Article

Chief Executive Officers and Bankruptcy Risk: Evidence from Quoted Resources Firms in Nigeria

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Onipe, Adabenege Yahaya
Nigerian Defence Academy, Kaduna, Nigeria

Benjamin, Iorsue Awen
Federal College of Education, Zaria, Nigeria

Abstract
Despite the growing interest in the role of chief executive officers in their companies' bankruptcies, very few studies have examined the nexus between chief executive officers and bankruptcy risk in Nigeria. This paper interrogates whether or not chief executive officers influence financial distress among quoted resources corporations. Data were obtained from Machameratios, a corporation which specializes in data mining for a period of 10 years (2010-2019). The data were subject of descriptive statistics such as number of observations, minimum mean, maximum mean, average mean, standard deviation and inferential statistics such as correlation matrix and multiple regression based on random effect model, which was arrived at after conducting Hausman specification check. Diagnostic checks such as normality, multicollinearity, heteroskedasticity and Breusch and Pagan Lagrangian multiplier test for random effects were carried out before arriving at decisions. Findings showed that both chief executive officers' duality, nationality, gender, and turnover are not significant. However, the paper found chief executive officers' tenure significant and positive and ownership to be negative but significant. As a result of these findings, it was suggested that the tenure of CEOs should be elongated while the percentage of their shares ownerships should be reduced.

Keywords
Bankruptcy, chief executive officers, corporations, Nigeria, risk

Introduction

Corporations play a vital role in economic growth and development in any society, developed and developing. They also provide jobs to employees, tax income to governments/regulators, dividend and capital gains to shareholders/investors, activities to creditors/suppliers, information to the media/press, businesses to partners, goods and services to customers/users, and

Corresponding author:
Adabenege Yahaya Onipe, Department of Accounting, Faculty of Management Sciences, Nigerian Defence Academy, Kaduna, Nigeria

support charities and special interest organizations. They also assist in stabilizing trade groups and community groups.

Companies help keep competition going, which in turn is healthy for the economy and business. Despite these roles, there are few empirical works that interrogate whether the chief executive officer, otherwise, known as CEO has role to play in ensuring that corporations stay alive so that they will avoid bankruptcy risk. While there are many factors that determine bankruptcy risk in Nigeria such as financial crisis, blindness, ignorance and inappropriate activities; this paper concentrates on the role of the chief executive officers in bankruptcy risk.

Bankruptcy risk is not a new thing. It does not happen suddenly. It takes series of actions over time to manifest. It is simply a continuous thing, comprising sets of wrong decisions, which may culminate into corporate failure. Like aero plane, firms do not fail suddenly. They failed due to inappropriate series of actions due to error Type I and Type II. It is the risk that a firm will be unable to meet its debt obligations, otherwise referred to as default or insolvency risk (NASDQ, 2021). It is also known as insolvency risk. It measures the danger that a company is unable to its obligations. It is the chances that the firm will become insolvent because it is unable to pay its debt to debt-holders or creditors. Many investors consider this before making the decision to invest in a corporation.

Bankruptcy risk is a legally declared inability or impairment of ability of an individual or organization to pay its creditors. Creditors may file a bankruptcy petition against a debtor (involuntary bankruptcy) in an effort to recoup a portion of what they are owed or initiate a restructuring. In the majority of cases, however, bankruptcy is initiated by the debtor (a voluntary bankruptcy) that is filed by the insolvent individual or organization. It is true that we are in a new era of bankruptcy risk. With an increase in the number of filed bankruptcies and the changing nature of corporation failures, the conventional approaches to identifying bankruptcy risk should be revisited to determine the best approach in this new evolved environment.

It is important to note that economic pressures like the current downturn as result of COVID-19 and fundamental changes such as new technology have raised the risk of bankruptcies. A bankruptcy risk score is a number that indicates the likelihood of an individual filing for bankruptcy. Although it has been used for over twenty years to assess risk in lending, few people are aware of it. It is related to the better-known credit score, but unlike credit scores, bankruptcy risk scores are not sold to consumers by any of the credit bureaus. Consequentially, individuals have little or no way of knowing what their bankruptcy risk scores are or how to adjust them downward. This is also referred to as debt analysis which allows lenders the ability to assess a customers' risk in taking out a loan. One can improve their score by paying bills on time, keeping balances low, and having few revolving accounts.

The chief executive officer is the person charged with responsibility to oversee the management of corporation. CEOs are usually assisted by executive directors and non-executive directors, who attend board of directors' meeting when they are called to do so. The chief executive officer reports to the board of directors which in turn reports to shareholders. CEOs implement the decisions of the board of directors and held accountable for the direction of their companies.

Among the roles of CEOs include addressing the media/press or communicating to employees, or communicating results to the outside world, or negotiating deals with partners. CEOs are public face of corporations and well known by the public. CEOs are known by their characteristics such as duality (serving also as the board chairman), nationality, gender, tenure, turnover and share ownership. Their impacts are known through these traits and this paper follows the same pattern. They are the highest-ranking officers of the companies and elected by the board and shareholders. The CEO role varies from corporation to corporation depending on its technology, system, size, strategy, culture and size.

On the average, CEOs of fairly large-sized firms undergo only strategic decisions to avoid inertia and complacency. They allowed decisions to be decentralized through the organizational structure of the firm. In smaller-sized firms, CEOs may be reached because they are hands-on easily. Some are household names because of their regularities in addressing the media/press. Some also double as the board chairman, known as CEO duality (ceod). Others are known for their nationality (ceon), gender (ceog), tenure (ceot), turnover (ceotu) and ownership of shares (ceoo) in this paper.

The quoted resources companies are 16 made up of forest companies, oil palm, rock mining, livestock feed, oil services, cocoa, lube marketing, petrol stations, industrial gas, integrated oil and aluminium. Undergoing a study in this sector is both apt and important considering the importance of the sector to the economy.

The study has the following hypotheses:

HO_1: CEO duality does not significantly affect bankruptcy.
HO_2: CEO nationality has no significant impact on bankruptcy
HO_3: CEO gender has no significant impact on bankruptcy
HO_4: CEO tenure has no significant influence on bankruptcy risk
HO_5: CEO turnover has no significant impact on bankruptcy
HO_6: CEO ownership has no significant impact on bankruptcy failure

Literature Review

This paper was written based on the firm life cycle theory propounded by Coase (1937) which states that the ability deteriorates over time as it operates in the future. In the words of Yahaya and Onyabe (2020), firms undergo life cycle in 5 stages: birth, growth, shake-out, maturity and decline to survive

existence, boundaries, organization, heterogeneity and evidence. CEOs manifest through several of their traits and these affect bankruptcy risk.

CEO duality happens when the person serves as CEO/Chairman. Kolias and et al. (2019) conducted a study over 10 years and concluded that CEO duality and bankruptcy are in the same direction and therefore should be separated. In opposition to the result, Brockmann et al. (2004) examined 252 companies that filed for bankruptcy and concluded that CEO duality lowers the risk of failure. Kim and Buchanan (2008) carried out a study on 290 corporations and concluded that there was reduced risk in CEO duality relative to business failure. However, Akhmetova and Batomunkueva (2014) did not find CEO duality in Sweden and Denmark.

CEO nationality influences bankruptcy risk. Eckbo and Thorburn (2016) concluded that CEOs are associated with bankruptcy risk. Li et al. (2019) added their voices by saying that CEOs have predictive powers in addition to other things that led to bankruptcy risk. Weinberger (2020) studied corporations in USA and concluded that CEOs can save corporations from bankruptcy failure. Chowdhury (2020) said CEOs may mitigate bankruptcy risk. Repko (2020) said CEOs can help corporations exit bankruptcy. Mistry (2020) concluded that some CEOs may save the organizations from bankruptcy failure.

The gender of CEO is important as demonstrated by previous studies. Elsaid (2014) conducted a study of 46 CEOs and concluded decrease in bankruptcy as a result of change in CEO gender. Skała and Weill (2018) did a study and concluded that female CEOs are known to take risk reduction measures to avert bankruptcy. Noveriera and Adhariani (2018) concluded that female CEOs showed higher risk levels to bankruptcy.

CEO tenure influences bankruptcy risk. For example, Yu and Thuan (2014) found tenure to significantly influence bankruptcy risk among USA corporations. Hung and Tsai (2019) concluded that CEO tenure reduces bankruptcy risk. Gustafsson and Uysal (2018) failed to associate CEO tenure with bankruptcy risk. Zahra et al. (2018) in Pakistan concluded that CEO tenure reduced the risk of bankruptcy. CEO turnover affects bankruptcy risk. For example, Mokarami and Motefares (2013) argued that it had significant association with bankruptcy risk. Lin et al. (2020) concluded that CEO turnover was positively associated with bankruptcy risk. CEO ownership affects business bankruptcy risk. Zahra et al. (2018) said that CEO ownership reduced the risk of bankruptcy. Garba and Mohamed (2018) agreed that ownership had negative influence on bankruptcy risk.

Methodology

The paper is correlational comparing the influence of CEO characteristics on bankruptcy risk. The population and sample are 16. Given the small size, both population and sample are the same. The model is adapted from the work of Yu et al. (2014) with the addition of chief executive turnover and ownership structure as follows:

$$\mathbf{bari_{it} = \beta_0 + \beta_1 ceod_{it} + \beta_2 ceon_{it} + \beta_3 ceog_{it} + \beta_4 ceot_{it} + \beta_5 ceotu_{it} + \beta_6 ceoo_{it} + \varepsilon_{it}}$$

Whereas:
bari = Bankruptcy risk, calculated by Altman Z-score as 1.2 (ZSC1) +1.4(ZSC2t) +3.3(ZSC3) +0.6(ZSC4) +1.0(ZSC5). Working capital to asset (ZSC1), profit after tax to asset (ZSC2), earnings before interest and taxes to asset (ZSC3), market equity value to debt (ZSC4) and revenue to asset (ZSC5).
β_0 = Constant
β_1- β_6 = Coefficients
ceod = CEO duality, computed in dummy (1,0) is computed as "1" for firms with a CEO that is separated from the chairman and "0" otherwise.
ceon = CEO nationality, in dummy (1,0) is computed as "1" for firms that have foreign CEOs and "0" otherwise.
ceog = CEO gender, in dummy (1,0) is computed as "1" for corporations that have Female CEOs and "0" otherwise.
ceot = CEO tenure, in dummy (1,0) is computed as "1" for corporations that have CEOs that have to stay for 3 years and "0" for CEOs with less than 3 years of engagement.
ceotu = CEO turnover, in dummy (1,0) is computed as "1" for corporations that have a change of CEOs in a particular year and "0" otherwise.
ceoo = CEO ownership, in percentage is computed as CEO shares to total outstanding shares.
ε = Idiosyncratic error term
i = Firm script
t = Period script

The data were analyzed and diagnosed using both descriptive and inferential statistics. The results were accepted or rejected at 5% level. The coefficients were also used to explain the results of multiple regression.

Empirical Findings

The findings are presented in Tables 1-8. Descriptive statistics are presented in Table 1, normality test findings in Table 2, correlation matrix in Table 3, linearity test findings in Table 4, heteroskedasticity test results in Table 5, Breusch-Pagan Lagrangian Multiplier test rest in Table 6, Hausman specification test results in Table 7 and REM-GLS regression results in Table 8.

Table 1: Descriptive Statistics

Vari	Observ	Mean	Std. Dev.	Mini	Maxi
Bari	160	2.227	2.016	-3.203	8.493
Ceod	160	.919	.274	0	1
Ceon	160	.263	.441	0	1
Ceog	160	.019	.136	0	1
Ceot	160	.681	.467	0	1
Ceotu	160	.194	.396	0	1
Ceoo	160	2.550	6.772	0	25.081

STATA 13 Outputs

As indicated, there are equal number of observation (160), consisting of 16 firms over 10-year period. The average for bari was 2.227, std. dev. was 2.016, mini was -3.203 and maxi was 8.493. The mean for ceod was .919, std. dev. was .274, mini was 0 and maxi was 1. Similarly, average for ceon was .263, std. dev. was .441, mini was 0 and maxi was 1. Mean for ceog was .019, std. dev. was .136, mini was 0 and maxi was 1. Furthermore, mean for ceot was .681, std. dev. was .467, mini was 0 and maxi was 1. The average for ceotu was .194, std. dev. was .396, mini was 0 and maxi was 1. ceoo has an average of 2.550 shares, std. dev. 6.772 shares and mini 0 and maxi 25 shares approximately. A closer look at the model suggests that it had higher mean than standard deviation.

Table 2: Chens Normality Results

Vari	Obs	QH	QH*	P-value
Bari	160	1.001	-0.008	< 0.099
Ceod	160	1.461	-5.826	> 0.200
Ceon	160	0.496	6.380	< 0.000
Ceog	160	0.248	9.508	< 0.000
Ceot	160	0.794	2.612	< 0.000
Ceotu	160	0.448	6.982	< 0.000
Ceoo	160	0.587	5.219	< 0.000

STATA 13 Outputs

From Table 2, all the variables with the exception of ceod are significant, meaning that they are not normally distributed. This final regression equation requires treatment of robustness.

Table 3: Correlation Matrix

Vari	ceod	ceon	ceog	ceot	ceotu	Ceoo	lage
Ceod	1.000						
Ceon	0.177*	1.000					
	0.025						
Ceog	0.041	-0.083	1.000				
	0.606	0.300					
Ceot	-0.007	-0.049	-0.202*	1.000			
	0.929	0.537	0.010				
Ceotu	0.146	0.031	0.282*	-0.649*	1.000		
	0.066	0.697	0.000	0.000			
Ceoo	0.112	-0.225*	-0.052	0.229*	-0.167*	1.000	
	0.158	0.004	0.512	0.004	0.035		
Lage	-0.144	0.080	0.125	-0.157*	0.148	-0.583*	1.000
	0.069	0.317	0.115	0.047	0.062	0.000	

STATA 13 Outputs

The results in Table 3 showed that there was no collearity among the predictors.

Table 4: Linearity Findings

Vari	VIF	1/VIF
Ceotu	1.87	0.534
Ceot	1.79	0.558
Ceoo	1.65	0.605
Ceon	1.12	0.895
Ceod	1.12	0.897
Ceog	1.11	0.901
Mean VIF	1.46	

STATA 13 Outputs

The variance inflation factor and tolerance level were computed and their results showed same results as contained in Table 4. None of the VIF figures were up to 3.3, which was the threshold required for presence of multicollinearity.

Table 5: Heteroskedasticity Results

Source	chi^2	df	p
Heteroskedasticity	51.00	21	0.000
Skewness	8.44	7	0.295
Kurtosis	3.66	1	0.056
Total	63.10	29	0.000

STATA 13 Outputs

As indicated in Table 5, the probability of heteroskedasticity was significant, that implies the presence of heteroskedasticity. Skewness and kurtosis measure the shape and symmetry of the data set. The kurtosis was larger than 3,

meaning that the data set has larger tail than normal distribution, suggesting that the data set was normally distributed.

Table 6: Panel effect Findings

	Vari	sd = sqrt (Vari)
Bari	4.064	2.016
E	1.603	1.266
U	2.180	1.477
$chibar^2(01)$	112.20	
Prob > $chibar^2$	0.000	

STATA 13 Outputs

A look at the results in Table 6 suggests that probability value was significant, implying there was panel effect. Thus, OLS was not appropriate and need for REM or FEM.

Table 7: Hausman Specification Test Result

Vari	Fixed	Random	Difference	Standard error
Ceod	.131	.206	-.075	.157
Ceon	-.284	.016	-.300	.168
Ceog	-.860	-.755	-.106	.120
Ceot	.820	.844	-.024	.064
Ceotu	.659	.658	.001	.033
Ceoo	-.012	-.032	.019	.015
$chi^2(6)$	5.15			
Prob>chi^2	0.525			

STATA 13 Outputs

The results in Table 7 showed that the probability was not significant, suggesting a REM for the paper.

Table 8: Random-effects GLS Regression

bari	Coef.	Robust Std. Err.	z	P>z	[95% Conf.	Interval]
ceod	.249	.616	0.40	0.686	-.958	1.455
ceon	.056	.336	0.16	0.869	-.604	.715
ceog	-.702	.456	-1.54	0.124	-1.595	.192
ceot	.856	.310	2.76	0.006	.249	1.463
ceotu	.675	.449	1.50	0.133	-.205	1.554
ceoo	-.050	.017	-2.92	0.003	-.084	-.017
_cons	1.412	.598	2.36	0.018	.240	2.583

Wald $chi^2(6) = 22.98$
Probability > chi square = 0.001
$R^2 = 0.192$

STATA 13 Outputs

From the results in Table 8, it can be deduced that ceod, ceon, ceog and ceotu are insignificant. They can be removed from the model. However, ceot and ceoo are significant. While, ceot showed positive and significant influence, ceoo showed negative and significant influence. It means that for every tenure expansion of chief executive officers, bankruptcy risk was real. However, ceoo indicated that for expansion of shares ownership of chief executive officers, bankruptcy risk was reduced.

Based on findings in Table 8, hypotheses 1, 2, 3 and 5 are accepted. These findings are consistent with Brockmann et al. (2004), Kim and Buchanan (2008) and Akhmetova and Batomunkeva (2014). However, hypotheses 4 and 6 are rejected, which are in line with studies by Kolias (2019), Eckbo and Thorburn (2016) and Li et al. (2019).

Conclusion and Recommendations

The paper looked at the role of CEO in bankruptcy risk. It had been clearly shown that CEO duality, nationality, gender and turnover have no role to play in determining bankruptcy of corporations, however, tenure and ownership proved different. These results, though, have policy and performance implications; they are restricted to resources corporations. The study suggests a wider examination of all the quoted corporations using Nigeria as a case study. Nevertheless, we recommend that resources corporations should take maximum advantage of the shares ownership of their chief executive officers as the law would allow and reduce their tenures. Their equity binds and motivates them to their firms for greater achievement. Longer tenure may allow inertia and complacency to set in which may lead to poor performance.

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