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EFFECT OF ACCRUAL QUALITY ON COST OF CAPITAL OF LISTED NON-FINANCIAL FIRMS IN NIGERIA

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Abstract

The study analyzes the effect of accrual quality on the cost of capital of listed non-financial firms in Nigeria for the period of 2012 to 2019. Data for the study were extracted from the Firms' annual reports and accounts. After running the OLS regression, a robustness test was conducted for the validity of statistical inferences. The independent variables were generated using two steps regression to determine the performance adjusted accrual and working capital accrual of the sample Firms. Multiple regression was employed to run the data of the study using a fixed-effect model. The results from the analysis revealed that performance-adjusted accrual has a positive insignificant effect on the cost of capital of listed non-financial firms in Nigeria. While working capital accrual has a positive significant effect on the cost of capital of listed non-financial firms in Nigeria. In line with the findings, the study recommends that investors of listed non-financial firms in Nigeria should have confidence in the quality of accrual earnings presented by managers because the information risk inherent in accruals quality will not affect the expected rate of return.

Keywords: Accrual Quality, Performance Adjusted Accrual Working Capital Accrual, Cost of Capital

1. Introduction

Reporting accurate financial information to decision-making centers is of vital importance in the present economic system of the world. Shareholders, who yield their reserves to companies in the form of capital, possess no means other than annual financial reports and statements of these companies to evaluate how their capital is dealt with and also ensure the proper performance of managers. The amount of earnings is of high importance for investors and affects their decision-making when evaluating the performance of a company. Investors also pay much attention to the relationship

between earnings and other variables, such as capital cost, in the capital market.

Accrual's quality always represents the degree to which reported earnings reflect basic accounting information. High accruals quality mitigates information risks of the firm about future cash flows and earnings by reducing information asymmetry between firms and the market participants. It is expected that accounting accruals are a comprehensive measure of all accounting choices made by management (Watts & Zimmerman 1990, Mohammad, 2017). However, the availability of discretionary reporting choices may erode the

information content of earnings. However, the discretion of managers over accounting numbers may be done to their advantage thus making it difficult to differentiate opportunistic earnings manipulation from the legitimate exercise of accounting discretion (Dechow & Skinner, 2000 and Kothari, 2000).

Nevertheless, earnings management has a lot in common with accrual quality” and “highly managed earnings have low accrual quality”. This is because the quality of accrual is essential to the decisions made by anyone with a vested interest in a company. Indeed, financial crises and accounting scandals in recent times have shaken investors' confidence. Besides these factors, among other things, affect the cost of capital. Moreover, the risks of debt- and equity holders are based on information asymmetry between them and the managers of the firm. This asymmetry creates suspicion and leads to higher costs of capital. The quality of accounting numbers reduces the information gap between the investors and manager, which also influences the risks for the cost of capital.

Consequently, studies that have been performed concerning accrual quality and cost of capital often focus on developed economies with the mixed result (see Kent., Routledge, & Stewart, 2015; Mao & Wei, 2012; Aldermen, & Duncan, 2018). Despite the importance and empirical findings of these studies, it is questionable whether these results can be generalized to other periods and countries, due to different accounting standards and the economic environment

Though, few studies exist in emerging nations like Nigeria, (Adaramola, 2014, Mahmoud, 2016). However, none of the studies combines performance-adjusted discretionary accrual quality and working capital accrual quality on the cost of capital in the context of the listed non-financial sector in Nigeria. Therefore, gaps exist in terms of variables and in some cases methodology of analysis in Nigeria. In order to achieve the objective of the study, it is therefore hypothesized that:

H₀₁: Performance-adjusted discretionary accrual quality has no significant effect on the cost of capital quoted non-financial firms in Nigeria.

H₀₂: Working capital accrual quality has no significant effect on the cost of capital quoted by non-financial firms in Nigeria.

2. Literature Review

The genesis of the concept of accruals quality is the judgmental freedom accorded to accountants, based on accruals principle, to estimate the accruals and deferrals to be included in the reported earnings of a stated financial period. Ideally, good judgment should result in very few disparities between accruals reported in a given financial period and their translation into cash in the subsequent financial period. Literature (McNichols, 2002; Dechow & Dichev, 2002; Francis, LaFond, Olsson & Schipper, 2005; Brousseau & Gu, 2011) however indicates that there are errors in this estimation process and it is these that are reflective of the accuracy of the accruals estimation process. This accuracy reflects accrual quality (Dechow & Dichev, 2002). Accrual plays a vital role in predicting the future cash flow of an entity. Accrual quality has been defined differently by researchers. Accrual quality is defined “as the extent to which accrual maps into cash flow realization. However, the term also accrual quality refers to the closeness of cash flow and reported earnings where a small difference indicates high quality (Demirkhan, Radhakrishnan, & Urcan, 2012).

Performance Adjusted Discretionary Accrual Quality

Performance-matched accruals models are applicable when firm performance is extreme. Dechow, et al. (1995) point out that the probability of Type I errors occurring is significantly high when the (cross-sectional version of the) Original Jones and Modified Jones models are used in situations where firm performance is extreme. They give two reasons for the occurrence of these Type I errors. Firstly, the non-discretionary accruals could be correlated to firm performance. Hence, the null hypothesis is falsely rejected because of correlated measurement error in the proxy for discretionary accruals. Secondly, Earnings Management could be caused by other factors that are correlated to firm performance. In this case, Earnings Management is correctly detected; however, the cause of it remains

unknown. Hence, a factor could be chosen that does not cause Earnings Management but is correlated with firm performance; leading to a misspecification of the tests. Kothari, et al. (2005) argues that their approach provides additional controls when firm performance is extreme. Moreover, they argue that performance matching will remove performance-motivated Earnings Management, as both the treatment and match control firms experience similar performance. Also, they state that performance-matched discretionary accruals represent abnormal accruals instead of total accruals.

Working Capital Accrual Quality

Van dePoel and Vanstraelen (2011) identified working capital accruals as another measure of accruals quality. They take this as the change in non-cash working capital. When expected working capital is subtracted from realized working capital, the resulting measure of accruals quality is called abnormal working capital accruals (Van dePoel & Vanstraelen, 2011). They indicate that expected working capital is estimated as a constant proportion of revenues from previous financial periods. The abnormal working capital accruals are usually scaled by the value of the lagged assets and could be adjusted for industry variations when using it as a metric for accruals quality (Van dePoel & Vanstraelen, 2011). Butt, Chamberlain and Sarkar (2012) indicate that this measure can be used in its absolute form to indicate the non-directional extent of accruals quality or could be signed so as to indicate the level of managerial opportunism inherent in the manipulation of the accounting numbers.

Concept of Cost of Capital

Cost of capital is the average rate of return required by the investors who provide long-term funds. It is mostly taken as the minimum required rate of return to providers of capital (debt, equity and hybrid capital) to a firm (Rosenbaum & Pearl, 2009). The cost of capital is the rate of return that it (firm) has to offer to compensate the firm's investors (shareholders and bondholders) for the capital they provide (Schlegel, 2015). The company's cost of capital depends on the risk associated with the invested capital, and as a consequence investors

ask firms for the return which will offset the risk they incur (Schlegel, 2015).

The Dividend Discount Model is based on the assumption that the market price of a firm's stock is equal to the present value of the future expected dividends that the firm will pay. The cost of equity capital could be obtained from this formula because this one is used as a discount factor of the future expected dividends (Berk & DeMarzo, 2013).

2.1 Empirical Review

Performance Adjusted Discretionary Accrual Quality and Cost of Capital

Kang, Liu and Qi (2010) studied the relationship between discretionary accruals and the cost of capital in USA. Annual data from 1965 to 2004 were used for analysis purpose and primarily ordinary least squares (OLS) approach were used and then Monte Carlo analysis used. The study document that discretionary accruals have forecasting power for returns with aggregate accruals relatively from normal (non-discretionary) accruals. The study found that aggregate discretionary accruals estimate negatively associate with cost of capital and positively for future market returns.

Heydar, Hashem and Seyad (2012) Investigated the relationship between earnings management and Weighted Average Cost of Capital (WACC) in companies listed at Tehran stock exchange (TSE) between the years 2003 and 2009. Earnings management is measured by accruals which are divided into two groups: discretionary accruals and non-discretionary accruals. To promote the validity of the study, the results are measured by two models (Dechow et al. model & Kasznik model) and the hypotheses are tested by multivariate linear regression model based on firm-year method. In general, results of hypothesis testing showed a weak yet significant inverse relationship between the weighted average cost of capital and discretionary accruals, and an insignificant correlation between the weighted average cost of capital and non-discretionary accruals in companies studied.

Josephat, Gregory and Silas (2016) studied the effect of accruals quality on the cost of capital in Nairobi securities exchange. The study relies on secondary data on accruals information from annual financial statements and monthly equity market security prices. accruals quality is split into its innate and discretionary components. Regression techniques of analysis was used by the study. The findings show that innate accruals quality and discretionary accruals quality is statistically insignificant on cost of capital.

Mejda, Azhaar and Marjène, (2017) examined the relationship between the financial information quality and the cost of equity capital. The study used a sample of 26 companies listed on the Tunis Stock Exchange (TSE), over the period 2004 to 2010. After verifying the endogeneity problem, regressions are estimated using the bootstrap technique associated with the Ordinary Least Squares method and consider nonlinear relationships. The results indicated a negative relationship between performance adjusted accrual and cost of capital.

Working Capital Accrual Quality and Cost of Capital

Nazim, (2017) examined the role of working capital accruals on stock returns in Karachi stock exchange for the period of 10 years from 2005 to 2014. Working capital accruals measured through change in accruals components and each component then scaled by the average of total assets. Impact of working capital accruals on stock returns measured through checking the relationship between working capital accruals and returns by formulating the portfolios and through regression. The finding of the study shows that working capital accruals have significant effects on accrual.

Uwalomwa, Uwuigbe and Ranti (2015) assessed the effect of firm characteristics on earnings management of listed companies in Nigeria. Using a sample of 20 listed firms, the study employed pooled ordinary least square regression and found that while firm size and firms corporate strategy have a significant positive impact on earnings management represented by discretionary accruals.

Dey and Lim (2015) conducted a study to explore the relationship between earnings persistence, stock prices and accrual reliability in USA. The study employed ordinary least squares (OLS) test for analysis of data. They used the data of 10 years from 2002 to 2012. Results of the study indicated that lower earnings lead to lower accruals reliability.

Ranjbar, Mohebbi and Moosavi (2013) investigated the association between the working capital accrual quality and cost of capital. They used time-series data from 2007 to 2010 a regressions test was used for data analysis. They find that there is a significant association between working capital accrual quality and cost of capital.

Sehgal, Subramaniam and Deisting (2012) studied the performance of earnings, accruals and cash flows, for equity pricing whether investor properly assesses the information enclosed in earnings, accruals and cash flows in India. The researchers used data of Indian stock exchange from January 1997 to December 2010. Results shows that accruals are less attributable to earning persistence. The results showed contrast from the finding of developed markets because in Indian markets investor look to understate accruals and overrate cash flows.

Mashruwala and Mashruwala (2011) scrutinized the effect of seasonality on the pricing of the modified Dechow and Dichev (2002) accruals quality measure (AQ). The study use 447 monthly and 9,399 daily portfolio returns over the January 1971 to December 2008 study period. The study used the Fama and French (1993) four-factor time series regressions and regress portfolio excess returns on the four factors viz CSRP market excess returns, size, a book to market and the momentum effect. The findings indicate that it is only in January that high accruals quality stocks outperform low accruals quality stocks with about 50% of the accruals quality premium happening in the first 5 trading days in January. The accruals quality premium is related to the stock price effects of tax loss selling and not the information risk premium. Although the study rejects the notion that accruals quality is a priced information risk factor, it fails to explain if the January regularity of the

accruals premium can be replicated in nontax loss selling environments

Saeedi and Ebrahimi (2010) conducted a study to explore the relationship between the role of accruals, cash flows, and enlightening stock returns confirmation through Iranian companies. Annual data from 1998 to 2008 were used for analysis purposes and regressions methods were used. A sample of 708 firms listed Iranian stock exchange was taken. The study found that earnings and cash flows do not relevant and also security return cannot explain through these two (earnings and cash flows) in Iran context. It means this result may not apply to another sector, hence the findings are non-generalized.

2.2 Theoretical Framework

Addressing the preposition of agency theory, the concept agency theory was introduced, Jensen and Mecklin (1976). They applied the concept of agency cost to explain issues associated with the separation of ownership and control in large corporation, consistent with Berle and Means's (1932) propositions. The ultimate element in agency theory is the conflict of interest between principals and agents. A principal (shareholder) assigns the power of the decision-maker to an agent (manager) who executes their duties on behalf of the principal (Jensen & Meckling, 1976). Conflicts and dissimilar interests lead to information asymmetries between the two parties. The existence of information asymmetries results in two major agency problems, namely, moral hazard and adverse selection problems.

The information asymmetry assumption is based on the notion of information heterogeneity between corporate insiders and the investing public. Easley and O'Hara (2004) postulate that it is the differences in the content of information that is separately held by the public investors and the corporate insiders which affects cost of capital. The theory argues that the informed insiders have different portfolio weights from the uninformed public which leads to different attributes of their portfolios and their respective costs of capital.

According to this argument, private information portend information risk for uninformed investors. Accordingly, Easley & O'Hara (2004) provide evidence that the relative magnitudes of public and private information among investors feed the information risk that is reflected in accruals quality.

The informed investors have more access to private information than the uninformed ones and they adjust their portfolios accordingly while the uninformed investors do not. The relative disadvantage of non-systematic information risk faced by uninformed investors that causes them to underweight good securities while overweighting the poor securities makes them demand a higher return. Inevitably, investors demand a higher return than average to hold a portfolio of stocks with a high level of private information (Easley & O'Hara, 2004). They indicate that firms can realign their cost of capital by tinkering with accounting treatments. It is in this context portfolio as the new information appears, not as the ones with less private information. Furthermore, this implies that each type of investor perceives the return and risk differently and so, each of them has a different portfolio. Likewise, Leuz and Verrecchia (2004), argued that poor-quality reporting creates information risk which is related to worse coordination between firm and investors. This risk has a negative impact on expected returns, which in turn increases the cost of capital.

3. Methodology

Expost-facto research design was used to describe the statistical association between the independent and dependent variables of the study based on a quantitative approach. The population of the study consists of 116 the listed non-financial companies as of December 2019. The sample covers 48 quoted non-financial firms for eight years, from 2012 to 2019. The study employs stratified sampling techniques in selecting the sample of the study. Also, the initial sample size is supported by Yamane's (1967) sample selection method.

Table .1 Population and Sample size

S/N	Sector	Number of firms	Computation	Number of firm selected
1	Agriculture	5	5/116*51	2
2	Conglomerate	6	6/116*51	3
3	Consumer goods	23	23/116*51	10
4	Industrial goods	13	13/116*51	6
5	Healthcare	10	10/116*51	4
6	Technology	9	9/116*51	3
7	real estate and construction	9	9/116*51	3
8	Oil and Gas	12	12/116*51	5
9	Services	25	25/116*51	11
10	Natural resources	4	4/116*51	1
Total		116		48

Source: Researcher computation 2021

Secondary data were extracted from the financial statements of the sampled firms. Multiple regression was employed to run the data of the study using the Fixed effect Model

3.1 Model Specification

$$COC_{it} = \alpha + \beta_1 PADA_{it} + \beta_2 WCA + \beta_3 FS_{it} + \varepsilon_{it}$$

Where:

COC= Cost of Capital

PADA= Performance Adjusted Discretionary Accrual

WCA= working capital accrual quality

FS= Firm Size

α : constant

$\beta_1 - \beta_3$: Coefficients of the parameters estimate.

t and t-i = time subscript

i = firm subscript

3.2 Variable Measurement

Dependent variable

Cost of Capital

$$K_e = \text{DIV}/P_0 + g = b\text{EPS}/P_0 + g$$

$$b\text{EPS}_0(1+g)/P_0 + g$$

result and discussion

Independent Variable

Performance adjusted Discretionary Accrual

$$\frac{TA_t}{A_{t-1}} = \alpha_0 + \alpha_1 \left[\frac{1}{A_{t-1}} \right] + \alpha_2 \left[\frac{\Delta REV_t - \Delta REC_t}{A_{t-1}} \right] + \alpha_3 \left[\frac{\Delta PPE_t}{A_{t-1}} \right] + \alpha_4 ROA_t + \varepsilon_t$$

Where: TACC= total accruals REV= change in revenue in year t PPE= property, plant and equipment in year t REC= change in account receivable in year t ROA= Return on assets e= error term (Discretionary accruals) TA= total asset

Working Capital Accrual Quality

The first financial information quality proxy is the accruals quality, based on McNichols (2002) model. This one has been considered by several authors such as Kim and Qi (2010) and Klai and Omri (2011). McNichols (2002) constructed the model based on the main contributions of Dechow and Dichev (2002) model and on the criticisms addressed to the modified Jones (1991) model.

$$\frac{TCA_{i,t}}{AA_{i,t}} = a_0 + a_1 \frac{CFO_{i,t-1}}{AA_{i,t}} + a_2 \frac{CFO_{i,t}}{AA_{i,t}} + a_3 \frac{CFO_{i,t+1}}{AA_{i,t}} + a_4 \frac{\Delta REV_{i,t}}{AA_{i,t}} + a_5 \frac{PPE_{i,t}}{AA_{i,t}} + v_{it} \quad (2)$$

Where: $TCA_{i,t}$: Total current accruals of firm i in year t ($TCA_{i,t} = \Delta CA_{i,t} - \Delta CL_{i,t} - \Delta CASH_{i,t} + \Delta DEBTCL_{i,t}$) ; $CFO_{i,t}$: Cash flow from operations of firm i in year t ($CFO_{i,t} = NI_{i,t} - TAI_{i,t}$) ; $TAI_{i,t}$: Total accruals of firm i in year t ($TAI_{i,t} = TCA_{i,t} - DAE_{i,t}$) ; $\Delta REV_{i,t}$: Firm i 's change in revenues between $t-1$ and t ; $PPE_{i,t}$: Gross property, plant and equipment of firm i in year t ; $AA_{i,t}$: Firm i 's average total assets between $t-1$ and t ; $\Delta CA_{i,t}$: Firm i 's change in current assets between $t-1$ and t ; $\Delta CL_{i,t}$: Firm i 's change in current liabilities between $t-1$ and t ; $\Delta CASH_{i,t}$: Firm i 's change in cash between $t-1$ and t ; $\Delta DEBTCL_{i,t}$: Firm i 's change in

debt in current liabilities between $t-1$ and t ; $NI_{i,t}$: Net income of firm i in year t ; $DAE_{i,t}$: Depreciation and amortization expense of firm i in year t .

As the residuals reflect a low accruals quality and to facilitate the interpretation, we multiplied this measure by (-1):

$$AQ_{i,t} = -\sigma_i(\hat{v}_{i,t}) \quad (3)$$

4. Results And Discussion

Table 1: Descriptive Statistics

Variable	Mean	Sd	Min	Max
COC	0.055	0.032	0.006	0.197
PADA	0.057	0.0527	0.0018	0.2537
WCA	0.0715294	0.0643458	0.00454	0.27207
FS	5.197167	2.12345	1.4962	11.8296

Source: STATA Output, 2021

The result from table 1 shows that the mean value of COC is 0.055 with a standard deviation of 0.032. It implies that there is a low variation of the cost of capital across the sample firms, which is further attested to the minimum of 0.006 and maximum of 0.197. Furthermore, table 1 shows that the minimum value of discretionary accrual is 0.00454 and the maximum is 0.27207. This implies that the firm that has higher working capital accruals signify higher accrual quality and those with lower discretionary have higher working capital accrual (WCA). also, The PADA in non-financial firm in Nigeria has a minimum value of 0.0018, (which is much

closer to zero) and a maximum of 0.2537. This shows that the minimum percentage of discretionary accruals from the total accruals of the sampled firms is 0.18%. The magnitude of the absolute value of discretionary accruals in the sample firms has a mean of 0.0574 with standard deviation of 0.0527.

The average firm size as indicated by Table 1 is 5.197167. The standard deviation is 0.35 indicating a very low variability among the variables. It means that most of the firms are within the same range in terms of their total asset. The minimum and the maximum firm size are 1.4962 and 11.8296 respectively.

Table 2: Correlation matrix

Variables	COC	DA	FS	LEV
COC	1.0000			
PADA	0.0616	1.0000		
WCA	0.1315	-0.1523	1.0000	
FS	-0.2937	-0.0278	1.0000	

Source: STATA Output, 2021

From Table 2, it can be observed that there is a positive relationship between performance adjusted accrual and cost of capital of listed non-financial firms in Nigeria as evidenced from the coefficient value of 0.0616. Also, working capital accrual and cost of capital of listed non-

financial firms indicates a positive correlation of 0.1315. Additionally, the control variable (firm size) has a negative relationship of -0.2852 with cost of capital of listed non-financial firms in Nigeria.

Table 3: Multicollinearity test

Variable	VIF	1/VIF
COC	1.36	0.732710
PADA	1.36	0.734847
WCA	1.26	0.795121
FS	1.16	0.862730
Mean VIF	1.25	

Source: STATA Output, 2021

Table 4: Heteroskedasticity Test

chi2(1) = 0.48	Prob > chi2 = 0.6017
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Source: STATA Output, 2021

Table 5: Hausman test

Test: Ho: difference in coefficients not systematic $\chi^2(5) = (b-B)'[(V_b - V_B)^{-1}](b-B) = 46.18$	Prob>chi2 = 0.003
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Source: STATA Output, 2021

There is an absence of multicollinearity (see table 3). However, the Breusch-Pagan test for heteroskedasticity reveals the chi-square value of 0.48, insignificant at 5% level (see table 4). This indicates the absence of heteroskedasticity in the data.

The results from random effect and fixed effect reveal that F-statistics are significant in all scenarios. But

Hausman specification test considered fixed effect (within) regression as the appropriate estimator of parameters on the basis that fixed effect correlated with the variables as the Hausman test is statistically significant at 1%. This can be confirmed from the chi-square value of 46.18 and a probability value of 0.003 (see table .5 above).

Table 6: Summary of Regression Results

	Coefficient	Std. Err.	T	p-value
PADA	.1033048	.0571248	1.81	0.071
WCA	.2863025	.0435027	6.58	0.000
FS	-.0048171	.0009854	-4.89	0.000
R-Square	37.51			
Wald Test	43.30			
Prob. of chi2	0.0322			

Source: output from STATA

In Table 6, the coefficient of determination, R² is 37.51 Which indicates that about 38% of the total variation in the dependent variable (COC) is explained by variation in the independent variables (PADA, WCA & FS). The

F-statistics which measures the adequacy and fitness of the model used in the study has a value of 43.30 which is significant at 5%. This implies that the model is well-fitted.

The findings of the study indicate a positive insignificant effect of performance-adjusted accrual on the cost of capital of non-financial firms in Nigeria. The coefficient and t-values of PADA are .1033048 and 1.81 respectively but the probability is insignificant at 5%. This implies that PADA positively affects cost of capital. Although is insignificant at 5%, The result provides the basis for failing to reject the first hypothesis H01 which states that Performance adjusted discretionary accrual quality has no significant effect on the cost of capital quoted non-financial firms in Nigeria. This contradicts the findings of Kang, Liu, and Qi (2010); Heydar, Hashem, and Seyad (2012), Mejda, Azhaar and Marjène, (2017).

On the second hypothesis (H02), The coefficient and t-values of WCA are .2863025 and 6.58 and significant at 5%. This implies that the WCA of the sampled listed firms has a significant but positive effect on cost of capital. This result provides some evidence to reject the second hypothesis H02 which states that working capital accrual has no significant effect on the cost of capital. This supports the findings of Nazim, (2017) Uwalomwa, Uwuigbe and Ranti (2015); Ranjbar, Mohebbi and Moosavi (2013).

Finally, the control variable firm size (FS) has a negative significant effect on the cost of capital of listed non-

financial firms in Nigeria. The coefficient and t-values of LIQ are -.0048171 and -4.89 and is significant.

5. Conclusion and Recommendations

Based on the results of the analysis and discussion in this study, the conclusion is that performance-adjusted accrual quality has a non-significant positive effect on the cost of capital of listed non-financial firms in Nigeria. That is the quality of performance-adjusted accrual increase the cost of capital. However, is not a meaningful factor that affects the cost of capital for the period of the study.

The study findings further revealed that working capital accrual has a positive significant effect on the cost of capital of listed non-financial firms in Nigeria. The study concludes that working capital accrual increases the cost of capital of listed non-financial firms in Nigeria. That is working capital accrual quality increases the information content of the financial statement. The study, therefore, recommends that investors of listed non-financial firms in Nigeria should have confidence in the quality of accrual earnings presented by managers because the information risk inherent in accruals quality will not affect the expected rate of return for investors.

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