

The effect of internal control system on the financial performance of construction firms in Nigeria

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ABSTRACT

The paper examined the influence of internal control systems on financial performance of Nigeria's construction firms. It utilized ridge regression to analyze data from a self-administered questionnaire administered to 305 employees at a company. Internal control had a strong positive impact on financial performance, as evidenced by an R^2 of 82.92 percent. In the majority of cases, internal control had positive and statistically significant effects and correlations with financial performance. The positive effects of the control environment and risk assessment were statistically insignificant. It suggests upgrading the control system; the control system must be present and functional.

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1. Introduction

Internal control, as a concept in accounting, is an essential component of governance processes. Apart from being integrative, it has a complete structure in the accounting system with a broad perspective on governance. Businesses must integrate risk management and internal control systems as a core component of their governance and decision-making processes in order to achieve long-term success. The search for good corporate governance is intensifying, and internal control is embedded in the corporate governance structure (Gal, et al. 2016). Internal control principles require businesses to create an environment with a structure that allows for an efficient business management process (Babatunde & Dandago, 2014). Leadership is essential for an efficient internal control system. Management values and practices influence firm culture and aid in effective internal control (Pfister, 2011; Palermo, 2011). The study examined internal control components and their impact on financial performance in Nigerian construction firms. Globally, there are indications that construction firms' financial performance is poor, which frequently leads to business failures (Oladimeji & Aina, 2018). Inadequate accounting systems, poor financial management, corruption, and other factors have all had a negative impact on the financial performance of Nigerian construction firms (Ogbu, 2018). Fraud in the construction industry is major and requires a deliberate step to nip in the bud (Association of Certified Fraud Examiners (ACFE), 2016). One of the elements of the fraud triangle is an opportunity or enabling environment created by a weak internal control system (Mansor & Abdullahi, 2015). A global study on occupational fraud and abuse revealed that the construction industry's fraudulent practices ranked fourth among the 24 industries it investigated in 2018. The study investigated how internal control weaknesses contributed to fraud cases and discovered that firms lacking internal control systems contributed 30% to fraud cases (Association of Certified Fraud Examiners (ACFE), 2018). In Nigeria, as in other countries, the construction industry is plagued by unethical behavior, corruption, poor accounting, and financial management, all of which have a negative impact on the industry's

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overall performance (Oyewobi, et al., 2011). The investigation emphasises how the internal control system affects financial performance of Nigeria's construction firms.

The paper is divided into the following sections: The first section examines the critical role of an internal control system in corporate governance, while the second examines the financial performance of construction firms and how internal control weaknesses contribute to fraudulent practices that lead to business failures in Nigeria's construction sector. The methodology is presented in the third section, the findings are presented and discussed in the fourth section, and the fifth section had recommendations.

2. Literature review

There has been a massive accumulation of academic literature, both theoretical and empirical. As a result, there are numerous works that provide a thorough overview of the literature on this subject. However, there is still much debate and disagreement among academics about the relationship between internal control systems and financial performance. Internal control is defined by COSO (2013) as the process established by the board of directors, management, and other personnel with the sole purpose of providing assurance that set goals will be met. The proxies in the framework specified fundamentals of the internal control system to be control environment, risk assessment, control activity, monitoring, and information and communication. The quantitative analysis of profitability, growth, returns on assets employed, liquidity, financial and business risk, and so on, are included in financial performance evaluation (Aliona, 2016). These accounting-based techniques evaluate a company's financial viability and value in terms of its earning capacity expressed as a ratio of assets, equity, or sales (Asiligwa & Rennox, 2017). Liquidity, profitability, and solvency were chosen as proxies for financial performance because the study was based on primary data sources (questionnaire). For this study, five theories were examined: firm, agency, stewardship, institutionalized, and contingency theories. Because they were firmly rooted in examining the relationship between the agent and the principal, this study was based on agency theory and stewardship theory. The agency theory describes the business interests and stake holdings that arise when business ownership and management are separated (Mitnick, 2019). The principal delegated authority to the agent, and as a result of the transfer of power, the principal relinquished control of the business to the agents. This creates information asymmetry because the agents have more access to the firm's information than the principal, limiting the principal's ability to effectively monitor the firm (Pande & Ansari, 2014).

The ownership structure results in conflicting interests between the contract's parties because, while the principal seeks to maximize profit, agents may seek self-serving interest. Conflict of interest is a major agency problem that increases monitoring costs because the principal seeks to control the agent, which attracts cost (Mitnick, 2019). This common agency theory has been challenged by positivists and behavioral theorists. They considered other factors such as outcome-based contractual relationships and bounded reality, and how trade-offs can mitigate the effect of a conflict of interest (Pepper et al. 2013; Panda & Leepsa, 2017; Pepper & Gore, 2015). According to the stewardship theory, managers must be accountable and act as stewards on behalf of owners over the assets they manage (Sanderman & Brault, 2016). It asserts that management's interests are aligned with those of shareholders, and thus they are incentivized to maximize corporate performance (Cossin, et al. 2015). Collectivism, trust, and values are central to its philosophy. The theory proposes that firm stewards seek to maximize wealth for shareholders, which is a powerful motivator (Pande & Ansari, 2014). Ogbekor et al. (2020) agreed that previous research on the relationship between internal control and financial performance backed up the agency and stewardship theories. However, while addressing the components; internal control system and financial performance of firms, agency and institutional theories were emphasized. The agency and stewardship theories are deeply rooted in the relationship between agent and principal. In Saudi Arabia, "the impact of internal control requirements on the profitability of Saudi shareholding companies" was investigated. The intention of the survey was to determine the degree of compliance and the impact of compliance requirements on profitability. The findings revealed a link between internal control and profitability. Except for two profitability proxies, earnings per share and profit margin, the results were discovered to be statistically significant (Al-Thuneibat et al., 2015).

Onumah et al. (2012) studied 33 Ghanaian firms and measured the elements of internal control systems to determine the effectiveness of the internal control system. Control activities, monitoring, information, and communication were found to be poorly implemented among the variables studied, thereby weakening the internal control system. According to the findings of the study, the performance level is adequate. Ibrahim et al. (2017) investigated the impact of internal control systems on financial performance in Ghana's Upper West Region health industry. The survey showed that the control environment has no discernible impact on financial performance. Furthermore, it established that the control activities and monitoring are statistically significant and have positive impact on financial performance. It went on to say that information and communications have a minor but positive impact on financial performance. It, on the other hand, investigated internal audit as a factor of the internal control system while ignoring the impact of risk assessment.

Internal control effectiveness - a clustering approach, as studied by Länsiluoto et al. (2016), discovered that the concept of an effective internal control system, due to its multidimensional approach, cannot be viewed from a single perspective. Internal control components were evaluated based on their effectiveness in meeting the objectives of internal control, which were labelled in clusters 1, 2, and 3 respectively. Cluster 3 scored the lowest in the ranking, indicating that there is a

relationship between the variables and that it is non-linear and complex. Firms with the most effective system received high marks. In a study conducted in Vietnam on the impact of internal control on pharmaceutical firm performance (Nguyen, 2021). The quantitative research found that monitoring, information, and communication had the greatest influence on performance when it came to internal control. Channar et al. (2015) investigated the effectiveness of internal controls and their relationship to financial performance. It revealed the components' functionality as well as their relationship to financial performance. It used profitability ratios to measure financial performance and discovered that, when compared to a public bank, internal control is more effective in private banks but less effective in Islamic banks. The statistical significance of this discovery, however, was low, as was its financial operation, reiterating that the internal control system's efficiency and the banks' financial operation were both favorable.

Magara (2013) investigated the impact of internal control on financial performance in deposit-taking savings and credit cooperative societies in Kenya (SACCS). The study assessed financial performance using liquidity (the ability to meet short-term financial obligations, as well as return on capital employed) (operational efficiency). It established a significant correlation between financial performance and internal control, and it used yield on equity to measure financial performance. Muraleetharan's (2011) study on the "impact of internal control on financial performance" at the University of Jaffna in Sri Lanka established a significant link between internal control and financial performance. Profitability, efficiency, and liquidity were used to assess financial performance. The research focused on the five components of internal control. The methodology of the study was detailed, employing Cronbach Alpha (α) to a degree greater than 0.7 to test for reliability, chi-square, and regression analytical tools; it concluded that internal control was statistically significant in predicting financial performance (Muraleetharan, 2011). Muraleetharan (2013) investigated the relationship between control activities and financial performance and discovered a statistically significant relationship between the two. It was also stated a linear association between control activities and business performance because as control activities increased, so did the performance results, and the influence was statistically significant. The proxies of performance used were financial performance and market performance, and the relationship was found to be positive (Muraleetharan, 2013).

Etengu and Amony (2016) discovered a significant relationship between control activities and financial performance and concluded that control activities have a strong influence on financial performance. According to Ibrahim et al. (2017), the tone set by management is critical to controlling activities. Kinyua et al. (2015) investigated the impact of the internal control environment on the financial performance of Nairobi-listed companies. Internal control and financial performance were discovered to have a significant positive relationship. Adopted analysis of variance, tested hypotheses and drew statistical conclusions. It confirmed the effectiveness of an effective internal control system as a tool for improving financial performance (Kinyua et al. 2015). Nyakundi et al. (2014) conducted a study to investigate the impact of internal control systems on financial performance in Small and Medium Scale Enterprises in Kisumu, Kenya. Internal control and financial performance are significantly related, according to the cross-sectional survey research. The survey's financial performance indicators were, return on investment and profit growth. According to Ogbu (2018), the survival practices of indigenous construction firms in Nigeria were influenced by a number of factors. It proposed factors such as human resource management, organizational culture, financial management, marketing, firms' overall strategy, bidding strategy, and so on. They were classified and aligned with internal control components using COSO (2013) frameworks. The organizational culture and human resource management are appropriate for the control environment. Marketing, bid, and firm strategy are all aspects of risk assessment, smart work methods, and financial management that are related to control activities and monitoring.

Ogbu (2018) went on to say that smart work methods entail proper supervision, efficient resource use, and so on. Financial management is included in the control activities because poor record-keeping impedes the ability to make plans and financial projections, bordering on segregation of duties. The bid and firm strategy have an advantage when it comes to risk analysis and responding to economic issues such as threats in the business environment. The study focused solely on organizational culture as a way of doing things in businesses. Apart from the nomenclatures, the internal control system is completely represented. Marketing was ranked first in the study's methods, while organizational culture was ranked last. It was thus concluded that the outcome demonstrates a lack of knowledge or awareness among leaders in indigenous construction firms in Nigeria. In their study of the financial performance of locally owned construction firms in southern Nigeria, Oladimeji and Aina (2018) discovered a significant failure rate due to control environmental factors. Aside from the government's low patronage, the effect influenced low financial performance. According to the study, only N8 billion of the N26 billion in government construction jobs awarded between 2010 and 2013 went to locally owned construction firms. According to the study, turnover and gross profit are statistically significant to financial performance, whereas fixed assets are statistically insignificant. It believed that profit was determined by the number of jobs completed, direct costs, and overhead expenses, rather than the cost of investment in fixed assets (Oladimeji & Aina, 2018).

2.1 Literature gap

Internal control system components were designed to be integrative and interrelated, according to the COSO (2013) framework; however, they were separated in some reviewed studies. Other studies have looked at the relationship between internal control and financial performance without considering how the independent variables affected the dependable

variable (Muraleetharan, 2011; Muraleetharan, 2013; Magara, 2013; Nyakundi et al., 2014; Channar, et al., 2015; Kinyua et al., 2015). The goal of this study was to examine the integrated components as a whole.

3. Research methodology

The study used a descriptive survey with a quantitative data collection and analysis method from primary sources. The population was 1472 people, including professional and non-professional staff from various fields. To estimate sample size, Cochran sample size determination was used, and it approximated to 305 acceptable lower number of responses from respondents to achieve a 95 percent confidence interval. The stratified sampling technique was used to allocate the strata based on a proportion ratio, and each strata member was chosen using simple random sampling.

3.1 Validity and Reliability

Pretesting allowed for validity and reliability tests on the collected data. A set of 30 questionnaires with 50 items was distributed to respondents outside the population using SPSS IBM 20. For the two-tailed analysis, the degree of freedom (df) was 28 and the Pearson correlation coefficient critical value was 0.361 with a significance level of 0.05, and the highest value was 0.821 and the lowest value was 0.363. Any value less than the critical was considered invalid and thus insignificant, and the validity test result indicated that the data set was valid. Cronbach's alpha (a measure of internal consistency) was used to determine whether the survey's multiple Likert scale questionnaire was reliable. The overall score was 967, with a minimum of 716. The information was gathered from both primary and secondary sources concerning historical events in the firm. The Likert 5-point scale was used in the study to verify respondents' opinions; rate perception of responses from the lowest to the highest point, i.e., a range between 1 and 5.

3.2 Method of data analysis

The structured questionnaires improved the data collection process in preparation for hypothesis testing. The illustrative and illative statistics were calculated using IBM Statistical Package for Social Sciences (SPSS) Version (20) software and EViews 10, with the level of tolerance set to 0.05. (Alpha level). Pearson product-moment correlation and regression analysis were utilized to determine the connection between the variables. These methodologies aided in visualizing the link between the internal control system and financial performance, as well as hypothesis testing. The model was evaluated using multiple regression analysis with robust ridge regression, and the hypothesized connection between the internal control system and financial performance was tested.

3.3 Model specification

A multiple regression model which has been adjudged to be effective when dealing with multivariate data analysis was used in the study. Studies such as Amissa (2017), Magara (2013), Channar et al. (2015), Lagat et al. (2016) and Kinyua et al. (2015) supported the method. The regression models are as represented below:

$$FP = \beta_0 + \beta_1 COENV + \beta_2 RISAS_2 + \beta_3 CONACT_3 + \beta_4 INFCOM_4 + \beta_5 MONITOR_5 + \epsilon \quad (1)$$

where:

FP: Financial Performance of the construction firms

COENV: Control Environment

RISAS: Risk Assessment

CONACT: Control Activities

INFCOM: Information and Communication

MONITOR: Monitoring

β_0 : Constant

β_1 - β_5 : Beta coefficient measures how sensitive variable X is to changes in variable Y

ϵ : Error Term

3.4 Test of significance

The F-test compared the significance of the internal control components, to the financial performance. The F-Test tested the statistical significance of parameter estimates and, as a result, the regression hypothesis of the estimates:

$$H_0: B_1 = B_2 = B_3 = B_4 = B_5 = 0$$

H_1 : At least one of the B_j is different.

The T-test tested the significance of the parameter estimates one by one and thus, the test's hypotheses are:

$$H_0: B_i = 0,$$

$H_1: B_i \neq 0$, where i is 1,2,3,4 and 5

Similar hypotheses are stated for B_2 , B_3 , B_4 , and B_5 .

R-square has been used to determine the variations or changes in the dependent variables (y) that were caused by the changes in the independent variables; COENV, RISAS₂... MONITOR₅. The observation was based on a 95% significance level and variables with a P-value of lower than or equivalent to 0.05 will be treated as significant. The variables with P-values more than 0.05 will be considered insignificant to the study.

4. Result and discussion

4.1 Test for Stationarity (Unit Root Test)

Statistical stationarity refers to the consistency of statistical features such as mean, variance, and autocorrelation over time. The stationarity test of the variables was deemed necessary due to previous studies' positions on the effect of non-stationary variables, as the result could be spurious and does not provide an accurate relationship. The stationarity test ensures that the mean and variance of the variables converge over time.

4.2 Hypothesis

H_0 : Data is not stationary

H_1 : Data is stationary

Table 1

Augmented Dickey-Fuller Unit Root Test

Variable	t-Statistic	5% Sig Value	P-Value	Stationarity Level
Financial Performance	-3.628542	-2.871619	0.0058	I(0)
Control Environment	-3.513946	-2.871619	0.0083	I(0)
Risk Assessment	-3.408839	-2.871619	0.0114	I(0)
Control Activities	-3.580666	-2.871619	0.0067	I(0)
Information and Communication	-3.903551	-2.871619	0.0023	I(0)
Monitoring	-3.603564	-2.871619	0.0063	I(0)

Source: Authors' Computation, (2021)

From Table 1, financial performance attained stationarity at a level with a t-statistic of (-3.628542) which is more than the absolute value of the 5% t-statistic, and its P-value is 0.0058 that is, it is lesser than 5% significant value (0.05) at a 95% confidence interval for accepting the null hypothesis of data not stationary. In the same vein, Control Environment attained stationarity at a level with a t-statistic of (-3.513946) which is more than the absolute value of the 5% t-statistic and its P-value of 0.0083 is lower than 5% significant value (0.05) at a 95% confidence interval for accepting the null hypothesis of data not stationary. In addition, Risk Assessment attained stationarity at a level with a t-statistic of (-3.408839) which is more than the absolute value of the 5% t-statistic and its P-value of 0.0114 that is lower than 5% significant value (0.05) at a 95% confidence interval for accepting the null hypothesis of data not stationary. Control Activities attained stationarity at a level with a t-statistic of (-3.580666) which is more than the absolute value of the 5% t-statistic and its P-value of 0.0067 that is lower than 5% significant value (0.05) at a 95% confidence interval for accepting the null hypothesis of data not stationary. Information and Communication attained stationarity at a level with a t-statistic of (-3.903551) which is more than the absolute value of the 5% t-statistic and its P-value of 0.0023 that is lower than 5% significant value (0.05) at a 95% confidence interval for accepting the null hypothesis of data not stationary. Monitoring attained stationarity at a level with a t-statistic of (-3.603564) which is more than the absolute value of the 5% t-statistic and its P-value of 0.0063 that is lower than 5% significant value (0.05) at a 95% confidence interval for accepting the null hypothesis of data not stationary.

4.3 Regression analysis

Table 2
Regression Analysis Result

Dependent Variable: Financial Performance				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.437330	0.170176	-2.569862	0.0107
CE	0.071143	0.083038	0.856752	0.3923
RA	0.102269	0.081768	1.250725	0.2121
CA	0.342578	0.068994	4.965348	0.0000
INFCOM	0.222287	0.076864	2.891954	0.0041
MON	0.333583	0.062163	5.366235	0.0000
R-squared	0.829219			
Adjusted R-squared	0.826159			
F-statistic	270.9346			
Prob(F-statistic)	0.000000			

Source: Authors' Computation, (2021)

The data in Table 2 suggests that Control Environment has a favorable influence on financial performance, while it is statistically insignificant because P-value of 0.3923, is more than the 0.05 significance level at a 95 percent confidence range for rejecting the null hypothesis of no statistical effect). Risk Assessment also has a favorable influence on financial performance and also statistically, not significant. The P-value is 0.2121 and more than 0.05 significance level at a 95% confidence interval for rejecting the null hypothesis of no statistical effect. The influence of control activities on financial performance is positive; a lower than 0.05 percent P-value of 0.0000 at the 95 percent confidence level for accepting the null hypothesis of no statistical effect is statistically significant. The positive result of information and communication on financial performance is statistically significant. The P-value is 0.0041 and is lesser than the 0.05 significance level at the 95 percent confidence level for accepting the null hypothesis of no statistical effect. Monitoring has a statistically significant favorable impact on financial performance for accepting the null hypothesis of no statistical effect, the P-value is 0.0000 and is lower than 0.05 significance level at 95 percent confidence range. The coefficient of determinant R-squared (R^2) is 0.829219, implying that the independent variables can explain 82.92 percent of changes in financial performance (dependent variable). Because the P-value is 0.000000 and is lesser than 0.05 significant level at a 95 percent confidence interval for accepting the null hypothesis of the model not being a good fit, the F-statistic (270.9346) indicates that the regression model is a good match.

4.4 Diagnostic test

The diagnostic test enabled the researcher to evaluate the regression model assumptions to ascertain the validity of the regression model.

Test for multicollinearity

Table 3
Variance Inflation Factors

Variable	Variance	VIF	VIF
C	0.028960	NA	NA
CE	0.006895	4.313193	0.231847
RA	0.006686	4.394085	0.227579
CA	0.004760	7.576479	0.131987
INFCOM	0.005908	8.272876	0.120877
MON	0.003864	5.879041	0.170096

Source: Authors' Computation, 10, (2021)

Decision Rule

VIF = 1 (Not correlated)

1 < VIF < 5 (Moderately correlated)

VIF \geq 5 (Highly correlated)

When the predictor variables are not linearly connected, the variance inflation factors (VIF) demonstrate that the degree of variance of the guesstimated regression coefficients has been overstated. Because the VIF of most of the variables is larger than 5, the variables suffer from multicollinearity (i.e., there is a correlation between predictors), as shown in the table above. The tolerance level is likewise near to zero and within the permissible range of one (0). This indicates that the independent variables in the regression models are not acceptable or well-fit.

Heteroskedasticity

Heteroskedasticity is often discussed in the assumption of parametric analysis such as linear regression. The assumption is that the error or residual of the regression model is homoscedastic across all predicted values of dependent variables. A regression model's homoskedasticity test of error terms determines whether it can consistently predict the dependent variable across values of the dependent variables. The regression result is not dependable if the regression model is consistent and accurate with low values of dependent variables but very inaccurate and inconsistent with large values.

Hypothesis

H₀: Homoskedasticity

H₁: Heteroskedasticity

Table 4

Breusch-Pagan/Cook Weisberg test for Heteroskedasticity

Variable	Chi 2	P-value
Model	1.97	0.1606

Source: Authors' Computation, (2021)

Table 4 shows that the Chi-Squared value of 1.97 is statistically not significant with a P-value of 0.1606 at a 95 percent confidence range for rejecting the null hypothesis of homoskedasticity.

Stability test (CUSUM Test)

The CUSUM test for parameter stability assesses the stability of coefficients in a multiple regression model of the form. The statistical inferences will be based on whether the regression coefficients are drifting away from the error bound of 0.05. The obtained CUSUM result revealed that the changes in the regression coefficients are within the acceptable region of 0.05 as seen in Fig 1 below.

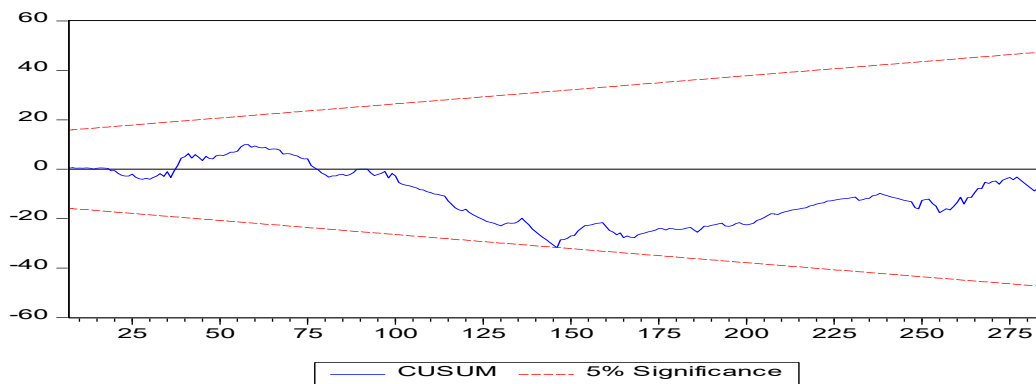


Fig. 1. CUSUM Stability Test

Since the model above is suffering from multicollinearity, it became essential to solve the multicollinearity problem which involved using a more robust statistical tool, therefore, Ridge Regression was utilized to handle the problem of multicollinearity.

Ridge regression

Ridge Regression is a model modification technique applied to multicollinear data analysis. Ridge regression is a second-level (L2) method used to overcome challenges related to multicollinearity; since least squares is balanced, the divergences are large, and the forecasted values differ greatly from the real values. The Ridge regression result table displayed the research findings.

Table 5

Ridge Regression Result

Variable	Raw Ridge	Std. Ridge	V.I. F
CE	0.071143	0.044022	4.313193
RA	0.102269	0.064865	4.394085
CA	0.342578	0.338143	7.576479
INFCOM	0.222287	0.205796	8.272876
MON	0.333583	0.321914	5.879041
R-squared:	0.829219		

Source: Authors' Computation, (2021)

The association between the financial performance and internal control system was revealed in the ridge regression result table. According to the findings, a 4% increase in Control Environment results in a 4.4 percent difference in financial performance. Also, a percentage increase in Risk Assessment revealed a 6.5% change in the financial performance. A percentage increase in Control Activities resulted in a 33.8% change in financial performance. A percentage increase in Information and Communication showed a 20.6% change in the financial performance. A percentage increase in Monitoring reflected a 32.2% change in the financial performance.

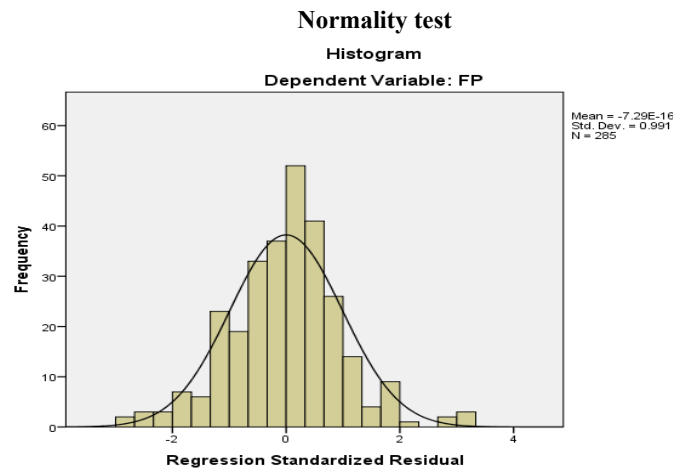


Fig. 2. Residual Normality Test

Cognizant to Fig 2, it is reasonable to assume that the residual is normally distributed because the error has a normal distribution.

5. Conclusion and Recommendations

The research established that control environment has a positive link with financial performance, but it was statistically insignificant. Risk assessment has a positive relationship, and the relationship was statistically, insignificant and control activities have a statistically significant positive relationship. Information and communication have a positive and statistically significant relationship and monitoring equally; has a positive and statistically significant connection. To summarize, internal control impacts financial performance, and the basics of internal control, which are components, are critical to it. Following the research objective, the following recommendations will improve the existing internal control system in the firm. The firm must recognize that the presence of internal control system will not suffice to attain an effective internal control system, it must be functioning as well. In addition, note that continuous risk assessments are fundamental to financial performance so, the firm must improve on its risk assessment by use of appropriate tools to identify fraud-related risks. In the firm's control activities, adequate segregation of duties checks errors and fraudulent tendencies and thus; enhances checks and balances. Take corrective measures against deviation to alter weak internal control measures. The firm must measure the effectiveness of its internal control system against operational efficiency and also, with set goals or objectives. The firm must ensure performance audit to determine its operating efficiency.

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