Bank Loans, Ownership Structure and Efficiency of Listed Manufacturing Firms in Nigeria

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Abstract

Bank loans through bank-firm relationship is expected to enhance the performance of firms owing to the possession of private information on the firms that is not readily available to other outside investors. This special relationship is deemed to be very important than equity financing in performing monitoring function on the management especially in the period of economic crisis. This study collected data for 76 non-financial firms from the Nigerian Stock Exchange between 1997 and 2007 and analyzed it with OLS, FE and GMM models to verify the impact of bank loans and ownership structure on firm productivity. The results show that bank loans and director ownership had negative impact on the efficiency of firms; however, while it was significant for the director ownership, it was insignificant

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for the bank loans. Hence, the result confirms the entrenchment hypothesis of the managerial ownership for the Nigerian corporate governance.

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Keywords: Bank Loans, Ownership Structure, Efficiency, Manufacturing, GMM.

1 Introduction

The recent decade has witnessed an upsurge of attention by researchers on the role of corporate governance on firm performance. This interest resulted from the financial scandals that rocked East Asian financial system and the collapse of some top companies such as Enron, Tyco etc. While some studies have also emerged in Nigeria to find out the state of corporate governance on firm performance, all of them have focused on profit performance of the firms. However, the key to long run sustainable growth and development can be found in efficient firms. Efficiency of firms can lead to higher income for workers thereby boosting their purchasing power, increasing the government revenue in form of taxes which can be used for the provision of infrastructure facilities, creation of new jobs and in general, reduction of poverty. Our focus on this issue is much more influenced by the performance of the Nigerian Manufacturing Sector in the recent time.

Adenikinju (2005) shows that the sector's share of GDP rose from 5.4 percent in 1980 to peak at 8.1 percent in 1990 and subsequently declined to 6 percent in 2001. Exports increased from 0.3 percent in 1980 to 0.6 percent in 2001, however, manufacturing contribution to foreign exchange earnings was found to be less than 1 percent while about 81 percent of the nation's total foreign exchange earning was utilized by the sector. In terms of employment generation, about 10 percent of the population was employed compared to 70 percent in agriculture and 20 percent in services. The dismal performance of Nigeria's

manufacturing sector is manifested in the high level of graduate unemployment, poverty, corruption and other types of social vices which constitutes a threat to the nascent democracy and further investments in Nigeria, thereby perpetuating underdevelopment.

The impact of corporate governance on firm performance has been undertaken by Ahmadu Sanda et al (2004) and Adenikinju (2001). However, the role of banks as a source of monitoring has not been well articulated in those studies, moreover, their focus has been on firm financial performance. This study investigates the role of bank loan and in addition to ownership structure on the efficiency of listed non-financial firms in Nigeria.

2 Literature Review

The theoretical linkage between ownership structure, bank financing and firm performance is taken up in this section. We focus on the role of ownership concentration, managerial ownership, foreign ownership and bank loan on firm performance.

2.1 Bank Loans and Firm performance

Banks may serve as a source of increased profitability and growth for firms because they possess some comparative advantage in private information over other investors and financial institutions. Buch (1998) provided some details of the sources of private information which can reduce agency costs. The deposit history of a bank with a firm coupled with the credit history of the firm with bank can enable them enjoy increased access to capital from easy access to loans on preferential terms. Moreover, Bank loans provide a signal effect to outside investors in form of certification effect that reduces the cost of external capital to the firm. However, it is also believed that the possession of private information by banks may lead to a conflict of interest which may manifests in the financing decisions of the firm. For instance, banks may influence the firm to issue equity to finance bank debt in periods of financial distress, while also getting the firm to use equity rather than bank debt to finance risky projects. Hence, bank-financed firms may have a higher or lower leverage; however, close firm relationship with the bank is expected to enhance firm performance. A close bank-firm relationship may however hamper firm performance if the firm decides to share the private information of the firm with its competitors or releasing strategic industry information to advance its own interest at the expense of the firm.

2.2 Ownership Concentration

There are two possible views explaining the role of ownership concentration on the performance of firms. The first view associated with the works of Berle and Means (1932), Shleifer and Vishny (1986) argued that ownership concentration can provide an effective monitoring system which can minimize the maximization of managerial utility and hence impact positively on firm performance, this is referred to as the monitoring hypothesis. The second view referred to as expropriation hypothesis rather took a pessimistic view of the role of ownership concentration on firm performance. First, it was argued that ownership concentration can stifle managerial initiatives to acquire information especially in the face of uncertainty, (Aghion, Tirole, 1997); whereas, dispersed ownership was viewed has possessing the capacity to provide such powerful incentives to managerial initiatives (Cremeer, 1995). Moreover, a concentrated ownership was viewed as a sign of illiquidity in the market, hence, the market was seen to be handicapped in performing its information role (Holmstron, Tirole, 1993). Hence, in an uncertain environment, for instance, or where there is a need for the management of low performing firms to change hands, concentrated ownership could hinder such move (Allen, 1993). Ownership concentration is also hypothesized to limit investment decisions of managers as shareholders' tolerance to risk through diversification could be limited (Demsetz, Lehn, 1985; Heinrich, 2000).

Empirically some studies have validated the monitoring hypothesis. These studies include, Hill and Snell (1988), Hill and Snell (1989), Agrawal and Mandelker (1990) from the United States; Deb and Chatuvedular, (2003), Ganguli and Agrawal (2008) from India, and Grosfeld (2006) from Poland, among others. Some other studies have however confirmed the expropriation hypothesis. These studies include, Leech and Leahy (1991), Mudambi and Nicosia (1998) from the UK, Boubaker (2005) from France and Kirchmaier and Grant (2006) from six European countries which include, Germany, Spain, France, Italy and UK. Some other studies have found no relationship or non-linear/quadratic relationship between ownership concentration and firm performance. Some of these include, Demsetz and Lehn (1985), Morck, Shleifer and Vishny (1988), Loderer and Martin (1997), and Cho (1998). A non-linear relationship was found by Gedaklovic and Shapiro (1998) for the US and German firms. In Spain, Miguel, Pindado and Torre (2003) found a quadratic relationship between ownership concentration and firm performance. Firm performance was found to increase as ownership increases between 0% and 87%, while it subsequently declined beyond this threshold.

2.3 Managerial/Insider Ownership

Theoretically, explanations of the impact of managerial/insider ownership also falls under two major hypotheses. The Convergence-of-Interest and the Entrenchment hypotheses. The Convergence-of-Interest hypothesis as espoused by Berle and Means (1932) and Jensen and Meckling (1976) noted that given the fact that managers or insiders will pursue their selfish interest at the expense of outside owners, an increased allocation of shares to insider owners is therefore expected to motivate the mangers to pursue interests that converge with that of the external shareholders.

The Entrenchment hypothesis as explained by Fama and Jensen (1983) observed that firms with low insider ownership can still perform better in the face of product market competition, but when the level of insider ownership becomes very high, this may give them opportunity to pursue their selfish interest without a risk of job and salary loss.

Empirical evidences in support of the convergence of interest hypothesis include Mehran (1995), Seifert, Gonene and Wright (2005). Supporters of the entrenchment hypothesis include; Lins (2002), Lee and Ryu (2003). The third category of studies did not find a systematic impact of managerial ownership on firm performance. Mock, Shleifer and Vishny (1998) found a positive impact on firms with managerial ownership of between 0 - 5 percent, a negative impact from 5 - 25 percent and a positive impact for firms with more than 25 percent.

2.4 Foreign Ownership

Foreign ownership is expected to exert a positive impact on firm performance in some ways. The first way is through large acquisition of a firm's share by a foreign investor which is made possible through globalization. This is expected to provide effective monitoring on the management which can exert a positive impact on firm performance (Shleifer and Vishny, 1986). Also, bringing foreigners on the board of the companies may signal compliance with the international corporate governance system. The cost of this is assumed to be very astronomical which can discourage the executive from extracting private benefits, which in turn strengthens the commitments of the firm to protecting the interest of minority shareholders (Reese and Weisback, 2001). This is expected therefore to have a positive impact on profit performance of the firm.

3 Methodology

3.1 Model Specification

Following the works of Nickel (1996), Koke (2001) we model the impact of bank financing and ownership structure on the efficiency of firms as follows; First, we specify a Cobb-Douglas production function with two independent variables as follows:

$$Y_{it} = L_{it}^{BL} K_{it}^{BK} A_{it} \tag{1}$$

 Y_{it} is the real output, while L_{it} is the labour and K_{it} is the capital. A_{it} represents the measure of efficiency in year t for firm i. We transform equation (1) into a regression equation through several steps to obtain the sources of efficiency growth.

First, we take the logarithms of the variables with an addition of the lagged output variables besides the inputs of labour and capital and using a weight λ . A fixed firm effect α_i is added to allow for unobserved firm heterogeneity in addition to an error term ε_{it} which is assumed to be serially uncorrelated over time. This yields the basic equation (2) as follows:

$$y_{it} = \lambda y_{it-1} + (1-\lambda)\beta_L \ell_{it} + (1-\lambda)\beta_K k_{it} + (1-\lambda)\alpha_{it} + \alpha_i + \varepsilon_{it}$$
(2)

Taking the first differences will eliminate the fixed effect α_i which gives the differenced growth version of the Cobb-Douglas production function in (1) as follows;

$$\Delta y_{it} = \lambda \Delta y_{it-1} + (1-\lambda)\beta_L \Delta \ell_{it} + (1-\lambda)\beta_K \Delta k_{it} + \Delta \alpha_{it} + \Delta \varepsilon_{it}$$
(3)

We therefore specify our efficiency growth as a function of ownership structure, bank financing and control variables in year t-1. Hence we have the model as stated in equation (4) below.

$$\Delta \alpha_{it} = (\mu_t - \mu_{t-1}) + \gamma_1 CYCLE_{it} + \gamma_2 ASSET_{it-1} + \beta_1 BANK_{it-1} + \beta_2 LUS_{it-1} + \beta_3 LUC_{it-1} + \beta_4 FRC_{it-1} + \beta_5 DIR_{it-1} + \beta_6 OWC_{it-1} + \beta_7 RNT_{it-1} + \beta_8 MKTSTRUC_{it-1}$$
(4)

Equations (3) and (4) corresponds to the Arellano and Bond (1991) differenced panel model with lagged endogenous variables. The model was thus analyzed with the OLS, Fixed effect and the GMM. In the GMM model, we made use of y_{it-j} , LUS_{it-j} , OWC_{it-j} , for $j \ge 2$ as instruments to take care of the endogeneity problems inherent in this model. The definition of the variables is presented in Appendix 1.

3.2 Definition and Measurement of Variables

1. Market Structure = Extent of vertical Integration $(VIT) = \frac{\text{Total Inventory}}{\text{Total Turnover}}$

2. Competition is measured by rent, which is the ex post measure of market power (*RNT*)

$$RNT = \frac{\text{Value Added} - \text{Capital Cost}}{\text{Value Added}}$$

Value Added = Sales – Material Costs – Wages

Capital Cost = $\sigma + r_t \sigma$ = deprectation rate (7%)

 $r_t = risk$ free interest rate

3. Ownership Concentration is measured in two ways:

$$LUS = \frac{\text{Number of shares held by the largest shareholder}}{\text{Total outstanding shares of the company}}$$

 $OWC = \frac{\text{Sum of bulk shares in excess of 10\%}}{\text{Total outstanding shares of the company}}$

- 4. Director Ownership is given as proposition of shares held by directors
- 5. Ownership Control (LUC)

(LUC) = dummy variable = 1 for ownership > 50% and zero otherwise Capital Cost = $K \cdot (1 - \partial) + I$:

 ∂ = depreciation charge, I = Investment, K = Fixed asset at Cost

- 7. WKR = Number of workers
- 8. TST = Total Assets = Fixed Assets + Current Assets
- 9. Business Cycle $(CYC) = (Y \hat{Y}) = (b_0 + b_1 t) (\hat{b}_0 + \hat{b}_1 t)$: Y = Sales, t = time
- 10. Efficiency = Real output (Nominal Sales deflated by price index)
- 11. Ownership Structure (OWS). Firms with Foreign controlling shareholding.
- 12. Bank Debt = $\frac{\text{Total Bank Debt}}{\text{Total Debt}}$

4 Data Analysis and Interpretation

The result of our econometric analysis is presented in table 1 below. Column 1 of the table presents the OLS results, while the column (2) presents the fixed effect model and column three presents the differenced GMM results of Arellano and Bond Method.

In column (1) none of the ownership structure and financing variable was statistically significant. The significant variables in the model include market structure, total assets and competition.

The market structure variable is captured by the extent of vertical integration in the industry. If a high level of vertical integration exists, various forms of economies of scale may accrue to a firm which may enable it to be more efficient than firms without backward or forward linkage. The result shows that a 1 per cent increase in vertical integration leads to a 42 per cent increase in the efficiency of the firms and this is significant at 1 per cent level.

	Dependent variable: output growth (Δy_{it})			
	(1)	(2)	(3)	
	OLS	FE	Differenced GMM	
Lagged output growth (Δy_{t-1})	-0.1057 (0.0315) ^a	-0.2608 $(0.0293)^{a}$	-0.2241 (0.2030)	
Capital growth (Δk_t)	0.0618 (0.0334) ^c	0.0483 (0.0289) ^c	-0.1518 (0.3057)	
Labour growth (ΔL_t)	(0.0191) (0.0181)	(0.0102) (0.0102) (0.0153)	-0.0805	
Business Cycle $(Cycle_t)$	$(0.0191)^{a}$ $(0.0196)^{a}$	(0.6974) $(0.0306)^{a}$	(0.9744) (0.2011) ^a	
Ownership control (LUC_{t-1})	0.0007 (0.0463)	0.1121 (0.0809)	-0.7325 (0.8411)	
Largest bulk shareholding (LUS)	0.0789 (0.3101)	0.5615 (0.4181)	7.3963 (5.4097)	
$(-V_{t-1})$ Ownership concentration (OWC_{t-1})	-0.0476 (0.1049)	0.1040 (0.2059)	0.2133 (2.0094)	
Foreign Ownership (FRC_{t-1})	0.0284 (0.0365)	-0.0315 (0.1548)	3.5519 (3.5767)	
Director Ownership (DIR_{t-1})	-0.3090 (0.2585)	-0.8506 (0.3821) ^b	-4.5971 (2.5791) ^c	
Bank Credit (BCt_{t-1})	-0.0153 (0.0107)	-0.0457 (0.0373)	-0.2037 (0.3098)	
Debt ratio (DBT_{t-1})	-0.0476 (0.1049)	-0.0117 (0.0101)	0.0175 (0.1313)	
Market Structure (VIT_{t-1})	0.4151 (0.0397) ^a	0.3678 (0.0388) ^a	0.3785 (0.3743)	
Log of Total Asset $(LTST_{t-1})$	-0.0647 (0.0368)°	-0.3475° (0.0346) ^a	-0.7529 (0.3404) ^b	
Competition (RNT_{t-1})	-0.2228 $(0.0279)^{a}$	-0.1927 $(0.0278)^{a}$	0.1507 (0.2527)	
Intercept	$(0.1966)^{a}$	3.3664 (0.3379)	(

Table 1: Econometric Results

\mathbf{R}^2	0.41	0.17		
OBS	675	675	600	
Year dummies	Yes	Yes	Yes	
Instrument validity (Sargan			0.766	
test)				
First-order correlation of			0.047	
residuals				
Second order correlation of			0.508	
residuals				

a,b,c, represents 1%, 5% and 10% significance level respectively.

Furthermore, competition which is an ex-post measure of market power shows a negative and significant impact on efficiency. This suggests that competition exerts some pressure on the firms to adopt some efficiency enhancing methods within the firms. The result shows that a 1 per cent fall in the level of monopoly power brings about an increase of 6.5 per cent in the level of efficiency. Lastly, OLS model reveal that the larger the size of the asset of a company, the less efficient the company becomes. We expect that large companies should be able to manage more efficiently than small companies, however, if a company is too large, coordination and communication problems may creep in to impair efficiency. Our result shows that for 1 per cent increase in the size of the asset, efficiency falls by 6.5 per percent. However, the OLS model has been found to be inadequate in analyzing microeconomic panel data of this nature as results obtained from this model could be biased due to some unobservable effects present in the data. Hence, we use the fixed effect model which is assumed more efficient in this analysis.

The result of the fixed effect model is presented in the column (2) of the table. A brief look at the result seems to suggest that findings arising from the OLS model were validated by fixed effect model except that the influence of director/managerial ownership was in addition to those of the OLS model were found to have a negative and significant impact on the efficiency of the firm. The result shows that for 1 per cent increase in the director ownership, efficiency falls

by about 85 per cent, and this is significant at 5 per cent level, which confirms the expropriation hypothesis. Apart from that, bank financing and the debt variables remained negative but not significant.

The result of the Arellano and Bond (1991) is presented in column (3) of the table. This method also confirmed that the negative role of the director ownership in the efficiency process of the firms. However, the total asset variable which was adjudged to have a negative impact on efficiency by the OLS and the fixed effect model turned out to exert a positive impact on the level of efficiency of the firms in the third model. Moreso, the inability of the firms to earn rents which was significant in the OLS and fixed effect model turned out to be positive and not significant in the third model. This result suggests that some bits of monopoly power may be required by the firms to generate efficiency, although we found this to be insignificant. Bank financing remained negative but insignificant in the third model while the total debt ratio came out with a positive but not significant factor in generating efficiency.

5 Conclusions

This study was initiated to find out the role of ownership structure and bank financing on the efficiency performance of the firms listed in the Nigerian stock exchange. The three models adopted for this exercise shows that directors' ownership had a negative impact on efficiency performance while bank and debt financing does not have any significant impact on the efficiency of firms. This study calls for a thorough understanding of bank operations in the process of lending with a view to finding ways of ensuring that banks can be a source of alternative corporate monitoring mechanism for the firms. Bank employees would need to be adequately trained on techniques of market analysis and loan appraisal to discern useful information from the financial books of the firm before granting loans. Development of rating agencies to provide external information on the performance of the firms also needs to be encouraged among others.

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