



Research Paper

Cyber Security and Business Sustainability of Quoted Insurance Firms in Nigeria

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ABSTRACT

A stable, safe, and strong cyberspace is critical for economic growth and sustainability, especially in the insurance sector. As a result, insurance companies in Nigeria have continuously invested in cyber security to protect their database, prevent monetary losses, maintain company image and remain afloat in a competitive business environment. However, despite this huge investment made by Nigerian insurance firms, cybercriminals still attack, penetrate and have undue access to their cyber-space causing damages to both the institution and customers of the insurance industry. The study, therefore, examined the effect of cyber security on the business sustainability of listed insurance firms in Nigeria. 315 respondents from three listed insurance firms in Nigeria were used as both the population and sample size of the study. Questionnaire was the only instrument used for data collection. Simple linear regression was used to analyze the formulated hypothesis. The study found a strong and positive relationship between cyber security and listed insurance firms' sustainability in Nigeria and concludes that cyber security is a strategy and pivotal to listed insurance firms' sustainability in Nigeria. The study recommended among others that enforceable prohibitive cyber laws should be made public and stronger; it is only when this is done that the efforts of insurance firms' fighting cyber-crimes through cyber security can be sustained which will have positive effect on the sectors' business sustainability.

KEYWORDS: Business Sustainability, Cyber-crimes, cyber-security, and Listed-Insurance.

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I. INTRODUCTION

Cybercrime and cyber security are two inseparable, opposite sides of one coin. One cannot talk of cyber security without talking of cybercrime. Financial institutions globally have been battling with these ugly trends for decades now. Cyber security which is a measure against cybercrime is the practice of protecting computers, networks, system servers, digital mobile devices, automated and electronic systems, and data from malicious, unauthorized, and unwarranted access and attacks. It is also regarded as information technology security or electronic information security used to protect data from unwanted cybercriminals. It is a fact today that a buoyant economy thrives on an effective, efficient, and secured financial system. Cybercrimes are typically sloped toward deriving financial gains. Insurance firms, banks and other financial institutions, corporate businesses, and individuals bear the losses of such illicit acts. Insurance is a critical stakeholder in the financial sector that always has the activities of cybercriminals to contend with to stay afloat in this competitive business environment.

Insurance is recognized as a threat transfer apparatus, largely intended to guard against unanticipated events. It is a social plan that offers financial compensation for the consequences of a disaster. The cover is funded by collective contributions of all members (Isimoya, 2007). Insurance is risk averter, and it provides monetary compensation to individuals or group who experience losses (Bob-Alli, 2010). The insurance industry in Nigeria is as old as the country itself, and it is thriving. However, insurance, just like the banking sector whose activities largely depend on information and communication technology (ICT) via the internet are faced with one form of cyber-attack or the other. Financial institutions all over the world are the soft target of internet fraud stars. Every effort made to reduce if not eradicate the ugly trend through cyber security has not yielded the desired result (Anoke, Nzewi, Agagbo, & Onu, 2021).

It is also noteworthy that ICT plays a pivotal role in all aspects of human endeavors as it determines the success or otherwise of any business venture. ICT has built bridges, integrated, and connected different economies and businesses in the world today, through the support of electronics using the internet. Many companies and business organizations, including insurance firms and banks, now depend largely on ICT and computer networks to carry out their basic duties as well as complex responsibilities. Due to the positive effect of the electronic market on the business world and other personal affairs, the market is now open to everybody, criminals inclusive – hence, the reason most corporate financial institutions must learn to protect their facilities through cyber security. It is anticipated that by 2025, global Cyber security spending will hit \$200bn, a whopping sum that would have been directed and reinvested for better economic development but are budgeted for fighting cybercrimes and internet-related issues (Morgan, 2020).

The safeguard of system and internet-connected systems, such as software, hardware and data, from cyber-attacks, is referred to as cyber security. Individuals and businesses employ the technique to guard against illegal access to data centers and other digital systems. The internet has made the world smaller in many ways but has equally opened up the business world to influences that have never before been so varied and so challenging. As fast as the business can grow through the help of ICT, internet security challenges are unavoidable as data hackers grow even faster (Seemma, Nandhini&Sowmiya, 2018).

Risk management in emerging economies such as Nigeria has relied primarily on a reactive approach to risk financing for years, which has grown more unsustainable due to a variety of factors. The recent economic meltdown orchestrated by Covid-19 and the constant attack on insurance facilities by cybercrime syndicates has raised serious questions about the management and sustainability of financial service industries like insurance in Nigeria. Anoke, Nzewi, Agagbo, and Onu (2021) noted that the vulnerability of insurance firms in Nigeria is increasing as emerging economies grow and accumulate more assets as well as the increase in the exposure to the internet which points to a continuing trend of increasing losses due to cybercrime and cyber-related issues.

Cyberspace is a difficult environment that is always changing and evolving. As a result, personnel in charge of security in diverse sectors face problems in keeping up with advances in the cyber realm. A stable, safe, and resilient cyberspace is critical for economic growth and sustainability, especially in the insurance sector. As a result, insurance companies in Nigeria have continuously invested in cyber security to protect their database, prevent monetary losses, productivity losses, maintain company image, and remain afloat in the competitive business environment. However, despite this huge investment made by Nigeria insurance firms, cyber hackers still attack, penetrate and have undue access to their cyber-space causing damages to both the institution and customers of the insurance industry. It is on this backdrop that this study set to investigate the effect of cyber security on the business sustainability of insurance firms in Nigeria.

In line with the objective of the study, the following hypothesis was developed and tested:

H₀₁: Cyber security has no significant effect on business sustainability of insurance firms' in Nigeria.

II. REVIEW OF RELATED LITERATURE

CYBER SECURITY

As the world connects digitally and local businesses turned to global ventures thereby exposing them to cyber-attack, cyber threats, and risk of data loss, insurance firms that want to remain in the competitive business world must be cyber security conscious. According to Umar (2019), more organizations are doing business online now than ever before. The growing effect of digital footprints and the sophistication of cyber-attacks have necessitated an immediate need to safeguard data and other organizational resources from hacker operations. The cost of acquiring and implementing modern ICT within institution in order to curtail cyber related activities has risen as a result of the additional costs of bolstering security against cyber-attacks. Nigeria's internet penetration since the 21st century had been on the increase. Internet users as a percentage of the population increased significantly from less than ten(10) million in 2005 to about one hundred and four(104) million in 2021 (WDI, 2021) which corresponds to half of the Nigeria population. As this figure continues to grow uncontrollably, both the negative and positive effects of internet penetration will be felt in Nigeria.

In Nigeria, the growth of the internet has had unforeseen consequences especially in the financial sector in which insurance is a major player, as a haven for criminals. Despite increased awareness and attention to the threat in Nigeria and around the world, cybercrime has remained a difficult issue. Morgan (2020) noted that if not well managed, cybercrime which is expected to cause damage of about six trillion dollars world wide by 2025 would cause more havoc and affect negatively the global economy. Cybercrime costs, according to Morgan (2020), include data loss and destruction, loss of fund, increased cost of production, loss of intellectual property, theft of personal, corporate and financial data, financial fraud, and disruption of normal business processes, programs and operations, high cost forensic investigation, high restoration and deletion of hacked data cost, and more importantly, reputational harm to the institutions and society at large.

Bob- Alli (2010) opined that individuals, businesses, and the government all suffer as a result of these losses, which include welfare losses, business interruption, profit reduction/increased operational costs, and

revenue losses, among other things. Increased control and oversight of criminal activities associated with technological advances are required as countries and institutions become more interconnected and employ electronic gadgets to facilitate financial and commerce operations. Crypto currency, and the just-introduced e-Naira, a new type of technology platform for trading virtual currencies and other transactions, confirm the rapid worldwide technological expansion and the need to regulate these activities.

Cybercrime will continue to grow rapidly in Nigeria following the introduction of modern telecommunication and broadband technologies. Nigeria was ranked 47th on the global cyber security index (GCI) 2020. The rapid expansion can be due to the abundance of resources as well as the relative ease with which criminals can learn the necessary skills. As Nigeria becomes more technologically advanced, cyber-attacks will become more common, necessitating immediate corrective action to prevent or reduce them. Over the last few decades, there has been a lot of focus on combating cybercrime and the associated reputational risks. Despite the dangers that cybercrime poses to businesses, financial institutions, and the country, cyber technology advancements have enhanced productivity and cut company costs. As a result, some safeguards must be put in place to combat the escalating threat. All essential stakeholders would have to contribute and participate actively in such efforts.

INSURANCE SUSTAINABILITY IN NIGERIA

British Trading Companies introduced insurance to the interested insuring public in Nigeria. It was done basically to favour the European businessmen who operated on the coastal region of West Africa. These dealers supplied finished products to Nigeria in exchange for raw products such as cocoa, groundnuts, and other items for which they require cover (insurance) against natural disasters and other unforeseen events (Okonkwo&Okeke, 2019).

Since its inception in 1879, and insurance establishment in Nigeria in 1989 with the promulgation of an enabling legislation Decree No 22 of 1988, the industry has been plagued by several issues. Self-serving foundations laid by British and European traders operating insurance in Nigeria, inflated expectations among the insuring public as a result of promises made by insurance agents, human depravity, competing for traditional social insurance schemes, economic downturns, and more recently, cybercrime and internet threats were among the factors that insurance companies in Nigeria must surmount to be able to grow and sustain her business operations in Nigeria (Duru, 2011).

The developed insurance businesses that supplied insurance and reinsurance services to Nigerian insurance companies, according to Lakshmi and Iswarya (2015), aided in the transfer of expertise and contemporary technology in the development of insurance in Nigeria. This no doubt has opened the Nigeria insurance businesses to the global market with its global threats like cybercrime, web jacking, cyber stalking, data diddling, identity theft, software piracy, credit card fraud, and many others.

It is a fact that developmental efforts made by policymakers in Nigeria generally have over the years been characterized by lack of vision, poor implementation, poor political will, inconsistency and lack of commitment to the agreed roadmap, unsustainable policies, and programs in the financial sector in which insurance is a key stakeholder. Their focus has been to develop and grow the Nigerian economy through the financial institutions, and the insurance industry in particular, with no accompanying results such as improved citizen welfare or considerable insurance penetration that will help to sustain insurance businesses in Nigeria (Asghlar, 2015).

Anoke (2019) noted that the ability of an insurance sector to make a worthwhile encouraging contribution to her firms' growth and sustainability in particular and that of the economy in general, depends largely on the prevailing culture of the industry; her ability to convert threats to opportunities and the enabling factors that contribute to the development and sustainability of robust insurance markets.

Rising earnings, macroeconomic stability, cyber security, internet threats, cyber hackers, and financial deepening are all enabling factors that insurance firms in Nigeria must put into considerations if the sector must grow and sustain insurance business in this competitive business environment. A favorable regulatory and supervisory environment is a key that will set a developing industry like Nigeria's insurance business on the path of growth and sustainability thereby taking her rightful position as a major economic contributor to the country's economy. The Nigerian insurance industry is being repositioned to take up its expected leading role in Africa (Fashagba, 2018).

III. REVIEW OF EMPIRICAL STUDIES

The relationship between cyber security, insurance growth, and sustainability in the world especially in Nigeria has been widely studied in the past few years. This is because the negative impact of cyber-crime and internet fraud stars is causing untold hardship not only to the insurance sector but to the financial institutions the world over. Some of the findings of the empirical studies are reviewed in this section.

Yakubu (2017) examined the challenges and prospects of cyber security in Nigeria. The study investigated the methods of cybercrime, identified reasons for cyber-crime, and the possible ways it could be reduced if not eradicated. In addition, the study looked at those involved in cyber-crime and the reason for their involvement and proffer methods of stepping up cyber security and recommendation that would help in checkmating the increasing rate of cyber-crimes.

The study of Yakubu (2017) has succeeded in achieving little or nothing as the findings and recommendation(s) in the study were not stated. In addition, the population, sample size, and the location of the study which are vital ingredients in research writing are conspicuously missing in the study.

Omodunbi, Odiase, Olaniyan, and Essan(2016) examined the analysis, detection, and prevention of cybercrimes in Nigeria. The study aimed to evaluate the level of students' involvement in cybercrimes. Students of Federal University Oye-Ekiti, Ekiti State University, and Afe- Babalola University in Nigeria were used as the population of the study. A sample of six hundred (600) students from these three universities was randomly drawn as a sample for the study. Interview and questionnaire were the major instruments used for data collection. The study revealed that most cybercrimes are committed by the youths in society. The study recommended that government should make the welfare and wellbeing of her citizens paramount to reduce the societal burden thereby reducing their participation in cyber-related activities. It is only when this is done that the effect of cyber security measures by the government can be effective.

The study of Omodunbi, Odiase, Olaniyan, and Essan (2016), though well-constructed, failed to state the instrument of data analysis used in this vital study.

THEORETICAL FRAMEWORK

Cybercrime is new breed of crime in the society that is perpetrated by mostly the youth using computers. To minimize this, cyber security measures have to be adopted by individuals, organizations, and corporate bodies. The theory underpinning this study is the information security theory. This theory states that the motivation behind all attempts by an organization to secure her information against threats, cybercriminals, and hackers is to create resources (human and material), and measures that can outsmart the activities of cyber syndicates; grow, sustain and improve on organizational performance (Gregor, 2006).

IV. METHODOLOGY

This study adopted a descriptive survey research design to determine the effect of cyber security on insurance business sustainability in Nigeria. The target population of this study was all listed insurance firms in Nigeria as of June 2020. There are twenty-three (23) listed insurance firms with the Nigeria Stock exchange as of December 2020 (NSE Facts book, 2020). The researchers selected the three most valued insurance firms in Nigeria as of December 2019 for their capital turnover from the population since the entire population of the listed insurance firms operating in Nigeria could not be included in the study. Based on this condition, Leadway Assurance, Allico Insurance, and Custodian & Allied Insurance Firms were selected.

Table 1: Sample of selected Insurance Companies

S/N	Names of Insurance Firms	Number of Staff
1	AIICO Insurance Plc.	114
2	Leadway Assurance Plc	108
3	Custodian and Allied Plc.	93
	Total	315

Source: Field Survey, 2021

Due to the size of the population, the researchers' adopted the population as the sample size.

The questionnaire was proposed on a five (5) point Likert scale that was used to collect information from the sampled respondents. The coding was ranked 5,4,3,2,1 representing, Strongly Agreed(SA), Agreed(A), Undecided(UD), Disagreed(DA) and Strongly Disagreed(SD) respectively. 305 respondents filled and returned their questionnaire and were used for the analysis while 10 respondents could not return theirs.

To maintain the validity of the instrument, the first draft of the questionnaire went through content and face confirmation. The initial draft of the instrument was given to experts in the National Insurance Commission regional office Enugu, Nigeria as well as other Security and Forensic experts in Awka, Anambra State (identities withheld for security reasons). These experts were employed to examine the items in the instrument and air their views on the suitability and clarity of the statement. Their comments and inputs were used to amend and produce the final copy.

To ensure that the questionnaire was reliable, a reliability test was conducted using Cronbach’s Alpha and was found to be statistically standard. The reliability of the questionnaire was found not to be less than the Alpha value of 0.7 as approved by Nunnally (1978)

Table 2: Summary of the Reliability Measurement (Cronbach’s Alpha)

Questionnaire Variables	Cronbach’s Alpha
Cyber Security	0.795
Insurance Sustainability	0.781

Source: SPSS-25, 2021

Table 2 reveals that the reliability of the variables has Alpha value above 0.70, which implies that they are reliable.

Simple regression and simple percentages are statistical tools used to analyze the collected data. The simple regression was used to determine if there is an effect relationship between the dependent and independent variables in the study.

This is expressed in this study as follows:

$Y = \alpha + \beta_1 x$1 , Y=dependent variable, α =intercept, β_1 = coefficient, X is the independent variable.

$IS = \alpha + \beta_1 CS + \mu$ 2. Where: IS = Insurance Sustainability. β = coefficient, α =intercept, μ = error term.

V. RESULTS AND DISCUSSION

Table 3: Descriptive Statistics

S/N	Variables	N	FX	Mean(x)	Remark
	Insurance Sustainability in Nigeria				
1	Cyber security help insurance firm sustain their business in Nigeria	305	1189	4.01	SA
2	Cyber security assists in controlling cyber-crimes in the insurance sector in Nigeria.	305	1115	3.66	A
3	Government policies and programs help to control cyber-crimes and sustain insurance business in Nigeria	305	354	1.16	SD
4	Investments in modern technology help Insurance Firms to remain afloat in business.	305	1334	4.37	SA
	Cyber Crimes / Insurance Sustainability				
5	Youths commit cyber-crimes that affect listed insurance firms sustainability in Nigeria	305	1193	3.91	A
6	High youth unemployment leads to high cyber-crimes in Nigeria	305	1389	4.55	SA
7	Cybercrimes do not affect listed insurance firms’ sustainability in Nigeria.	305	425	1.39	SD
8	The absence of enforceable prohibitive laws against cybercrimes affects the insurance business sustainability in Nigeria	305	1254	4.11	SA

Source: Field Survey, 2021

N/B. SA= strongly agreed, A= agreed, UD= Undecided, DA=Disagreed, and SD= strongly Disagreed. This study adopted Amal (2016), five-point Likert scale mean grouping as 1- 1.99= strongly disagree, 2.00= disagree, 2.01-3.00 Undecided, 3.01-4.00= Agreed and 4.01-5.00 = strongly agreed.

From Table 3, it was shown that respondents who strongly agreed that cyber security help insurance firm to sustain their business in Nigeria has a mean (M) value of 4.01, Cyber security assist in controlling cyber-crimes in the insurance sector have (M =3.66) as they agreed. The respondents also strongly disagreed (M=1.16) that government policies and programs help to control cyber-crimes and sustain insurance business in Nigeria. Finally, respondents also strongly agreed that Investments in modern technology help insurance firms remain afloat in business (M4.37).

On the effect of cyber-crimes on insurance firms’ sustainability, the respondents agreed that youths commit cybercrimes that affect insurance firms’ sustainability in Nigeria with a mean value (M3.91), while they strongly

agreed that High youth unemployment leads to high cyber-crimes in Nigeria (M4.55). On the question that cybercrimes do not affect insurance firms' sustainability in Nigeria, the respondents strongly disagreed (M 1.39). Finally, the respondents strongly agreed that the absence of enforceable prohibitive laws against cybercrimes affects the insurance business in Nigeria (M 4.11).

FITNESS OF MODEL

The study analyzed the variables to determine how fit the relationships between cyber security and insurance firms' sustainability are. Table 4 presents the regression model obtained from the analysis.

Table 4: Model Fitness

	Pearson-R	R-square	Adjusted R-squared	SEE
Insurance firms sustainability	0.7984	0.6375	0.5128	1.6995

Source: SPSS-26, 2021

As presented in Table 4, the R-square shows that cyber security determines 63.76% of the variation in insurance firms' sustainability. This shows that the model has a good fit and indicates that cyber security has a great impact on insurance firms' sustainability.

VI. ANALYSIS OF VARIANCE RESULT

The Analysis of Variance (ANOVA) result is shown in Table 5. The finding further confirms that the regression model of cyber security on insurance firms' sustainability is significant for the data. This was captured by $F = 19.832$ and p-values of 0.000 which is less than 0.05.

Table 5- Result of ANOVA

ANOVA						
Model		Sum of Squares	Df	Mean Square	F-statistic	Sig.
1	Regression	8.015	1	8.015	19.832	0.000 ^b
	Residual	122.456	303	0.404		
	Total	130.471	304			

Source: SPSS-25, 2021

STATISTICAL TEST OF HYPOTHESES

The hypothesis was tested by using simple linear regression and determined using p-values of the t-statistics (or t-value). The null hypothesis is to be rejected if the p-value is less than 0.05; or otherwise accepted, if it is greater than 0.05.

Table 6: Regression Result

	Coef.	Std. Err.	t-values	p-values
Cons_	1.935	0.128	15.083	0.000
Cyber Security	0.236	0.053	4.452	0.000

Source: SPSS-26, 2021

TEST OF HYPOTHESIS

H₀₁: Cyber Security has no significant effect on business sustainability of Insurance Firms' in Nigeria.

From the regression result in Table 6, the calculated t-value for the relationship between cyber security and listed insurance firms' sustainability is 4.452 and the p-value computed is 0.000 at 95 percent confidence levels. The study disregard the null hypothesis (H₀) and conclude that cyber security has a significant effect on listed insurance firms' sustainability in Nigeria since the p-value is less than 0.05 (or 5%).

VII. DISCUSSION OF FINDINGS

Findings from the analysis showed that cyber security has a positive and statistically significant effect on listed insurance firms' sustainability in Nigeria. This implies that despite the absence of enforceable prohibitive cyber laws and the high rate of cyber-attacks on the facilities of financial institutions especially the listed insurance firms in Nigeria, the sector can minimize the activities of cybercriminals to the barest level through constant cyber security checks. This finding is in tandem with the findings of Omodunbi, Odiase,

Olaniyan, and Essan(2016) who found that cyber security is a good means of controlling cybercriminals if only the government can engage her teeming youth more productively.

VIII. CONCLUSION AND RECOMMENDATIONS

In conclusion, cyber security and listed insurance firms' business sustainability in Nigeria were examined to access its efficacy in controlling cyber-related activities and sustaining the business of listed insurance firms in Nigeria. The study hypothesized that cyber security has no significant effect on listed insurance firms' sustainability in Nigeria. It was revealed that cyber security has a positive and significant effect on listed insurance firms' business sustainability in Nigeria and concludes that cyber security is a strategy and pivotal to the listed insurance firms' business sustainability in Nigeria.

The study, therefore, recommended that there should be a lawful youth illicit wealth acquisition and display control mechanism, the youth should be gainfully and productively engaged while enforceable prohibitive cyber laws should be made public and stronger; It is only when this is done that the efforts of insurance firms' fighting cyber-crimes through cyber security will be maintained and her business sustained.

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