OWNERSHIP STRUCTURE AND DIRECTORS' TUNNELING OF LISTED NON-FINANCE FIRMS IN NIGERIA

By

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Abstract

Tunneling is especially dangerous in emerging nations because of weak corporate governance frameworks that fail to protect minority shareholders and corporate ownership arrangements that encourage expropriation. The study investigated the effect of ownership structure on directors tunnelling in Nigeria drawing samples from listed non-finance firms on the floor of the Nigerian Stock Exchange. Data set employed in this study spans through the periods between 2011 and 2020. We employed a panel regression estimation technique to test our hypotheses. From the analysis, it was found out that out of the three independent variables adopted in this study, only ownership concentration seems not to significantly affect directors' tunneling of non-finance firms in Nigeria. The study found out that CEO ownership and managerial ownership significantly affect directors tunnelling. Thus, it was recommended that regulatory agencies should formulate policies that regulate concentrated equity holding as this will reduce the incentive to tunnel. It was also recommended that companies should institute strong corporate governance structure to protect the minority shareholders.

Keywords: ***Directors' Tunneling, Ownership Concentration, CEO Ownership, Managerial Ownership, Panel Regression***

1.0 Introduction

Tunneling is the process of transferring assets and profits from a subsidiary company to the parent company for the benefit of the parent company, According to Gunarsih, (2017), companies use tunneling as one of their incentives for conducting related party transactions. This is supported by empirical research, which shows that related party transactions can be leveraged by businesses to profit from tunneling operations (Aharony, Wang & Yuan, 2010; Juliarto, Tower, Van der Zahn, & Rusmin., 2013; Hamid, Ting, & Kweh, 2016). Tunneling is especially dangerous in emerging nations because of weak corporate governance frameworks that fail to protect minority shareholders and corporate ownership arrangements that encourage expropriation (Aharony, Wang, & Yuan, 2010). Despite the fact that numerous tunneling strategies have been proposed, much empirical study has focused on related party transactions (RPT). RPTs have a lot of potential to be a convenient vehicle for expropriating firm wealth from minority shareholders due to weak corporate governance systems and existing corporate structures in many countries throughout the world (Cheung et al 2009). RPTs are thought to be a high-risk factor for investors. According to OECD (2009), abusive RPTs are rapidly posing a threat to capital market's credibility. Providing high volumes of receivables or long credit terms to connected parties is one type of tunneling technique used by businesses. Receivables given to a related party can be viewed as a sell option if the related party exercises it by refusing to pay the receivables when the company is in terrible shape (Atanasov, Black & Ciccotello, 2014).

The decline in net income of the tunneled company will be impacted by giving and writing down related party loans. Majority and minority shareholders are formed as a result of the ownership structure. The existence of majority shareholders produces agency conflict, which is defined as the tendency for majority shareholders to have more authority and information to transfer the company's assets for personal advantage despite minority shareholders' rights (Marfuah & Azizah, 2014). The majority shareholders in a company own more than 50% equity shares and that give them controlling power over the activities of the controlled entities. As a result of this circumstance, tunneling tactics emerge, which favor the majority shareholders (Susanti & Firmansyah, 2020). One of the causes of tunneling is a lack of legal protection for minority shareholders as they don't have controlling interest and cannot affect the financial and operating policy decisions of the controlled entities.

The aim of this study is to analyse the effect of ownership structure on directors' tunneling of listed non-finance firms in Nigeria. A review of some empirical studies shows that most of the studies concentrated on the effect of tunneling on corporate governance, corporate performance, assets utilization and only a few focused on the variable of ownership structure. Also most of these researchers are done in more advanced countries with different economic and perhaps more sophisticated institutional and legal background. Furthermore, most of those researches concentrated on banks and other financial institutions, ignoring the non-financial sectors. (Chizema et.al, 2020; Trisninik & Doddy 2021; Nnubia & Fabian, 2018). It is against this gap that this research was undertaken to ascertain the effect of ownership structure on directors' tunneling of non-financial firms in Nigeria.

2.0 Conceptual Literature

Directors Tunneling

Expropriation activity carried out by the controlling owners of a corporation at the lower level (subsidiary) to the upper level (parent company) is known as tunnelling (Johnson et al., 2000). According to them, tunnelling refers to asset appropriation by large shareholders who move assets and profits for themselves, either legitimately or unlawfully. Tunneling is accomplished in several ways, according to Johnson et al. (2000): transferring growth opportunities from listed companies to themselves or their subsidiaries; transferring profits from listed companies to other subsidiaries they own or control via intra-group transactions; using listed company assets or capital as collateral or guarantees for their financing activities; and capital operations aimed at diluting the interests. Tunneling was first employed in this form in the Czech Republic during the first half of the 1990s, according to Henemana and Schwab (2018), when numerous significant, previously privatized banks and companies abruptly liquidated. Later, it was discovered that the executives of these corporations were transferring companies, property and real estate into their own private businesses, some of which were located abroad. Among Czechs and Slovaks, the phrase became a frequent designation for this type of illegal action. Big loans with no prospect of return, massive overpayments for outsourced services, or simply selling businesses real estate for a fraction of its market value were all used to shift corporate resources.

Directors Remuneration

The term "executive compensation" refers to top executives' gross earnings in the form of monetary rewards and benefits (Nwaorgu, Odesa & Nzoegbu, 2019). Qualification, experience, attitude, and current rates in the labor market or industry are all factors in these compensation structure. Executive remuneration, according to Hamid, Ting and Kweh (2016) consists of money compensation and various other non-monetary awards received by an executive from their firm in exchange for their services to the organization. It is often a mix of pay, bonuses, company stock shares or call options, benefits, and perquisites, all of which are optimally set to take into consideration government regulation, tax law, the organization's and executive's wishes, and performance rewards.

Ownership Concentration

According to Atanasov et.al (2014), ownership concentration is the sum of squares of the fraction of total equity held by each large shareholder. Accordingly, Hamid et.al (2016) define ownership concentration as the portion of shares held by top shareholders of the firm. Gunarsih (2017) sees ownership concentration as the percentage of ownership shares of the largest shareholders. Aharony et. al (2010) define ownership concentration as the percentage of the largest and the second largest managerial block holders who own at least 10% of the total shares in a firm. Chizema et.al (2020) describe ownership concentration as the percentage of share held by the largest shareholder. According to Chen et.al (2017) ownership concentration is seen as the percentage of top five shareholders of the firm. The central premise of arguments regarding ownership concentration is the potential trade-off between two effects: the monitoring (alignment) and the expropriation (entrenchment) effect of ownership concentration (Masuli & Mobbs, 2013). In fact, dispersion of ownership makes controlling difficult and also contributes to creating potential free-riding problems. Thus, ownership concentration has a disciplinary effect on managers because it is easier for large shareholders to monitor managers (Nnubia & Fabian, 2018). Therefore, from agency theory perspective, ownership concentration is regarded as the key and

efficient component of corporate governance mechanism to reduce agency problems arising out of the separation of ownership and control (Henemana & Schwab, 2018; Santiago et. al, 2011).

Managerial Shareholding

The percentage of a company's shares owned by its directors is known as managerial shareholding. According to Chen et.al (2017), several problems arise when directors do not control a significant amount of the company's share capital. In the first case, directors' incentives to seek the interests of shareholders will be lessened, which will have an impact on the financial health of companies (Masuli & Mobbs, 2014). Firms should use share ownership to match the interests of the directors with the firm. According to Guo et.al, (2019) Managerial ownership is the highest share ownership structure owned by corporate management, which consists of directors and commissioners, as measured by the proportion of shares owned by management. The agency method and the imbalance approach can both be used to explain the managerial ownership structure. The agency approach considers the structure of managerial ownership as an instrument or tool used to reduce agency conflict among several claims against a company.

CEO Ownership

In both theory and reality, CEO ownership is considered as a good source of power (Chen, Li & Chen). The ownership of the corporation is a fundamental driver of the agent-principal relationship in agency theory. According to Guo et.al (2019), CEO ownership in a firm is linked to crucial board decisions such as member selection, salary determination, and many others. The agency interest alignment hypothesis states that when an owner-manager leads a company, he is more likely to work toward the company's goals. While some studies supported this prediction, empirical evidence contradict it. In today's world, many companies are governed by managers, the most significant of whom is the CEO, who are not the (most of the) owners of the company. Given that shareholders may not always have comprehensive access to information indicating whether the CEO is maximizing shareholder wealth or not, agency issues are likely to arise if the CEO has objectives other than maximizing shareholder wealth (Susanti & Firmansyah, 2020). It is consequently critical to match the CEO's interests with those of the shareholders, because if this is not the case, firm performance may suffer as a result of conflicting interest (Gunarsih, 2017). CEO compensation becomes relevant in this context because it can be utilized to achieve this alignment.

Theoretical Review

Agency theory

The general view of the agency theory stipulates that conflicts of interest emerge due to shifts in the interest of managers from that of the shareholders. Chen et.al (2017) observe that managers do act in their own interest, contrary to the interest of the organization and the shareholders due to poor monitoring. In this (agency) theory, corporate governance principles are vital in ensuring that the interest of the principal and the agent along with the overall value of the organization are protected. This theory also stipulates that manager use their discretionary powers as a cover to

decide on issues that suit their interest. They are usually more interested in short-term gains at the detriment of long-term goals of the shareholders. The principal–agency problem can be greatly reduced through close monitoring and supervision alongside the creation of better incentives to motivate managers. This has become very necessary because firms operate in a highly competitive environment which influences the perception of managers to take decisions that are complex and risky to remain relevant. In corroborating this view, Gunarsih (2017) observed that agency issues have greatly influenced managers in taking risky decisions and hedging in the field of corporate risk management. The theory further highlights the likely conflict of interest that may arise between the management and other stakeholders due to asymmetries in income sharing which can affect the firm's investment potentials (Masuli and Mobbs, 2014).

Empirical Literature and Hypotheses Development

Ownership Concentration and Directors Tunneling

Nnubia and Fabian, (2018) Studied the effect of director's tunnelling on firm performance of quoted companies in Nigeria. A sample of 15 Nigerian consumer goods firms listed on Nigerian Stock Exchange for a period of 8 years (from 2010-2017) was selected. This study applied ex post facto research design. The data collected were analyzed using Ordinary Least Square Method. The results show that for the Nigerian listed consumer goods firms, the explanatory variables- Chairman's pay and Director's equity holding has negative significant effect on the dependent variable – asset utilization (Performance); whereas Board of director's pay is positive and has no significant impact on the asset utilization (Performance). In the context of emerging markets, Gunarsih (2007), in her study, found that large domestic institutional investors tend to represent their own interests, while Khanna and Palepu (2000) found that foreign institutional investors provide better monitoring functions when interacting with the emerging markets in the global economy compared to domestic institutional investors. Khanna and Palepu (2000) also found that corporate performance is positively related to foreign institutional ownership and is negatively related to domestic institutional ownership. In a company with a concentrated ownership structure, the controlling shareholder could control the company's resources and implement policies that benefit them at the expense of the non-controlling shareholders (La Porta, LopeZ-de-Silanes & Shleifer 2000). Futhermore, Guo et.al, (2019) suggests that a concentrated ownership structure could facilitate asset expropriation in a company as the major shareholders could not only dominate the board of directors and the shareholders' meetings, but also determine the company's daily operation including influencing contractual policies with related parties and appointing their own candidate as the CEO (Hamid et.al, 2016).

Companies with a high concentration of ownership allow the dominant shareholder to exert control over management and even become a part of it. The majority shareholders can benefit from their policy control in two ways: first, through the company's operational policy, which includes providing high salaries and allowances, bonuses, and large compensation to the majority shareholders. The second method is to use contractual policies with third parties, such as tunneling (Marfuah & Azizah, 2014). Hence, it was hypothesized that;

$H0_1$: Ownership concentration has no significant effect on directors' tunneling of listed non-finance firms in Nigeria

Managerial Ownership and Directors Tunneling

Djankov and Murrell (2002) find in their research on transition economies that when investment funds managers, and other outsiders become influential owners, ten times as much restructuring takes place in former SOEs. Thomes (2013) study executive tunnelling and executive compensation design using selected listed firms in the United State of America between 2000 and 2005. They study was based on ex post facto design. Thomes develop new model in which resource diversion, director compensation and corporate performance are simultaneously and endogenously determined. The finding reveals that director's compensation directly reduces directors tunnelling tendency. Ridwan, Fitri and Berto (2015) studied directors tunnelling using firms quoted in Indonesia Stock Exchange. The study examines the relationship between corporate governance variables and tunnelling activities using 2216 listed firms between 2005 and 2012. The study was based on longitudinal design and made used of board size, outsider's directors, group and big five ownership were used as independent variable. The data were analysed using multiple regressions. The finding reveals that firms with family and state ownership experience more tunnelling activities than others. The study also finds that family, state and leverage ownership structure has positive effect on tunnelling. Gibson (2003) also suggests that minority investors in emerging markets controlled by a large shareholders should be aware that managers may favour the large shareholders at the expense of the minority shareholders. Hence, it was hypothesized that;

$H0_2$: Managerial ownership has no significant effect on directors' tunneling of listed non-finance firms in Nigeria

CEO ownership and Directors Tunneling

Kun and Xing (2012) examine controlling shareholders' tunnelling and executive compensation, using quoted firms from China. The study used 6,670 listed nonfinancial firms in China between 1999 and 2005. The study was based on cross sectional regression using levels specification and changes specification to examine the relationship between executive compensation and firm performance. The study finds that if directors incentives scheme are adopted, controlling shareholders who obtain private benefit from companies will have less incentive to do so. Ridwan et.al, (2015) document that higher CEO stock ownership helps alleviate some of the agency problems that arise in corporation by aligning the interest of managers and shareholders. As long as managers are minority shareholders, their ownership role might also mitigate the danger of tunnelling (Gao & Kling 2008; Liu & Lu 2007). On the other hand, Klein (2002) finds a positive correlation between CEO shareholdings and earnings management, which is consistent with recent events and accounting scandals. If the CEO manages earnings to increase their overall compensation, then there will be a positive relation between CEO shareholdings and earnings management (Klein 2002). This indirectly indicates the possibility of expropriation. Chen et.al, (2017) suggest that high shareholding by top managements may cause moral hazard and information asymmetry problems between the insider (management and directors) and outside investors. In a similar vein, Santiago-Castro, and Brown (2011) find a positive association between

CEO ownership and the potential for expropriation of minority shareholders' rights. Hence, it was hypothesized that;

$H0_3$: CEO ownership has no significant effect on directors' tunneling of listed non-finance firms in Nigeria

3.0 Methodology

The research design adopted in this study is *expo-facto* because data employed for analysis were all secondary. The study is longitudinal covering a period of ten (10) years. That is, from 2011 to 2020 employing listed non-finance firms on the floor of the Nigerian Exchange Group (NGX). The sampling technique employed is purposive since firms were included in the sample on certain selection criteria. These criteria were based on the view that the firms are listed on the Nigerian Exchange Group (NGX) market from 2011-2020; there was access to their annual financial reports within the period. Newly listed firms and delisted firms were excluded from the study. Thus, only non-finance firms that had all relevant data due to continuous existence were included in the sample. Our final sample size consists of 30 non-finance firms that was arrived at based on the availability of data for ten years for all the research variables. We express our econometric model as

$$\boldsymbol{DRSA_{it} = \beta_0 + \beta_1 BLOW_{it} + \beta_2 CEOO_{it} + \beta_3 MAOW_{it} + \beta_4 REAT_{it} + \mu_{it}}$$

Where:

DRSA	=	Director's Remuneration
BLOW	=	Ownership Concentration
CEOO	=	CEO Ownership
MAOW	=	Managerial Ownership
RETA	=	Return on Asset (Control Variable)
β_0	=	Constant
β_1- β_4	=	Slope Coefficient
μ	=	Stochastic disturbance
i	=	i^{th} firm
t	=	time-period

Thus, our apriori expectations are stated as; X_1-X_3>0: which means that a rise in the determinant variables of ownership concentration, CEO ownership and board ownership will lead to a rise in tunneling of listed non-finance firms in Nigeria. The econometric techniques adopted in this study are the panel fixed and Random effect regression techniques. The rationale for its usage is based on the following justifications: the data that will be collected may have time and cross-sectional attributes; panel data regression provides better results since it uses large observation and reduces the problem of degree of freedom (Muhammad, 2012); it avoids the problem of multicollinearity and help to capture the individual cross-sectional (or firm-specific) effects that the various pools may exhibit with respect to the dependent variable in the model.

Variable Measurement

We proxy directors tunneling by the ratio of directors' remuneration to revenue in line with the studies of Thomes, (2013) and Kun and Xing, (2012). Furthermore, our explanatory or independent variables are ownership concentration (measured in percentage as the share ownership concentration of all the block shareholders with 5% and above controlling interest); CEO ownership (percentage of CEO shares to total outstanding shares); and managerial ownership (ratio of directors' direct and indirect shares to outstanding shares). We adopted profitability to control our model. Profitability is proxied in terms of return on asset (measured as the ratio of profit after tax to total asset).

4.0 Empirical Results and Discussion

Descriptive Analysis

In this section, we examine the descriptive statistics for both the explanatory and dependent variables of interest. Each variable is examined based on the mean, standard deviation, maximum and minimum. Table 1 below displays the descriptive statistics for the study.

Table 1
Descriptive Statistics

VARIABLES	MEAN	SD	MIN	MAX	NO OBS
DRSA	0.73	0.81	0.01	4.30	298
BLOW	56.13	20.38	8	95	300
CEOO	2.94	9.01	0	40.89	300
MAOW	16.32	24.16	0	94.35	300
RETA	5.74	11.01	-52.56	53.96	299

Source: Author's computation (2022)

Table 4.1 shows the summary of the descriptive statistics of the study. From the table it is observed that directors' remuneration (DRSA) on the average is 0.73 with a standard deviation of 0.81. Ownership concentration (BLOW) on the average is observed to be 56.13 with a standard deviation of 20.38. We also found that CEO ownership (CEOO) has a mean of 2.94 with a standard deviation of 9.01. Our descriptive statistics results also show that Managerial ownership (MAOW) has a mean of 16.32 with a standard deviation of 24.16. For our control variable, the table reveal that profitability (RETA) had a mean of 5.74 and a standard deviation of 11.01.

Correlation Analysis

In examining the association among the variables, we employed the Spearman correlation coefficient (correlation matrix) and the results are presented in table 4.2 below;

Table 2
Correlation analysis

	DRSA	BLOW	CEOO	MAOW	RETA
DRSA	1.00				
BLOW	-0.41	1.00			
CEOO	0.35	-0.42	1.00		
MAOW	0.29	-0.26	0.43	1.00	
RETA	-0.17	0.20	-0.24	-0.21	1.00

Author's computation (2022)

In the case of the correlation between the variables of interest, the above results show that there exists a negative and moderate association between directors' tunneling and ownership concentration (-0.41). There exists a **positive and moderate a**ssociation between directors' tunneling and CEO ownership (0.35). There exists a negative **and moderate a**ssociation between directors' tunneling and managerial ownership (0.29). In the case of our control variable, we find that there exists a **negative and weak a**ssociation between directors' tunneling and profitability (-0.17).

Regression Results

In order to examine the cause-effect relationships between the dependent variables and independent variables as well as to test the formulated hypotheses, we present a panel data regression and an OLS pooled results in table 4.3 below.

Table 3
Regression Result

	DRSA Model (Pooled OLS)	DRSA Model (FIXED Effect)	DRSA Model (RANDOM Effect)
C	**1.00** **{0.000} *****	**0.30** **{0.113}**	**0.49** **{0.024} ****
BLOW	**-0.01** **{0.002} ****	**0.00** **{0.370}**	**0.00** **{0.565}**
CEOO	**-0.00** **{0.632}**	**0.09** **{0.000} *****	**0.04** **{0.000} *****
MAOW	**0.01** **{0.000} *****	**0.00** **{0.054} ****	**0.00** **{0.049} ****
RETA	**-0.01** **{0.087} ****	**-0.01** **{0.001} ****	**-0.01** **{0.005} ****
F-statistics/Wald Statistics	**11.35 (0.00) *****	**12.61 (0.00) *****	**32.31 (0.00) *****
R- Squared	**0.13**	**0.16**	**0.15**
VIF Test	**1.17**		

Heteroscedasticity Test	**11.77 (0.0006) ****

HAUSMAN TEST **Prob>chi2 = 48.47 (0.0000) *****

Note: (1) bracket {} are p-values

(2) **, *, implies statistical significance at 5% and 1% levels respectively**

In table 4.3, we observed from the OLS pooled regression that the R-squared value of 0.13 shows that about 13% of the systematic variations in directors tunneling proxied by directors' remuneration in 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 directors tunneling can be attributed to exclusion of other independent variables that can impact on directors tunneling but were captured in the error term. The F-statistic value of 11.35 and its associated P-value of 0.00 shows that the OLS regression model on the overall is statistically significant at 1% level, this means that the regression model is valid and can be used for statistical inference. Table 4 above also shows a mean VIF value of 1.17 which is within the benchmark value of 10, this indicates the absence of multicollinearity, and this means no independent variable should be dropped from the model. Also, from table 4.3 above, it can be observed that the OLS results had heteroscedasticity problems since its probability value was significant at 5% [11.77 (0.0006)]. The presence of heteroscedasticity clearly shows that our sampled firms are not homogeneous. This therefore means that a robust or panel regression approach will be needed to capture the impact of each firm heteroscedasticity on the results. In this study we adopted the panel regression method using both fixed and random effect models.

The F-statistic and Wald-statistic value of 12.61 (0.00) and 32.31 (0.00) for fixed and random effect models respectively shows that both models are valid for drawing inference since they are both statistically significant at 1%. In the case of the coefficient of determination (R-squared), it was observed that 16% and 15% systematic variations in directors tunneling proxied by directors' remuneration was explained jointly by the independent and control variables in both models respectively. This therefore implies that less of the variation in directors tunneling were explained when compared to the OLS pooled regression. In selecting from the two panel regression estimation results, the Hausman test was conducted, and the test is based on the null hypothesis that the random effect model is preferred to the fixed effect model. A look at the p-value of the Hausman test (0.0000), implies that we should reject the null hypothesis and accept the alternative hypothesis at above 5% or 1% level of significance. This implies that we should adopt the fixed effect panel regression results in drawing our conclusion and recommendations. This also implies that the fixed effect results tend to be more appealing statistically when compared to the random effect regression. Following the above, the discussion of the fixed effect results became imperative in testing our hypotheses.

Discussion of Findings

From the above analysis, we found that ownership concentration (Fixed effect regression = 0.00 (0.370)) as an independent variable to directors tunnelling appears to have a positive and insignificant influence on directors tunnelling. This therefore means we should accept the null hypothesis {$H0_1$: Ownership concentration has no significant effect on directors tunneling of listed

non-finance firms in Nigeria}. This suggests that an increase in ownership concentration will insignificantly increase directors tunnelling. This result agrees with prior empirical results which show that ownership concerntration insignificantly increases directors tunneling (Hamid et.al, 2016). However, we fail to agree with the studies of Santiago-Castro and (Brown 2011) who concluded that ownership structure significantly causes directors tunneling. Our results also show that CEO ownership (Fixed effect regression = 0.09 (0.000)) as an independent variable to directors tunnelling appears to have a positive and significant influence on directors tunnelling. This therefore means we should reject the null hypothesis {$H0_2$: CEO ownership has no significant effect on directors tunneling of listed non-finance firms in Nigeria}. This suggests that an increase in CEO ownership will significantly increase directors tunnelling. This result agrees with prior empirical results which show that CEO ownership significantly increases directors tunneling (Mohammad 2015). More specifically, we negates the studies of Ridwan et.al (2015) who document that higher CEO share ownership helps alleviate some of the agency problems that arise in companies by aligning the interest of managers and shareholders. We also provide evidence that managerial ownership (Fixed effect regression = 0.00 (0.054)) as an independent variable to directors tunnelling appears to have a positive and significant effect on directors tunnelling. This therefore means we should reject the null hypothesis {$H0_3$: managerial ownership has no significant effect on directors tunneling of listed non-finance firms in Nigeria}. This suggests that an increase in managerial ownership will significantly increase directors tunnelling. This result agrees with prior empirical results which show that managerial ownership significantly increases directors tunneling (Thomes, 2013). However, we fail to agree with the studies of Susanti and Firmansyah, (2020) who concluded that managerial ownership significantly reduces directors tunneling.

5.0 Conclusion and Recommendation

Controlling owners' exploitation of minority shareholders has piqued the interest of academics. When majority shareholders control the company, the agency problem becomes how to prevent dominant shareholders from abusing minority shareholders, rather than a conflict of interest between management and shareholders. Tunneling is not only harmful to minority shareholders' interests, but it also hinders the development of the capital market. In the light of this, the empirical result of this study leads to the conclusion that out of the three independent variables adopted in this study, only ownership concentration seem not to significantly affect directors' tunneling of non-finance firms in Nigeria. However, the study supports evidence that an increase in CEO ownership and managerial ownership will significantly increase directors tunnelling. Based on this findings, the recommends that regulatory agencies should formulate policies that increase and regulates concentrated equity holding as this will reduce the incentive to tunnel. It also recommends that companies should institute strong corporate governance structures to protect the minority shareholders.

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Appendix

Variable	Obs	Mean	Std. Dev.	Min	Max
drsa	298	.7295836	.8057565	.0062	4.2994
blow	300	56.12667	20.38453	8	95
ceoo	300	2.944704	9.006275	0	40.8759
maow	300	16.31556	24.15867	0	94.35
reta	299	5.741526	11.00539	-52.5597	53.9594

	drsa	blow	ceoo	maow	reta
drsa	1.0000				
blow	-0.4070	1.0000			

```
        ceoo |   0.3527  -0.4150   1.0000
        maow |   0.2864  -0.2593   0.4323   1.0000
        reta |  -0.1735   0.2030  -0.2365  -0.2092   1.0000


      Source |       SS           df       MS      Number of obs   =       298
-------------+----------------------------------   F(4, 293)       =     11.35
       Model |  25.8758993         4  6.46897482   Prob > F        =    0.0000
    Residual |  166.949412       293  .569793217   R-squared       =    0.1342
-------------+----------------------------------   Adj R-squared   =    0.1224
       Total |  192.825312       297  .649243474   Root MSE        =    .75485

------------------------------------------------------------------------------
        drsa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        blow |  -.0070025   .0022049    -3.18   0.002     -.011342    -.002663
        ceoo |  -.0026123   .0054453    -0.48   0.632    -.0133292    .0081045
        maow |   .0103828   .0020628     5.03   0.000      .006323    .0144426
        reta |  -.0070312   .0040965    -1.72   0.087    -.0150936    .0010311
       _cons |   1.003626   .1310655     7.66   0.000     .7456769    1.261575
------------------------------------------------------------------------------


    Variable |       VIF       1/VIF
-------------+----------------------
        maow |      1.29    0.774012
        ceoo |      1.26    0.792913
        reta |      1.06    0.941690
        blow |      1.05    0.954533
-------------+----------------------
    Mean VIF |      1.17


Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of drsa

         chi2(1)      =    11.77
         Prob > chi2  =   0.0006


Fixed-effects (within) regression               Number of obs      =       298
Group variable: croid                           Number of groups   =        30

R-sq:                                           Obs per group:
     within  = 0.1604                                         min =         9
     between = 0.0213                                         avg =       9.9
     overall = 0.0265                                         max =        10

                                                F(4,264)           =     12.61
corr(u_i, Xb)  = -0.7185                        Prob > F           =    0.0000
```

```
------------------------------------------------------------------------------
       drsa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       blow |   .0029591   .0032937     0.90   0.370    -.0035261    .0094443
       ceoo |   .0874262   .0142362     6.14   0.000     .0593952    .1154572
       maow |   .0037407   .0019299     1.94   0.054    -.0000593    .0075406
       reta |  -.0106706   .0030371    -3.51   0.001    -.0166507   -.0046906
      _cons |   .3048939    .191994     1.59   0.113    -.0731405    .6829283
-------------+----------------------------------------------------------------
     sigma_u |  1.0232493
     sigma_e |  .39506945
         rho |  .87027064   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(29, 264) = 27.78                    Prob > F = 0.0000


Random-effects GLS regression                   Number of obs     =       298
Group variable: croid                           Number of groups  =        30

R-sq:                                           Obs per group:
     within  = 0.1474                                         min =         9
     between = 0.0301                                         avg =       9.9
     overall = 0.0357                                         max =        10

                                                Wald chi2(4)      =     32.31
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000

------------------------------------------------------------------------------
       drsa |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       blow |   .0017388   .0030183     0.58   0.565     -.004177    .0076546
       ceoo |   .0449053   .0103301     4.35   0.000     .0246585     .065152
       maow |   .0037595    .001912     1.97   0.049     .000012     .007507
       reta |  -.0085094   .0030228    -2.82   0.005    -.0144339   -.0025849
      _cons |   .4879123   .2161025     2.26   0.024     .0643591    .9114655
-------------+----------------------------------------------------------------
     sigma_u |  .66446467
     sigma_e |  .39506945
         rho |  .73881919   (fraction of variance due to u_i)
------------------------------------------------------------------------------



                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       fe           re         Difference          S.E.
-------------+----------------------------------------------------------------
       blow |    .0029591     .0017388        .0012202        .0013183
       ceoo |    .0874262     .0449053        .0425209        .0097958
       maow |    .0037407     .0037595       -.0000188        .0002621
       reta |   -.0106706    -.0085094       -.0021612         .000295
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg
```

```
Test:  Ho:  difference in coefficients not systematic

            chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                    =       48.47
          Prob>chi2 =      0.0000
```