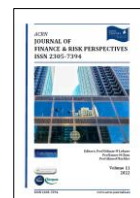




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The Implication of Corporate Social Responsibility on the Strategic Risk of the Listed Firms in Nigeria

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ABSTRACT

This study focuses on the implications of corporate social responsibility (CSR) on the strategic risk of the listed financial and non-financial firms in Nigeria. The population of the study consists of 154 firms, while the census sampling technique was adopted to arrive at an adjusted population of 133. The correlation research design was employed using a positivism approach. Descriptive statistics, correlation matrix, multiple regression, confirmatory analysis and T-test were used to analyze the data extracted from the annual report. Hence, the result of the study shows that corporate social responsibility has a negative impact on strategic risk. The confirmatory factor analysis found that CSR engagement influences strategic risk (SRK), but to varying degrees, contradicting findings from the Frontier Model, PCSE, and GLS that both sectors will have similar results if they engage in CSR effectively. It is therefore suggested that the management of strategic risks need to be more integrated in corporate strategy as the capacity to listen to business stakeholders' viewpoints on social and environmental issues becomes a competitive need.

Introduction

The strategic risks that businesses confront over the long run are just as important as the short-term dangers. Strategic risks may manifest in a variety of ways, including the inability to forecast changes in consumer preferences, the emergence of disruptive innovations that alter the cost structure of an industry, a shift in public policy, or changes in the competitive environment. Both the occurrences and consequences of strategic risk are distinct by their breadth and complexity, including chain reactions that traverse the borders of the organization and have repercussions across all the firm's revenue sources.

In certain instances, firms may unintentionally or deliberately contribute to social or environmental issues, prompting stakeholders to mount challenges that could affect a firm's operation. In other cases, firms may be deemed guilty by operating in areas with major social and environmental concerns. This second pattern is particularly

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prevalent in locations with weak governance but is not confined to them (e.g., Nigeria or the Democratic Republic of Congo) (Beth and John, 2005). CSR-conscious businesses examine the potential effects on stakeholders as well as social and environmental trends that pose a risk to the execution of a strategy. By doing this, businesses can foresee, avoid, and properly deal with execution challenges (Strandberg, 2016). The 2000s saw the peak of CSR as a corporate strategy and a benchmark for promoting a company's principles (Arco-Castro et al., 2020). The increase in corporate social responsibility (CSR) has made it necessary to look at how CSR affects business risk (Godfrey, 2005). A growing collection of literature on strategic corporate social responsibility is also available. There are compelling arguments for moving from the moral and normative CSR methods to a strategic CSR (Mackey et al., 2007; McElhaney, 2007; Porter and Kramer, 2006).

The tough socio-economic and political situations have impacted CSR in a variety of ways. This has caused a slow development of CSR in Africa as compared to other emerging nations (Ahmad et al., 2022). As a result, it becomes more difficult to understand how businesses in Africa implement CSR. The private sector is still one of the institutions that may help to improve social, economic, and environmental concerns in areas with inadequate institutional and governance frameworks, such as the sub-Saharan Africa (Campbell, 2012).

The harmful effect of business operations on the environment has heightened awareness on the role corporate law plays in driving firms to promote social and economic progress. In the case of Nigeria, the National Oil Spill Detection and Response Agency (NOSDRA) reports that 13 oil spills with environmental and health concerns were discovered in March 2020, adding to the almost 2,400 oil spill incidents that were discovered between 2006 and 2010 in the oil community. As a result, it has resulted in an increase in illegal activities including pipeline damage and crude oil theft. According to a study published in December 2019 by the Nigeria Extractive Industries Transparency Initiative (NEITI), the oil and gas industry lost at least \$41.9 billion over the last decade to theft and vandalism of crude oil and processed products. The negative impacts of these operations will considerably reduce, and performance will increase if firms implement socially responsible strategies to address the host communities' social, economic, and environmental concerns.

Company and Allied Matter Act (CAMA) seems to be the only Nigeria's corporate law. Sadly, the CAMA is shareholder-centric and "adopts the traditional primacy model of corporate governance, limiting the company's accountability to stakeholder groups like the local community and suppliers" (Amodu, 2017). In addition, Sections 279(4) and (9) of CAMA show the lack of support for CSR, particularly in community engagement. Section 279 states that corporate directors have no legal obligations or jurisdiction outside their company-related duties. Directors have misconstrued "firm interests" as shareholder interests. This attitude of shareholder primacy in Nigeria may inhibit CSR activities, especially when the community is not identified as an interest directors should consider. Directors may continue to prioritize shareholder interests with little or no care for the community.

The current focus on Nigeria's sustainability issues would provide a good chance for policymakers to examine the country's existing business law and include CSR measures that are appropriate to the country's cultural and economic setting. Utilizing the market economy to fund and accomplish sustainable development is the goal of CSR legislation (Ray, 2013). In light of this, the author tends to increase CSR research by undertaking a broad and systematic study

that provides an impartial viewpoint on the issue relating to CSR implementation and strategic risk, considering a comparative analysis between financial and non-financial firms in Nigeria.

It is apparent that firms operating in different industries are likely to have varied objectives regarding involvement in corporate social responsibility (CSR). When compared to other industries, financial firms have a distinct set of contextual conditions, which is likely to result in a distinct set of corporate social responsibility policies. While some practices, such as those of environmental issues or those pertaining to the fight against corruption, such as anti-bribery and anti-money laundering, are expected to differ significantly, other practices, such as those of social human rights, are expected to be more similar. Investing in corporate social responsibility (CSR) helps corporations minimize risk, according to the stakeholder theory (Donaldson & Preston, 1995) because it develops relational capital among stakeholders. CSR engagement provides businesses with downside protection similar to that of an insurance policy (Godfrey, 2005). In Nigeria, corporate social responsibility (CSR) has a cultural focus, reflecting on religion, ethnicity, customs, and community lifestyles that values giving and togetherness. Therefore, the bulk of corporate social responsibility (CSR) efforts in Nigeria have been voluntary and philanthropic in nature (Chondough, 2021). Additionally, CSR is mostly targeted by companies whose operations have more environmental impact (non-financial sector).

In the face of government inefficiencies, corporate responsibility can play a significant role in Nigeria's development. Corporate social responsibility is an ideal strategy for tackling the socio-economic developmental challenges in most developing nations, including Nigeria. These necessitate the need for this research. This study will add to the existing literature by providing a broader empirical analysis of a developing country using both the financial and the non-financial firms listed on the Nigerian stock market. Prior studies reveal that CSR research in the financial industry is limited, however, several studies have explored the different features and ramifications of CSR for non-financial organizations (Orlitzky & Benjamin, 2001; Wang et al., 2015).

While businesses are getting more “adept at managing financial, operational, and hazard risks, few executives have systematically addressed strategic risks” (Slywotzky and Drzik, 2005), which may jeopardize a company's long-term viability. In a nutshell, strategic risk is a substantial risk faced by both financial and non-financial organizations, resulting from internal and external factors that pose an immense threat to an organization (McConnell, 2012). This implies the necessity for this research to have a better understanding of the impact of CSR on strategic risk.

To eliminate Bias, a variety of approaches were employed, and the outcomes of the panel corrected the standard error, and feasible generalized least square (FGLS) procedures were validated using confirmatory analysis (PCSE). The T-test was used to determine any significant differences between CSR and the strategic risk of the financial and the non-financial sector, and the author considered using the findings of confirmatory analysis to determine whether hypothetically, CSR in one sector may have an impact on the CSR in another.

Literature review

According to the instrumental interpretation of stakeholder theory, there is a link between CSR and a company's financial success (Freeman, 1984; Orlitzky et al., 2003). According to this viewpoint, businesses take into consideration groups or people who are impacted by their operations. This may be done for either normative (such as

ethical) or instrumental grounds (financial reasons). Based on this theory, researchers contend that CSR improves a company's reputation (Benlemlih & Girerd-Potin, 2017; Stellner et al., 2015); fosters consumer loyalty; improves employee performance (Edmans, 2011, 2012) and affects financial performance (Arouri & Pijourlet, 2017; Brooks & Oikonomou, 2018). Moreover, by reducing agency costs and information asymmetry, CSR might lead to improve funding options (Cheng et al., 2014; El Ghouli et al., 2016). These findings are consistent with the literature's contention that businesses participate in CSR that maximizes profits (McWilliams & Siegel, 2001). In that sense, CSR is seen as a means of generating value (based on the claim that it is a differentiation strategy) and, as suggested by Albuquerque et al. (2019), a manner of lowering strategic risk.

The concept of social responsibility emphasizes that a firm cannot function in isolation from its surroundings by focusing on the role of stakeholders (Bearle & Meanse, 2002). Corporate social responsibility (CSR), according to Falck and Heblich (2007), may be utilized to satisfy the demands of each specific interest group. Corporate social responsibility (CSR) may be used as a normative tool by management to create initiatives that benefit both shareholders and other stakeholders (Marhfor, 2021).

On the other hand, strategic risk is a drop in the net income due to strategic events, posing threat to the firm's survival. Others say having a long-term company plan is key to maintaining profitability despite the economy's uncertainty (Lin et al., 2012). Strategy risk is the difference between a company's turnover with the average turnover mean, divided by the industry's standard deviation (Gordon et al., 2009). Gordon et al. (2009)'s definition is used since it is widely accepted and explains the quantitative assessment of strategic risk.

Those who support CSR assert that it acts as a type of reputational assurance (Shiu and Yang 2017; Minor and Morgan, 2011; Godfrey, 2005; Pelozo, 2006; Csapóné, 2015; Christensen, 2015; Klein and Dawar, 2004). In other words, CSR protects and/or improves the reputation of the company, which improves the financial performance of the firm. Failure to be socially responsible puts businesses in danger of losing their good name, which will hurt their total financial success. Others contend that CSR activities increase costs and pose a danger of changing a company's cost structure, which would have a detrimental effect on performance and market competitiveness (Barnea & Rubin, 2010; Blowfield & Murray, 2011). According to Luo and Bhattacharya (2009), CSR is associated with a reduction in idiosyncratic risk. Oikonomou et al. (2012) found that there is a negative association between systemic risk and CSR. The concerns about the environment, jobs, and communities are some of the most urgent issues. According to Sharfman and Fernando (2008), "improved environmental risk management is associated with lower capital costs", especially equity costs. There is no proof that businesses are taking advantage of the perceived lower risk by increasing their borrowing costs. Evidence from El Ghouli et al. (2011) supports these findings. Furthermore, Attig et al. (2013) discovered that effective CSR was connected to improved credit ratings in the same manner as raising the degree of CSR might lower business risk (CSR). Based on the reviewed studies, the following hypotheses were formulated:

Hypothesis 1: Economic disclosure has a significant effect on the strategic risk of listed firms in an emerging market.

Hypothesis 2: Social disclosure has a significant effect on the strategic risk of listed firms in an emerging market.

Hypothesis 3: Environmental disclosure has a significant effect on the strategic risk of listed firms in an emerging market.

Methodology

The research was conducted using a correlational research approach. The positivist methodology, which is the research paradigm, informed the design. The study population consisted of all listed financial and non-financial enterprises on the Nigeria stock exchange (NSE), which makes up a total of 154 firms for the research period of 2012-2021. Fifty-three (53) listed financial service firms and one hundred and one (101) listed non-financial firms in Nigeria were utilized to enable comparative analysis. A Census sampling technique was adopted and due to the unavailability of data from a few firms, only 44 firms were selected from financial firms and 89 firms from non-financial firms. The data utilized in the research is secondary and comes from yearly reports. Multiple regressions on panel data were used in this study, which is deemed appropriate for this investigation since the linearity requirement is satisfied, and the data was analyzed with the use of Stata.

To begin, descriptive statistics will be used to illustrate the mean, standard deviation, maximum, and lowest values for each construct. The present research will contain a correlation matrix, which depicts the relationship between the variables. Panel fixed effects and random effects models will be used for empirical calculations based on data attributes. The individual-specific impact is assumed to be associated with the independent variable in a fixed-effect model. The random-effects model, on the other hand, assumes that the individual-specific effects are unrelated to the independent factors. The study conducted all the post-estimation tests (such as heteroskedasticity, normality, autocorrelation among others) as required (Alzoubi, 2016; Boadi & Li, 2015; Wooldridge, 2002).

Thus, the regression may be expressed broadly as follows;

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_k X_{kit} + e_{it} \dots \dots \dots \text{equation. 1}$$

Where;

Y_i represents the dependent variable; β_0 is constant of the model when all the independent variables are said to be zeros; X_{1i} , X_{2i} and X_{ki} are the independent variables; “i” is the individual company for the estimation and, e_i is the residuals of the model.

The model is depicted below:

$$SRK = f(CSR) + \mu \dots \dots \dots (1)$$

$$SRK_{it} = \beta_0 + \beta_1 ECN_{it} + \beta_2 ENV_{it} + \beta_3 SOC_{it} + \mu_{it} \dots \dots \dots (2)$$

Where:

SRK= Strategic Risk; ECN= Economic Disclosure; ENV=Environmental Disclosure; SOC= Social Disclosure; β_0 = constant; $\beta_1 - \beta_4$ = coefficient of independent variables; μ_1 = error term; i = firm under consideration and t = Time period (in years).

The dependent variable (SRK) is measured as a firm turnover minus the industry's average turnover mean divided by the standard deviation of all firms in the same industry, multiplied by the constant of minus one (Gordon et al., 2009). CSR will be assessed using GRI indicators, which are divided into three categories: environmental, social, and economic disclosure. The independent variable (ECN, SOC and ENV) is measured as the number of dimensions disclosed by a company divided by the total items on each dimension, it will be rated 1 if the company discloses a particular item and 0 if no disclosure is made (Teguh et al., 2021)

Results and discussion

This section presents and discusses the study's data collection. This includes the presentation of descriptive statistics, a correlation matrix, and inferential statistics. To establish the degree of importance between CSR and strategic risk for all the sectors in Nigeria, the study's hypothesis was put to the test.

Table 1. Descriptive Statistics

	Mean	Std. Dev.	Min	max	skewness	kurtosis
srk	.191	.221	-.036	2.443	3.695	5.527
soc	.235	.016	.179	.384	-.142	2.745
env	.561	.665	.315	.646	4.143	3.462
eco	.091	.445	.001	.212	-2.416	6.613

Source: summary of STATA output, 2022

As shown in Table 1, strategic risk (SRK) showed an average of 0.191, suggesting that some of the sampled firms were exposed to strategic risk. Because the standard deviation, with a value of 0.221, is not near to the mean, the data shows that there is substantial diversity among the evaluated firms in terms of their strategic risk exposure. The lowest value of the strategic risk is -0.036 and the greatest value of strategic risk is 2.443. This is an indication that some of the firms are highly exposed to strategic risk.

On the social aspect (SOC), the average reporting rate is 23.5% with a standard deviation of 0.016. The minimum reporting rate is 17.9% while the maximum reporting rate of social responsibility reporting is 38.4% of the total required disclosures. The environmental reasonability disclosure (ENV) has a mean of 56.1% and a corresponding standard deviation of 66.5% meaning that there is wide variation across listed Nigerian firms report regarding their environmental disclosure. The minimum and maximum mean of 0.315 and 0.646 imply that none of the firms report lower or higher than 31.5% and 64.68% of their environmental performance respectively. On the economic dimension (ECO), the average report of the entire firms under consideration stands at 0.091 meaning that, firms report 9.1% of their economic performance. The standard deviation of 44.5% indicates a large divergence among the sampled firms. The minimum mean of 1% signifies that some firms had a very low consideration for economic performance in a particular year. The maximum value of 0.212 emphasizes that all the sampled firms report not more than 21.2% of their economic performance.

The values of skewness, on the other hand, as derived in Table 1 suggest that the data is predicted to be normally distributed, even though it is displayed as negatively skewed. The kurtosis number in Table 1 also indicates that the distribution's peakness is likely to be normal. This is consistent with several studies that demonstrate how the distribution of data may be predicted using skewness and kurtosis (BAI and NG, 2005; Barato & Seifert, 2015; Blanca et al., 2013; Kollo, 2008; Maruyama, 2007; Ryu, 2011).

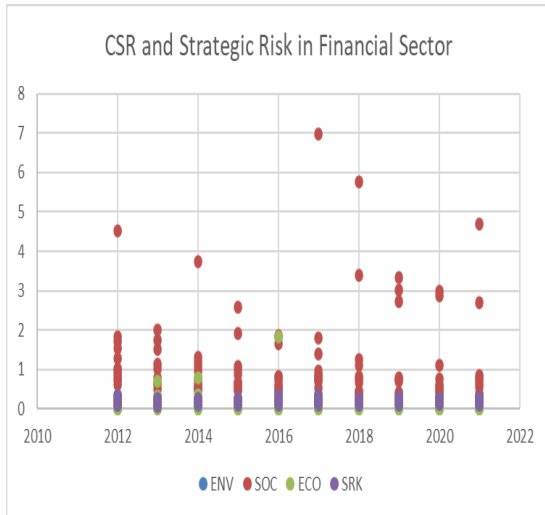


Figure 1. CSR Extent

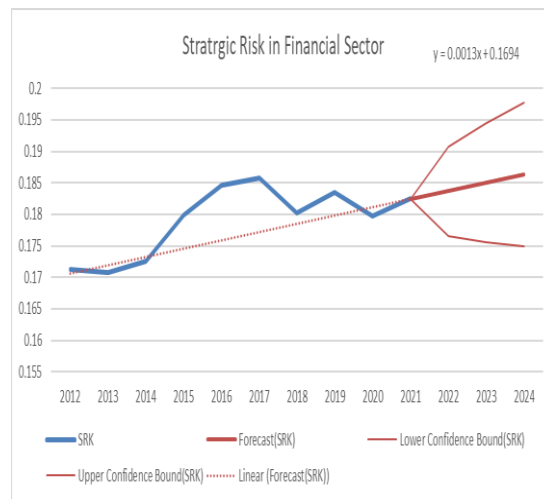


Figure 2. SRK Forecast

Looking at Figure 1, the chart flow revealed that financial institutions pay more attention to their social responsibility as compared to their environmental and economic responsibility. In addition, the chart reveals a decrease in the sector's CSR engagement towards 2020 but was at its peak in 2017. While strategic risk maintained the same for the period under study. On the other hand, the forecast result in Figure 2 reveals a steady increase in SRK from 2022 to 2024. Though there was an erratic flow of SRK until it reached its peak between 2016 and 2017, which could be a result of the global financial crisis and national economic recession that hits the financial sector in 2015 and 2016 respectively. The implication of a further increase of SRK in 2024 despite the presence of CSR signifies its minimum influence on the financial sector's SRK.

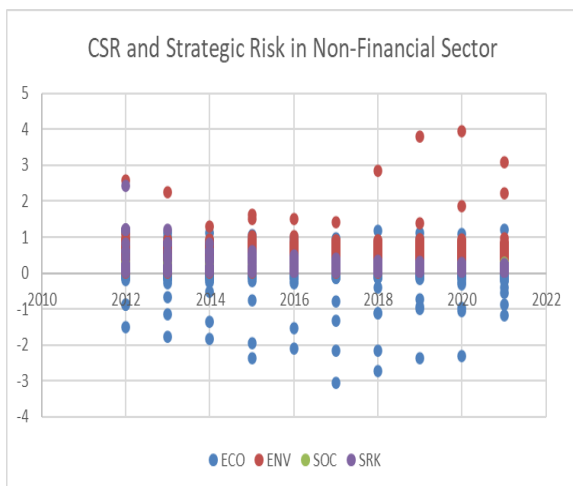


Figure 3. CSR Extent



Figure 4. SRK Forecast

As shown in Figure 3, the chart flow revealed that the non-financial institutions pay more attention to their environmental responsibility than economic and social responsibility under study though at a level greater than that of financial institutions. The chart revealed that the lower the CSR, the higher the SRK and vice versa. On the other hand, the forecast result in Figure 4 reveals a continuous reduction in SRK, which correspond to the result obtained in Figure 3 because of the increase in CSR. The inference of a lingering diminution of SRK till 2024 expresses the importance of CSR in plummeting the level of SRK in the non-financial sector.

Table 2. Matrix of Correlations Financial Sector (Model One)

Variables	(1)	(2)	(3)	(4)
(1) srk	1.000			
(2) soc	-0.096* (0.019)	1.000		
(3) env	-0.109* (0.007)	0.065 (0.114)	1.000	
(4) eco	0.005 (0.902)	-0.067 (0.101)	-0.023 (0.576)	1.000
Non-Financial Sector (Model Two)				
(1) srk	1.000			
(2) soc	-0.196* (0.003)	1.000		
(3) env	-0.339* (0.000)	-0.002 (0.975)	1.000	
(4) eco	-0.024 (0.720)	-0.100 (0.131)	0.059 (0.377)	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Source: summary of STATA output, 2022

Table 2 shows the existence of a negative correlation between strategic risk (SRK) and the independent variables under investigation (ENV, SOC, ECO). However, strategic risk and economic responsibility are found to be positively correlated in Model One. Given the relationship between CSR indicators and strategic risk, it was found that social responsibility, environmental responsibility, and economic responsibility are negatively correlated with strategic risk when considering data from the sampled non-financial sector. On the other hand, the prevalence of multicollinearity among the explanatory variables established a weak relationship. To prove otherwise, however, a comparative analysis of tolerance value and variance inflation factor (VIF) is required beyond their benchmark for the rule of thumb. To that effect, tolerance values and variance inflation factor (VIF) are an advanced statistical assessment of the prevalence of multicollinearity among the regressed variable.

Diagnostics tests

To ensure the validity and reliability of the statistical inference of the regression model, robustness tests were conducted. The robustness tests conducted include a test for multicollinearity, vif, Hausman specification test, autocorrelation heteroskedasticity, and normality of residual.

Table 3. Variance inflation factor (VIF)

Financial			Non-Financial	
Variables	VIF	1/VIF	VIF	1/VIF
Soc	1.009	.992	1.014	.987
Eco	1.005	.995	1.01	.99
Env	1.005	.995	1.003	.997
Mean VIF	1.006		1.009	

Source: summary of STATA OUTPUT, 2022

The value of variance inflation factors in Table 3 indicates a constant fall below 10, implying that multicollinearity does not exist because of the value in the class boundary of 0 to 10. Furthermore, tolerance levels consistently increased beyond the 10% threshold. This confirms the absence of multicollinearity among the independent variables (Neter et al., 1996; Tabachnick & Fidell, 2013). The outcomes of these empirical experiments confirm that the lack of multicollinearity does not influence the statistical conclusions drawn from this study.

Table 4. Model One (Fin Sector): $SR_{it} = g(\text{SOC} + \text{ECO} + \text{ENV})$

Tests	Hetest	Autocorr	SWilk
Chi2	25.45	56.263	2.51
P-value	0.000	0.000	0.055
Mode Two (Non-Financial Sector): $SRK_{it} = g(\text{SOC} + \text{ECO} + \text{ENV})$			
Chi2	2.55	110.226	0.327
P-value	0.11	0.000	0.173

Source: summary of STATA OUTPUT, 2022

The study adopted Breusch-Pagan to test for the existence of heteroskedasticity. The study revealed a Chi-Square of 25.45 with a p-value of 0.000 for Model One; Model Two has a corresponding P-value of 0.11 and a Chi-Square of 2.55. This implies the presence of heteroskedasticity for model one; it also means that the constant residual (homoscedastic) and the null hypothesis is rejected for model one while accepted for the second model. The presence of auto/serial correlation violates the assumption of longitudinal data which is one key attribute of panel data. The Wooldridge test for autocorrelation was adopted to test for the presence/absence of auto/serial correlation. The criteria were to accept $H_0 = \text{No Autocorrelation}$ if P-value is greater than 5% and accept $H_1 = \text{Presence of Autocorrelation}$ if P-value is less than 5%. The result obtained from the table above shows that there exists an issue of Auto/serial correlation in Model One and Two as the P-values (0.000) are less than 1%. Additionally, the normality of the data distribution is a crucial assumption of linear regression and is required for parametric test analysis. This is because one requirement of a parametric test for generalization is that the data be normally distributed across the variables (Park, 2008). However, it was suggested that the normality test should be performed on the model's residuals rather

than the actual data since the dependent variable dictates the kind of parametric analysis that should be performed (Ghasemiand Zahediasl, 2012). Therefore, this research used Shapiro-Wilk to perform a normality test on the model's residuals. The null hypothesis that the data are normally distributed across the model cannot be rejected since the value is larger than 0.05 as shown in the table at a 5% level of significance.

Table 5. Model One Regression Results

VARIABLES	(1) SrK(FE)	(1) SrK(RE)	(1) SrK(OLS)	(2) SrK (FE)	(2) SrK(RE)	(2) SrK(OLS)
Soc	-8.168*** (1.415)	-4.440*** (1.014)	-1.228** (0.562)	-0.000411 (0.00206)	-7.53e-05 (0.00203)	-0.00981*** (0.00303)
Env	-0.106*** (0.0233)	-0.0889*** (0.0225)	-0.0629** (0.0246)	-0.0853 (0.0728)	0.115 (0.0703)	0.426*** (0.0773)
Eco	-0.00676 (0.0199)	-0.00371 (0.0192)	-0.00165 (0.0202)	-0.00371 (0.00928)	-0.00378 (0.00928)	-0.00769 (0.0198)
Constant	2.168*** (0.335)	1.283*** (0.241)	0.514*** (0.132)	0.164*** (0.0126)	0.160*** (0.0150)	0.113*** (0.0138)
Observations	600	600	600	230	230	230
R-squared	0.078		0.020	0.008		0.154
Hausman p-value		0.3208			0.0000	
Standard errors in parentheses						

*** P-value is less than 0.01, ** P-value is less than 0.05, * P-value is less than 0.1 %

Source: summary of STATA OUTPUT, 2022

Table 5 shows the summary of the regression result and the Hausman specification test to ensure an appropriate technique is selected. The study conducted the Hausman specification test after fixed and random tests were carried out for the first and second model. The essence of the Hausman specification test is to choose an alternative model preferably between random and fixed-effect model. Hausman specification test produced a p-value of 0.3208 for Model One, which is insignificant. This implies that variation among the sampled firm is presumably random and congruent with an independent variable in the model specification and presumably random. The result of Hausman for the second Model was in favor of fixed effect as it is statistically proven with a P-value of 0.000. Due to the presence of heteroskedasticity, the study further conducts a generalized least square (GLS) model which overcomes the heteroskedasticity issues. Thus, this study report GLS model results as suggested by (Wooldridge, 2012) based on the issues raised for Model One and Panel Corrected Standard Error (PCSE) for Model Two.

The research considered stochastic frontier analysis for production function, which links an upper limit of the maximum achievable output to any given quantities of a set of inputs in a production process, in addition to PCSE and GLS (see Farrell, 1957; Forsund et al., 1985). The Cobb-Douglas production function with a composite error structure is the most popular model specification for a stochastic frontier function in the field of economics. With the exception of Pitt and Lee (1981), previous work on production frontiers has assumed error terms that are independently distributed among observations; this assumption is feasible only in a (single) cross-section. As a result, earlier empirical implementations of the frontier model relied on cross-sectional data. Modifying the current frontier model to incorporate the inclusion of panel data has a lot of potential benefits. It is expected that a normal regression

model with regression parameters corresponding to both the frontier and the inefficiency terms would generate useful insights to derive a wide framework.

Table 6. Model One

Stoc. frontier normal/half-normal model		Cross-sectional time-series FGLS		
Srk	Coef.	p-value	Coef.	p-value
Soc	-.01	.001	-.01	.001
Env	-.008	.696	-.008	.696
Eco	-.426	.000	.426	.000
Constant	.113	.000	.113	.000
Constant	-6.299	.000		
Constant	-15.596	.916		
Chi-square	41.903	Prob > chi2	1.000	
Prob > chi2	0.000	Chi-square	12.153	
Number of obs			230.000	

Source: summary of STATA OUTPUT, 2022

The result in Table 6 is obtained from the feasible generalized least square (FGLS) and Frontier model, which is interpreted after all relevant tests are statistically significant at 1% as indicated with a p-value of 0.0000. Furthermore, the result shows that social and economic engagement by the financial institution as shown in Table 6 signifies a negative and significant influence on strategic risk. This implies that when there is an increase in social and economic responsibility, there is every likelihood of a reduction in strategic risk, this is statistically proven with the coefficients of -0.1 and -0.008 with p-values of 0.001 and 0.00. This means the risk associated with revenue turnover based on the measurement adopted will be reduced if the financial institution tends to be more socially and economically responsible. Thus, the study accepts the hypothesis which states that social and economic reasonability discourse has a significant effect on strategic risk in the financial sector. The result in Table 6 shows that the relationship between environmental responsibility and strategic risk is not significant. This provides evidence to reject the hypothesis, which states that environmental reasonability discourse has a significant effect on strategic risk in the financial sector. This also corroborates the result obtained in figure1 that the financial sector tends to be more socially and economically responsible. According to risk management theory, CSR initiatives have a risk-reducing impact (Godfrey, 2005; Bouslah et al., 2013; Sassen et al., 2016).

Table 7. Model two

Stoc. frontier normal/half-normal model		Panel Corrected Standard Error		
Srk	Coef.	p-value	Coef.	p-value
Soc	-1.228	.028	-1.228	.028
Env	-.063	.01	-.063	.01
Eco	-.002	.935	-.002	.935
Constant	.515	.000	.514	.000
Constant	-3.039	0000		
Constant	-13.895	.922		
Chi-square	12.153	Prob > chi2	1.000	
Prob > chi2	0.007	Chi-square	12.153	
Number of obs		600.000		

Source: summary of STATA OUTPUT, 2022

Table 7 shows the results of the panel corrected the standard error (PCSE) and Frontier model, which was interpreted after running all relevant tests. The results are statistically significant at 1%, as indicated by a p-value of 0.0000. Furthermore, the result from PCSE and Frontier Model Reveals that social and environmental responsibility engagement in the non-financial sector has a negative and significant influence on strategic risk, implying that when social and environmental responsibility is increased, strategic risk is reduced. The reduction of pollution and emissions of greenhouse gases as well as the responsible and sustainable use of natural resources are geared towards promoting responsible environmental behavior. This provides evidence to accept the hypothesis which states that social and environmental responsibility have a significant effect on strategic risk. This is in tandem with the proposition of stakeholders' theory and the assertion of Donaldson et al. (1995), that investors advocate for new incentive and distribution systems that represent the long-term risk of the company rather than the short-term risk of the firm. However, the relationship between economic responsibility and SRK is not significant.

Confirmatory factor analysis

Table 8. CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	90	2646.842	599	.000	2.923
Independence model	40	12212.667	599	.000	16.782

Source: AMOS Version 21.0

Table 9. RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	.052	.710	.738	.685
Independence model	.685	.087	.040	.075

Source: AMOS Version 21.0

Table 10. Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.886	.832	.886	.821	.886
Independence model	.000	.000	.000	.000	.000

Source: AMOS Version 21.0

Table 11. Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.951	.744	.817
Independence model	1.000	.000	.000

Source: AMOS Version 21.0

Table 12. NCP

Model	NCP	LO 90	HI 90
Default model	1603.841	1269.236	1546.035
Independence model	15509.428	11942.153	12683.590

Source: AMOS Version 21.0

Table 13. RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.072	.052	.075	.000
Independence model	.216	.201	.213	.000

Source: AMOS Version 21.0

As indicated in the AMOS result, NPAR, CMIN, DF (degrees of freedom), P (probability value), and CMIN/DF are the first things to look at. NPAR, CMIN, and DF are among the second set of fit statistics. Under CMIN, the result of 12212.667 indicates the X2 Likelihood Ratio Test statistic, which reflects the discrepancy between the unconstrained sample covariance matrix X2 and the restricted sample covariance matrix. Table 8 reveals X2 = 26463.842 with 599 degrees of freedom and a probability of less than .0001 (1 percent), indicating that the data does not completely fit the projected model and therefore the model is ineffective. The null hypothesis in the model is improbable (happens fewer than once in 1,000 times), hence this test statistic suggests adapting it based on the data.

Although, the Likelihood Ratio Test has well-known fit difficulties due to its sensitivity to sample size and reliance on the central X2 distribution, which presupposes the model fits perfectly in the population (i.e., H0 is true). The X2 statistic is likely to be significant when the model fails, and the sample size is big (Jöreskog & Sörbom, 1993). The X2 difficulties were handled by developing more meaningful goodness-of-fit indexes. The degree of freedom ratio (CMIN/DF) was presented by Wheaton et al. (1977) as a solution to this issue. If the CMIN/DF ratio is more than three, the model is fit. A CMIN/DF of 3 indicates a reasonable match between the hypothetical model and sample data, according to Kline (1998). The GFI and AGFI values in Table 9 indicate that our anticipated model closely matches the sample data (.710 and .738, respectively). According to Marsh et al. (1988), the sample size has no impact on TFL. TFI values of .90 or .95 are acceptable, even though they are lower than GFI (Hu & Bentler, 1999). The CFI (.886) in Table 10 suggests that the model fits the sample data well. The NFI score indicated that model fit was only satisfactory to a degree (.886). The RFI coefficients range from 0 to 1, with values near .886 suggesting a better match. RFI coefficients, like NFI and CFI, range from zero to one (see Hu & Bentler, 1999). With the Normalized Index of Fit, Bollen (1986) established the Incremental Index of Fit to overcome parsimony and sample size concerns

(NIF). Its calculation is almost identical to the NFI's, but the degree of freedom is taken into account. The IFI of .886 agrees with the CFI in suggesting a well-fitting model, as the CFI reveals. TLI (Tucker and Lewis, 1973) scores range from 0 to 1, with values near .821 (for large samples) suggesting a strong match (see Hu & Bentler, 1999). The first parsimony ratio, (PRATIO), was established by James et al. (1982), and it has subsequently been linked to other goodness-of-fit indexes (PGFI). NFI and CFI are used to calculate it. When calculating fitness, model complexity is considered in all circumstances, just as it is with PGFI (James et al., 1982). With a PNFI of .744 and a PCFI of .817, the model is well matched (see Table 11). The noncentrality parameter (NCP) of the model is 1603.841. Subtract X2 from the total number of degrees of freedom (820 - 90). The population value of the noncentrality parameter is between 1269.236 and 1546.035, according to the confidence interval. RMSEA should be less than .08 and preferably less than 05, according to Browne & Cudeck (1993). The upper confidence interval for the RMSEA should not be more than .08 (Hu & Bentler, 1999). The fit cutoffs utilized by MacCallum, Browne, and Sugawara (1996) were 0.01, 0.05, and 0.08. According to the literature, RMSEA is suitable and fits according to the result in Table 13.

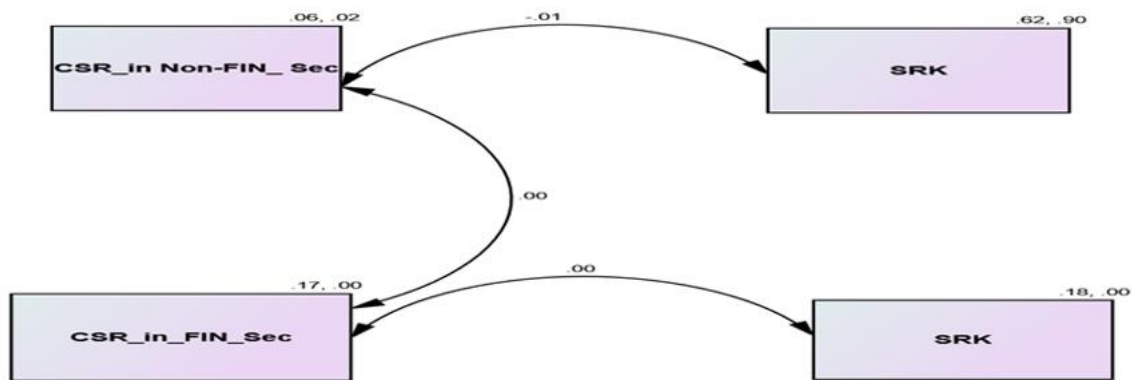


Figure 6. AMOS Correlation PATH
Source: AMOS-SEM

The study looked at the holistic effect of CSR on SRK in both sectors, as shown in Figure 6, an increase in CSR in the non-financial firms will reduce the strategic risk as proven with a coefficient of -0.01. On the other hand, there is almost zero relationship between CSR and SRK in the financial sector with the coefficient of 0.00. This contradicts the result obtained from GLS and Frontier model that an increase in SOC and ECO will to a large extent reduces strategic risk. The result also supports (Mackenzie, 2015) who affirms that with entry of firms specialized in integrating finance and technology, banks and other financial institutions are confronting increased degrees of strategic risk under present market circumstances (commonly referred to as Fintechs). Fintechs compete with banks in sectors such as loans, investments, and digital payments, which have historically been lucrative for and controlled by financial institutions and banks). According to a poll (PwC, 2016), 95% of responding financial institutions believe that the expansion of Fintechs is endangering their business. These institutions claim that 24% of their business is at risk. According to Noonan (2016), the expansion of Fintech businesses is expected to result in the loss of around two million financial institutions' employment. The further revealed that an increase in CSR in the non-financial sector

may not necessitate an increase in CSR in the financial sector. This is further proven by the T-test result below in Tables 14 and 15.

T-test Result

Table 14. Unpaired T-test: CSR_Non_Fin CSR_Fin

	Mean1	Mean2	dif	St Err	t value	p value
CSR Non Fin - CSR ~	-.003	.172	-.174	.047	-3.7	.001

Table 15. Unpaired t test: SRK_Non_Fin SRK_Fin

	Mean1	Mean2	dif	St Err	t value	p value
SRK Non Fin - SRK ~	.169	.618	-.449	.061	-7.35	.000

Source: summary of STATA OUTPUT, 2022

The result from the T-test shows a difference between CSR engagement in the financial sector and in the non-financial sector which is significant. This is statistically proven with a mean difference of 174 and a p-value of 0.001. This implies that the two sectors engage in CSR at different levels. In addition, this result confirms different levels of strategic risk exposure by the sectors with a mean difference of 449 and a p-value of 0.000, which indicates that the difference is significant. The implication is that the sectors engage in different products and services and the tendency of having different exposure may be a result of individual's mode of business operations.

Conclusion and recommendation

Prior studies have shown a link between CSR and risk, arguing that adopting CSR practices as part of a firm's corporate objectives will considerably minimize risk exposure, creating a competitive advantage that could increase overall performance. This study builds on the prior literature by demonstrating that CSR reduces several forms of business risks. The author demonstrate that a company's strong social performance minimizes its strategic risk. The complex relationship between corporations' strategic risk and their engagement in social, economic, and environmental obligation is therefore investigated.

The result shows that, based on evidence from Nigerian firms in the financial and non-financial sector from 2012 to 2021, Corporate Social Responsibility has a negative effect on strategic risk, and this differs between these sectors based on comparative analysis results obtained from the T-test. It was also revealed that CSR in one sector may not necessitate an increase in CSR in another sector. That is, CSR engagement has an effect but with different outcomes according to the confirmatory factor analysis result, which contradicts the evidence obtained from Frontier Model, PCSE and GLS that both sectors would have similar outcome if effectively engage in CSR; though, the difference occurred between ECO and ENV. According to the models, economic responsibility in the financial sector has more effect than in the non-financial sector, while environmental responsibility has a significant effect on the non-financial sector as compared to the financial firms. This study, therefore, concludes that CSR has a significant effect on SRK at different levels. The findings of this study support the view that investing in CSR function as an effective risk

mitigator. A substantial body of literature suggests that CSR boosts firm valuation while decreasing firm risk. Most of the existing evidence indicate a negative relationship between CSR and various firm risk metrics. The evidence from this study is consistent with the prior evidence. The findings support assertions that CSR when incorporated into various corporate practices, can potentially mitigate risk while improving performance. The findings of this study agree with the notion that "doing good is good for business" (Buchanan et al. 2018).

Management of strategic risks will need to become more thoroughly integrated into corporate strategy as the capacity to listen to business stakeholders' viewpoints on social and environmental issues becomes a competitive need. Hence, Nigerian firms need CSR programs as they offer the structure and principles for stakeholder engagement, giving a wealth of knowledge about new and present social issues/groups to assist the corporate risk agenda, and ultimately act as a countermeasure to social risk. The study, therefore, recommends that non-financial sector risk management must be altered to integrate corporate social responsibility activities. The financial sector must be creative to not only see but also grasp these risks in the environment, as well as adapt risk management systems to include new technologies and network-based models of information sharing. Finally, a realistic technique for assessing a company's CSR policy should be employed. This could be done by examining how a firm's implied volatility alters as its CSR policy changes and comparing it to that of its competitors, thereby, enabling a firm to identify appropriate CSR-based risk-management policies. This study is limited to Nigeria due to idiosyncratic factors and as such, the author proposes that future studies be undertaken in other countries, notably in Africa, where there is a scarcity of research.

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