ANALYSIS OF FORENSIC INVESTIGATIONS AND VALUE OF STOCK IN INSURANCE COMPANIES IN NIGERIA

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Abstract

The objective of this study is: to analyse the relationship between forensic investigation skills and value of stock in insurance companies in Nigeria. In doing this, the study focused on insurance companies that are listed in the NSE as the year ended 2020. This study purposively selected seventeen (17) insurance companies in Nigeria for a period of ten years, that is, 2011-2020. A multi-regression analysis of panel data was used as the analysis tool which reveals that forensic audit and litigation has no significant effect on tax frauds prevention in oil companies in Nigeria. However, the study clearly concludes that there is a significant positive association between forensic investigation skills and value of stock in insurance companies in Nigeria. Based on this therefore this study recommends that agencies or units concerned with forensic investigation analysis should improve on the frauds detection skills by deploying computer and electronic based technology that will be able to identify, summarize and presents any fraud that may occur in the financial records of the companies.

Keywords: *Forensic investigation skills; value of stock; frauds prevention skills; Frauds detection skills; computers assisted review of documents*

1.0 INTRODUCTION

The value of stock or transaction of any financial company depends on the performance and reputation of that company. In order to improve the value of stock of such company, the financial reporting system and records of the organization must be trustworthy and reliably verified (Abdulrahman, 2019). This had made the financial investigation of organizations very important in order to ensure that financial frauds and other related crimes are eliminated. The development of financial investigations will not only open up the any act of criminal, but also lead to recoveries however, this may only be achievable if professionals who are conversant with the tricks involved in the manipulations of figures are deployed in financial investigations and make the necessary impact to improving on

the quality assurance on financial statements which are the records usually presented (Adegbite, Oyebamiji & Oyedokun 2019).

Forensic investigation includes investigating and analyzing financial evidence; developing computerized applications that will assist in the analysis and presentation of financial evidence; communicating the findings and; assisting in legal proceedings, and preparing visual aids to support trial evidence (Dada & Audu 2021). The incorporation of forensic analysis skills into conventional accounting system may actualize result in timely detection and confirmation of manipulations of financial reports as forensic investigation is based on the premise of looking for a pointer of abnormal occurrences in the financial and accounting reporting system (Oyedokun, 2020).

The investigative skills deploys by the forensic auditor's which include frauds prevention skills, frauds detection skills and computers assisted review of documents are targeted at improving the stake and performance of the business (Dada & Jimoh 2020). Insurance companies in Nigeria require a certain minimum firm size which depends on the volume of their deals to be able to provide their services efficiently and effectively. It is on this premises that this study seek to consider the forensic investigation skills and how they relate with the value of stock in the insurance companies in Nigeria.

Statement of the Problem

Several studies have considered the association between frauds prevention and forensic accounting (Okoye and Ndah 2019; Oyedekun and Dada 2018; Anichebe and Juliana 2016), some others have studied the effect of forensic analysis on fraudulent and crimes activities (Dada and Jimoh 2020; Okoye, 2019; Ehioghiren and Atu 2016). However, it is expected that when frauds and crimes activities are prevented or reduced, it should have some benefits to the organization in the areas of the value of stock (Okpala, 2019). The problem of this study therefore is premised on whether there is an association between forensic investigations and the value of stock in insurance companies listed in the Nigerian market. Based on the problem statement, this research raised the following research questions:

i. What is the relationship between the frauds prevention skills and value of stock in listed insurance companies in Nigeria?
ii. What is the relationship between the frauds detection skills and value of stock in listed insurance companies in Nigeria?
iii. What is the relationship between the computers assisted review of documents and value of stock in listed insurance companies in Nigeria?

Objectives of the Study

In this study, the primary objective is to find out whether there is a relationship between forensic investigation skills and value of stock in insurance companies in Nigeria. The specific objectives of the study are to:

i. analysis the relationship between the frauds prevention skills and value of stock in listed insurance companies in Nigeria
ii. determine the relationship between the frauds detection skills and value of stock in listed insurance companies in Nigeria
iii. evaluate the relationship between the computers assisted review of documents and value of stock in listed insurance companies in Nigeria

2.0 CONCEPTUAL CLARIFICATION

The concepts that are clarified in this section include the forensic investigation and value of stock.

Forensic Investigation

The word "Forensic" relates to crime solving. It is therefore the application of science to decide the questions arising from crime or litigation and as such introduced in the accounting domains to provide more reliable and evidential means of improving financial investigations and reduction or prevention of financial impropriety in every forms

(Chepngeno & Fred 2020). Forensic investigation is a branch of forensic accounting that includes the deployment investigative skills that are specialized in carrying out an inquiry that are conducted in that a manner that the outcomes will have applications. A forensic investigation can be grounded in accounting, engineering, medicine, or forms of discipline (Oyedokun, 2020). Furthermore, it is a division of forensic accounting that refers to the practical steps taken to gather evidence relevant to alleged fraudulent acts.

In addition, forensic investigation provides for partnership and shareholders' dispute, criminal investigation, business economic loss, personal injury claims, arbitration and mediation, professional negligence, accounting, analysis, damages, evaluation and general consulting (Oluyombo & Okunola, 2018). Forensic investigating involves considering the appropriateness of financial reporting and the integration of auditing, accounting and investigative skills. Forensic investigation looks at both financial proof of reporting and transactions which is presented within the accounting system and the legal framework which allows such proof to be suitable for establishing valuation and accountability (Oyedokun, 2018).

Value of Stock

A value of stock refers to the shares of a business, corporation or company that assumes to trade at lower prices relative to their fundamentals, such as earnings, dividends, sales etc (Mukherjee, 2021). A value stock is that stock with which price that shows lower relative to the corporation's financial performance, which is measured by fundamentals of the firm's assets, dividends, revenue, cash flows and earnings (Akinbowale, 2018). Value of stock or Stock's values are usually based on the business's or corporation's strength to creating and growing profits or profitability as the case maybe. The earning expectations of any company are based on industry, economic and the company-specific factors (Mukherjee, 2021).

Value of stock is usually affected by the size of the market capitalization. Investors (either international or local) in value stocks usually assumed that the prices of the stocks will definitely rise, to reflect the true business health and potentials of the corporation (Owolabi & Ogunode 2020). This is because they normally see the stocks as apparently undervalued, while they are anticipating that the values appreciation will outgrow the growth of the value of stocks of the competitors or that of the overall market (Mukherjee, 2021).

3.0 REVIEW OF EMPIRICAL STUDIES

In the consideration of the measures to reduce financial frauds and crimes, Dada and Jimoh (2020) evaluated the effect of litigations on financial crime reduction. Using survey research design and analysis the data with linear regression, the results revealed that litigations has significant but negative effect on financial crimes reduction. Hence, the need forensic accounting experts to engage more in litigations support services that will assist in the legal processes.

Oyedekun and Dada (2018) evaluated the benefits of forensic accounting skills in ensuring reliability and integrity of the records and financial statements of organizations where they revealed that forensic accounting skills have positive and significant influence on the dependability and integrity of the financial records or statements. Oyedekun and Dada further indicate that the integration of forensic accounting styles and techniques will increasingly strengthen the internal control functions of corporations. Similarly, Anichebe and Juliana (2016) that conducted study the adoptions of forensic auditing in combating financial frauds and crimes in Nigeria's public sector also posits that there is statistically positive association between forensic auditing and the prevention or reduction of financial frauds or crimes.

In a further development, Onyekwelu, Ugwu, and Nnamani (2016) considered the total effectiveness of forensic accounting and financial reporting quality in the Nigerian banking sector. The association analysis indicated that the relevance and faithful representations of financial reporting, auditing and understandability are positively and significantly improved through the utilization of forensic accounting. In contrast, Ehioghiren and Atu (2016) reveal significant differences between the functions of forensic skills and corporate governance.

From the foregoing, it is evident that researches have been done on the impact of forensic investigation on prevention of financial frauds while little or no extant study has been on the need to employing forensic investigation on the value of stock of organizations and hence the justification for this study.

4.0 METHODOLOGY

In this study, the focus on insurance companies that are listed in the NSE as the year ended 2021. The study selected all the seventeen (17) insurances companies operational in Nigeria as at 2011 for a period of ten years, that is, 2011-2020. The audited annual financial statement of the insurance companies were sorted to source for the data required. A correlation and multi-regression analysis of panel data was used as the analysis tool. The panel data regression methodology was chosen because of the cross-sectional and time series data used in this study.

Hypotheses and Variables Measurement

The statement of the hypotheses of this study is stated in the null forms as below:

H_{01}: Frauds prevention skills have no significant relationship with value of stock in listed insurance companies in Nigeria

H_{02}: Frauds detection skills have no significant relationship with value of stock in listed insurance companies in Nigeria

H_{03}: Computers assisted review of documents has no significant relationship with value of stock in listed insurance companies in Nigeria

Based on the hypotheses of this study, the model specification is as presented below:

$$VoS_{it} = \alpha + \mu_1 FPS_{it} + \mu_2 FDS_{it} + \mu_2 CRD_{it} + e_{it} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where: VoS = value of stock; FPS = Frauds prevention skills; FDS = Frauds detection skills; CDR = Computers assisted review of documents; α = intercept; μ_1, μ_2 *and* μ_3 = coefficient of FPS, FDS and CRD; e = error term; i = no of companies (i = 17) and; t = number of years (t = 10 years)

The variables' measurement is as presented in the table 1 below:

Table 1: Variables and Measurement

Variable		Definitions	Measurement	Source
Dependent Variable	VoS	Value of stock	It is measured by the ratio price to earnings of the company.	Mukherjee, N. (2021)
Independent Variables	FPS	Frauds prevention skills	Binary measure: "1" if there is frauds prevention fees and "0" if otherwise	Chepngeno K.F., and Fred S. (2020)
	FDS	Frauds detection skills	Binary measure: "1" if there is fraud detection fees and "0" if otherwise	Chepngeno K.F., and Fred S. (2020)
	CRD	Computers assisted review of documents	Natural Log cost of ICT	Akinbowale, O. E. (2018)

Source: Researcher's (2022)

5.0 ANALYSIS AND DISCUSSION

In order to carry out the analysis and test the hypotheses of this study, the data were subjected to correlation analysis (to ascertain the relationship) and multiple linear regression analysis (to determine the extent of the relationship) by using STATA version 13.

Table 2: Correlation Analysis

Variables	*VoS*	*FPS*	*FDS*	*CRD*
VoS	1.0000			
FPS	0.3638*	1.0000		
FDS	0.0072	0.3507*	1.0000	
CRD	0.1040	0.1043	0.0168	1.0000

Source: Researcher's, 2022
* Correlation is significant at the level 0.05 level (2-tailed)

The correlation analysis in the Table 2 shows the relationship between the value of stock of the insurance companies and forensic accounting skills. The Table reveals that there is positive and significant correlation between VoS and FPS; positive but insignificant relationship between VoS and FDS and; positive but insignificant relationship between VoS and CDR respectively.

Table 3:Panel Multiple Regression Result

Variables		coefficient	Std.err.	t	p-value	Decision
Constants		1.7786	1.4955	1.19	0.236	
FPS		5.2824	1.0324	5.12	0.000	H_{01} = rejected
FDS		-1.794	1.0395	-1.73	0.086	H_{02} = accepted
CRD		0.3820	0.4418	0.86	0.389	H_{03} = accepted
Adjusted R^2	0.1367					
F-stat	9.39					
p-value	0.0000					
R	0.1530					

Source: Researcher's, (2022)

The results of the regression effect model shown in table 3 indicate that the overall coefficient of determination R^2 is 0.1530 which means that the predictor variables explained 15.3% of the variations in the outcome variable. This is an indication that there is a weak relationship between the outcome variables, VoS and predictor variables (FPS, FDS and CRD) in the insurance companies in Nigeria. The value of adjusted R^2 was peg at 0.1367 which implies that the study explanatory variables (FPS, FDS and CRD) jointly explain the outcome variable (VoS) by 13.67%. The results further show that F= 9.39 and p-value = 0.0000 which is less than 5% conventional level. This indicates that the overall model is statistically significant.

Hypothesis One

The result from table 3 shows that the coefficient of FPS has significant relationship with VoS in insurance companies in Nigeria. This is indicated by the p-value 0.000 which is less than 0.05 significant level. The study therefore infers that frauds prevention skills have significant relationship with value of stock in listed insurance companies in Nigeria. Hence based on the above the study rejects the null hypothesis which states that "Frauds prevention skills have no significant relationship with value of stock in listed insurance companies in Nigeria". This finding agrees with the findings of Dada and Jimoh (2020) and Oyedekun and Dada (2018) who also found a positive significant relationship between forensic investigation skills and in firms and organization effectiveness. However, the finding disagrees with Dada and Audu (2021) that depict insignificant relationship.

Hypothesis Two

The result from table 3 shows that the coefficient of FDS has insignificant relationship with VoS in insurance companies in Nigeria. This is indicated by the p-value 0.086 which is greater than 0.05 significant level. The study therefore infers that frauds prevention skills have no significant relationship with value of stock in listed insurance companies in Nigeria. Hence based on the above the study accepts the null hypothesis which states that "Frauds detection skills have no significant relationship with value of stock in listed insurance companies in Nigeria". This finding partially agrees with the findings of Oyedekun and Dada (2018) and Anichebe and Juliana (2016) who found a positive insignificant relationship between forensic investigation skills and in firms and organization effectiveness. However, the finding agrees with Ehioghiren and Atu (2016) that depict insignificant positive relationship as well.

Hypothesis Three

The result from table 3 shows that the coefficient of CRD has insignificant relationship with VoS in insurance companies in Nigeria. This is indicated by the p-value 0.389 which is greater than 0.05 significant level. The study therefore infers that computers assisted review of documents has no significant relationship with value of stock in

listed insurance companies in Nigeria. Hence based on the above the study accepts the null hypothesis which states that "Computers assisted review of documents has no significant relationship with value of stock in listed insurance companies in Nigeria". This finding disagrees with the findings of Ukoma and Azikiwe (2019); Akinbowale (2018); and Mukherjee (2021) who found a positive significant relationship between forensic investigation skills and in value of stock and firms' sizes.

6.0 CONCLUSION

This study that examines the relationship between forensic investigation skills and value of stock in insurance companies in Nigeria and therefore concludes that: Firstly the relationship between the frauds prevention skills and value of stock is positive and very significant and therefore an increase in frauds prevention skills will improve the value of stock of the companies. Secondly, there is no relationship between the frauds detection skills and value of stock and therefore an increase in frauds detection skills may not improve the value of stock of the companies. Lastly, there is no relationship between the computers assisted review of documents and value of stock and therefore improving computers assisted review of documents may not improve the value of stock of the companies. Based on the conclusions, this study recommends that agencies or units concerned with forensic investigation analysis should improve on the frauds detection skills by deploying computer and electronic based technology that will be able to identify, summarize and presents any fraud that may occur in the financial records of the companies.

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Appendix

Name	year	id	vos	fps	fds	crd
African Alliance Insurance Plc	2011	1	10.9204	1	0	3.91892
African Alliance Insurance Plc	2012	1	11.90242	1	0	2.278171
African Alliance Insurance Plc	2013	1	11.01832	1	1	2.72882
African Alliance Insurance Plc	2014	1	10.79238	1	0	1.829282
African Alliance Insurance Plc	2015	1	12.02948	1	0	2.922982
African Alliance Insurance Plc	2016	1	12.72019	1	1	2.10189
African Alliance Insurance Plc	2017	1	11.05676	1	1	1.62828
African Alliance Insurance Plc	2018	1	10.01938	1	1	2.267272
African Alliance Insurance Plc	2019	1	13.20382	1	0	2.92282
African Alliance Insurance Plc	2020	1	12.04067	1	1	2.628262
AIICO Insurance Plc	2011	2	0.72821	0	0	1.72827
AIICO Insurance Plc	2012	2	0.71236	0	0	1.78294
AIICO Insurance Plc	2013	2	0.48244	0	0	1.28482
AIICO Insurance Plc	2014	2	0.81983	0	1	1.2739

AIICO Insurance Plc	2015	2	0.62721	0	1	1.6283
AIICO Insurance Plc	2016	2	0.44902	0	1	1.4252
AIICO Insurance Plc	2017	2	0.91931	0	0	1.7263
AIICO Insurance Plc	2018	2	0.82371	0	0	1.527362
AIICO Insurance Plc	2019	2	0.87813	0	0	1.26282
AIICO Insurance Plc	2020	2	0.66713	0	0	2.01938
Axamansard Insurance Plc	2011	3	10.29234	1	0	1.56268
Axamansard Insurance Plc	2012	3	11.02943	1	0	2.17923
Axamansard Insurance Plc	2013	3	9.10239	1	1	3.1837
Axamansard Insurance Plc	2014	3	13.9204	1	1	2.891734
Axamansard Insurance Plc	2015	3	12.2948	1	0	3.182763
Axamansard Insurance Plc	2016	3	11.90234	1	1	5.18293
Axamansard Insurance Plc	2017	3	12.92998	1	0	4.271937
Axamansard Insurance Plc	2018	3	10.92812	1	0	3.18372
Axamansard Insurance Plc	2019	3	10.89224	1	0	2.7473
Axamansard Insurance Plc	2020	3	10.90992	1	1	2.37284
Consolidated Hallmark Insurance Plc	2011	4	0.09182	0	0	3.26482
Consolidated Hallmark Insurance Plc	2012	4	0.19292	0	1	1.029438
Consolidated Hallmark Insurance Plc	2013	4	0.67828	0	1	1.81788
Consolidated Hallmark Insurance Plc	2014	4	0.91873	0	1	2.92282
Consolidated Hallmark Insurance Plc	2015	4	0.72982	0	0	2.628262
Consolidated Hallmark Insurance Plc	2016	4	0.81938	0	0	1.72827
Consolidated Hallmark Insurance Plc	2017	4	0.9133	0	0	1.78294
Consolidated Hallmark Insurance Plc	2018	4	0.72362	0	0	1.28482
Consolidated Hallmark Insurance Plc	2019	4	0.78121	0	0	1.527726
Consolidated Hallmark Insurance Plc	2020	4	0.99232	1	1	1.672782
Cornerstone Insurance Plc	2011	5	0.129234	0	0	1.98272
Cornerstone Insurance Plc	2012	5	0.10927	0	1	6.1827
Cornerstone Insurance Plc	2013	5	0.09728	0	1	2.2749
Cornerstone Insurance Plc	2014	5	0.20682	0	0	4.2848
Cornerstone Insurance Plc	2015	5	0.09997	0	0	3.193021
Cornerstone Insurance Plc	2016	5	0.09628	0	0	3.17391
Cornerstone Insurance Plc	2017	5	0.10924	0	0	3.718713
Cornerstone Insurance Plc	2018	5	0.11899	0	0	5.27282
Cornerstone Insurance Plc	2019	5	0.19827	0	1	4.28284
Cornerstone Insurance Plc	2020	5	0.11902	0	0	5.27827
Coronation Insurance Plc	2011	6	2.46383	0	0	3.18372

Coronation Insurance Plc	2012	6	2.67367	0	0	2.7473
Coronation Insurance Plc	2013	6	2.11092	0	1	2.37284
Coronation Insurance Plc	2014	6	1.98283	0	0	3.26482
Coronation Insurance Plc	2015	6	1.0928	0	0	1.029438
Coronation Insurance Plc	2016	6	1.7249	0	0	2.92282
Coronation Insurance Plc	2017	6	0.98727	0	1	2.628262
Coronation Insurance Plc	2018	6	0.79822	0	0	1.72827
Coronation Insurance Plc	2019	6	0.99981	0	0	1.78294
Coronation Insurance Plc	2020	6	1.09282	0	0	1.28482
Goldlink Insurance Plc	2011	7	4.71931	0	0	4.19371
Goldlink Insurance Plc	2012	7	4.72942	0	1	3.8191
Goldlink Insurance Plc	2013	7	5.89242	0	0	3.88991
Goldlink Insurance Plc	2014	7	5.01044	0	0	3.681718
Goldlink Insurance Plc	2015	7	5.79171	1	0	3.91872
Goldlink Insurance Plc	2016	7	4.89134	1	1	3.51717
Goldlink Insurance Plc	2017	7	6.90242	1	1	4.618826
Goldlink Insurance Plc	2018	7	6.02944	1	0	4.71817
Goldlink Insurance Plc	2019	7	5.28202	0	0	4.61881
Goldlink Insurance Plc	2020	7	4.09138	1	1	4.918297
Guinea Insurance Plc	2011	8	4.29234	0	0	4.271937
Guinea Insurance Plc	2012	8	6.82921	0	1	3.18372
Guinea Insurance Plc	2013	8	3.72831	0	0	2.7473
Guinea Insurance Plc	2014	8	4.82937	0	0	2.37284
Guinea Insurance Plc	2015	8	5.72937	0	0	3.26482
Guinea Insurance Plc	2016	8	4.82722	1	0	1.029438
Guinea Insurance Plc	2017	8	4.01928	1	1	2.92282
Guinea Insurance Plc	2018	8	4.87192	1	1	2.628262
Guinea Insurance Plc	2019	8	3.91301	1	1	1.72827
Guinea Insurance Plc	2020	8	2.78218	1	0	1.78294
International Energy Insurance Plc	2011	9	19.8292	1	0	1.28482
International Energy Insurance Plc	2012	9	21.92832	1	1	2.7473
International Energy Insurance Plc	2013	9	22.81923	1	1	2.37284
International Energy Insurance Plc	2014	9	23.71937	1	1	3.26482
International Energy Insurance Plc	2015	9	25.27281	1	1	1.029438
International Energy Insurance Plc	2016	9	24.27824	1	1	3.88991
International Energy Insurance Plc	2017	9	26.82917	1	0	3.681718
International Energy Insurance Plc	2018	9	28.91831	1	0	3.91872

International Energy Insurance Plc	2019	9	26.82922	1	0	3.51717
International Energy Insurance Plc	2020	9	25.02932	1	0	4.618826
Law Union and Rock Insurance Plc	2011	10	0.19023	1	1	4.71817
Law Union and Rock Insurance Plc	2012	10	0.88232	1	1	4.61881
Law Union and Rock Insurance Plc	2013	10	0.87472	1	0	3.18372
Law Union and Rock Insurance Plc	2014	10	0.89132	1	1	2.7473
Law Union and Rock Insurance Plc	2015	10	0.57923	1	0	2.37284
Law Union and Rock Insurance Plc	2016	10	0.88721	1	1	3.26482
Law Union and Rock Insurance Plc	2017	10	0.57624	1	0	1.029438
Law Union and Rock Insurance Plc	2018	10	0.87623	1	0	3.88991
Law Union and Rock Insurance Plc	2019	10	0.90244	1	1	3.681718
Law Union and Rock Insurance Plc	2020	10	0.71212	1	1	3.91872
Linkage Insurance Plc	2011	11	12.2729	0	0	3.51717
Linkage Insurance Plc	2012	11	13.92849	0	1	4.618826
Linkage Insurance Plc	2013	11	11.72932	0	0	4.71817
Linkage Insurance Plc	2014	11	10.92933	0	0	4.61881
Linkage Insurance Plc	2015	11	11.67283	0	0	3.12682
Linkage Insurance Plc	2016	11	11.92022	0	0	3.681718
Linkage Insurance Plc	2017	11	10.73823	0	0	2.79172
Linkage Insurance Plc	2018	11	9.82923	0	0	4.81762
Linkage Insurance Plc	2019	11	8.92987	1	1	4.618826
Linkage Insurance Plc	2020	11	8.09238	1	1	4.71817
NEM Insurance Plc	2011	12	0.99781	0	0	4.61881
NEM Insurance Plc	2012	12	0.91902	0	0	4.1278
NEM Insurance Plc	2013	12	1.0892	0	0	2.48274
NEM Insurance Plc	2014	12	1.11967	0	0	3.18372
NEM Insurance Plc	2015	12	1.22372	0	0	2.7473
NEM Insurance Plc	2016	12	0.99822	0	0	2.37284
NEM Insurance Plc	2017	12	0.91827	0	1	3.26482
NEM Insurance Plc	2018	12	0.89232	0	0	1.029438
NEM Insurance Plc	2019	12	0.92101	0	0	3.28924
NEM Insurance Plc	2020	12	0.78232	1	0	4.374923
Niger Insurance Plc	2011	13	0.87913	1	1	3.882934
Niger Insurance Plc	2012	13	0.71832	1	1	4.001201
Niger Insurance Plc	2013	13	0.16328	1	1	3.280284
Niger Insurance Plc	2014	13	0.63833	1	1	2.438242
Niger Insurance Plc	2015	13	0.71831	1	0	3.18372

Niger Insurance Plc	2016	13	0.73849	1	1	2.7473
Niger Insurance Plc	2017	13	0.72837	1	1	2.37284
Niger Insurance Plc	2018	13	0.46282	1	0	3.26482
Niger Insurance Plc	2019	13	0.78234	1	1	1.029438
Niger Insurance Plc	2020	13	0.72846	1	1	2.67181
Staco Insurance Plc	2011	14	0.26239	0	0	1.9772
Staco Insurance Plc	2012	15	0.33241	0	1	2.278492
Staco Insurance Plc	2013	15	0.32874	0	0	2.482
Staco Insurance Plc	2014	15	0.39103	0	0	2.83958
Staco Insurance Plc	2015	15	0.40918	0	1	2.79324
Staco Insurance Plc	2016	15	0.09234	0	0	2.839548
Staco Insurance Plc	2017	15	0.77201	0	0	4.39204
Staco Insurance Plc	2018	15	0.28914	0	1	3.38503
Staco Insurance Plc	2019	15	0.89736	0	0	4.29379
Staco Insurance Plc	2020	15	0.88623	0	0	4.200022
Standard Alliance Insurance Plc	2011	16	0.18924	1	1	2.48274
Standard Alliance Insurance Plc	2012	16	0.11782	1	1	3.330385
Standard Alliance Insurance Plc	2013	16	1.23902	1	1	3.29203
Standard Alliance Insurance Plc	2014	16	0.92742	1	0	3.82984
Standard Alliance Insurance Plc	2015	16	1.08234	1	0	3.294783
Standard Alliance Insurance Plc	2016	16	1.79242	1	1	3.92849
Standard Alliance Insurance Plc	2017	16	1.90243	1	1	3.10294
Standard Alliance Insurance Plc	2018	16	1.62837	1	1	3.845674
Standard Alliance Insurance Plc	2019	16	1.19274	1	1	3.62884
Standard Alliance Insurance Plc	2020	16	2.09284	1	1	3.93853
Universal Insurance Plc	2011	17	2.8978	1	0	2.982713
Universal Insurance Plc	2012	17	4.87976	1	0	3.28924
Universal Insurance Plc	2013	17	4.6921	1	0	4.374923
Universal Insurance Plc	2014	17	3.98002	1	0	3.882934
Universal Insurance Plc	2015	17	3.68659	1	0	4.001201
Universal Insurance Plc	2016	17	3.24148	1	1	3.280284
Universal Insurance Plc	2017	17	4.79585	1	1	2.438242
Universal Insurance Plc	2018	17	3.77651	1	1	3.472943
Universal Insurance Plc	2019	17	2.57648	1	1	2.93953
Universal Insurance Plc	2020	17	3.68651	1	0	4.28402

Stata Output

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  ___  ____  ____  ____  ____ (R)
 /__    /   ____/   /   ____/
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```

```
. pwcorr vos fps fds crd, star(0.05) sig
```

	vos	fps	fds	crd
vos	1.0000			
fps	0.3638*	1.0000		
	0.0000			
fds	0.0072	0.3507*	1.0000	
	0.9280	0.0000		
crd	0.1040	0.1043	0.0168	1.0000
	0.1905	0.1893	0.8329	

```
. reg vos fps fds crd
```

Source	SS	df	MS	Number of obs	=	160
				F(3, 156)	=	9.39
Model	1039.35265	3	346.450884	Prob > F	=	0.0000
Residual	5754.9085	156	36.8904391	R-squared	=	0.1530
				Adj R-squared	=	0.1367
Total	6794.26115	159	42.7312022	Root MSE	=	6.0738

vos	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
fps	5.282437	1.032486	5.12	0.000	3.242981	7.321893
fds	-1.794343	1.03953	-1.73	0.086	-3.847714	.2590285
crd	.3820003	.4418093	0.86	0.389	-.4907001	1.254701
_cons	1.778568	1.495534	1.19	0.236	-1.175541	4.732678