0691** (0.0336)
ROA	0.0069 (0.0097)	-0.0062 (0.0098)	-0.0354 (0.0347)	-0.0792*** (0.0197)	-0.0758*** (0.0204)	0.0102 (0.0552)
Tang	-0.0609 (0.0951)	-0.0481 (0.0589)	-0.0259 (0.1588)	4.1857 (11.0235)	-6.9602 (9.4554)	20.4920 (13.6939)
Coverage	0.0081* (0.0047)	0.0068 (0.0046)	-0.0148 (0.0173)	0.0041 (0.0169)	-0.0121 (0.0167)	-0.0039 (0.0508)
WC	0.0071 (0.0068)	0.0340*** (0.0049)	0.0450*** (0.0149)	-0.0458*** (0.0164)	-0.0444*** (0.0151)	0.0490 (0.0384)
RE	-0.0020* (0.0010)	-0.0030*** (0.0009)	-0.0008 (0.0033)	-0.0127 (0.0134)	0.0142 (0.0115)	-0.0125 (0.0268)
Turnover	0.0090*** (0.0024)	0.0011 (0.0014)	-0.0014 (0.0039)	0.0240*** (0.0062)	0.0246*** (0.0049)	0.0131 (0.0092)
Cons	0.1103*** (0.0085)	0.0812*** (0.0045)	0.0697*** (0.0127)	0.1495*** (0.0248)	0.1747*** (0.0191)	0.1461*** (0.0328)
R-squared	0.0704	0.1004	0.1890	0.0957	0.1117	0.2521
F-test	235.49***	29.47***	3.52***	76.15***	10.42***	3.22***

\* significant at 10% ,\*\* significant at 5% ,\*\*\* significant at 1%

As the findings in Table 6 reveal, *the coefficients of IS are not significant in all models* provide consistent evidence that income smoothing does not significantly influence the cost of debt despite the significant variations of these variables across countries. The most influential determinant of the cost of debt in both countries is the degree of financial leverage represented by the debt ratio. Besides, some of the models also show that the company's size, working capital, retained earnings, asset turnover, and profitability could determine the cost of debt. In particular, Nigerian companies demonstrate significant relation between profitability and cost of debt, whereas U.K. firms do not show such a relationship. There is a significant positive relationship between working capital and cost of debt for the U.K. firms,

while Nigerian firms showed a rather negative relationship. Finally, firm size is negatively related to the cost of debt, and asset turnover is positively related to the cost of debt in the two countries.

### 5.3 Additional analysis

To compare the cost of debt and income smoothing in the two countries, an additional analysis using the independent samples t-test is applied for both the U.K. and Nigerian companies, as shown in Table 7. The groups in the test are represented by a dummy variable for the country where the U.K. is represented by 1 and Nigeria is represented by zero. The results show statistically significant differences in the mean values of the income smoothing variables in Nigeria and the U.K. This is evidenced by the significantly higher absolute value of the mean difference compared to its standard error.

**Table 7.** Independent Samples T-test for Income Smoothing

<b>Group</b>	<b>Mean</b>	<b>Std. Err.</b>	<b>Std. Dev.</b>	<b>[95% Confidence Interval]</b>	
0	-0.8161	0.0093	0.2972	-0.8344	-0.7978
1	-0.5622	0.0081	0.4168	-0.5781	-0.5462
Combined	-0.6328	0.0067	0.4036	-0.6459	-0.6197
Diff		-0.2539	0.0124	-0.2782	-0.2297

Table 8 tests the differences in the cost of debt for Nigerian and U.K. companies. The evidence from the independent samples t-test applied to yields shows statistically significant differences between the U.K. and Nigeria. The average yield in Nigeria is higher, as explained by the greater risk of Nigerian companies having to pay larger premia for using debt financing than the U.K. companies.

**Table 8. Independent Samples T-test for Differences in Yields across Countries**

Group	Mean	Std. Err.	Std. Dev.	[95% Confidence Interval]	
0	0.1486	0.0031	0.0983	0.1425	0.1547
1	0.0691	0.0010	0.0512	0.0671	0.0710
Combined	0.0909	0.0013	0.0763	0.0885	0.0934

## 6. Discussion and conclusion

The primary objective of this study was to evaluate the potential effect of income smoothing on the cost of debt. The analysis has been performed in the U.K. (representing advanced economies) and Nigeria (representing emerging economies). The research aim has been attained by implementing quantitative methods, including the panel regression analysis, cross-sectional regression analysis, and parametric independent samples t-test. Independent samples t-tests have been run to compare the two countries' income smoothing and the cost of debt. Income smoothing has been represented by a proxy based on the correlation between pre-discretionary income and discretionary accruals. Jones's (1991) methodology is used to derive discretionary and non-discretionary accruals. The regression showed significant coefficients for the case of the U.K. and limited significance for the case of Nigeria, which is explained by more missing values in the latter. The independent samples t-tests revealed statistically significant differences between the cost of debt and income smoothing in the U.K. and Nigerian companies. In particular, the results have shown that the cost of debt is significantly higher in Nigeria than in the U.K. The practice of income smoothing is also found to be much more prevailing in Nigeria than in the U.K. However, despite the differences between the two countries in terms of both the cost of debt and income smoothing, we found no statistically significant associations between these two variables.

We observed that most of the previous studies focused on exploring the effects of income smoothing on profitability (Tseng & Lai, 2007) or the value of companies (Bitner & Dolan, 1996). This study primarily focused on studying the implications of income smoothing for the cost of debt, which is examined only on a limited number of studies (Li & Richie, 2016). The present research primarily generated different results from the literature. For example, while Moghadam, Baharmoghadam, and Mohammadzadeh (2013) found a significant association between income smoothing and both cost of debt and credit ratings, this study revealed no

significant links between these variables. Country-specific factors may explain the differences in different samples and variations in methodologies. However, it is not surprising to find this difference because previous studies also showed mixed evidence, which highlights the crucial value of interpreting these results concerning the institutional contexts where they are found (see, e.g., Ge and Kim, 2014; Orazalin and Akhmetzhanov, 2019; Kim et al., 2020).

Interestingly, the lack of a significant effect of income smoothing on the cost of debt in this study is consistent with the arguments raised by Amiram and Owens (2018). They spoke against the signalling hypothesis and argued that the effect of income smoothing on the cost of debt could be positive in one case, negative in other cases, and insignificant in the third case. This outcome depends on the motivation for income smoothing rather than income smoothing per se. Amiram and Owens (2018) argued that if income smoothing is done with the garbling motive rather than with a motive to send a signal to bondholders, credit rating agencies, or other stakeholders, the effect is likely to be insignificant. However, other empirical studies, such as Martinez and Castro (2011), provide evidence supporting the signalling theory concerning income smoothing and its effect on the cost of debt. Likewise, Shen and Huang (2013) stated that the relationship between income smoothing and the cost of debt could be different. They interpreted this difference concerning the information asymmetry and institutional factors in different countries that reduce information asymmetry between stakeholders. Further, the present study's results do not fully agree with Ghouma (2017), who found a significant negative relationship between income smoothing practice and the cost of debt. However, they also emphasized the presence of asymmetries in this relationship, namely, companies' cost of debt increases in response to positive discretionary accruals but are less sensitive to negative discretionary accruals. They also used bond ratings and additional proxies of management opportunism, which makes the scope of their research broader and explains why the results could deviate from the evidence in the present study.

Moreover, the present study assessed how the cost of debt is determined by additional factors such as firm size, financial leverage, profitability, tangibility, and working capital. The regression results revealed that the most significant determinant of the cost of debt was the financial leverage used by both U.K. and Nigerian companies. In Nigerian companies, the profitability of companies (measured by ROA) also had a significant association with the cost of debt, whereas, in the U.K., profitability was not influential. In particular, more profitable companies in Nigeria enjoyed lower costs of debt, which is explained by their lower risk. The

U.K. and Nigerian companies have shown significant differences concerning how their working capital is associated with the cost of debt. In the U.K., there was a significant positive relationship between these two variables, implying that companies with larger working capital also have a higher cost of debt. In contrast, Nigerian companies showed a significant negative association between these variables—that is, the growth in Nigerian companies' working capital would be associated with a lower cost of debt. Regarding the impact of firm size, larger companies are found to have lower costs of debt in both the U.K. and Nigeria. Finally, asset turnover was positively associated with the cost of debt in the two countries, meaning that a higher ratio of sales to assets is associated with higher cost of debt. This finding can be explained by the idea that assets are often used as collateral for debt and risk assessment (Yu, Hagigi & Stewart, 2018). Thus, companies with high asset turnover are likely to experience high growth but insufficient capital. In the case of default, creditors will not be able to recoup their losses from the past revenues of the borrower; however, they can recoup their investment if the company has sufficient assets to sell. Therefore, this relationship is theoretically justified.

Our study contributes to the existing literature by providing new insights concerning the contrast between developed and developing countries in financial and reporting issues, which can better help regulators and standard setters in developing countries such as Nigeria locate the present shortages in the reporting environment and take the appropriate actions. However, this study is not without limitations. Most of the limitations of this study are associated with limited data about Nigerian companies. Even though both the U.K. and Nigerian samples had more than 100 companies each, the U.K. sample had no missing values, whereas Nigerian companies reported a large number of missing values, which inevitably affected the quality of estimations in regression models. This was clearly evidenced by the less significant coefficients in the Jones's (1991) model applied to the Nigerian sample, compared to the same model for discretionary accruals applied to the U.K. sample with no missing values. This is explained by the fact that more missing values result in fewer observations. Since the number of observations is a constituent of the denominator of the standard error formula, this also leads to higher standard errors for the Nigerian sample. Another limitation of this study is that it focused only on one measure of income smoothing whereas alternative proxies could generate different results. Therefore, to test the results for sensitivity to variations in the proxies of the income smoothing measure, future research is recommended where a comparison of measures can be conducted. A similar limitation is related to the estimation of

the cost of debt. There are various methods to calculate the cost of debt for the companies. However, even for companies with corporate bonds traded in the open markets, this can be problematic. The main reason the cost of debt based on market values is difficult to assess accurately is that companies often have different debts traded with different maturities and conditions. Estimating the weighted average cost of debt, in this case, will be an arduous task. The situation can also be complicated because many companies use mixed methods of debt financing that are not limited to corporate bonds. Companies could also raise debt financing by taking loans from banks and even using leases and hybrid securities. Thus, taking a market yield for a particular bond issue will be a very unreliable measure of the cost of debt. In addition, this study faced the limitation of the lack of market data about corporate bond yields, especially for Nigerian companies. Two alternative solutions have been considered to address this limitation. The first one was applying the synthetic method of estimating the cost of debt based on credit ratings and normal credit spreads for given industries and estimated interest cover ratios. However, this method was rejected for the lack of clear benchmarks for the U.K. and Nigerian industries. Therefore, an alternative solution was applied to estimate the cost of debt as a ratio of all interest expenses to the total value of interest-bearing debt. This method excluded any non-interest-bearing liabilities.

One of the reasons for the reported differences between the additional factors affecting the cost of debt in the U.K. and Nigeria that could be explored in future studies is the differences in composition of current assets and current liabilities. For example, if interest-bearing debt comprises a large portion of current liabilities in one sample and a small portion of current liabilities in the other sample, the final results and the effects on the cost of debt will be different. To further reveal more fundamental reasons for the insignificant effects on the cost of debt detected in this study, it is recommended that future researchers examine the motives for income smoothing in both the U.K. and Nigeria.

## References

- Abdul-Baki, Z., Uthman, A., & Abubakar S. (2021). The role of accounting and accountants in the oil subsidy corruption scandal in Nigeria. *Critical Perspectives on Accounting*, 78, <https://doi.org/10.1016/j.cpa.2019.102128>.
- Acharya, V. V., & LAMBRECHT, B. M. (2015). A theory of income smoothing when insiders know more than outsiders. *The Review of Financial Studies*, 28(9), 2534-2574, <https://doi.org/10.1093/rfs/hhv026>.

- Aflatooni, A., & Nikbakht, Z. (2010). Income smoothing, real earnings management and long-run stock returns. *Business Intelligence Journal*, 3(1), 55-73.
- Alexandri, M. B., & Anjani, W. K. (2014). Income smoothing: impact factors, evidence in Indonesia. *International Journal of Small Business and Entrepreneurship Research*, 3(1), 21-27.
- Alhadab, M. M. (2018). Real and accrual earnings management around initial public offerings in Jordan. *International Business Research*, 11(1), 204-216.
- Amiram, D., & Owens, E. (2018). Sign reversal in the relationship between income smoothing and cost of debt. *Journal of Business Finance & Accounting*, 45(1-2), 40-71. <https://doi.org/10.1111/jbfa.12295>
- Antoniou, A., Guney, Y., & Paudyal, K. (2008). The determinants of capital structure: capital market-oriented versus bank-oriented institutions. *Journal of financial and quantitative analysis*, 43(1), 59-92.
- Athanasakou, V. E., Strong, N. C., & Walker, M. (2007). Classificatory income smoothing: The impact of a change in regime of reporting financial performance. *Journal of Accounting and Public Policy*, 26(4), 387-435, <https://doi.org/10.1016/j.jaccpubpol.2007.05.002>.
- Ball, R., Kothari, S. P. & Robin, A. (2000). The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics*, 29(1), 1–51.
- Bakre, O. M. (2007, September). The unethical practices of accountants and auditors and the compromising stance of professional bodies in the corporate world: Evidence from corporate Nigeria. *Accounting Forum*, 31(3), 277-303.
- Bharath, S.T., Sunder, J., and Sunder, S., 2008. Accounting quality and debt contracting. *Accounting Review*, 83 (1), 1–28.
- Bitner, L. N., & Dolan, R. C. (1996). Assessing the relationship between income smoothing and the value of the firm. *Quarterly Journal of business and Economics*, 35(1), 16-35.
- Brown, L. D., & Higgins, H. N. (2005). Managers' forecast guidance of analysts: International evidence. *Journal of Accounting and Public Policy*, 24(4), 280-299.



- Cahan, S. F., Liu, G., & Sun, J. (2008). Investor protection, income smoothing, and earnings informativeness. *Journal of International Accounting Research*, 7(1), 1-24, <https://doi.org/10.2308/jiar.2008.7.1.1>.
- Carmo CR, Moreira JAC and Miranda MCS (2016) Earnings quality and cost of debt: evidence from Portuguese private companies. *Journal of Financial Reporting and Accounting*, 14(2): 178–197.
- Chaney, P. K., & Jeter, D. C. (1997). Income smoothing and firm characteristics. *Accounting Enquiries*, 7(1), 1-9.
- Chen, L. H. (2013). Income smoothing, information uncertainty, stock returns, and cost of equity. *Review of Pacific Basin Financial Markets and Policies*, 16(03), 1-12. <https://doi.org/10.1142/S0219091513500203>
- Custódio, C., Ferreira, M. A., & Laureano, L. (2013). Why are U.S. firms using more short-term debt?. *Journal of Financial Economics*, 108(1), 182-212.
- Dang, V. A. (2013). An empirical analysis of zero-leverage firms: New evidence from the U.K. *International Review of Financial Analysis*, 30, 189-202.
- Dechow, P., Hutton, A. & Sloan, R. (1995) Detecting earnings management, *Accounting Review*, 70 (2), 193–225.
- El Sood, H. A. (2012). Loan loss provisioning and income smoothing in U.S. banks pre and post the financial crisis. *International Review of Financial Analysis*, 25, 64-72, <https://doi.org/10.1016/j.irfa.2012.06.007>.
- Elgers, P. T., Pfeiffer Jr, R. J., & Porter, S. L. (2003). Anticipatory income smoothing: a re-examination. *Journal of Accounting and Economics*, 35(3), 405-422, [https://doi.org/10.1016/S0165-4101\(03\)00039-9](https://doi.org/10.1016/S0165-4101(03)00039-9).
- Fonseca, A. R., & Gonzalez, F. (2008). Cross-country determinants of bank income smoothing by managing loan-loss provisions. *Journal of Banking & Finance*, 32(2), 217-228, <https://doi.org/10.1016/j.jbankfin.2007.02.012>.
- Ge, W., & Kim, J. B. (2010). Real earnings management and cost of debt. In *CAAA Annual Conference*. Retrieved from: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1532033](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1532033)

- Ge, W., & Kim, J. B. (2014). Real earnings management and the cost of new corporate bonds. *Journal of Business Research*, 67(4), 641-647.
- Gerakos, J., Lang, M., & Maffett, M. (2013). Post-listing performance and private sector regulation: The experience of London's Alternative Investment Market. *Journal of Accounting and Economics*, 56(2-3), 189-215.
- Ghouma, H. (2017). How does managerial opportunism affect the cost of debt financing?. *Research in International Business and Finance*, 39, 13-29.
- Gopalan, R., & Jayaraman, S. (2012). Private control benefits and earnings management: Evidence from insider controlled firms. *Journal of Accounting Research*, 50(1), 117-157.
- Ghosh, A., & Moon, D. (2010). Corporate debt financing and earnings quality. *Journal of Business Finance & Accounting*, 37(5-6), 538-559.
- Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of accounting and economics*, 40(1-3), 3-73.
- Gray, S. J. (1992). International accounting research: The global challenge. *The International Journal of Accounting*, 24, 291-307.
- Gray, P., Koh, P. S., & Tong, Y. H. (2009). Accruals quality, information risk and cost of capital: Evidence from Australia. *Journal of Business Finance & Accounting*, 36(1-2), 51-72.
- Gujarati, D. (2003) *Basic Econometrics*, New York: McGraw Hill.
- Hail, L., & Leuz, C. (2006). International differences in the cost of equity capital: Do legal institutions and securities regulation matter?. *Journal of accounting research*, 44(3), 485-531.
- Huang, P., Zhang, Y., Deis, D. R., & Moffitt, J. S. (2009). Do artificial income smoothing and real income smoothing contribute to firm value equivalently?. *Journal of Banking & Finance*, 33(2), 224-233, <https://doi.org/10.1016/j.jbankfin.2008.07.012>.
- Jiang, J. (2008). Beating earnings benchmarks and the cost of debt. *The Accounting Review*, 83(2), 377-416.

- Jones, J. (1991) Earnings management during import relief investigations, *Journal of Accounting Research*, 29 (2), 193–228, <https://doi.org/10.2307/2491047>
- Kanagaretnam, K., Lobo, G. J., & Mathieu, R. (2003). Managerial incentives for income smoothing through bank loan loss provisions. *Review of Quantitative Finance and Accounting*, 20(1), 63-80, <https://doi.org/10.1023/A:1022187622780>.
- Kim, J. H., Lee, S. H., & Keun Yoo, Y. (2020). Real earnings management and the cost of debt capital: international evidence. *Asia-Pacific Journal of Accounting & Economics*, 27(2), 151-172.
- Kothari, S., Leone, A. & Wasley, C. (2005) Performance matched discretionary accruals, *Journal of Accounting Economics*, 39 (1), pp. 161–197, <https://doi.org/10.1016/j.jacceco.2004.11.002>.
- Kwak, S. K., & Park, J. I. (2015). Empirical Evidence on the Relation between Real Earnings Management and the Cost of Debt. *Tax and Accounting Journal*, 16(5), 243-274.
- Leuz, C., Nanda, D. & Wysocki, P. (2003) Investor protection and earnings management, *Journal of Financial Economics*, 69 (3), pp. 505–527, [https://doi.org/10.1016/S0304-405X\(03\)00121-1](https://doi.org/10.1016/S0304-405X(03)00121-1).
- Li, X. 2015. “Accounting Conservatism and the Cost of Capital: An International Analysis.” *Journal of Business Finance and Accounting* 42 (5–6): 555–582.
- Li, S., & Richie, N. (2016). Income smoothing and the cost of debt. *China Journal of Accounting Research*, 9(3), 175-190, <https://doi.org/10.1016/j.cjar.2016.03.001>.
- Lim, S. C., & Lustgarten, S. (2002). Testing for income smoothing using the backing out method: A review of specification issues. *Review of Quantitative Finance and Accounting*, 19(3), 273-290, <https://doi.org/10.1023/A:1020719624778>.
- Liu, Y., Ning, Y., & Davidson III, W. N. (2010). Earnings management surrounding new debt issues. *Financial Review*, 45(3), 659-681, <https://doi.org/10.1111/j.1540-6288.2010.00265.x>.
- Mahadeo, J. D., Oogarah-Hanuman, V., & Soobaroyen, T. (2011). A longitudinal study of corporate social disclosures in a developing economy. *Journal of Business Ethics*, 104(4), 545-558.

- Martinez, A. L., & Castro, M. A. R. (2011). Bond ratings and income smoothing in Brazil. *Latin American Business Review*, 12(2), 59-81, <https://doi.org/10.1080/10978526.2011.592793>.
- Matsuura, S. (2008). On the relation between real earnings management and accounting earnings management: Income smoothing perspective. *Journal of International Business Research*, 7, 63.
- Moghadam, A., Baharmoghadam, M., & Mohammadzadeh, M. (2013). Income Smoothing and the Cost of Debt and Credit Ratings. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 3(3), 234-241, <https://doi.org/10.6007/ijarafms/v3-i3/133>.
- Nardi, P. C. C., & Nakao, S. H. (2009). Gerenciamento de resultados e a relação com o custo da dívida das empresas brasileiras abertas. *Revista Contabilidade & Finanças*, 20(51), 77–100.
- Orazalin, N. and Akhmetzhanov, R. (2019), "Earnings management, audit quality, and cost of debt: evidence from a Central Asian economy", *Managerial Auditing Journal*, Vol. 34 No. 6, pp. 696-721.
- Ozili, P. K. (2019). Impact of IAS 39 reclassification on income smoothing by European banks. *Journal of Financial Reporting and Accounting*. 17(3), 537-553.
- Ozili, P. K., & Outa, E. R. (2018). Bank income smoothing in South Africa: role of ownership, IFRS and economic fluctuation. *International Journal of Emerging Markets*. 13 (5), 1372-1394.
- Prevost, A. K., Rao, R. P., & Skousen, C. J. (2008). Earnings management and the cost of debt. *SSRM Working Paper*, Retrieved from [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1083808](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1083808)
- Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *The Journal of Finance*, 50(5), 1421-1460.
- Rivard, R. J., Bland, E., & Morris, G. B. H. (2003). Income smoothing behavior of U.S. banks under revised international capital requirements. *International Advances in Economic Research*, 9(4), 288-294, <https://doi.org/10.1007/BF02296177>.

- Shen, C. H., & Huang, Y. L. (2013). Effects of earnings management on bank cost of debt. *Accounting & Finance*, 53(1), 265-300, <https://doi.org/10.1111/j.1467-629X.2011.00455.x>.
- Sitanggang, R.P., Karbhari, Y., Matemilola, B.T. and Ariff, M. (2020). Audit quality and real earnings management: evidence from the U.K. manufacturing sector. *International Journal of Managerial Finance*, 16(2), 165-181.
- Strebulaev, I. A., & Yang, B. (2013). The mystery of zero-leverage firms. *Journal of Financial Economics*, 109(1), 1-23.
- Tseng, L. J., & Lai, C. W. (2007). The relationship between income smoothing and company profitability: An empirical study. *International Journal of Management*, 24(4), 727.
- Tucker, J. W., & Zarowin, P. A. (2006). Does income smoothing improve earnings informativeness?. *The accounting review*, 81(1), 251-270, <https://doi.org/10.2308/accr.2006.81.1.251>.
- Wallace, R. O. (1992). Growing pains of an indigenous accountancy profession: the Nigerian experience. *Accounting, Business & Financial History*, 2(1), 25-54.
- World Bank. (2011). Report on the observance of standards and codes (ROSC) Accounting and Auditing. Available at <http://documents.worldbank.org/curated/en/440581468099577387/pdf/691530ESW0ROSC0ng000Auditing00FY110.pdf>
- WRDS (2020) Wharton Research Data Services Main Page, Available at: <https://wrds-www.wharton.upenn.edu/>, [Accessed on 15/04/2020].
- Yu, K., Hagigi, M., & Stewart, S. D. (2018). Income smoothing may result in increased perceived riskiness: Evidence from bid-ask spreads around loss announcements. *Journal of Corporate Finance*, 48, 442-459.
- Zalata, A. M., & Roberts, C. (2017). Managing earnings using classification shifting: U.K. evidence. *Journal of International Accounting, Auditing and Taxation*, 29, 52-65.



## Appendix A:

### Variable Measurement

Variable	Variable Measurement
Cost of Debt (yield)	the annual interest expense on the total value of interest-bearing debt.
Income smoothing (IS)	Discretionary accruals based on Jones's (1991).
Size	the natural log of revenue
Leverage	the ratio of total interest-bearing debt to total assets
ROA	the ratio of net income to total assets
Tang	the ratio of property, plant and equipment to total assets
Coverage	a dummy variable with the value of 1 when operating cash flows are higher than current liabilities and 0 otherwise
WC	working capital scaled by total assets
RE	retained earnings scaled by total assets
Turnover	the total assets turnover estimated by dividing revenues over assets
PPE	property, plant, and equipment divided by lagged total assets
Accruals	the difference between net income and operating cash flows, adjusted by lagged total assets
T.A	the firm's total assets
$\Delta$ SALES	the change in sales divided by lagged total assets