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Benchmark beating and earnings manipulation in Nigerian firms

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ABSTRACT

Earnings management among firms remains a central focus for academics, auditors and regulatory bodies. Benchmark-motivated earnings management occurs when managers engage in opportunistic activities, including flexible use of accounting standards to misrepresent the information in a firm's financial reports. Academic research has focused on how firms manage earnings to beat benchmarks, but the evidence regarding firms in emerging African stock markets is scarce and none is available for Nigeria. We applied both accruals quality and discretionary accruals models to detect whether firms that beat earnings benchmarks report earnings differently from others. Using 161 firms listed on the Nigerian Stock Exchange from 2002 to 2019, the study verifies how benchmark beaters manage earnings under the framework of two earnings thresholds – earnings (level) and positive earnings changes. Earnings persistence tests were carried out to verify whether benchmark beaters are consistent manipulators relative to non-beaters. The findings indicate that positive earnings benchmarks differ among the dichotomized groups. The evidence is not sufficient to validate that the change in earnings benchmarks motivates earnings discretions. However, the evidence may improve for larger samples. The study offers insights for informed decisions on the expectation of investment returns for investors, creditors, and other market partakers that require earnings information.

Contribution/Originality: The study is the first to apply an empirical procedure to determine the evidence of benchmark beating for Nigeria. The outcome offers insights to capital market participants that require earnings information to make informed decisions.

1. MOTIVATION

The issue of earnings management has remained at the forefront of auditing, academics and research for over three decades (Brennan, 2021; Eiler, Filzen, Jackson, & Tama-Sweet, 2021). Prior research focuses on how to detect earnings management (Beatty, Ke, & Petroni, 2002; Burgstahler & Dichev, 1997; Dechow, Sloan, & Sweeney, 1995; Degeorge, Patel, & Zeckhauser, 1999; Gilliam, Heflin, & Paterson, 2015; Kothari, Leone, & Wasley, 2005; Leuz, Nanda, & Wysocki, 2003) as well as examine how corporate governance (Amar & Chakroun, 2018; Bzeouich, Lakhal, & Dammak, 2019) and other economic and environmental settings and accounting regulations motivate earnings quality (Byzalov & Basu, 2019; Chowdhury, Mollah, & Al Farooque, 2018; Cimini, 2015; Lin & Wu, 2022). This study attempts to confirm whether benchmark-beating signals manipulations among firms in an emerging financial market.

If benchmark beating is a robust indicator of earnings management, firms that carry out this practice would report earnings or its components characteristically different from others firms (Bryan, Rakow, Tiras, & Wilson, 2020).

Benchmark-motivated earnings management occurs when managers engage in opportunistic activities, including the flexible use of accounting standards (such as reducing discretionary expenses), and structure transactions (overproduction, intermittent timing of sales, etc.) to misreport information regarding the firm's financial performance. Firms manage earnings upwards when just meeting certain earnings benchmarks. They prepare reports that are skewed toward the achievement of predetermined managerial goals. There is increasing evidence on benchmark beating procedures as incentives for earnings management in advanced economies. These studies argue that earnings management happens around three benchmarks – to ensure positive earnings, to sustain previous earnings (Habib & Hossain, 2008; Kent & Routledge, 2017) and to meet analyst projections (Bryan et al., 2020). Achieving the benchmarks is motivation for firms to manipulate earnings (Beyer, Nabar, & Rapley, 2018; Harris, Shi, & Xie, 2018) since the market compensates firms that record positive earnings, increased earnings over previous (parallel) periods, or meet analyst projections, but reacts adversely to those that miss the benchmarks. Beyer et al. (2018) found positive links between earnings management and profitability only for firms that exhibit low incentives to meet earnings benchmarks. Harris et al. (2018) established that benchmark beating is significantly associated with the likelihood of accounting anomalies.

Benchmark beating remains scarcely explored for Africa, and Nigeria in particular. Present research based on Nigeria focuses only on how corporate governance explains earnings management (Kajola, Sanyaolu, Tonade, & Adeyemi, 2020; Madugba & Ogbonnaya, 2017; Ozili & Outa, 2019). Our paper extends the literature by providing evidence on the earnings quality of benchmark beaters and by validating benchmark beating for earnings management in Nigeria. We verify whether reported earnings are an accurate representation of economic performance, otherwise we suppose that managers meet or beat positive earnings levels and earnings change benchmarks through earnings management. An investigation into Nigeria provides an important reference for emerging markets. The stock market is continuously developing and has embraced global investors through integrated technology. This study differs from prior research due to its application of a sample from an emerging market as well as the use of multiple earnings measures, including actual profit, accrual quality and discretionary accrual, to verify firms' earnings management. Using accruals models provides a more realistic characterization of the extent of earnings management (Francis, LaFond, & Olsson, 2005; Silhan, 2014).

The distribution of earnings is depicted using profit after tax to provide necessary, but not sufficient, information about earnings management (Kent & Routledge, 2017). We assume that the sample design may influence the distribution of earnings, hence the initial profit earnings are normalized by the lagged of total assets (Donelson, Mcinnis, & Mergenthaler, 2013; Durtschi & Easton, 2009). The results identify benchmark beating and non-beating around the zero benchmarks for both the earnings levels and earnings change.

Because earnings distributions are noisy, we cannot rely completely on this information to make valid decisions, as such, we extend the study to pursue three main objectives. First, we compute discretionary accruals and accrual quality for the individual firms. We then resolve the fundamental research issue on whether benchmark beaters provide lower earnings quality than non-benchmark beaters. In particular, we demonstrate that there is a statistical difference in the basic descriptions of accruals components for beaters and non-beaters (Bryan et al., 2020; Chowdhury et al., 2018; Kent & Routledge, 2017). Second, we verify the hypothetical belief that benchmark beaters are less persistent in earnings management relative to the non-beaters by confirming significantly different coefficients of earnings persistence for both groups. Third, we confirm that the benchmark beating trend is potentially declining over time.

The remainder of the paper is structured as follows: Section 2 details the theory, reviews and hypotheses; Section 3 explains the methodology; Section 4 contains the results; and Section 5 concludes.

2. MATERIAL

2.1. Theoretical Underpinnings

The standard approach to testing the behavior of an economic variable or the relationship among variables is guided by formalized theory. The "meet or beat" argument resolves the hypothesis that stock market adversely affects firms that report small negative earnings levels, or even change. Available works of literature offer a number of theories to explain "meet or beat". Hepworth (1953) is arguably the earliest theoretical work that offers an explanation for firms' incentives to meet or exceed the benchmark. The model suggests that to avoid adverse effects on their stock, firms consider periodic balancing (manipulations) of income through specific accruals used to transfer reported earnings to subsequent periods.

An alternative model that can explain the motivation for the meet or beat hypothesis is the prospect theory proposed by Kahneman and Tversky (1979). The model adopts a plausible explanation for the seemingly irrational meet or beat behavior exhibited by managers of corporate funds. The prospect theory assumes that individuals display irrational behavior to access gains and losses with respect to a benchmark instead of absolute wealth levels. The key assumption of the theory is the existence of asymmetric forms of risk (loss) aversion, or different reactions to potential losses and gains relative to a specific situation. Generally, individuals' values are asymmetrically convex in losses but concave in gains through a reference point (i.e., S-shaped). The theory supposes that losses are more offensive than the equivalent gain (loss aversion). Individuals derive more value when their accumulated wealth changes from a loss to a gain relative to a benchmark. Analogously, shareholders derive greater utility by investing in firms that record gains relative to firms with volatile annual earnings (Koonce & Mercer, 2005).

Another model used to justify incentives to meet or beat benchmarks is the 'agency theory' by Jensen and Meckling (1976). The theory assesses the relationship between management (agent) and shareholders (principal), according to how the principal engages the agent to employ measures to maximize shareholders' wealth. Since the relationship is contractual, the agent (management) must make decisions that meet funders' expectations. The managers act as fiduciary agents of a corporation's trust and are responsible for maximizing long-term profits as well as safeguarding shareholders' best interests. In a bid to seek successful ventures, managers focus on short-term rather than long-term incentives and therefore focus on aggressive earnings management. However, if the market information is asymmetric, the pay-off structure of the claims of stakeholders may be different and mangers' interests may conflict with those of the shareholders.

Burgstahler and Dichev (1997) used the transaction cost theory to offer an explanation for the earnings management hypothesis. The model extends the prospect theory to involve stakeholders with implicit claims on a firm's resources. Burgstahler and Dichev proposed that the relations between a firm and its shareholders are implicit, and stakeholders use multiple sources of information to evaluate a firm's ability to uphold its commitments. The value of a firm's claims is affected by its financial condition, and stakeholders' payoffs remain uncertain. They notice that the costs of storage, retrieval, and managing information are substantially high, causing some stakeholders to determine transactions terms on the basis of heuristic cut-offs around earnings benchmarks.

2.2. Empirical Reviews

Generally, models that detect earnings management can be classified in two groups: discretionary (abnormal) accruals, including arbitrary discretionary and specific discretionary accruals models (Dechow et al., 1995; Healy, 1985; Jones, 1991; Kothari et al., 2005; Peasnell, Pope, & Young, 2000), and non-discretionary (normal) accruals, such as the distribution model (Beatty et al., 2002; Burgstahler & Dichev, 1997; Degeorge et al., 1999; Leuz et al., 2003) and accounting change model (Prawitt, Smith, & Wood, 2009). Pioneer researchers use accrual models to detect prevalent evidence of earnings management. By using different functional forms of accruals models, researchers can observe whether accounting reports on cash-flows and accruals items are consistent with earnings arrangement (Kothari et al., 2005; Peasnell et al., 2000). Degeorge et al. (1999) and Burgstahler and Dichev (1997) considered an

alternative approach by examining the behavior of 'earnings distribution'. Burgstahler and Dichev (1997) contended that if some firms manipulate earnings, the cross-sectional distribution of earnings become discontinuous, depicting a pattern with unusually few small losses and unusually too many small profits around the zero threshold. Using the United States earnings, the study interpreted a discontinuity in bin frequencies around a zero benchmark as an indication of earnings management. Degeorge et al. (1999) showed that discontinuity exists within the context of three specific earnings benchmarks: (a) reporting small positive profits (i.e., profit/loss or zero) benchmark, (b) reporting profits more than reported in the previous parallel period, and (c) exceeding analysts' earnings predictions. Subsequent studies provide extensive evidence of the zero benchmark (Enomoto & Yamaguchi, 2017; Guttman, Kadan, & Kandel, 2006), earnings from the preceding year (Dechow, Richardson, & Tuna, 2003; Donelson et al., 2013), and the forecast (error) distributions to attain analysts' projected earnings (Donelson et al., 2013).

Both Kerstein and Rai (2007) and Shen and Chih (2005) identify earnings management on the basis of positive earnings levels and change benchmarks. Kerstein and Rai (2007) used benchmarks from earnings distribution in past periods to determine the extent of earnings management. They showed that a significantly high percentage of firms with relatively small cumulative profits (or losses) reported small yearly profits rather than losses compared to the control group. They established evidence of upward earnings management regarding the positive earnings benchmark. Shen and Chih (2005) disclosed a significant peak solely in small profits (positive earnings) and earnings increases without any discontinuity in small losses and earnings decreases.

As noted by Donelson et al., (2013) and Durtschi and Easton (2005), sample design plays an importance role in the possibility of discontinuity. Donelson et al. (2013) suggested that discontinuities are motivated by differences in earnings misreporting but not by scaling, sample selection, or alternative research design. Durtschi and Easton (2005) emphasized that the sample designs, such as selection criteria, earnings metrics deflation and the influence of certain observations to the right and left of zero are factors that could drive the benchmark-beating phenomenon. Dechow et al. (2003) explored whether the enhancement of discretionary accruals to document a small profit is sensible to justify the discontinuity identified by Burgstahler and Dichev (1997) rather than unusual cash flow manipulation beyond the benchmarks. They showed that benchmark beating firms do not necessarily report abnormally large accruals. The study suggests that other factors, such as scaling, selection bias and different valuation methods, apply to small loss firms relative to firms with profits and motivates benchmark meeting or beating behavior.

Other studies Coulton, Saune, and Taylor, (2022); Donelson et al. (2013) and McInnis and Collins (2011) relate benchmark beating and discontinuities to analyst projections. Coulton et al. (2022) failed to establish consistent evidence of improvement in the financial reporting quality following analysts' operating cash flow projections. Donelson et al. (2013) found that discontinuity is present in the reported earnings but absent in the distribution of earnings (level), earnings surprise, and analyst forecast errors using the restated earnings. McInnis and Collins (2011) showed that the propensity to meet or exceed benchmarks declines as firms' accrual quality improves after operating cash flow forecasts. In response to cash flow forecasts, firms turn to alternative benchmark-beating methods, such as earnings guidance. Matsumoto (2002) showed that firms use abnormal accruals as a channel to manipulate earnings upward and misreport low earnings predictions to meet or beat analysis' forecasts.

Harris et al. (2018); Shuto and Iwasaki (2015); Beaver, McNichols, and Nelson (2007) and Cheng and Warfield (2005) analyzed institutional factors that affect benchmark beating. Harris et al. (2018) showed that benchmark beating is positively and significantly related to the probability of intentional misreporting after accounting for other factors that drive accounting irregularities. They established that benchmark-beating procedures outperform discretionary accruals models when used to access accounting irregularities. Shuto and Iwasaki (2015) revealed that institutional factors are the cause of the breaks in earnings distribution. Japanese firms with high marginal tax rates and very tight interactions with their respective banks are more likely to engage in earnings management to report more positive earnings. Beaver et al. (2007) stated that benchmark beating and discontinuity are driven by an asymmetric influence of distinct negative components and effective tax rates for firms. They noted that neither item

would cause the observations to change from small profits to small losses. Cheng and Warfield (2005) employed stock-based compensation (earnings) and stock ownership to establish evidence that managers with consistent incentives for equity report earnings meet or beat analysts' expected forecasts. They noted that managers' wealth portfolios are sensitive to firms' future stock performance, which could preserve (current) earnings to avoid future earnings decline.

Some literature Bryan et al. (2020); Coulton, Taylor, and Taylor (2005); Habib and Hossain (2008) and Kent and Routledge (2017) compare abnormal accruals as well as accrual quality of benchmark beating and non-benchmark beating firms or periods. Bryan et al. (2020) examined the same for analysts' earnings forecasts by comparing analysts' earnings benchmark projections of firms that meet or exceed analysts' benchmark predictions with their counterparts that just miss the benchmarks. Benchmark beaters showed stronger projections with aggregate abnormal returns than the "just miss" firms, although the difference reduces when beaters slightly exceed the benchmarks. Kent and Routledge (2017) found evidence that while positive earnings benchmarks drive earnings management, the data could not establish that a positive earnings change benchmark motivates earnings management. Habib and Hossain (2008) could not establish a similar outcome of benchmark beating for analyst forecasts in Australia. They showed that although the proportion of listed firms that just meet or beat the forecast benchmarks increased, the increase is not significant. Coulton et al. (2005) analyzed whether benchmark beating firms offer larger abnormal accruals relative to "just miss" firms and firms in other categories. They observed that the just miss firms and benchmark beaters have higher accruals than others.

2.3. Hypothesis Formulation

Burgstahler and Dichev (1997) introduced distribution discontinuity as evidence of earnings benchmarks. Degeorge et al. (1999) showed that discontinuity can exist in the context of three earnings benchmarks. Shen and Chih (2005) provided a statistical construct (standardized difference) condition on earnings benchmarks to evaluate the existence of manipulations based on the earnings benchmarks of Degeorge et al. (1999) and Burgstahler and Dichev (1997). Subsequent literature offers evidence on specific accruals, discontinuity, benchmarks beating and earnings mangers' incentive or the influence of institutional factors, investor protection, and accounting regulations (Beyer et al., 2018; Eiler et al., 2021; Gilliam et al., 2015; Lin & Wu, 2022).

Donelson et al. (2013) and Dechow et al. (2003) among others recognize analyst benchmarks as the most crucial benchmarks and that firms are more likely to manage earnings to meet or exceed the analysts' projections than the other earnings benchmarks. Some research based on advanced economies examines the abnormal accruals of benchmark beaters and non-beaters (Bryan et al., 2020; Coulton et al., 2005; Habib & Hossain, 2008; Kent & Routledge, 2017). There is evidence of earnings management at the zero benchmark among listed firms in emerging market economies (Ebaid, 2012; Pududu & De Villiers, 2016). The managers have sufficient incentives to meet or just exceed the earnings benchmarks through discretion. Based on the foregoing, this study tests the following hypotheses:

1. Benchmark beaters report earnings quality differently from non-benchmark beaters.
2. Benchmark beaters demonstrate less earnings persistence relative to non-beaters.
3. Benchmark beating is potentially declining over time.

3. METHODS

3.1. Data

In studies on meeting or beating benchmarks, some authors only consider financial institutions (Beatty et al., 2002; Beaver et al., 2007), while others use non-financial firms but exclude over-regulated firms, such as those in the utilities sector, from the sample (Habib & Hossain, 2008; Kent & Routledge, 2017). Because studies on emerging economies with small stock exchanges have a low volume of data, the available evidence on earnings management is

from listed firms that meet the selection criteria (Ebaid, 2012; Pududu & De Villiers, 2016). As such, we collate and use information for 162 financial and non-financial firms listed on the Nigerian Stock Exchange (NSE) with complete data needed to obtain the accruals measures from 2002 to 2019. The total number of observations used for the earnings distribution is 2,898, but for earnings change is 2,737 due to the loss of a year in the computation of the change variable for the cross-sectional data. These observations are further reduced because estimating the accruals quality requires both the lag and lead information of operating cash flow. To ensure that we do not lose further data due to computation, we use observations from 2001 (as a lag for 2002) and information from 2020 (as a lead for 2019). We compute the total accruals from the profit after tax minus the cash flow from operations (Coulton et al., 2005; Hribar & Collins, 2002). Hribar and Collins (2002) explained that this approach to measuring accruals has the least possible computational errors.

To depict the cross section of earnings, we use the profit after tax earnings (Kent & Routledge, 2017). Initially, we observe a wide range of the firms' profits as well as their assets. This infuses large outliers on the earnings distribution based on the actual profit. We then normalize $PAT_{i,t}$ earnings measures, as per (Donelson et al., 2013; Durtschi & Easton, 2009), by scaling with the lagged of total assets, $A_{i,t-1}$ (Equation 1).

$$aPAT_{i,t} = PAT_{i,t}/A_{i,t-1} \quad (1)$$

Equation 1 provides the asset-scaled net profits after tax ($aPAT_i$). To control for the effects of the outliers on the $aPAT_i$ measure, we winsorised the final (Shuto & Iwasaki, 2015) at the first (1st) and penultimate (99th) percentiles before the estimation. Table 1 presents the data summary on the normalized net profits, $aPAT_i$.

3.2. Procedures

The study considers the benchmark-beating approach to earnings management according to Bryan et al. (2020); Coulton et al. (2005); Habib and Hossain (2008); Kent and Routledge (2017). Following standard practice, we first carry out a preliminary assessment of the distribution of the earnings and its corollary, the meet or beat (standardized difference) tests, according to the Burgstahler and Dichev (BD) statistic. We depict the empirical histograms for the deflated net profit, perform meet or beat (MBB) tests using the BD statistic, and separate the benchmark beating samples based on the normalized (i.e., asset-scaled) operating profit earnings. The MBB test distinctly examines the interval to the left and right. In completing the separation into beaters and non-beaters, we focus only on the interval just above or below zero but exclude all zero earnings metrics. This exclusion eliminates complexity associated with the zero samples (Degeorge et al., 1999; Durtschi & Easton, 2009). We complete the earnings distribution for the $aPAT_i$ with the optimal interval width.

The distribution test uses firms and samples that only just achieve the positive earnings (level) and earnings change benchmarks. However, earnings distribution and the MBB tests are noisy indicators of earnings management (Byzalov & Basu, 2019) since they both depend on earnings measures that contain intrinsic stochastic components of fundamental economic surprise. In order to complete an earnings management test devoid of intrinsic Gaussian noise, we perform additional tests to determine the magnitude of manipulations at positive earnings level (earnings change) benchmarks using the accrual quality models (Dechow & Dichev, 2002; Francis et al., 2005; McNichols, 2002) and discretionary accrual models (Dechow et al., 1995; Jones, 1991). As noted by Kent and Routledge (2017), these measures offer a more realistic test for earnings management. For each firm i at time t, we compute the discretionary accruals using the traditional Jones (1991) and modified Jones (Dechow et al., 1995) and denote the non-noisy indicators (values) generated from the discretionary (or unexpected/unexplained/abnormal) components of the Jones and modified Jones models by $JDAC_{i,t}$ and $MJDAC_{i,t}$, respectively. Likewise, we compute the accrual quality from McNichols (2002) and Francis et al. (2005) based on their variation of the augmented models used by Dechow and Dichev (2002). The non-noisy values generated from the McNichols (2002) model are denoted by $\mathrm{McNAQ}_{i,t}$, and the two summary indicators estimated according to the algorithm by Francis et al. (2005) are denoted by $\mathrm{McNIF}_{i,t}$ for the innate factor and $\mathrm{McNDQ}_{i,t}$ for the discretionary component of accruals quality. We resolve the issue of whether

benchmark beaters provide lower earnings quality by applying greater earnings management relative to the non-beaters by using the statistical difference (Welch) test on the mean accrual components for the beaters and non-beaters (Bryan et al., 2020; Chowdhury et al., 2018; Kent & Routledge, 2017).

Lastly, the earnings persistence test is conducted to further verify evidence of benchmark beating. We estimate earnings persistence for the benchmark beaters and observe whether it is significantly different from the non-beaters. We extend the study by Kent and Routledge (2017) by examining the earnings history behavior for five consecutive periods (2006 to 2007, 2007 to 2008, 2008 to 2009, 2009 to 2010 and 2010 to 2011) around economic shocks but prior to the national ramifications of an international reporting framework in 2012 in Nigeria. We also examine earnings persistence to offer additional evidence that beaters have less persistent earnings relative to non-beaters. Relatively lower earnings persistence implies evidence of earnings management by benchmark beaters. The test mitigates, to an extent, the influence of growth on the firm-specific regressions (Fairfield, Whisenant, & Yohn, 2003).

3.2.1. Earnings Distribution

The earnings distribution approach suggests evidence of earnings management and determines if there is an observed discontinuity (kink or jump) at zero on the cross-sectional earnings (empirical histogram) distribution. The distribution for the earnings measure depends on a selected optimal interval width ($\widehat{\omega}$) for stacked reported earnings ($X_{i,t},\ i = 1, \dots, N$), which is respectively positively and negatively influenced by the data variability and the number of observations rule (Scott, 2009). This is displayed as:

$$\widehat{\omega} = 2 \times Q_j(X_i) \times N^{-\frac{1}{3}} \tag{2}$$

where Q_j [$= Q_3 - Q_1$] is the interquartile range, and N is the number of firm-year observations. Equation 2 is the optimal interval width estimator for the empirical histogram. The approach assumes that unmanaged earnings population is white noise. Some studies (Durtschi & Easton, 2009; Gilliam et al., 2015) use the distribution method to detect earnings management.

3.2.2. The Meet or Beat Benchmark Test

The meet or beat benchmark (MBB) test is based on Burgstahler and Dichev (1997) statistics, which assumes a null of 'smoothness' of the distributions of earnings, analogous to standard normality. The statistic measures earnings management as the difference between the actual (AQ_i) and expected (EQ_i) number of firm-year observations in period i for the interval just right (left) of zero over the standard deviation of the difference.

$$EM = (AQ_i - EQ_i)/SD_i \tag{3}$$

$$SD_i = [Np_i(1 - p_i) + 0.25N(p_{i-1} + p_{i+1})(1 - p_{i-1} - p_{i+1})]^{1/2} \tag{4}$$

Equation 3 is the MBB statistic, and Equation 4 is the estimated standard deviation of the difference between AQ_i and EQ_i around interval i. $EQ_i = (AQ_{i-1} + AQ_{i+1})/2$; N is the unrestricted (total) number of firm-year observations; Np_i is standard deviation in interval i, p_{i-1} is the number in the interval $i - 1$; p_{i+1} is the number in interval $i + 1$; $p_i = AQ/N$ is the ratio of the actual observations for interval i to the total firm-year observations, denoting the probability of an observation in interval i; $AQ_{i-1}/N = p_{i-1}$ and $p_{+1} = AQ_{+1}/N$. For benchmark beaters, the average number of observations is expected for positive earnings and earnings change.

3.2.3. Discretionary (Unexplained) Accruals

Research recognizes earnings management with the estimation and detection of discretionary accruals from Jones-based models (Dechow et al., 1995; Jones, 1991; Kothari et al., 2005). The Jones (1991) model separates asset-scaled total accruals ($TA_{i,t}$) into non-discretionary (expected or explained) and discretionary (unexplained or unexpected) components for firm i in year t. For each firm $i, \Delta REV_{i,t}$ is the change in revenue (i.e., revenue in year t

minus revenue in year $t-1$); $PPE_{i,t}$ is gross property, plant and equipment (PPE) in year t; $A_{i,t}$ is the total assets in year $t-1$; and $e_{i,t}$ is the error term in year t.

$$TA_{i,t} = PAT_{i,t} - CFO_{i,t} \quad (5)$$

$$TA_{i,t} = DAC_{i,t} + NDAC_{i,t} \quad (6)$$

$$DAC_{i,t} = TA_{i,t} - NDAC_{i,t} \quad (7)$$

The Jones model regresses $TA_{i,t}$ on explicative variables connected with the non-discretionary components. Equation 5 gives the total accruals ($TA_{i,t}$) measure. Equation 6 is the total accruals split into Jones's defined discretionary components ($DAC_{i,t}$, *i.e.*, Equation 7) and the non-discretionary component ($NDAC_{i,t}$). In computing the total accruals, we substrate the reported profit after tax from the cash flow from operations. The Jones non-discretionary (expected) accruals (Equation 9) is the estimate of the total accruals (i.e., scaled $\widehat{TA}_{i,t}$) from Equation 8, after obtaining the $\hat{\alpha}_i$'s, separately from individual firms' cross-sectional earnings data, while the estimates of the residuals (Equation 9′) is the Jones' discretionary accruals ($\hat{e}_{1i,t} \equiv JDAC_{i,t}$).

$$TA_{i,t}/A_{i,t-1} = \alpha_i[1/A_{i,t-1}] + \alpha_{1i}[\Delta REV_{i,t}/A_{i,t-1}] + \alpha_{2i}[PPE_{i,t}/A_{i,t-1}] + e_{1i,t} \quad (8)$$

$$JNDAC_{i,t} = \hat{\alpha}_i[1/A_{i,t-1}] + \hat{\alpha}_{1,i}[\Delta REV_{i,t}/A_{i,t-1}] + \hat{\alpha}_{2,i}[PPE_{i,t}/A_{i,t-1}] \quad (9)$$

$$JDAC_{i,t} = \frac{TA_{i,t}}{A_{i,t-1}} - \left(\hat{\alpha}_i[1/A_{i,t-1}] + \hat{\alpha}_{1,i}[\Delta REV_{i,t}/A_{i,t-1}] + \hat{\alpha}_{2,i}[PPE_{i,t}/A_{i,t-1}]\right) \quad (9')$$

Where, $e_{1i,t}$ is the residual in year t.

The modified Jones, from Dechow et al. (1995), includes the change in receivables, $\Delta REC_{i,t}$ (net receivables in year t minus net receivables in year $t-1$) with the change in revenue. Equation 10 is the asset-scaled total accruals under the modified Jones model, where $e_{2i,t}$ is the residual in year t. The non-discretionary (expected) accruals (11) is the estimate of the total accruals (i.e., scaled $\widehat{TA}_{i,t}$) from (10), after obtaining the $\hat{\beta}_i$'s from the samples, while the estimates of the residuals (Equation 11′) are the discretionary accruals from the modified Jones ($\hat{e}_{2i,t} \equiv MJDAC_{i,t}$).

$$\frac{TA_{i,t}}{A_{i,t-1}} = \left(\beta_i\left[\frac{1}{A_{i,t-1}}\right] + \beta_{1,i}\left[\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}}\right] + \beta_{2,i}[PPE_{i,t}/A_{i,t-1}]\right) + e_{2i,t} \quad (10)$$

$$MJNDAC_{i,t} = \hat{\beta}_i\left[\frac{1}{A_{i,t-1}}\right] + \hat{\beta}_{1,i}\left[\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}}\right] + \hat{\beta}_{2,i}[PPE_{i,t}/A_{i,t-1}] \quad (11)$$

$$MJDAC_{i,t} = \frac{TA_{i,t}}{A_{i,t-1}} - \left(\hat{\beta}_i\left[\frac{1}{A_{i,t-1}}\right] + \hat{\beta}_{1,i}\left[\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{A_{i,t-1}}\right] + \hat{\beta}_{2,i}[PPE_{i,t}/A_{i,t-1}]\right) \quad (11')$$

$[A_{i,t}, \Delta REV_{i,t}, PPE_{i,t}, \alpha_i]$ are scaled by the lagged of total assets to measure against heteroscedasticity.

3.2.4. Accruals Quality

Accounting research recognizes the Dechow and Dichev (2002) accruals quality models to weigh the magnitude by which accruals estimate the actual cash flows to estimate accrual quality. The model estimates accruals quality using the regression of change in working capital in the operating cash flows of the current period t (denoted by $\Delta WC_{i,t}$), the previous period ($t-1$), the present (t), and the future period ($t+1$). The regression residuals (μ_t) provide a direct portion of the quality of accruals, which do not estimate the actual cash flow, with larger residuals, indicating poorer accruals quality. McNichols (2002) and Francis et al. (2005) augmented and improved the Dechow and Dichev model by incorporating firm characteristics that influence accrual expectations. McNichols includes current period t in the change in sales ($\Delta SALES_t$) and the size of property, plant and equipment PPE_t to obtain Equation 12:

$$\Delta WC_t = \gamma_0 + \gamma_1 CFO_{t-1} + \gamma_2 CFO_t + \gamma_3 CFO_{t+1} + \gamma_4 \Delta SALES_t + \gamma_5 PPE_t + \mu_{1t} \quad (12)$$

Francis et al. (2005) used certain characteristics to separate between accruals quality associated with a firm's innate factors and those associated with manager's discretion. To control for these innate characteristics, firm size ($SIZE_t$), frequency of earnings loss ($FLOSS_t$), operating cycle length ($OCYL_t$) and operating revenue volatility

($ORVOL_t$) are used as variables that influence accruals quality and are regressed on the residual from (12) to obtain Equation 13:

$$AQ_t = \delta_0 + \delta_1 SIZE_t + \delta_2 FLOSS_t + \delta_3 OCYL_t + \delta_4 ORVOL_t + \mu_{2t} \quad (13)$$

To estimate (13), the standard deviation of either operating cash flow or operating revenue can be used as a proxy for $ORVOL_t$ (Francis et al., 2005; Kent & Routledge, 2017). Consistent with Kent and Routledge, we employ the standard deviation of operating revenue during the computation. AQ_t accruals quality is the residual of Equation 12, i.e., $C_t - \widehat{\Delta WC}_{i,t}$), $SIZE_t$ is the natural logarithm of total assets, $FLOSS_t$ is a binary variable indicating a loss from time $t-2, t-1,$ and t. For instance, for firm i in 2008, the dummy $FLOSS_t = 1$ if the firm records a small loss in the previous years (2006 and 2007) or the current year (2008), otherwise $FLOSS_t = 0. OCYL_t$ is the natural log of the average age of the inventory and receivables $t-1$ and t. Banks do not records inventory balance, hence we compute a measure to proxy. We divide cash and balance with the central bank's interest receivables (i.e., interest income or net sales) as an indicator of the banks' inventory. For the non-financial firms, we use average the inventory/cost of goods sold. Both measures are then multiplied by 365 days to obtain the average age of the inventory, which transforms with the natural logarithm. $ORVOL_t$ is the standard deviation of operating revenue for 2001 to 2020. Excluding $FLOSS_t$, all 13 lagged total assets are scaled. We recorded the accrual quality from McNichols (2002) and Francis et al. (2005) and use $\text{McNAQ}_{i,t}$ as the estimated McNichols accrual quality, while $\text{McNIF}_{i,t}$ ($\text{McNDQ}_{i,t}$) is a summary of indicators for the innate factor (discretionary or unexpected component) of the accruals quality model based on Francis et al. (2005).

3.2.5. Earnings Persistence

Earnings persistence shows the history of earnings benchmarks, and therefore expresses future earnings as a linear function of current earnings. Equation 14 computes the history for selected periods using the profit earnings (Kent & Routledge, 2017). The model introduces a benchmark-beater dummy for t (BBD_t), coded 1 for benchmark beaters, and otherwise 0, in the earnings persistence model:

$$Earnings_t = \theta_0 + \theta_1 Earnings_{t-1} + \theta_2 BBD_t + \varepsilon_t \quad (14)$$

Where $Earnings_{i,t} = PAT_{i,t}$/average total assets for t, and $Earnings_{i,t} = PAT_{i,t}$/average total assets for $t-1$. The significance of the estimated coefficient, $\hat{\theta}_2$, of benchmark beating implies that earnings are persistent (Kent & Routledge, 2017).

3.2.6. Temporal Trend Analysis

The temporal trend is used to identify a clear trend in earnings and earnings change. This method was adopted to evaluate the third null of a possible decrease in the frequency of relative benchmark beating over time. A regression of the annual ratio of benchmark beaters to non-beaters was used. The ratio for each year is computed as the percentage of beaters to non-beaters of a small net profit after tax for both earnings level and change (Coulton et al., 2005). The regression of the benchmark-beating ratio [Ratio_t] trend [$Trend_t$] over time is:

$$Ratio_t = \rho_0 + \rho_1 Trend_t + e_t \quad (15)$$

A negative and significant estimated coefficient of the trend variable, $\hat{\rho}_2$, implies a potentially decreasing trend in benchmark beating. A large coefficient implies a substantial rate of decline.

4. RESULTS

4.1. Earnings Distribution

Table 1 presents the statistical characteristics of annual asset-scaled profits. After winsorizing, the expected value (median) of the asset-scaled profit level is 0.066 (0.074), whereas the expected value (median) of change in asset-scaled profit level is 0.008 (0.002). The asset-scaled profit level has a lower spread (0.145) relative to the corresponding scaled earnings change with a spread of 0.170.

Table 1. Statistical characteristics of annual asset-scaled profits.

$X_{i,t}$	N	μ	med	$\tilde{q}_1$	$\tilde{q}_3$	μ_{se}	σ
$aPAT_{i,t}$	2.898	0.066	0.074	0.010	0.128	0.003	0.145
$\Delta aPAT_{i,t}$	2.737	0.008	0.002	-0.053	0.057	0.003	0.170

Table 1 shows the statistical characteristics (N,$\mu, med, \tilde{q}_1, \tilde{q}_3, \mu_{se}, \sigma$) of the distribution in annual asset-scaled net profits [$aPAT_{i,t}$] and changes in asset-scaled net profits [$\Delta aPAT_{i,t}$] from 2002–2019. N ≡ number of observations, μ ≡ arithmetic mean, med ≡ median for each earnings category, $\tilde{q}_1$ ≡ 1st (lower) quartile value, $\tilde{q}_3$ ≡ 3rd (upper) quartile value, μ_{se} ≡ standard error of the mean, and σ ≡ standard deviation for the asset-scaled operating profit after reported earnings. To assess increases/decreases in small earnings, we use the difference between earnings for the current year t and the preceding year t−1 for each firm, thus reducing the data from the original 2,898 to 2,737. The earnings change is more spread than the earnings level.

Figure 1 depicts the earnings histogram for the asset-scaled profit of earnings levels, $aPAT$ [change is $\Delta aPAT$], with the interval width according to Scott (2009). Initially, when we grouped the firms by increments of ₦100,000–₦200,000 using unscaled net profit (not depicted) to gauge discontinuity at zero, the result was skewed and excessively leptokurtic and could not provide a valid result (Coulton et al., 2005). This was even worse with the distribution for the change in net profit, as earnings of few 'bigger' firms overshadow the smaller ones. After applying asset normalization with an optimal bin width of 0.15% [0.0155], Figure 1 shows that the $aPAT_{i,t}$ distribution is less symmetrical at zero, hence discontinuity is affirmed, at least visibly. The immediate interval above zero ($\text{i.e.}, 0 < aPAT_{i,t} \leq 0.0155$), exhibits a higher regularity of firms reporting a small positive $aPAT_{i,t}$ relative to the interval just below zero. This is consistent with the earnings discontinuity predictions of earnings management that indicate earnings slightly greater than zero, which occur more unusually than expected, and that most earnings patterns have significantly fewer observations immediately below zero than anticipated. The distribution for change in asset-scaled profit appears to be symmetric and in a bell shape. The evidence shows that the earnings change distribution has significantly too few observations immediately after zero than would normally be anticipated, implying no clear evidence of discontinuity. Overall, the evidence is consistent with Kent and Routledge (2017) but is in contrast to Coulton et al. (2005).

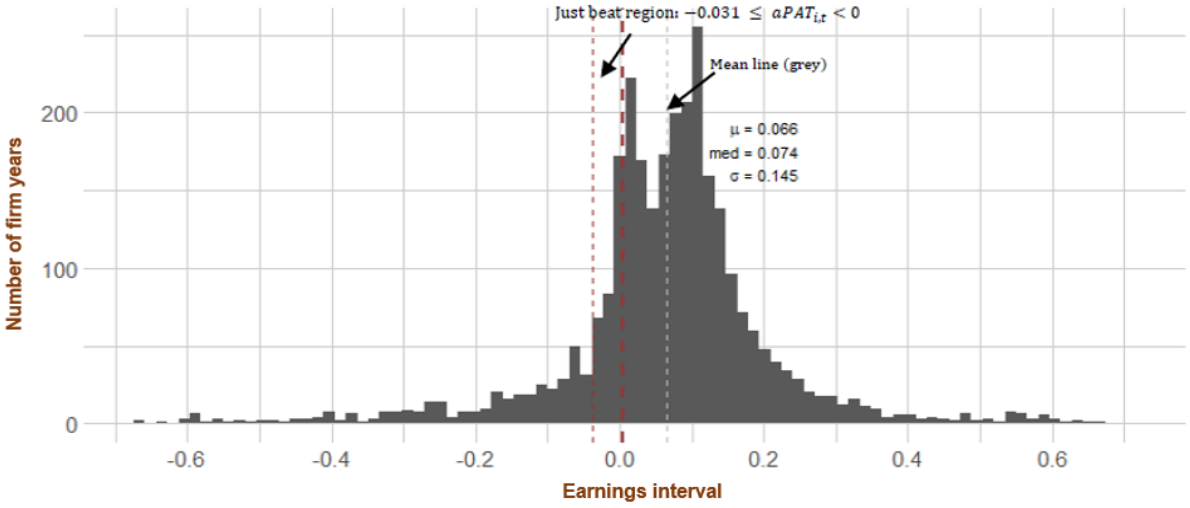

Figure 1. Distribution of asset-scaled profit after tax (earnings level).

Figure 1 depicts that the distribution of assets-scaled appear more likely asymmetric at zero. The immediate interval above zero exhibits high frequency of firms reporting small positive assets-scaled profit after tax earnings relative to the just interval below zero.

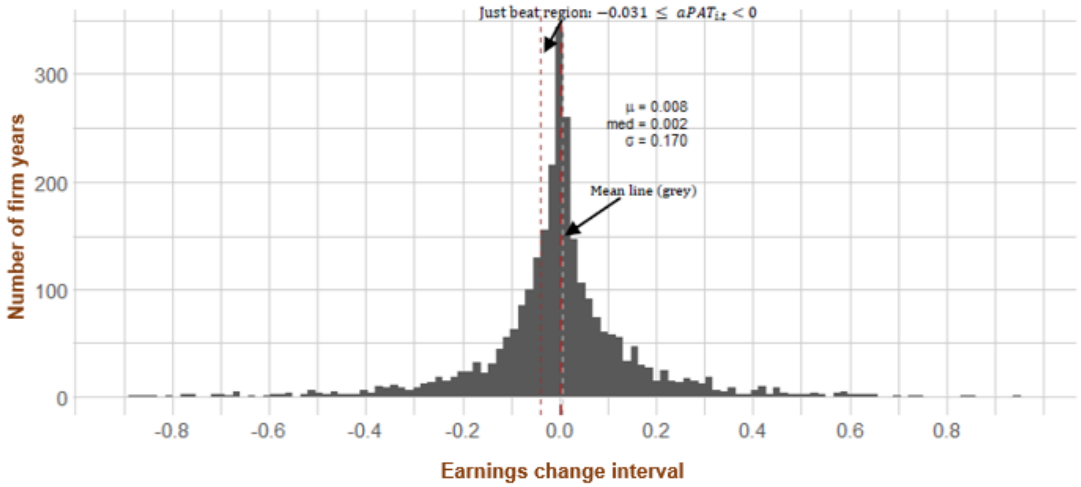

Figure 2. Distribution of change in asset-scaled profit after tax (earnings change).

Figure 2 depicts that the distribution of change in asset-scaled profit is bell-shaped and more likely to be symmetric at zero. The immediate interval above zero shows a high frequency of firms reporting a small increase in asset-scaled profit after tax earnings relative to the interval just below zero.

4.2. Meet/Beat Benchmark Tests

Table 2 reports the results of the benchmark beating (standardized difference) tests according to the empirical procedure (Equation 2) based on the Burgstahler and Dichev (1997) (BD) statistic. The standardized difference for the interval just left (right) of zero is -8.662 (1.971), which is negative and significant (positive and significant). The results support the existence of discontinuity for the asset-scaled profit earnings at zero, which are consistent with the evidence of the distribution reported (Enomoto & Yamaguchi, 2017). The BD statistic indicates weaker evidence of discontinuity to the right relative to the left of the profit distribution and implies evidence of earnings management to avoid losses. Using the earnings change, the test for the interval just left (right) of zero is -2.138 (0.861), which is negative and significant (positive and significant), indicating that earnings management practices are carried out to avoid earnings declines. The evidence from the BD statistic shows that discontinuity evidence is much stronger in the asset-scaled profit levels than for tests that involve the change in asset-scaled profit in most studies (Burgstahler & Dichev, 1997; Degeorge et al., 1999; Durtschi & Easton, 2005; Enomoto & Yamaguchi, 2017; Gilliam et al., 2015; Leuz et al., 2003). The evidence corroborates the findings for the earnings distribution approach.

Table 2. Discontinuity test for scaled earnings ($aPAT_{i,t}$).

$X_{i,t}$	S. diff (Interval left)	S. diff (Interval right)
$aPAT_{i,t}$	-8.662** [Loss]	1.971* [Profit]
$\Delta aPAT_{i,t}$	- 2.138** [Decrease]	0.861 [Increase]

Note: ** and * indicate significance at 1% and 5%, respectively, for a tailed (one-sided) test.

Table 2 reports the standardized difference (S Diff) tests. For asset-scaled profit, the test for the interval just left of zero reports a statistic of -8.662, which is negatively significant, and for the interval just right of zero (i.e., the small profit test) has a statistic of 1.971, which is positively significant. This points to evidence of earnings discretions to avoid earnings losses, according to the earnings management theory.

For the change in asset-scaled net profit earnings, the test for interval just left (small decrease) of zero is - 2.138 and is negatively significant, and for the interval just right of zero (small increase), the statistic is 0.861 and is positively insignificant. Overall, the evidence shows discontinuity and the use of earnings discretion to avoid earnings decreases.

The histograms and the MBB tests confirm discontinuity at the zero benchmark and show a sufficient requirement to separate the benchmark beaters from the non-beaters of the zero benchmarks. Table 3 reports the earnings statistics for various earnings classifications. The benchmark beating earnings identify those that marginally beat earnings reported in the prior period, or the benchmark of zero. Only 2,334 (approximately 80%) beat the benchmark of zero, while 564 (20%) are non-beaters. About 280 reported earnings are marginal (just miss) earnings, which constitutes about 10% of the entire sample. Only 1,325 (approximately 48%) meet/beat the earnings change, while 1,412 (52%) are non-beaters. About 689 (25.2%) of the entire sample for change in asset-scaled profit just miss. Comparing the statistics of the beaters and non-beaters, the mean tests based on parametric evidence from the Welch statistics and non-parametric evidence of the Kolmogorov–Smirnov test, imply a strong rejection of the first null. The same applies to the change in asset-scaled profit after tax. Benchmark beaters report earnings quality significantly differently from the non-benchmark beaters. The evidence from both earnings distribution and the MBB tests are noisy indicators of earnings management depending on earnings measures that contain intrinsic stochastic components of fundamental economic surprise (Byzalov & Basu, 2019). Hence, we present the results from the discretionary accruals and accruals quality models.

Table 3 reports the earnings statistics for various earnings classifications. To compare the mean differences for the asset-scaled profits (levels and change), we use the 2-sided paired sample Welch T-test and the one-sample Kolmogorov–Smirnov test, which is a distribution and non-parametric approach (i.e., information free). The statistic tests the difference in the distribution of the aPATs of corresponding groups rather than testing the mean differences based on bootstrapping.

The test uses the statistic $D_0 = \hat{\theta}(X_1, X_2) = \sup |F_n(x) - F_n(x)|$ to compare the distributions of the two independent observations, X_{1i} $(i = 1, \dots, n)$ and X_{2j} $(j = 1, \dots, m)$, both with empirical processes defined as $F_n(x) = \frac{1}{n}\sum_{i=1}^{n} 1_{(X_i \leq x)}, -\infty < x < \infty$. The empirical p-value is defined as $\hat{p} = (1 + \sum_{r}^{R} I(D^* \geq D_0)/R + 1$, obtained from the pooled sample $Z_i = (X_{1i}, X_{2i})$, where Z_i $[i = 1, 2, \dots, (n + m)]$ is the ordered set of X_1 and X_2 and applied to the index r. For each replicate, indexes $r = 1, 2, \dots,$ R.

We compare both earnings distributions and mean differences between beaters versus non-beaters, just miss versus all others, as well as beaters versus just miss for asset-scaled earnings and earnings change. Only 2,334 (approximately 80%) beat the benchmarks of zero, while 564 (20%) are non-beaters. About 280 earnings are marginal (just miss) earnings, which constitutes about 10% of the entire sample. Only 1,325 (approximately 48%) meet/beat the earnings change, while 1,412 (52%) are non-beaters. About 689 (25.2%) of the entire sample for change in asset-scaled profit just miss. Comparing the statistics of the beaters and non-beaters, the test results imply a strong rejection of the first null for both level and change in asset-scaled profit after tax. Hence, benchmark beaters report earnings quality significantly differently from the non-benchmark beaters.

Table 3. Earnings classifications.

															Difference tests	
Groups	N	μ	med	$\tilde{q}_1$	$\tilde{q}_3$	μ_{se}	σ	**Groups**	N	μ	med	$\tilde{q}_1$	$\tilde{q}_3$	μ_{se}	σ	$p-value$	$\hat{p}-value$
Panel A: Asset-scaled profits																	
Beaters	2,334	0.113	0.096	0.046	0.142	0.002	0.099	Non-beaters	564	-0.128	-0.072	-0.173	-0.025	0.006	0.143	0.000*	0.002*
Just miss	280	0.009	0.009	0.005	0.014	0.000	0.005	Others	2,618	0.072	0.085	0.025	0.135	0.003	0.151	0.000*	0.000*
Beaters	2,334	0.127	0.107	0.067	0.152	0.002	0.098	Just miss	280	0.009	0.009	0.005	0.014	0.000	0.005	0.043**	0.065
Panel B: Change in asset-scaled profits																	
Beaters	1,325	-0.107	-0.057	-0.130	-0.021	0.004	0.139	Non-beaters	1,412	0.102	0.053	0.016	0.136	0.003	0.130	0.019**	0.000*
Just miss	689	0.008	0.007	0.004	0.012	0.000	0.005	Others	2,048	0.000	-0.008	-0.068	0.073	0.004	0.184	0.153	0.286
Beaters	1,325	0.137	0.090	0.044	0.174	0.004	0.137	Just miss	689	0.008	0.007	0.004	0.012	0.000	0.005	0.000*	0.008*

Note: ** and * indicate significance at 1% and 5%, respectively, for a tailed (one-sided) test.

Bryan et al. (2020) suggested the inclusion of the correlation result in the analysis, while in the sample characteristics, we include the mean difference test (Bryan et al., 2020; Kent & Routledge, 2017). As such, Table 4 and Table 5 present the Pearson correlations for the associated variables of the discretionary accruals model and accruals quality model in the level [change] form of earnings components. Panel A [B] of Tables 4 and 5 present the correlations for the beaters subsample (coefficients below the principal diagonals) and non-beaters subsample (coefficients above the principal diagonals) for the earnings level [earnings change] information. We consider the correlation between accruals quality, total accruals (TA_i), discretionary accruals and measures of unexpected accruals from the models. In general, the measures of the abnormal accruals are very highly correlated with each other, but slightly less correlated with individual components and various measures of the accruals quality. Table 4 indicates that JDAC_i is highly positively associated with MJDAC_i and TA_i. Likewise, MJNDAC_i is highly correlated with $\mathrm{REV}-\mathrm{REC}_i$. Among the variables, the results show a more positive (negative) correlation between the beaters (non-beaters) subsample. As expected, the correlation is weak for the variables that are not direct control variables in the corresponding accrual models irrespective of the subsamples. The association is stronger for the beaters than the non-beaters (just miss subsample) in the earnings level components but appears stronger for the just miss subsample than the meet/beat subsamples in the change in earnings components.

Table 5 indicates that the measures of accruals quality are highly correlated with each other but are marginally less so with the individual components and the measure of unexpected accruals. The various variables exhibit some degree of variation and association across the beat and miss subsamples, implying evidence of dynamic and systematic differences across individual firms that meet/beat profit benchmarks and firms that miss the zero benchmarks.

Table 4 presents the Pearson ordinary correlation coefficients ($r_{x_1x_2}$) and the discretionary and non-discretionary accruals and their component pairs $x_i$and x_j having n-set $[(x_{1,1}, x_{2,1}), x_{1,2}, x_{2,2}), \ldots, (x_{1,n}, x_{2,n})]$ with $r_{x_1x_2} = \sum_i^n (x_{1,t} - \bar{x}_1)(x_{2,t} - \bar{x}_2) \left[\sqrt{(x_{1,t} - \bar{x}_1)^2}\sqrt{(x_{2,t} - \bar{x}_2)^2}\right]^{-1}$, which lie between −1 and +1. Panel A [B] of Table 4 presents the correlations for the beaters subsample (coefficients below the principal diagonals) and non-beaters subsample (coefficients above the principal diagonals) for the earnings level [earnings change] information.

The figures in bold denote statistical significance using probability, $p|t| = 0$, at 1%, 5% or 10% levels.

Table 4. Pearson correlation coefficients of discretionary and non-discretionary accruals and their components.

Component	Beaters subsample								Non-beaters subsample									
	$JDAC_t$	$JNDAC_t$	$MJDAC_t$	$MJNDAC_t$	TA_t	$1/TA_t$	REV_t	$REV - REC_t$	$JDAC_t$	$JNDAC_t$	$MJDAC_t$	$MJNDAC_t$	TA_t	$1/TA_t$	REV_t	$REV - REC_t$	PPE_t	
Panel A: Level form of earnings components																		
$JDAC_t$	1.000								1.000	-0.002	**0.993**	-0.029	**1.000**	-0.002	0.014	0.029	0.003	$JDAC_t$
$JNDAC_t$	0.000	1.000								1.000	-0.009	**0.188**	0.014	**0.643**	**0.144**	**-0.067**	**-0.645**	$JNDAC_t$
$MJDAC_t$	**0.992**	0.002	1.000								1.000	**-0.149**	**0.992**	-0.010	0.008	**0.150**	0.003	$MJDAC_t$
$MJNDAC_t$	**0.160**	**0.184**	**0.039**	1.000								1.000	-0.026	**0.150**	**0.068**	**-0.992**	**-0.085**	$MJNDAC_t$
TA_t	1.000	**0.025**	**0.992**	**0.164**	1.000								1.000	0.008	0.017	0.028	-0.007	TA_t
$1/TA_t$	0.000	**0.432**	0.001	**0.075**	0.011	1.000								1.000	-0.002	**-0.074**	**0.158**	$1/TA_t$
REV_t	-0.003	0.011	0.001	**-0.034**	-0.003	-0.020	1.000								1.000	**-0.067**	-0.031	REV_t
$REV - REC_t$	-0.162	0.005	**-0.039**	**-0.982**	**-0.162**	-0.002	0.019	1.000								1.000	0.002	$REV - REC_t$
PPE_t	0.000	**-0.583**	0.000	**-0.114**	-0.015	**0.477**	**0.063**	-0.004									1.000	PPE_t
Panel B: Change form of earnings components																		
$JDAC_t$	1.000								1.000	0.005	**0.992**	**-0.071**	**1.000**	-0.001	0.019	**0.072**	-0.006	$JDAC_t$
$JNDAC_t$	-0.004	1.000								1.000	0.003	**0.152**	0.022	**0.730**	**0.151**	**-0.032**	**-0.579**	$JNDAC_t$
$MJDAC_t$	**0.993**	-0.002	1.000								1.000	**-0.192**	**0.992**	-0.006	0.019	**0.194**	-0.007	$MJDAC_t$
$MJNDAC_t$	**0.328**	**0.213**	**0.217**	1.000								1.000	**-0.068**	**0.130**	0.018	**-0.993**	**-0.067**	$MJNDAC_t$
TA_t	**1.000**	**0.025**	**0.993**	**0.334**	1.000								1.000	0.011	0.021	**0.071**	-0.015	TA_t
$1/TA_t$	0.001	0.367	0.004	**0.065**	0.012	1.000								1.000	-0.010	**-0.043**	**0.115**	$1/TA_t$
REV_t	-0.022	**-0.056**	-0.018	**-0.057**	**-0.024**	-0.026	1.000								1.000	-0.017	-0.019	REV_t
$REV - REC_t$	**-0.336**	0.010	**-0.222**	**-0.975**	**-0.336**	0.007	**0.029**	1.000								1.000	-0.007	$REV - REC_t$
PPE_t	0.003	**-0.600**	0.004	**-0.142**	-0.014	**0.522**	**0.095**	-0.002									1.000	PPE_t

Note: $JDAC_t$ and $JNDAC_t$ are the Jones model discretionary and non-discretionary accruals, respectively. The Jones model separates the asset-scaled total accruals ($TA_{i,t}$) into discretionary (unexplained) and non-discretionary (explained) components. The model is advanced on the implicit assumption that managers do not exercise discretion exercised over revenue. $MJDAC_t$ and $MJNDAC_t$ are the modified Jones discretionary accruals and the modified Jones non-discretionary accruals, respectively. The modified Jones model improves the limited standard Jones model. The Jones assumption of 'no managerial discretion over revenue' may induce endogenous bias, hence the modified Jones attempts to account for possible misspecification in the Jones model by removing associated change in net receivables from changes in revenue to accommodate wider evidence of earnings management. Other variables are the size of firms' property, plant and equipment (PPE_t), net revenue (REV_t), net receivables (REC_t) and the difference between net revenue and receivables ($REV - REC_t$).

Table 5. Pearson correlation coefficients of accrual quality models and their components.

Component	$MCNAQ_t$ [1]	$MCNIF_t$ [2]	$MCNDQ_t$ [3]	ΔWC_t [4]	AQ_t [5]	CFO_{t-1} [6]	CFO_t [7]	CFO_{t+1} [8]	$\Delta SALES_t$ [9]	$PPEA_t$ [10]	$SIZE_t$ [11]	$FLOSS_t$ [12]	$OCYL_t$ [13]	$ORVOL_t$ [14]
Level form of accrual quality components														
[1]	1.000	1.000	0.056	0.998	0.997	1.000	0.066	0.022	0.050	-0.053	0.008	-0.013	0.028	0.026
[2]	0.003	1.000	1.000	0.038	0.055	0.056	0.084	0.043	0.066	-0.065	0.116	-0.424	0.874	0.082
[3]	0.999	-0.010	1.000	1.000	0.999	1.000	0.065	0.021	0.049	-0.052	0.006	-0.005	0.012	0.025
[4]	0.999	0.002	0.998	1.000	1.000	0.998	0.065	0.022	0.061	-0.032	0.009	-0.014	0.027	0.026
[5]	1.000	0.003	0.999	0.998	1.000	1.000	0.066	0.022	0.050	-0.053	0.008	-0.013	0.028	0.026
[6]	-0.005	-0.029	-0.005	-0.006	-0.005	1.000	1.000	0.355	0.322	0.028	-0.003	-0.079	0.098	0.026
[7]	-0.003	-0.025	-0.003	-0.003	-0.003	0.516	1.000	1.000	0.166	0.038	-0.008	0.023	0.084	-0.015
[8]	-0.021	-0.050	-0.020	-0.007	-0.021	0.516	0.381	1.000	1.000	0.029	-0.022	-0.070	0.062	0.020
[9]	-0.003	-0.004	-0.003	0.010	-0.003	0.018	-0.004	0.004	1.000	1.000	-0.001	-0.019	-0.078	-0.022
[10]	-0.004	0.040	-0.005	-0.001	-0.004	0.001	0.004	-0.004	0.011	1.000	1.000	-0.164	0.066	-0.035
[11]	-0.005	-0.436	0.001	-0.005	-0.005	0.031	0.022	0.029	-0.015	-0.123	1.000	1.000	-0.062	-0.050
[12]	0.007	0.774	-0.003	0.006	0.007	0.007	0.003	-0.017	-0.034	0.068	-0.041	1.000	1.000	0.052
[13]	-0.005	0.037	-0.005	-0.004	-0.005	0.025	0.041	0.028	0.014	0.011	0.003	-0.001	1.000	1.000
[14]	0.008	-0.496	0.014	0.009	0.008	0.050	0.045	0.057	-0.032	0.122	0.043	0.006	0.042	1.000
Change form of accrual quality components														
[1]	1.000	0.029	0.998	0.998	1.000	0.004	-0.002	-0.016	-0.027	0.010	-0.025	-0.001	0.000	-0.053
[2]	0.001	1.000	0.015	0.029	0.029	-0.028	-0.033	-0.020	-0.014	0.092	-0.444	0.828	0.096	-0.441
[3]	0.999	-0.013	1.000	0.999	0.999	0.005	-0.001	-0.016	-0.027	0.009	-0.019	-0.013	-0.001	-0.046
[4]	0.998	0.000	0.999	1.000	0.998	0.005	-0.001	-0.001	-0.018	0.012	-0.026	-0.001	0.000	-0.052
[5]	0.999	0.001	0.999	0.997	1.000	0.004	-0.002	-0.016	-0.027	0.010	-0.025	-0.001	0.000	-0.053
[6]	-0.001	-0.009	-0.001	-0.002	-0.001	1.000	0.622	0.478	0.022	0.013	0.004	-0.024	0.027	0.023
[7]	0.001	-0.003	0.001	0.001	0.001	0.443	1.000	0.407	-0.008	0.019	0.015	-0.024	0.019	0.024
[8]	-0.011	-0.044	-0.010	0.001	-0.011	0.539	0.341	1.000	-0.006	0.014	0.000	-0.004	0.008	0.043
[9]	-0.010	-0.029	-0.010	0.007	-0.010	0.018	0.008	0.015	1.000	0.016	-0.032	-0.037	-0.019	-0.013
[10]	-0.007	0.033	-0.007	-0.003	-0.007	-0.004	-0.001	-0.012	0.008	1.000	-0.138	0.081	0.026	0.055
[11]	0.011	-0.415	0.017	0.011	0.011	0.031	0.028	0.036	-0.008	-0.136	1.000	-0.073	-0.009	0.089
[12]	0.023	0.810	0.012	0.022	0.023	0.039	0.040	-0.008	-0.056	0.056	-0.048	1.000	0.055	-0.005
[13]	0.001	0.019	0.000	0.001	0.001	0.023	0.045	0.043	0.014	0.001	-0.008	-0.005	1.000	0.011
[14]	0.030	-0.464	0.036	0.030	0.030	0.068	0.061	0.062	-0.026	0.129	0.070	0.010	0.075	1.000

4.3. Positive Earnings and Earnings Change

Tables 6 and 7 report the statistical summary and test results for discretionary accruals and accruals quality between benchmark beaters and non-beaters, as well as other categorizations of beating samples for asset-scaled net profit levels and change benchmarks, respectively. We use the 2-sided paired sample Welch (**Wilcoxon)** T-test for the mean (median) difference tests for each category to compare the abnormal accruals and accruals quality earnings for the beaters versus non-beaters, just miss versus all others, and beaters versus just miss. Due to the sample size, we permit statistical significance levels up to 10%.

Table 6 [Panel A] compares the discretionary accruals and accruals quality for benchmark beater and non-beater groups. We identified possible earnings management, particularly in firms that report positive profits and exhibit lower accruals quality. There is a significant difference in both the Jones and modified Jones discretionary accruals measures for the beaters and non-beaters. Only the mean of innate accruals quality ($\mathrm{McNIF}_{i,t}$) indicate a possible significant difference, which is higher and better for benchmark beaters (0.004) than for the non-beaters (0.012). The mean difference was largely insignificant between the beaters and non-beaters for both the unexpected McNichols accrual quality ($\mathrm{McNAQ}_{i,t}$) and an unexpected component from the Francis et al. (2005) ($\mathrm{McNDQ}_{i,t}$) accruals quality model. The evidence shows a significant difference between the mean (median) of the abnormal accruals of the beaters and non-beaters. The result for small asset-scaled net profits identifies benchmark beaters as earnings managers. Generally, a positive earnings benchmark motivates firms that seek opportunistic risk to manage earnings to reach the benchmark (Kent & Routledge, 2017).

In addition, Table 6 [Panel B] compares abnormal accruals and accruals quality for the just miss earnings and all others. We consider the just miss as assets-scaled earnings that fall within the first two intervals immediately below zero, $(\mathrm{i.e} - 0.031 \leq aPAT_{i,t} < 0)$. Only the innate accruals quality ($\mathrm{McNIF}_{i,t}$) and the abnormal component of accruals quality are significantly different, indicating that the just miss firms report better accruals quality relative to all others. None of the mean differences of the discretionary abnormal accruals measures is statistically significantly different. Table 6 [Panel C] compares the benchmark beaters and the just miss asset-scaled profits. A significant difference is clearly observed for beaters and just miss firms for all measures of accruals quality and abnormal accruals.

In Table 7, Panel A compares discretionary accruals and accruals quality for benchmark beater and non-beater groups for the change in asset-scaled net profit. The result indicates a significant difference between the mean (median) of the abnormal accruals of the beaters and non-beaters. The Nigerian managers have the incentive to achieve a positive change in earnings at zero since it may be considered as a key earnings benchmark. Except for the unexpected component (MCNDQ_i) of the accruals quality model, other accruals quality and discretionary accruals measures are statistically significantly different between the beaters and non-beaters for the earnings change benchmark. The mean difference in innate accruals quality is significant at 5%, others are highly significant. Generally, the accruals quality (mean) is significantly better for the beaters than the non-beaters. Both the Jones model and modified Jones abnormal accruals show significantly higher mean accruals for benchmark beaters than the non-beaters. Panel B also shows significant differences for the means of both the Jones unexpected accruals, except the discretionary component does not show any significant difference for the accruals quality between the just miss group and others. Panel C compares the benchmark beaters and the just miss group for changes in asset-scaled profits. Only the Jones measure indicates a significant difference in mean, while the modified Jones is insignificant. A significant difference is noticeable for both the innate and unexpected components of accruals quality.

Table 6. Positive asset-scaled profit change.

Accruals	μ	med	$\tilde{q}_1$	$\tilde{q}_3$	μse	σ	μ	med	$\tilde{q}_1$	$\tilde{q}_3$	μ_{se}	σ	Mean difference		Median difference	
													Welch	p-value	Wilcoxon	p-value
	Beaters, $N = 2{,}334$						Non-beaters, $N = 564$									
$JDAC_t$	0.008	0.007	0.050	0.053	0.006	0.293	0.006	0.012	0.051	0.056	0.013	0.301	-4.38	0.000*	-1.91	0.028**
$MJDAC_t$	0.012	0.010	-0.055	0.052	0.006	0.289	0.005	0.002	0.058	0.058	0.013	0.305	-3.46	0.000*	-4.42	0.000*
$MCNAQ_t$	0.024	0.009	0.035	0.035	0.005	0.230	0.018	0.000	0.029	0.030	0.009	0.206	-0.88	0.204	-2.32	0.010**
$MCNIF_t$	0.004	0.001	0.002	0.000	0.000	0.003	0.012	0.002	0.001	0.006	0.000	0.004	-2.84	0.002*	-0.50	0.310
$MCNDQ_t$	0.019	0.011	-0.034	0.035	0.005	0.230	-0.009	-0.002	0.032	0.028	0.009	0.206	-1.20	0.116	-1.32	0.094***
	Just miss, $N = 280$						Others, $N = 2{,}618$									
$JDAC_t$	0.034	-0.005	0.037	0.046	0.015	0.250	0.036	0.011	0.053	0.055	0.006	0.299	-0.37	0.357	-2.35	0.009*
$MJDAC_t$	0.034	0.006	0.038	0.043	0.015	0.251	0.036	0.002	0.057	0.055	0.006	0.296	0.05	0.521	-0.78	0.218
$MCNAQ_t$	0.005	0.000	0.028	0.034	0.011	0.182	0.008	0.001	0.034	0.033	0.004	0.230	-1.19	0.117	-1.77	0.038**
$MCNIF_t$	0.004	-0.001	0.002	0.001	0.000	0.004	0.004	0.002	0.002	0.000	0.000	0.003	-1.49	0.068***	-2.34	0.011**
$MCNDQ_t$	0.007	0.002	0.027	0.034	0.011	0.182	0.079	-0.002	0.034	0.033	0.004	0.230	-2.30	0.012**	-1.55	0.061***
	Beaters, $N = 2{,}334$						Just miss, $N = 280$									
$JDAC_t$	0.033	0.002	-0.035	0.035	0.005	0.236	0.000	0.000	0.028	0.034	0.011	0.182	-1.45	0.074***	-2.78	0.003*
$MJDAC_t$	0.004	0.001	0.002	0.000	0.000	0.003	-0.037	0.001	0.002	0.001	0.000	0.004	-2.84	0.002*	-4.37	0.000*
$MCNAQ_t$	0.000	0.002	0.034	0.035	0.005	0.236	0.001	0.002	0.027	0.034	0.011	0.182	-1.38	0.084***	0.20	0.578
$MCNIF_t$	0.005	0.007	0.053	0.055	0.007	0.298	0.024	-0.005	0.037	0.046	0.015	0.250	-4.28	0.000*	-5.29	0.000*
$MCNDQ_t$	0.005	0.011	0.057	0.053	0.006	0.294	0.034	0.006	0.038	0.043	0.015	0.251	-2.35	0.009*	-2.10	0.018***

Note: We use a 2-sided paired sample Welch (**Wilcoxon)** T-test for the mean (median) difference tests for each category to compare the accruals quality and abnormal accruals measures for the different groups of beaters versus non-beaters, just miss versus others, and beaters versus just miss.

*, ** and *** indicate statistical significance using probability, $p|t| = 0$, at the 1%, 5% and 10% levels, respectively.

Table 7. Positive asset-scaled profit change.

													Mean diff. test		Median diff. test	
Accruals	μ	med	$\tilde{q}_1$	$\tilde{q}_3$	μse	σ	μ	med	$\tilde{q}_1$	$\tilde{q}_3$	μ_{se}	σ	**Welch**	p-$value$	**Wilcoxon**	p-$value$
	Beaters, $N = 1{,}325$						Non-beaters, $N = 1{,}412$									
$JDAC_t$	0.008	0.005	0.049	0.056	0.008	0.285	-0.007	0.009	0.053	0.051	0.008	0.293	-3.02	0.000*	-2.28	0.011*
$MJDAC_t$	0.047	0.009	0.055	0.054	0.008	0.290	0.008	0.012	0.057	0.051	0.008	0.283	-4.17	0.000*	-0.87	0.193
$MCNAQ_t$	0.005	0.001	0.031	0.036	0.006	0.206	0.004	0.002	0.035	0.032	0.006	0.239	-2.63	0.004*	-2.28	0.011**
$MCNIF_t$	0.200	0.001	-0.002	0.000	0.000	0.003	0.000	0.001	0.002	0.000	0.000	0.003	-1.69	0.043**	-1.48	0.070***
$MCNDQ_t$	0.010	0.001	0.033	0.036	0.006	0.206	0.037	0.002	0.035	0.033	0.006	0.239	0.81	0.792	-2.26	0.012**
	Just miss, $N = 689$						Others, $N = 2{,}048$									
$JDAC_t$	0.007	0.011	0.052	0.044	0.015	0.294	-0.001	-0.007	0.050	0.054	0.006	0.288	-1.82	0.034**	-0.23	0.409
$MJDAC_t$	0.004	0.016	0.056	0.048	0.015	0.297	0.000	0.010	0.056	0.055	0.006	0.284	-2.61	0.005*	-4.86	0.000*
$MCNAQ_t$	0.010	0.002	0.030	0.032	0.010	0.199	-0.001	0.020	0.034	0.034	0.005	0.227	-0.26	0.399	-0.79	0.215
$MCNIF_t$	0.040	0.001	0.002	0.000	0.000	0.003	0.000	0.069	0.002	0.000	0.000	0.003	-1.10	0.137	0.09	0.534
$MCNDQ_t$	0.012	0.001	0.029	0.033	0.010	0.199	0.001	0.001	0.034	0.034	0.005	0.227	-2.38	0.009*	-1.48	0.070*
	Beaters, $N = 1{,}325$						Just miss, $N = 689$									
$JDAC_t$	0.010	0.002	-0.036	0.032	0.008	0.254	0.012	0.002	0.030	0.032	0.010	0.191	-1.62	0.052***	-3.67	0.000*
$MJDAC_t$	0.000	0.001	0.002	0.001	0.000	0.003	-0.001	0.001	0.002	0.000	0.000	0.003	0.93	0.825	-1.40	0.081***
$MCNAQ_t$	0.010	0.002	0.038	0.032	0.008	0.254	0.013	0.001	0.027	0.033	0.010	0.191	0.31	0.622	-0.92	0.179
$MCNIF_t$	-0.013	-0.008	0.053	0.053	0.009	0.294	0.010	0.011	0.051	0.045	0.015	0.290	-2.18	0.015**	0.26	0.602
$MCNDQ_t$	-0.013	0.011	0.058	0.055	0.009	0.279	0.007	0.016	0.056	0.049	0.015	0.293	-4.20	0.000*	-1.21	0.113

Note: We use a 2-sided paired sample Welch (**Wilcoxon)** T-test for the mean (median) difference tests for each category to compare the accruals quality and abnormal accruals measures for the different groups of beaters versus non-beaters, just miss versus others, and beaters versus just miss.
*, ** and *** indicate statistical significance using probability, $p|t| = 0$, at the 1%, 5% and 10% levels, respectively.

In summary, unlike the earnings distributions, the accruals quality model is able to recognize differences in accruals measures between the beaters and non-beaters that report earnings. The evidence for the asset-scaled operating profit (levels and change) are consistent and support the first null hypothesis that benchmark beaters exhibit earnings quality differently from non-beaters. The outcome is consistent with Holland and Ramsay (2003), who observed that positive earnings are a more appealing benchmark than the positive earnings changes.

4.4. Earnings Persistence Tests

We compared the earnings persistence of benchmark beaters and non-beaters in 2007. We consider periods of, and periods close to, possible economic upheaval. Hence, we evaluate earnings persistence for 2006–2011, and particularly whether earnings were persistent around the 2007 financial crisis (Cimini, 2015; Pududu & De Villiers, 2016). In Table 8, Panel A [B], we report the earning persistence outcomes for 2006 to 2007, 2007 to 2008, 2008 to 2009, 2009 to 2010 and 2010 to 2011 for the beaters [non-beaters]. The period marks the last consecutive years of the ramification of the generally accepted accounting principles (GAAP) before the start of the official use of the current accounting standards in 2012, which are used in a different dispensation of earnings management based on the flexibility of the standards regarding the use of managerial discretion for earnings reporting (Kent & Routledge, 2017). Table 8 [Panel C] reports the result when we introduced a benchmark beaters dummy (*BBD*), coded 1 for benchmark beaters, and 0 otherwise, for the entire sample period (2000–2019) in the earnings persistence regression (Equation 14).

Table 8. Earnings persistence tests.

Panel A: Beaters $[Earnings_t = \theta_0 + \theta_1 Earnings_{t-1} + \varepsilon_{1t}]$						
Year	N	θ_0	$(p\text{-}value)$	θ_1	$(p\text{-}value)$	$\bar{R}^2$
2006–2007	164	0.096*	(0.000)	-0.017	(0.768)	0.001
2007–2008	160	0.106*	(0.000)	-0.003	(0.958)	-0.006
2008–2009	164	0.112*	(0.000)	0.022	(0.720)	0.005
2009–2010	161	0.103*	(0.000)	0.085***	(0.083)	0.011
2010–2011	171	0.098***	(0.000)	-0.022	(0.719)	0.001
Panel B: Non-beaters $[Earnings_t = \theta_0 + \theta_1 Earnings_{t-1} + \varepsilon_{2t}]$						
2006–2007	158	-0.117*	(0.000)	-0.109***	(0.092)	0.018
2007–2008	163	-0.115*	(0.000)	-0.056	(0.369)	0.005
2008–2009	159	-0.117*	(0.000)	-0.034	(0.579)	-0.002
2009–2010	162	-0.107*	(0.000)	-0.056	(0.366)	0.015
2010–2011	151	-0.106*	(0.000)	-0.026***	(0.064)	0.017
Panel C: Pool $[Earnings_t = \theta_0 + \theta_1 Earnings_{t-1} + \theta_2 BBD_t + \varepsilon_t]$: 2002–2019						
	N	θ_0	θ_1	θ_2		$\bar{R}^2$
$Earnings_t$	2,898	0.063* (0.000)	0.040** (0.031)	- -		0.002
$Earnings_t$ [BB]	2,898	-0.130* (0.000)	0.023 (0.105)	0.241* (0.000)		0.434

Note: The significance of the estimated coefficient of the benchmark beating dummy ($\hat{\theta}_2$) implies that earnings are persistent. The $\bar{R}^2$ is the adjusted R-squared and the figures in parentheses are the *p*-values, using $prob|t| = 0$, where * p ≤ 1%, ** p ≤ 5% and *** p ≤10%, with a 2-tailed test.

In Table 8, Panel A shows that the benchmark beaters exhibit low earnings persistence. The test is non-significant for most of the years, particularly for 2006 to 2007, 2007 to 2008, 2008 to 2009, and 2010 to 2011. Only for 2009 to 2010 is the coefficient significant (0.083) at the 10% level. The earnings persistence established for the beaters in 2009 to 2010 appears to be a unique occurrence relative to other periods tested from 2006 to 2011. The $\bar{R}^2$ value is low for all the years, suggesting that current year's reported earnings exhibit an influence on the previous earnings for the benchmark beaters. In 2009, the reported earnings had more of a relationship with 2010 compared to the relationships with corresponding years for the other periods. The earnings persistence for the benchmark beaters increased in subsequent years, except for 2010 and 2011. Overall, the evidence shows that beaters that report profits have less persistent earnings.

Table 8 [Panel B] discloses that the non-beaters subsample exhibits low earnings persistence. The test is only significant for 2006 to 2007 (0.092) and for 2010 to 2011 (0.064), both at 10%. In comparison with beaters' persistence test, the non-beaters show stronger earnings persistence with a higher $\overline{R}^2$ in most years, except for the 2008–2009 earnings period (the financial crisis period) where the beaters indicate stronger persistence. Finally, we perform the earnings persistence regressions for the entire sample (2002 to 2019). Table 8 [Panel C] reports the results after the introduction of a benchmark beaters dummy (BBD_t), coded 1 for benchmark beaters, and 0 otherwise for the period in the earnings persistence regression (Equation 14). The results show that the coefficient of the binary variable for beaters is negative and highly significant. This supports the existence of earnings management by benchmark beaters. The findings also support the second null hypothesis that benchmark beaters are less persistent in earnings management relative to the non-beaters.

4.5. Temporal Trend Analysis

Since we could not identify a clear trend from the basic statistics of earnings and earnings change, we performed a temporal trend evaluation to determine if there is decrease in the frequency of relative benchmark beating. We attempt to resolve the issue of whether the trend of benchmark beating practices is declining over time. Table 9 [Panel A] reports the yearly ratios of benchmark beaters to non-beaters. Unlike Coulton et al. (2005), we compute the ratio for each year as the percentage of beaters to non-beaters with a small net profit after tax for both earnings levels and change. This approach measures the relative trend co-movement of both groups rather than just the increase in the beaters by computing the percentage of firms with positive profit level/change. Table 9 [Panel B] reports the regression of the benchmark beating ratio on the time trend over the period.

Table 9. Temporal trend analysis of benchmark beating.

Panel A: Trends in the relative degree of yearly benchmark beating			
Year	**$Trend_t$**	**$Ratio_t$ [Level]**	**$Ratio_t$ [Change]**
2002	1	5.440	-
2003	2	4.750	1.556
2004	3	5.192	0.963
2005	4	4.367	1.205
2006	5	3.128	1.176
2007	6	4.367	0.917
2008	7	3.600	1.038
2009	8	3.128	1.013
2010	9	3.128	0.963
2011	10	4.194	1.368
2012	11	3.237	0.940
2013	12	4.750	1.091
2014	13	4.194	0.940
2015	14	4.367	1.013
2016	15	4.031	0.940
2017	16	4.963	0.940
2018	17	4.367	1.147
2019	18	5.192	1.118
Panel B: Regression of benchmark beating ratio over trend [$Ratio_t = \rho_0 + \rho_1 Trend_t + e_t$].			
Coeff.		Level	Change
ρ_0		4.240* (0.000)	1.195* (0.000)
ρ_1		-0.0010 (0.990)	-0.0120 (0.183)
$\overline{R}^2$		0.0006	0.0560

Note: Panel A is the trend of relative benchmark beating based on ratio of beaters to non-beaters. Panel B reports the regression of the benchmark beating ratio on time trend. The ratio for each year is computed as the percentage of beaters to non-beaters with small net profit. $\overline{R}^2$ is the adjusted R-squared, and the figures in parentheses are *p*-values using $prob|t| = 0$, *p ≤ 1% (2-tailed).

The coefficient of the trend in the level regression is positive (0.0010) but potentially insubstantial, while that of the change regression is in accordance with expectation. For both cases, the coefficients of the trend variables are not statistically significant, supposing that we hold the third null of a potential decline in relative benchmark beating over time. The results establish evidence consistent with Coulton et al. (2005) on the existence of a significant decline in the regularities of relative benchmark beating. This expectation of reduced evidence of relative benchmark beating among Nigerian firms is not surprising due to the country's regulations on strict compliance with the earnings reporting standards.

5. CONCLUSIONS

We investigate how benchmark beaters manage earnings differently from non-beaters under the framework of both positive earnings (level) and earnings changes in an emerging stock market. We show that the asset-scaled profit distribution, albeit noisy, appears unlikely symmetrical at zero, affirming possible discontinuity and general earnings manipulations, at least visibly. Contrarily, the earnings change distribution shows no clear discontinuity evidence. This is consistent with Kent and Routledge (2017) but in contrast to Coulton et al. (2005). The evidence established is not sufficient to confirm that positive earnings change benchmarks motivate earnings discretion, but basic descriptions allow us to classify the firms into benchmarks beaters, just miss, and other groups according to literature (Bryan et al., 2020; Habib & Hossain, 2008; Kent & Routledge, 2017). We found that for the earnings level (change), about 80% (48%) are benchmark beaters, whereas only 10% (25.2%) of the entire sample just miss the benchmark. Resorting to evidence based on the accruals quality and abnormal accruals comparison for the beaters and non-beaters, the study revealed that benchmark beaters report earnings quality significantly differently from the non-beaters for both levels and changes in accrual components of the asset-scaled profits. We noticed that the earnings persistence for the benchmark beaters increased in subsequent years, except for 2010 to 2011. Overall, the evidence shows that beaters reporting profits have less persistent earnings. Lastly, we found a potential decline in relative benchmark beating over time.

The study has certain limitations which future research may consider for improvement. First, we assume that only profit has been managed by the NSE firms. In practice, earnings management involves more than just profit manipulation. As suggested by Beretka (2019), if firms manipulate other indicators that stakeholders rely upon, then the discriminatory power of benchmark beating tests become questionable, since the accruals models would be biased over the null's rejection. Second, we follow traditional accruals models, which assume that discretionary accruals are linear in motivation. Some authors Balboa, López-Espinosa, and Rubia (2013) have observed that discretionary accruals may adopt a characteristically nonlinear pattern or asymmetric recognition in discretionary accruals. Lastly, the robustness of the results may be influenced by the small size of earnings data for the choice of country used. Larger data provides robustness to normality assumption and cast doubts on earnings discontinuity evidence reached for the beaters. Generally, the findings offer insight for informed decisions based on the expectation of investment returns for investors, creditors, and other market partakers.

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