Liquidity Management and Zombie Firms Status of Listed Non-Finance Firms in Nigeria

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Abstract
The study investigates liquidity management and Zombie firm status by drawing samples from listed non-finance firms in Nigeria from 2012 to 2021. Current ratio, receivable days, and cash conversion cycle are the liquidity management proxies employed in this study while the dependent variable of the study is zombie firm status. Furthermore, the study employed the variables of firm size and market capitalization as the control variables. In this study, the ex-post facto research design is employed. The population of the study consists of all the listed non-finance firms in Nigeria from 2012 to 2021. As of December 2021, we had 109 firms listed on the floor of the Nigerian Exchange Group (NGX) (NGX Factbook, 2021). The sampling technique employed in this study is the filtering sampling technique since firms were included in the sample on certain selection criteria. Logistic regression is employed to test the hypotheses of this study. Based on the findings of the study, we conclude that a 1% increase in the current ratio will lead to about 1% insignificant increase in interest coverage ratio and thus decreasing zombie status of the firms during the period under investigation. The study also concludes that a 1% increase in the receivable days will lead to about 1% significant decrease in interest coverage ratio and thus increasing zombie status of the firms during the period under investigation. Finally, we conclude that a 1% increase in the cash conversion cycle will lead to about 98% insignificant decrease in interest coverage ratio and thus increasing zombie status of the firms during the period under investigation. The implication of this study could be used by different stakeholders to emphasize the importance of liquidity management in monitoring and evaluating the Zombie status of the company. Specifically, it is recommended that firms take early pay discounts when business and economic conditions allow, which would lower account payable days, while attempting to match inbound sales with outbound payments when business and economic conditions worsen.

Keywords: *Liquidity Management, Zombie Firms Status, Non-Finance Firms, Nigeria*

INTRODUCTION

Zombie firms are insolvent firms that are still in operation (Tan, Y., & Woo, W. T. 2016). They have received a great deal of attention lately because of the growth in their numbers and their impact on the economy. Zombie firms may distort market competition by depressing product prices, increasing wages (Acharya *et al.,* 2019), and crowding out credit to productive firms (Ahearne and Shinada, 2005). Zombie-dominated industries also exhibit more depressed job creation and lower productivity (Caballero *et al.,* 2008; McGowan *et al.,* 2018). As Banerjee and Hofmann (2018) note, zombie firms ultimately lower economic performance because they can depress productivity, which may spill over to healthy firms. However, despite their potentially adverse effects on the economy, the number of zombie firms continues to grow worldwide (Banerjee and Hofmann, 2018).

The importance of the healthiness of firms in driving the goal of shareholders' wealth maximization cannot be over-emphasized in the light of the macroeconomic challenges that ravage the corporate world globally. A healthy firm is one which has excess income over its liability, maintains a desired level of liquidity, has the ability to service fixed interest charges obligations as they fall due, and becomes profitable in short and medium-term periods. Where a firm fails to satisfy these identified criteria, it may slide into a zombie status (Binh, Uyen & Thuan, 2020).

Retolaza, San-Jose, Urionabarrenetxea and Garcia-Merino (2016), also stressed that scholars of international finance are spending little time researching on firms with negative equities and their spiral effects. This development and keen observation frequently constitute a noticeable gap in research on zombie firms generally. On the basis of the foregoing, this study examines the effect of liquidity management on the Zombie firm status of listed non-finance firms in Nigeria.

If a creditor, such as a bank, extends a loan to a business firm, it will be interested in the ability of such a business firm to pay the fixed interest charges as well as the principal sum of money borrowed. Creditors are also interested in the profitability of a business firm. This is because the profitability of a firm gives full assurance to creditors that such a firm is healthy to extend credits facility (loan) for the purpose of repayment. Default in interest charges and loan repayment perhaps due to liquidity and profitability crises, all things being equal, often affects the flow of funds from the surplus unit to the deficit units, thus hampering quick access to capital to undertake investment activities, production of goods, rendering of services, and consequently stunt economic growth. Where banks engage in financing firms in zombie status, they could be encouraging misallocation of credit, which may have a concomitant effect in the financial sector of that economy (Ahearne & Shinada, 2022). Since zombie firms may not enjoy financial intermediation, investment and economic activities may be at low ebb, thus affecting the larger economy. Zombie firms are likely not able to pay salaries and wages to employees as is due because of negative profitability and equity. Employees are not willing to stay and work in a company that cannot guarantee their job security or salary payment all the time (Ogbeide, 2021). Zombie firms are likely to engage in downsizing, thus contributing to the rate of unemployment in an economy.

This study examines the effect of liquidity management on Zombie firm status of listed firms in Nigeria. A review from continents over the world showed different results of the determinants of zombie firm status. Most of the past studies were done in Asia especially in India (Surahbi Somya,

& Madhuri Saripalle, 2021; Aggarwal, 2016), Malaysia (Rahim, Nor, Ramli, & Marzuki, 2021; while in Africa the few studies were in Ethiopia (Solomon, Tadele, Shiferaw & Daniel, 2016), Kenya (Nanjala, Lucy, & Eddie, 2020; Mukherjee & Sen, 2019) Egypt (Hassan & Hart, 2016) and Nigeria (Alayemi & Akintoye, 2015; Akpovbera, Onodje & Farayibi, 2014; Aregbeyen, 2012).

Similarly, from the studies that used samples from African countries, we observed that the samples were among manufacturing firms (Alayemi & Akintoye, 2015) and Banks (Aregbeyen, 2012). Although we identify the works of Akpovbera, Onodje & Farayibi (2014) who conducted their study of zombie firm determinants in the non-finance sector, they only use few of the firms from the non-finance sector of which generalization could be vague. Furthermore, most studies examine determinants of financial distress (Sakinc & Gungor, 2015; Filsaraei & Zarei, 2017; Badu, 2013; Mohammed 2011; Pandey & Ashvini 2016; Mahdzan & Zainudin 2016; Christopher, 2014) and not on zombie firm which is a more extreme case, hence the timeliness of our study. It is on the basis of the gaps above that this study is intended.

REVIEW OF RELATED LITERATURE

Zombie Firm Status

Zombie firms are firms who manage to survive although they keep reporting negative equity. The concept of a zombie firm was first raised by Kane (1980), in the advent of the America Savings & Loan crisis of the 1980s. He describes a zombie firm as a firm that is likely to be buried in its grave by its lenders except for the timely intervention of the government of the country through its monetary authority using bailout funds. Kane (1980) further emphasized that a company becomes zombie when it continuously sustains losses that cause the realistic value of its assets to be less than the value of its liabilities. A zombie firm is a bankrupt firm, and it can only continue to operate because of its ability to meet up its various financial obligations through the instrumentality of the government's timely credit assistance. Basically, firms with zombie status are those with clear evidence of inability to service fixed interest charges obligations as they fall due; and they are also firms that sustain losses and have negative equity for a consecutive number of years (Mohrman & Stuerke, 2014; Blažková & Dvouletý, 2018). In terms of peculiarity, zombie firms are those firms with unfavorable profit and negative equity value for a considerable period, despite the fact they continue in business (Binh, *et al.* 2020). Due to their continuity in business operations regardless of obvious signs of consecutive losses, inability to pay interest charges, and negative equity value, they are commonly regarded as 'walking corpses'.

Consequence of Zombie Firms

Zombie firms are companies which are unable to pay back their borrowed funds for a defined period, maybe in a three to ten years consecutive period, and continue operating. In the eyes of the public and financial analysts, zombie firms are dead but walking corpses waiting to be buried in a corporate graveyard. Zombie firms are seen as distress companies and candidates in a state of liquidation. According to Papworth (2013); and Dvouletý (2019), zombie firms are firms which are heavily indebted; they are only able to generate adequate cash inflow to pay the interest charges on debts, but the principal amount of the debts remain unpaid; their capacity to meet loan interest payments is largely a function of continuing reduced interest payments for a period of three

consecutive years. Overtly, zombie firms are akin to business firms in bankruptcy, financial distress, and with clear symptoms of negative equity (Urionabarrenetxea *et al.,* 2016). Firms with an evidence-based zombie status will usually have spiral effects on the economy. For instance, firms that are unable to make profits, pay interest charges, and experience negative equity will naturally have difficulties in satisfying the need of various stakeholders such as the government, creditors, employees, and the public in the environment where they operate. For instance, the government is interested in the profit before tax of a business firm for a period. In a situation where a firm makes consecutive losses, it cannot be able to pay company income tax (CIT) to the government. Thus, the negative profitability (losses) of firms in zombie status could adversely affect the revenue to the government and, by implication, impact negatively on economic activities and performance in a country.

Liquidity Management

Liquidity can be defined as the state or condition of a business organization, which determines its ability to honor or discharge its maturing obligations (Olabode, 2011). These obligations are made up of current liabilities and long-term debts. It is a measure of the relative amount of assets in cash or which can be quickly converted into cash without any loss in value available to meet short term liabilities or the ability of a firm to meet all maturing obligations without endangering its financial conditions. It helps a firm to avoid a situation where it will be forced to liquidate with its attendant problems of selling assets at distressed prices and the extra fees paid to lawyers, trustees in bankruptcy and liquidators on liquidation. Liquidity has two dimensions, namely the time necessary to convert an asset into money and the degree of certainty associated with the conversion ratio or price realized for the assets (Olagunju, Adeyanju & Olabode, 2011). These imply that, as liquidity increases, the probability that the firm is insolvent is reduced (Olabode, 2011).

Liquidity management on the other hand is the routine process of managing a firm's investment in current assets, current liabilities, short-term borrowings and short-term investment of surplus cash, which affect the profitability of the firm. It is synonymous to the effective management of the two components of working capital, that is, the current assets and current liabilities (Pandey, 2010). It involves planning and controlling current assets and current liabilities in such a way that: (i) the risk of not meeting short-term obligations, that fall due, is eliminated; and (ii) too much investment in current assets is avoided (Priya & Nimalathasan, 2013). Thus, a firm is said to be liquid if it has enough money, in the form of cash, to meet its maturing financial obligations as against tying same down in other current assets' investments. Liquidity Management has been an area of concern to the management of firms because of the uncertain nature of the future.

Current Ratio

This ratio compares total current assets to total current liabilities. Current assets are the assets which can be converted into cash within an accounting year and include short term securities, debtors, bills receivable and stock (Pandey, 2008). Current liabilities on the other hand, are claims from outsiders which are expected to mature for payment within an accounting year and include creditors, bills payable and outstanding expenses (Pandey, 2008). Current ratio is intended to indicate whether short term assets are sufficient to meet short term liabilities. Cornett, McNutt, and Tehranian (2009) assert that current ratio measures the shilling of current assets available to

pay each shilling of current liabilities. Wood and Sangster (1999) argued that current ratio is so sector dependent as to be incapable of being defined as generally best. They suggest factors that need to be considered when calculating this ratio. The factors are put in a form of questions. First, what is the norm in this industrial sector? Secondly, is this company significantly above or below that norm? And finally, if so, can this be justified after an analysis of the nature of these assets and liabilities, and of the reasons for the amounts of each held.

Current ratio is computed as: Current Assets/ Current Liabilities.

The ratio when calculated is expressed as either a ratio to 1, with current liabilities being set to 1, or as a number of times representing the relative size of the amount of total current assets compared with current liabilities. The most acceptable current ratio is 2:1. Current ratio indicates the liquidity position of a company. It measures the ability of a company to meet its current liabilities as they fall due. If a company has insufficient current assets in relation to its current liabilities, it might be unable to meet its commitments and be forced into liquidation (Saleemi, 1993).

Receivable Days

Accounts receivables arise when a company sells products or services on credit and does not collect cash immediately. Firms grant trade credit for many reasons such as giving incentives to customers, to protect sales from competitors and attract potential customers, build and strengthen long-term relationships with dealers and to conform to past or industrial practice. Receivables management involves decisions relating to the investment in business debtors. In credit selling, it is certain that the firm have to pay the cost of getting money from debtors and to take some risk of loss due to bad debts. Receivables management begins with the decision of whether or not to grant credit. Where goods are sold on credit, a monitoring system is important, because without it, receivables will build up to excessive levels, cash flow (liquidity) will decline, and bad debts will offset the profit on sales. Corrective action is often needed and the only way to know whether the situation is getting out of hand is to set up and then follow a good receivable control system (Kurawa, 2009).

The investment in accounts receivable depends on the volume of credit sales and the average collection period, which is determined by the firm's credit policy (Pandey, 2005). Kantudu (2009) proposes that credit policy is made up of three decision variables, namely; credit standard, credit terms and collection efforts. Changes in any of these variables will affect total investment in account receivable by the firm. Uremadu et al (2012) assert that all efforts the financial manager makes in setting credit standard, credit terms and credit collection periods should be geared towards establishing an optimal credit policy for the firm. Ajao and Nkechinyere (2012) further amplify that an optimal credit policy is one which maximizes a firm's value, where the incremental or marginal return of an investment is equal to the incremental or marginal cost of funds used to finance that investment.

Cash Conversion Cycle

Cash holding is that amount of cash set aside by an organization or firm to meet up with its financial need. It is useful to firms in cases when financing through external sources is more expensive than internally generated funds. In a world of perfect capital markets there would be no transaction

costs for raising cash, thus holding of liquid assets would be irrelevant and would not affect a firm's value. But markets are far from perfect and transaction costs are relevant. Once capital market imperfections are introduced, firms are not necessarily able to pursue all value-increasing investment opportunities. For instance, capital market frictions increase the cost of outside capital relative to internally generated funds (Myers and Majluf, 1984). Consequently, some firms that have attractive growth opportunities invest less than the first-best optimum, leading to lower future growth and reduced operating performance and firm value. Hence, cash holdings can be valuable when other sources of funds, including cash flows, are insufficient to satisfy firms' demand for capital. Therefore, these imperfections do exist and are more relevant to firms with a lot of opportunities investment.

Liquidity Management and Zombie Firm Status: A Stylized Effect

Liquidity management occupies a central importance in many areas of finance (Ohara, 2004). Cash, savings account, checkable account are liquid assets because they can be easily converted into cash. The company can be said liquid if the company has the liquid assets which can be used to fulfill all its financial obligations.Evidence from the European banking industry found that capital and liquidity ratio play a complementary role in ensuring bank soundness, but only for the largest banking groups. The issue of cash conversion cycle was initially presented as a result of Hager study in 1976. Kamath (1989) tested empirically the hypothesis of conflicting signals between current and quick ratio analysis and cash conversion cycle analysis. He as well studied whether the net trade cycle is an excellent estimation of the cash conversion cycle in addition to the relationships between the three above liquidity measures and determinants of firm's profitability. Considering US big firms in six trade industries he found that both current and quick ratios are inversely related with the cash conversion cycle; current and quick ratios are positively correlated to the profitability; the net trade cycle gave similar result as the cash conversion cycle and both cycles were discovered to be inversely related with the profitability determinants. He recommended the use of all the three procedures and attained good insight and efficiency of working capital management.

Theoretical Review

Resource Based View

The Resource Based View (RBV) evaluates and interprets internal organizational resources to help organizations comprehend how to maintain a competitive advantage over the long term. The RBV prioritizes the notion that a company's intractable characteristics are the driving force behind its success (Barney, 1986; Hamel & Prahalad, 1996). If a company's success depends on resources that cannot be readily transferred or acquired, such as those needing a steep learning curve or a fundamental shift in the company's environment and culture, it is more difficult for rivals to reproduce that success. Frequently, there are two ways to illustrate the worth of a resource. One sign of a resource's worth to an organization is its capacity to save costs (low-cost resources). The second way something may be deemed valuable is if it is used to increase a company's earnings (differentiated resources). This frees up capital that may be utilized to create creative tactics that increase efficiency and effectiveness (Barney, 1991).

Empirical Review

Elazhari, Tampubolon, Siregar, Parinduri, and Prayoga (2023) discussed zombie companies in the context of state- owned companies in Indonesia. Specifically, they examine the factors that determine them to become a "zombie" company. In addition, they examine the impact of their existence on the economy. Using a sample of 159 Indonesian state-owned companies from 2010 to 2020, they find that Indonesian state-owned companies are indicated to have zombie companies. Their existence is significantly determined by internal factors rather than external factors. Dominant external factors are significant when tested simultaneously with internal factors. In addition, they also find that their presence has a significant negative impact on economic growth and national productivity. Therefore, the government, as well as controlling the company, is expected to be able to immediately overcome their existence, which can be done by restructuring the company or if possible, liquidating them. Their existence not only harms themselves, but also harms other companies, and can even harm the national economy.

Omoruyi and Osariemen (2022) adopted the definition of a zombie firm as an old firm (aged 10 and above) that make losses in three consecutive years to identify zombie firms in the Nigerian Insurance sector for the period 2005 – 2015. In this study the twenty-four (24) listed insurance firms in the Nigerian stock exchange as at 31st, December 2015 was analyzed with a view to ascertaining if there are zombie firms in the insurance sub-sector. The findings show that seven (African Alliance Insurance, Goldlink Insurance, Guinea Insurance, Linkage Assurance, Niger Insurance, SUNU Assurance Nigeria and Wapic Insurance) out of the twenty-four insurance firms listed in the Nigerian stock market are zombie firms. Thus, the study established that 29.2% of the quoted insurance firms in Nigerian stock market were zombie firms during the period 2005–2015. After assuming the Zombie status, Linkage Assurance, Niger Insurance and Wapic Insurance recovered and have returned to profitability while African Alliance Insurance, Goldlink Insurance, Guinea Insurance, SUNU Assurance Nigeria were not consistent in their return to profitability. The study therefore recommends that there should be early restructuring aim at reducing the spending of zombie firms. Also, Zombie firms should embrace modern technology to gain competitive advantage and should be innovative in their product design.

METHODOLOGY

The *ex-post facto* research design was employed. This is because data was gotten from a secondary source that cannot be manipulated by the researcher. Furthermore, to answer the seminar questions, the *ex-post facto* research design allows us to retrieve the needed data from the annual report of non-finance firms from 2012 to 2021. In this seminar paper, we examine liquidity management and the Zombie firm status of listed non-finance firms in Nigeria. Hence, the population of the study consists of all the listed non-finance firms in Nigeria from 2012 to 2021. As of December 2021, we had 109 firms listed on the floor of the Nigerian Exchange Group (NGX) (NGX Factbook, 2021). The sampling technique employed in this study is the filtering sampling technique since firms were included in the sample on certain selection criteria. These criteria include that the firms are listed on the Nigerian Exchange Group market for the period between 2012-2021; there was access to their annual financial reports within the period and they were not firms operating subsidiaries in Nigeria that are not listed in the Nigerian Exchange Group Market. Furthermore, newly listed firms are also excluded from the study. Summarily, only non-finance firms that had

all relevant data due to continuous existence within the study period were included in the sample. Our final sample size consists of 73 listed non-finance firms in Nigeria. Secondary data source of data collection was employed in this study since the data were sourced from the stock exchange Fact books and related firms' annual financial reports for the periods. However, the computed measures of external auditor's attribute and income smoothing are sourced from each listed firm's annual audited financial reports.

Model Specification

Based on the theoretical literature and earlier empirical studies on the determinants of zombie firm status, we will specify our model to capture the determinants of zombie firm status of listed firms in Nigeria. Thus, the study adapted the first model specified by Evers (2021). Particularly, the Evers (2021) model was stated as. Where ZOB represented Zombie firm, ROA represented return on asset, AGE represented firm age, and LVRG represented Leverage. Specifically, we modified their model for the purpose of establishing the relationship between the dependent variables and the linear combinations of several determining variables captured in the study. Succinctly, the functional form of our model is expressed as follows:

Where:

ZOBS	=	Zombie Firm Status
CURR	=	Current Ratio
RECD	=	Receivable Days
CACC	=	Cash Conversion Cycle
FSIZ	=	Firm Size
MCAP	=	Market Capitalization
β_0	=	Constant
β_1- β_5	=	Slope Coefficient
	=	Stochastic disturbance
i	=	i^{th} firm
t	=	time period

Method of Data Analysis

This study employed analytical software of Stata version 16 and Microsoft excel for the analysis. The secondary data collected was analyzed using descriptive statistics, correlation, and regression analysis. The descriptive statistics was used to evaluate the characteristics of the data: mean maximum, minimum, and standard deviation and also check for normality of the data. Logistic regression is employed to test the hypotheses of this study. Particularly, logistic regression is use in this study based on the following reasons. First, logistic regression has the advantage of being less affected than discriminant analysis when the basic assumptions particularly normality of the variables, are not met (Hair Jr, Sarstedt, Hopkins, & Kuppelwieser, 2014). Second, in logistic regression, the estimated coefficients can be interpreted separately as the significance of each of the predictive variables. Third, statistically, logistic regression seems to fit well with the features

of the distress prediction problem, where the dependent variable is binary and with the groups being discrete, non-overlapping and identifiable (Ciampi 2015). Fourth, it has straightforward statistical tests, similar approaches to incorporating metric and non-metric variables and non-linear effects, and a wide range of diagnostics (Hair Jr et al. 2014). Fifth, logistic regression produces reliable results because of its ability to produce a nonlinear transformation of the input data that reduces the effects of outliers**.**

Table 1:Operationalization of the Variables

S/N	Variables	Definition	Measurements	Sources	Apriori Sign
Dependent Variable					
1	Zombie Firm Status	Zombie firms are companies which are unable to pay back their borrowed funds for a defined period, maybe in a three to ten years consecutive period, and continue operating.	Zombie firm status is measured in dummy as "1" where the interest coverage ratio is less than 1 and "0" for otherwise.	Wijaya and Atahau (2021)	
Independent Variables					
2	Current ratio	The current ratio is a liquidity ratio that measures a company's ability to pay short-term obligations or those due within one year.	Current ratio is computed as the ratio of current asset to current liabilities	Teng, Aslam, Onder and Ludo (2012)	+
3	Receivable days	The accounts receivable collection period is the average number of days it takes a business to collect payments owed by its clients in terms of accounts receivable (AR)	Receivable Days in days is computed as Trade receivable or trade debtors divided by revenue or sales multiply by 1/365	Wijaya and Atahau (2021)	+
4	Cash conversion cycle	The cash conversion cycle (CCC) is a metric that expresses the time (measured in days) that it takes for a company to convert its	Cash conversion cycle in days is computed as inventory Days + Trade receivable Days - Trade Payable Days	Teng, Aslam, Onder and Ludo (2012)	+

		investments in inventory and other resources into cash flows from sales.			
5	Firm Size	Firm size is a measure of the scale or capacity of a business unit	Firm Size is measured as the log of total asset	Teng, Aslam, Onder and Ludo (2012)	+
6	Market Capitalization	Market capitalization is equal to the market price per common share multiplied by the number of common shares outstanding.	Market capitalization is the log of the product of share price and market capitalization.	Teng, Aslam, Onder and Ludo (2012)	+

Source: ***Author's Compilation (2023)***

ANALYSIS AND DISCUSSION OF RESULTS

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
zoms	730	.763	.426	0	1
curr	730	1.545	2.636	-6.59	38.7
recd	725	116.907	189.067	-7.08	2084.58
cccc	730	72863.378	1437251	-70052.398	37117580
fsiz	730	7.095	.845	5.03	9.38
mcap	730	6.722	1.008	3.95	9.64

Source: Author (2023)

The result of the descriptive statistics is presented in table 1. The result shows that the mean of the dependent variable of zombie status (ZOMS) is 0.763 with a standard deviation of 0.426. The result implies that, on average, about 76% of the firms in our sample were zombies. In the case of the independent variables, our results show that current ratio (CURR) has a mean of 1.545 with a standard deviation of 2.636. The result indicates that, on average, the current ratio was 1:5 which is less than the acceptable standard of 2:1. Furthermore, in the case of receivable days, our study shows that the mean of receivable days (RECD) was 116.907 and a standard deviation of 189.067 indicating that on the average it took up to 117 days for debtors to settle the account of the firms under consideration. Furthermore, our results show that the mean of cash convention cycle (CCC) was 72863.37 and a standard deviation of 1437251 indicating that on average, it took about 72,863 days for the firms to convert their non-cash asset to cash. The result from the descriptive statistics also shows that the mean of the control variable of firm size (FSIZ) was 7.09 with a standard deviation of 0.85. Finally, the mean of the control variable of market capitalization (MCAP) appears to be 6.72 with a standard deviation of 1.09.

Normality Test

Particularly, when testing for normality, where the probabilities > 0.05, it indicates that the data are NORMAL. Conversely, where the probabilities < 0.05, it indicates that the data are NOT NORMAL. **Table 3: Shapiro-Wilk Test for Normality of Data**

Variable	Obs	W	V	z	Prob>z
zoms	730	0.995	2.140	1.859	0.031
curr	730	0.323	320.668	14.103	0.000
recd	725	0.491	239.384	13.385	0.000
cccc	730	0.026	461.172	14.991	0.000
fsiz	730	0.990	4.878	3.873	0.000
mcap	730	0.972	13.267	6.319	0.000

Source: Author (2023)

The result from the normality tense of data is presented in table 2. It is observed that the dependent variable of zombie firm (Z=1.859; Prob>Z=0.031) is not normally distributed since the probability of the z-statistics is significant at 5% level. In the case of the independent variables, the table shows that current ratio (Z=14.103; Prob>Z=0.000), receivable days (Z=13.385 Prob>Z=0.000), cash conversion cycle (Z=14.991; Prob>Z=0.000) as well as the control variables of firm size (Z=3.873; Prob>Z=0.000), and market capitalization (Z=6.319; Prob>Z=0.00001) are not normally distributed since the probabilities of the z-statistics are significant at 1% level. The interpretation of the data normally test is in line with the studies of Jarque and Bera (1987). Based on the foregoing, it is suitable to employ the Spearman Rank Correlation technique to test for the level of association of the variables against the Pearson Correlation.

Data Analyses

This study first test for the association between the independent variables and the dependent variables employed in the study using the Spearman Rank correlation since the data employed does not come from a normal distribution.

Correlation Analysis

Correlation is a statistical tool that helps to measure and analyze the degree of relationship between two variables. Correlation quantifies the degree and direction to which two variables are related. Correlation does not fit a line through the data points. In statistics, the value of the correlation coefficient varies between +1 and -1. When the value of the correlation coefficient lies around ± 1, then it is said to be a perfect degree of association between the two variables. As the correlation coefficient value goes towards 0, the relationship between the two variables will be weaker. Usually, in statistics, we measure three types of correlations: Pearson correlation, Kendall rank correlation and Spearman correlation. Pearson correlation is widely used in statistics to measure the degree of the relationship between linear related variables. Kendall rank correlation is a non-parametric test that measures the strength of dependence between two variables. Spearman rank correlation test does not assume any assumptions about the distribution of the data and is the appropriate correlation analysis when the variables are measured on a scale that is at least ordinal. The result obtain from the Spearman correlation is presented.

Table 4: Spearman's Rank Correlation

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) zoms	1.000					
(2) curr	0.279	1.000				
(3) recd	0.015	0.426	1.000			
(4) cccc	0.012	0.472	0.553	1.000		
(5) fsiz	0.172	-0.148	-0.134	-0.139	1.000	
(6) mcap	0.274	-0.037	-0.165	-0.106	0.832	1.000

Source: Authors (2023)

In the case of the correlation between the variables, the results obtained from the Spearman rank correlation above shows that there exists a positive association between current ratio (0.279) and the dependent variable of zombie firm status during the period of study. The table also shows that there exists a positive association between receivable days (0.015) and the dependent variable of zombie firm status during the period of study. Furthermore, we find that there exists a positive association between cash conversion (0.012) and the dependent variable of zombie firm status during the period of study. In the case of the control variables, we find that firm size (0.172) and market capitalization (0.274) also have positive association with the dependent variable of zombie firm status during the period of study. All associations are seen to be weak and thus we cannot suspect the presence of multicollinearity among the explanatory variables.

Binary Logit Regression Analyses

Specifically, to examine the cause-effect relationships between the dependent variables and independent variables of the study, we employ the binary logit regression since the dependent variable is dichotomous. The result obtained is presented below.

Table 5: Binary Logistic Regression Result

	ZOMS Model (Logistic Regression)	ZOMS Model (Marginal Effect)
CONS.	-2.082	
	{0.017} **	
CURR	0.052	0.008
	{0.216}	{0.215}
RECD	-0.001	-0.001
	{0.019} **	{0.018} **
CCC	-1.280	-2.090
	{0.982}	{0.982}
FSIZ	-0.698	-0.114
	{0.001} **	{0.001} **
MCAP	1.253	0.205
	{0.000} ***	{0.000} ***
LR (Prob>chi2)	72.16 (0.0000) ***	

Pseudo R- Squared	0.5908
Goodness of Fit Test	687.82 {0.7930}
Sensitivity	97.29%
Specificity	5.81%
Classification	75.59%

Source: Author (2023)
*Note: (1) bracket {} are p-values; (2) **, ***, implies statistical significance at 5% and 1% levels respectively*

In the table above, we observed from the Logistic regression of the zombie firm status model that the Pseudo R-squared value of 0.5908 shows that about 59% of the systematic variations in zombie status of the pooled non-finance firms over the period of interest was jointly explained by the independent and control variables in the model. The unexplained part of zombie status can be attributed to exclusion of other independent variables that can impact on zombie status but were captured in the error term. The LR Statistics of the logistic regression [72.16 {0.0000}] shows that the model on the overall is statistically significant at 1% level, this means that the Logistic regression model is valid and can be used for statistical inference. Furthermore, the result of the LR Statistics is confirmed by the Pearson goodness of fit test [687.82 {0.7930}] indicating that the model on the overall is fit. From the foregoing, we subject the model into further diagnostic test to validate the reliability of the estimates.

Sensitivity and Specificity Test

Sensitivity (also called the true positive rate) measures the proportion of actual positives which are correctly identified as such and is complementary to the false negative rate while Specificity (also called the true negative rate) measures the proportion of negatives which are correctly identified as such and is complementary to the false positive rate. Particularly, the classification table shows that out of 700 cases that fell into the group of zombie status samples, 538 cases were predicted correctly with 97.29% sensitivity accuracy while 10 of 25 cases that fell into the group of not-zombie status samples were predicted correctly and with 5.81% specificity accuracy. However, we find that the overall accuracy rate is seen to be roughly 75.59% which suggests that the model is free from any significant bias hence can be employed for interpretation and policy recommendation.

Discussion of Findings

The result obtained from the marginal effect of the binary logistic regression shows that the independent variable of current ratio is a positive and insignificant determinant of zombie status. The result implies that a 1% increase in the current ratio will lead to about 1% insignificant increase in interest coverage ratio and thus decreasing zombie status of the firms during the period under investigation. We negate the studies of Tesfamariam, 2014 who noted that high current ratio leads to low probability of zombie for a firm. The study also negates the position of Ong'era et al. (2017) who found that liquidity has a significant positive effect on Zombie firm status.

The result shows that receivable days is a negative and significant determinant of zombie status {coeff. -0.001; p-value: 0.018}. The result implies that a 1% increase in the receivable days will lead to about 1% significant decrease in interest coverage ratio and thus increasing zombie status of the firms during the period under investigation. Firms which are better at receivable days are better at generating funds internally and face lesser problems while seeking external sources of financing and thus a reduction in their zombie status (Quayyum, 2011). However, we find consistency with the studies of Anand & Gupta, (2022) as a firm tries to maintain liquidity in its daily operations in order to meet its short-term obligations, asset-liability mismatch exists which enhances the firm's profitability in the short-run but at the risk of zombie status. According to Takon and Atseye (2015) firms should choose the amounts of accounts receivable, cash and inventories they should maintain given the level of sales and cost values in order to better manage their zombie firm status.

Finally, we find that cash conversion cycle is a negative and insignificant determinant of zombie status {coeff. -2.090; p-value: 0.982}. The result implies that a 1% increase in the cash conversion cycle will lead to about 98% insignificant decrease in interest coverage ratio and thus increasing zombie status of the firms during the period under investigation. The main aim of working capital management is managing the short-term assets and short-term liabilities appropriately and maintaining sufficient amount of both short-term assets and short term liabilities. The management of the key ingredients of working capital like inventories, cash and receivables assumes paramount importance due to the fact that the major portion of working capital gets blocked in these assets (Paramasivan & Subramanian, 2009). The findings of the study negate those of Mukhopadhyay, (2004) who noted that good working capital management in firms can maintain liquidity, solvency, survival and profitability of business.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study investigates liquidity management and Zombie firm status by drawing samples from listed non-finance firms in Nigeria from 2012 to 2021. Current ratio, receivable days, and cash conversion cycle are the liquidity management proxies employed in this study while the dependent variable of the study is zombie firm status. Furthermore, the study employed the variables of firm size and market capitalization as the control variables. Particularly, to test the hypotheses of the study, we employed the marginal logistic regression. The results reveal that.

1. Current ratio is a positive and insignificant determinant of zombie status {coeff. 0.008; p-value: 0.215}.
2. Receivable days is a negative and significant determinant of zombie status {coeff. -0.001; p-value: 0.018}.
3. Cash conversion cycle is a negative and insignificant determinant of zombie status {coeff. -2.090; p-value: 0.982}.

The importance of the healthiness of firms in driving the goal of shareholders' wealth maximization cannot be over-emphasized in the light of the macroeconomic challenges that ravage the corporate world globally. A healthy firm is one which has excess income over its liability,

maintains a desired level of liquidity, has the ability to service fixed interest charges obligations as they fall due, and becomes profitable in short and medium-term periods. Where a firm fails to satisfy these identified criteria, it may be sliding into a zombie status. Firms with reported frequent under-performance, under-productivity, and negative profitability are best described as zombie firms, and they remain a key area which has continued to elicit the concern of policy makers, researchers, and other stakeholders globally. Since over three decades now and based on several reported cases of bankruptcy and liquidation of notable companies such as Enron-(US), WorldCom, Parmalat-(Italy), Nortel-(Canada), Onetel (Australia), Lehman Brother and Merrill Lynch, American International Group (AIG), Oceanic and Intercontinental banks (Nigeria) internationally and locally, a lot of economics and finance scholars appear to be focusing on these zombie firms and their determinants. Since zombie firms may not enjoy financial intermediation, investment and economic activities may be at low ebb, thus affecting the larger economy. Zombie firms are likely not able to pay salaries and wages to employees as is due because of negative profitability and equity. On the basis of this, we investigate liquidity management and Zombie firm status by drawing samples from listed non-finance firms in Nigeria from 2012 to 2021. Based on the findings of the study, we conclude that a 1% increase in the current ratio will lead to about 1% insignificant increase in interest coverage ratio and thus decreasing zombie status of the firms during the period under investigation. The study also concludes that a 1% increase in the receivable days will lead to about 1% significant decrease in interest coverage ratio and thus increasing zombie status of the firms during the period under investigation. Finally, we conclude that a 1% increase in the cash conversion cycle will lead to about 98% insignificant decrease in interest coverage ratio and thus increasing zombie status of the firms during the period under investigation.

Recommendations

The implication of this study could be used by different stakeholders to emphasize the importance of liquidity management in monitoring and evaluating the Zombie status of the company. Specifically, based on the findings of the study, the following recommendations are made:

1. It is recommended that firms take early pay discounts when business and economic conditions allow, which would lower account payable days, while attempting to match inbound sales with outbound payments when business and economic conditions worsen.
2. The study recommends that firm managers should manage each individual liquidity management component separately to decrease zombie status, since a neutralizing effect may exist with the cash conversion cycle.
3. Specifically, it is recommended that managers should keep accounts receivable, accounts payable, and inventory days as low as practical to increase sustainable growth rate and reduce zombie firm status. To keep accounts receivable days low, firms should implement restrictive customer credit policies when economic conditions are good to collect monies faster, while relaxing credit policies for customers when economic times are difficult for customers.

REFERENCES

Ahmad, N., & Abdul-Rahim, F. (2013). Theoretical investigation on determinants of government-linked companies capital structure. *Journal of Accounting, Finance and Economics*, *3*(2), 72-85.

Ahmed, W., Minnaert, A., van der Werf, G., & Kuyper, H. (2010). Perceived social support and early adolescents' achievement: The mediational roles of motivational beliefs and emotions. *Journal of Youth and Adolescence*, *39*(1), 36-46.

Ain, Q. U., Yuan, X., Javaid, H. M., & Naeem, M. (2021). Board gender diversity and sustainable growth rate: Chinese evidence. *Economic Research-Ekonomska Istraživanja*, 1-21.

Ajanthan, A. (2013). Corporate governance and dividend policy: a study of listed hotels and restaurant companies in Sri Lanka. *International Journal of Management, IT and Engineering*, *3*(12), 98-114.

Alaeto, H. E. (2020). *Determinants of dividend policy: empirical evidence from Nigerian listed firms* (Doctoral dissertation).

Anton, S. G., & Nucu, A. E. A. (2021). The effect of financial development on renewable energy consumption. A panel data approach. *Renewable Energy*, *147*, 330-338.

Arora, L., Kumar, S., & Verma, P. (2018). The anatomy of sustainable growth rate of Indian manufacturing firms. *Global Business Review*, *19*(4), 1050-1071.

Arora, L., Kumar, S., & Verma, P. (2018). The anatomy of sustainable growth rate of Indian manufacturing firms. *Global Business Review*, *19*(4), 1050-1071.

Ataünal, L., Gürbüz, A. O., & Aybars, A. (2016). Does high growth create value for shareholders? Evidence from S&P500 firms. *European Financial and Accounting Journal*, *11*(3), 25-38.

Dinku, T. (2013). Impact of working capital management on profitability of micro and small enterprises in Ethiopia: The case of Bahir Dar City Administration. *International Journal of Accounting and Taxation*, *1*(1), 15-24.

Epaphra, M., & Nyantori, S. N. (2018). Analysis of the determinants of dividend policy: Evidence from manufacturing companies in Tanzania. *Corporate Governance and Organizational Behavior Review*, *2*(1), 18-30.

Filatotchev, I., Jackson, G., & Nakajima, C. (2013). Corporate governance and national institutions: A review and emerging research agenda. *Asia Pacific Journal of Management*, *30*(4), 965-986.

Filsaraei, M., & Zarei, A. (2017). The relationship between ownership and dividend policy: Evidence from Tehran Stock Exchange. *International Journal of Economics and*

Huang, L., Ying, Q., Yang, S., & Hassan, H. (2019). Trade credit financing and sustainable growth of firms: Empirical evidence from China. *Sustainability*, *11*(4), 1032.

Huang, R., & Liu, G. (2009). Study on the enterprise sustainable growth and the leverage mechanism. *International journal of Business and Management*, *4*(3), 200-205.

Huang, X., & Zhang, J. (2015). Research on the financial sustainable growth of the listed companies on GEM. *International Business and Management*, *10*(2), 32-37.

Insalaca, V. G. (2017). *The impact of growth strategies on the performance of large food and beverage companies (Dissertation).* University of Research, UK

Ionita, C., & Dinu, E. (2020). The effect of intangible assets on sustainable growth and firm value–Evidence on intellectual capital investment in companies listed on Bucharest Stock Exchange. *Kybernetes*. 24: 8635–51

Kajola, S. O., Desu, A. A., & Agbanike, T. F. (2015). Factors influencing dividend payout policy decisions of Nigerian listed firms. *International Journal of Economics, Commerce and Management*, *3*(6), 539-557.

Kalyebara, B., & Islam, S. (2020). Discounted cash flow for Tom. com. In *Corporate Governance, Capital Markets, and Capital Budgeting* (pp. 75-106). Physica, Berlin, Heidelberg.

Kanani, M. A., Moradi, J., & Valipour, H. (2013). Sustainable growth and firm risk from the signaling perspective. *Asian Economic and Financial Review*, *3*(5), 660-667.

Madoroba, E., & Kruger, J. W. (2018). Relationship between sustainable growth and share price. *Available at SSRN 2635904*.

Mahdzan, N., & Zainudin, R. (2016). Interindustry dividend policy determinants in the context of an emerging market. *Economic Research-Ekonomska Istraživanja*, *29*(1), 250-262.

Mamilla, R. (2018). A study on sustainable growth rate for firm survival. *Strategic Change*, *28*(4), 273-277.

Mogos, S., Davis, A., & Baptista, R. (2020). High and sustainable growth: persistence, volatility, and survival of high growth firms. *Eurasian Business Review*, *11*(1), 135-161.

Morakinyo, F. O., David, J. O., Adeleke, E. O., & Omojola, S. O. (2018). Determinants of dividend policy of listed deposit money banks in Nigeria. *World Journal of Finance and Investment Research (International Institute of Academic Research and Development)*, *3*(1), 25-40.

Mubeen, M., & Hanif, M. (2017). Sustainable growth of non-financial firms: Microeconometric evidence from Pakistan. *Pakistan Business Review, October*.

Mubeen, M., Ahmed, M., Iqbal, A., & Arif, K. (2021). Sustainable growth of non-financial firms: An empirical examination of emerging economies. *Journal of Entrepreneurship, Management, and Innovation*, *3*(2), 331-354.

Muigai, R. G., & Muriithi, J. G. (2017). The moderating effect of firm size on the relationship between capital structure and financial distress of non-financial companies listed in Kenya. *Journal of Finance and Accounting*, *5*(4), 151-158.

Mukherjee, T., & Sen, S. S. (2019). Intellectual capital and corporate sustainable growth: The Indian evidence. *Asian Journal of Business Environment*, *9*(2), 5-15.

Mumu, S., Susanto, S., & Gainau, P. (2019). The sustainable growth rate and the firm performance: Case study of issuer at Indonesia stock exchange. *Journal Homepage: http://www. ijmra. us*, *9*(12).

Nor, F. M., Ramli, N. A., Marzuki, A., & Rahim, N. (2020). Corporate sustainable growth rate: The potential impact of COVID-19 on Malaysian companies. *The Journal of Muamalat and Islamic Finance Research*, 25-38.

Nuredin, M. (2012). Determinants of dividend policy of insurance companies in Ethiopia. *Available: etd. aau. edu. et/dspace/bitstream/.../4665/1/Muhamm ed% 20nuredin. pdf*.

Nurlaela, S., Mursito, B., Kustiyah, E., Istiqomah, I., & Hartono, S. (2019). Asset turnover, capital structure and financial performance consumption industry company in Indonesia stock exchange. *International Journal of Economics and Financial Issues*, *9*(3), 297.

Ocak, M., & Fındık, D. (2019). The impact of intangible assets and sub-components of intangible assets on sustainable growth and firm value: evidence from Turkish listed firms. *Sustainability*, *11*(19), 5359.

Oladimeji, J. A., & Aladejebi, O. (2020). The impact of working capital management on profitability: evidence from selected small businesses in Nigeria. *Journal of Small Business and Entrepreneurship Development*, *8*(1), 27-40.

Onodje, M. A., & Farayibi, A. O. (2020). Determinants of manufacturing growth in Nigeria. *IOSR Journal of Economics and Finance (IOSR-JEF)*, *11*, 36-44.

Ouma, O. P., & Murekefu, T. M. (2012). The relationship between dividend payout and firm performance: a study of listed companies in Kenya. *European Scientific Journal*, 8 (9).

Pandey (2017). An empirical analysis on determinants of dividend policy of fmcg sector in India. *International Journal of Economics, Commerce and Management*, *7*, 267-288.

Pham, H. N., Kalyebara, B., & Islam, S. (2020). Ownership structure, capital structure and firm growth: Empirical evidence and sustainable growth implications. *International Journal of Business & Economics*, *19*(3).

Pouraghajan, A., & Emamgholipourarchi, M. (2012). Impact of working capital management on profitability and market evaluation: Evidence from Tehran Stock Exchange. *International Journal of Business and Social Science*, *3*(10).

Qiao, S., Shen, T., Zhang, R. R., & Chen, H. H. (2021). The impact of various factor market distortions and innovation efficiencies on profit sustainable growth: From the view of China's renewable energy industry. *Energy Strategy Reviews*, *38*, 100746.

Rahim, K., & Munir, S. (2018). Agricultural exports and economic growth in Pakistan: an econometric reassessment. *Quality & Quantity*, *52*(4), 1561-1574.

Rahim, N. (2017). Sustainable growth rate and firm performance: A case study in Malaysia. *International Journal of Management, Innovation & Entrepreneurial Research*, *3*(2), 48-60.

Rahim, N., Nor, F. M., Ramli, N. A., & Marzuki, A. (2019). Determinants of sustainable growth rate and share price performance: The mediating effect of sustainable growth rate. In *e-PROCEEDINGS* (p. 190). Volos: University of Thessaly.

Rahim, N., Nor, F. M., Ramli, N. A., & Marzuki, A. (2021). Sustainable growth rate for Malaysian public-listed Shariah-Compliant companies: Does Financing Behaviour Matter?. *International Journal of Industrial Management*, *4*, 61-69.

Rahim, N., Nor, F. M., Ramli, N., & Marzuki, A. (2019). Determinants of capital structure for Malaysian shariah-compliant firms: The impact of revised screening methodology. *International Journal of Banking and Finance*, *14*, 45-74.

Shahwan, T. M., & Habib, A. M. (2020). Does the efficiency of corporate governance and intellectual capital affect a firm's financial distress? Evidence from Egypt. *Journal of Intellectual Capital*. *5*(2), 1-5.

Soetjanto, J. R., & Thamrin, H. (2020). Analysis of factors that effect firm value of consumer goods industry listed on Indonesia stock exchange. *International Journal of Scientific and Research Publications*, *10*(5), 1-9.

Somya, S., & Saripalle, M. (2021). The determinants of firm's growth in the telecommunication services industry: Empirical evidence from India. *International Journal of Industrial Management*, *4*, 61-69.

Spence, M. I. C. H. A. E. L. & Zeckhauser, R., (1971). Insurance, information, and individual action. *American Economic Review*, *61*(5), 380-387.

Stawicka, M. (2014). Determinants of foreign direct investment inflows in Central and Eastern European countries. *Oeconomia Copernicana*, *5*(2), 7-20.

Stulz, R. M. (1990). Do banking shocks affect borrowing firm performance? An analysis of the Japanese experience. *The Journal of Business*, *73*(1), 1-23.

Sunardi, S., Pertiwi, J., & Supramono, G. H. (2021). Conservative working capital policy: can it increase profitability and sustainable growth rate?. *Turkish Journal of Computer and Mathematics Education (TURCOMAT)*, *12*(3), 5630-5637.

Uwuigbe, U., Jafaru, J., & Ajayi, A. (2012). Dividend policy and firm performance: A study of listed firms in Nigeria. *Accounting and Management Information Systems*, *11*(3), 442-454.

Virani, V. (2013). Sustainable growth rate: refining a measure–a case study of Tata motors and Maruti Suzuki. *Indian Journal of Applied Research*, *3*(4), 317-319.

Vuković, B., Milutinović, S., Mirović, V., & Milićević, N. (2020). The profitability analysis of the logistics industry companies in the balkan countries. *Promet-Traffic&Transportation*, *32*(4), 497-511.

Vuković, B., Pjanić, M., & Kalaš, B. (2018). Analysis of the liquidity of agricultural companies of AP Vojvodina. *Anali Ekonomskog fakulteta u Subotici*, (39), 205-217.

Wahyuni, N. I., & Dino, N. V. G. (2016). Determinant of the sustainable growth rate. *Business: Theory and Practice*, *20*, 61-68.

Warrad, L., Almahamid, S. M., Slihat, N., & Alnimer, M. (2013). The relationship between ownership concentration and company performance,a case of Jordanian non-financial listed companies. *Institute of Interdisciplinary Business Research. 4*(5), 201-210.

Wasserman, N. (2006). Stewards, agents, and the founder discount: Executive compensation in new ventures. *Academy of Management Journal*, *49*(5), 960-976.

Weingast, B. R., & Moran, M. J. (1983). Bureaucratic discretion or congressional control? Regulatory policymaking by the Federal Trade Commission. *Journal of Political Economy*, *91*(5), 765-800.

Welch, M. (2011). The evolution of the employee engagement concept: communication implications. *Corporate Communications: An International Journal*. *50*(5), 1421-1460.

Widayati, E., Yunaz, H., Rambe, T., Siregar, B. W., Fauzi, A., & Romli, R. (2019). Development of entrepreneurship by creating new and independent entrepreneurs. *JMBI UNSRAT*

(Scientific Journal of Business Management and Innovation of Sam Ratulangi University)., *6*(2).

Wijaya, L. A., & Atahau, A. D. R. (2021). Profitability and sustainable growth of manufacturing firms: Empirical evidence from Malaysia and Indonesia. *Jurnal Riset Akuntansi dan Keuangan*, *9*(1), 13-24.

Xu, J., & Wang, B. (2018). Intellectual capital, financial performance and companies' sustainable growth: Evidence from the Korean manufacturing industry. *Sustainability*, *10*(12), 4651.

Xu, X. L., Chen, H. H., & Zhang, R. R. (2020). The impact of intellectual capital efficiency on corporate sustainable growth-evidence from smart agriculture in China. *Agriculture*, *10*(6), 199.

Yakubu, I. N. (2019). Revisiting the factors influencing corporate dividend policy decisions: Evidence from listed banks in Ghana. *Management & Accounting Review (MAR)*, *18*(3), 31-50.

Yakubu, Z., Loganathan, N., Hassan, A., Mardani, A., & Streimikiene, D. (2019). Financial and economic determinants of sustainable economic growth in Egypt, Nigeria and South Africa. *Journal of International Studies*, *12*(4).

Yeo, Y., & Park, C. (2018). Managing growing pains for the sustainable growth of organizations: Evidence from the growth pathways and strategic choices of Korean firms. *Sustainability*, *10*(10), 3824.

Yoo, W. J., Choo, H. H., & Lee, S. J. (2018). A Study on the sustainable growth of SMEs: The mediating role of organizational metacognition. *Sustainability*, *10*(8), 2829.