



Effect of Capital Structure on Performance of Poultry and Piggery Enterprises in Abia State, Nigeria

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Abstract

This study analyses the effect of capital structure on performance of poultry and piggery enterprises in Abia State, Nigeria. A multi-stage random sampling technique was used to select the sample. Primary data collected from 83 livestock enterprises comprising of 50 poultry enterprises and 33 piggery enterprises were used for the study. Data collected were analyzed using Ordinary Least Squares (OLS) multiple regression technique. Findings showed that credit receivables, amount of savings, cash at hand, trade credits, short-term debt capital and credit payable significantly influenced the performance of poultry enterprise in Abia State, whereas, credit receivables, amount of savings, cash in hand, short-term debt capital, trade credits, and credit payable significantly influenced the performance of piggery enterprise in Abia State. The study recommends that policies on enhancing the level of performance of poultry and piggery enterprises should consider capital structure variables such as credit receivables, amount of savings, cash at hand, trade credits, short-term debt capital and credit payable which significantly influenced the performance of poultry and piggery enterprises in Abia State.

Keywords: *Capital, structure, performance, poultry, piggery, enterprises, Abia State*

Introduction

The importance of capital structure on livestock production performance in Nigeria cannot be overstated. This is due to the fact that cash is regarded as the backbone of every successful business. Understanding the impact of capital structure on poultry and piggery performance is critical for estimating the right capital structure ratio to use to acquire a given level of output from a certain level of inputs. Livestock production has remained a vital sub-sector in Nigeria today and enhancing the performance through appropriate capital structure is one major need in the country. Livestock production in Nigeria is achieved mostly through 'nomadic or rural households' production of sheep, cattle, goat, pigs, poultry (ducks, guinea fowl and chicken) and rabbit etc., at subsistence level. Capital structure is one of the important decisions in the field of corporate finance and refers to the way that a company finances its assets by combining liabilities and equity (Gul and Cho, 2019). Financing is one of the crucial areas in any business. A financing manager is concerned with the determination of the best financing mix and combination of debts and equity for his enterprise. The mix of debt and equity that business enterprises use to finance its business is referred to as capital structure decision (Damodaran, 2001). Capital

structure of a livestock enterprise plays a crucial role in the determination of its performance as well as shows the extent of debt or equity financing of the enterprise. The level of financing any livestock enterprise is subject on its capital structure. Capital structure according to Kennon (2010) refers to the percentage of capital (money) at work in a business by type. Capital structure refers to the kinds of securities and the proportionate amounts that make up capitalization. It is the mix of different sources of long-term sources such as equity shares, preference shares, debentures, long-term loans and retained earnings. The term capital structure refers to the relationship between the various long-term sources financing such as equity capital, preference share capital and debt capital. According to Paramasivan and Subramanian (2009), deciding the suitable capital structure to employ is an important decision a livestock enterprise owner makes since it influences the value (performance) of the enterprise. Capital structure is one of the most important effective parameters on the valuation and direction of economic enterprises in the capital markets. Livestock enterprise owners are keen to profit maximization and how best to earn more returns by determining the best combination of financial resources for their enterprises. Debt financing is a situation whereby credit or loans are

borrowed either from formal or informal financial institution for investment purpose whereas, equity financing is a situation in which personal saving and earnings accruing from an investment is solely utilized in financing a business. This is hypothetical and the true nature of this, in Abia State, this can be ascertained by considering the capital structure and performance differentials in poultry and piggery investment which have both assume major quick investment opportunities in the livestock sub-sector today. This is the thrust of this study which focus determining the effect of capital structure on performance of poultry and piggery in Abia State, Nigeria.

The relationship between capital structure and performance cannot be ignored because the improvement in the performance is necessary for the long-term survivability of the firm. Because interest payment on debt is tax deductible, the addition of debt in the capital structure will improve the performance of the firm. Therefore, it is important to test the relationship between capital structure and the performance of the firm to make sound capital structure decisions. The lack of a consensus about what would qualify as optimal capital structure in the service and manufacturing industries has motivated us to conduct this research. A better understanding of the issues at hand requires a look at the concept of capital structure and its effect on the firm's performance. Studies have revealed significantly negative or positive relation between debt and performance. These imply that an increase in debt position is associated with a decrease in performance; thus, the higher the debt, the lower the performance of the firm and vice versa. Empirically, the evidence for this line of research is mixed. Some studies report a positive effect (Jiang, Laurenceson and Tang, 2008; Liao and Young, 2012; Saad, 2010), while some present a negative effect (Chen *et al.*, 2005; Lin *et al.*, 2009; Wei, 2007). Findings of other studies also show that performance increases with control variables; size and sales growth. Although the financial leverage provides tax benefits to the corporations, it increases default risk for the lending institutions such as banks, credit unions, and other private lenders. Abor (2005) looked at the effect of capital structure on profitability of listed firms in Nigeria, Kamau (2013) carried out a study to investigate the relationship between capital structure and financial profitability of errand service SMEs in Nairobi County. Boateng (2004) looked at the determinants of capital structure in international joint ventures. Roshanak (2013) looked at the effect of capital structure on the profitability of dairy sector. However, none of these studies have looked at the effect of capital structure on profitability (performance) of poultry and piggery enterprises which sometimes are affected adversely by the financial crises as well as macro-economic factors. This constitutes knowledge gap in the livestock sector that this study sought to address.

Methodology

The research was carried out in Nigeria's Abia State. In August of 1991, Abia State was formed from the

previous Imo State. Although Afikpo joined Ebonyi state in 1996, the term "Abia" was coined from the first letters of the names of the geographical (political) groups that made up the state, namely Aba, Bende, Isiukwuato, and Afikpo. The Nigerian state of Abia is one of the 36 states that make up the Federal Republic of Nigeria. The state is situated in Nigeria's south-eastern geopolitical zone. It is located between latitude 50 47' and 600 12N and longitude 70 23' and 80 02" E. The state has a land area of around 5,243.7 square kilometers, or about 5.8% of Nigeria's total land area (Nigerian Galleria. Com, 2017 report). According to population estimates, the state has a population of 4,533,911 people (NPC, 2017). The states of Anambra, Enugu, and Ebonyi border Abia in the north and northeast. Cross River State and Akwa-Ibom State are to the west and south east of Imo State, respectively, while River State is to the south. The southern section of the state is located along the country's river boundary. The state is low-lying, with a total annual rainfall of roughly 2,400mm, evenly spread from April to October. The rest of the state is characterized by a reasonably high plain. The Imo and Aba rivers, which flow into the Atlantic Ocean via the Niger Delta, are the state's most important rivers. The state is located in Nigeria's woodland region, with temperatures ranging from 20 to 36 degrees Celsius (Onwumere, 2008). There are seventeen (17) Local Government Areas in the state, as well as three (3) Agricultural Zones: Aba, Umuahia, and Ohafia. The study's population include all of Abia state's poultry and piggery enterprises. According to the Ministry of Agriculture and Industry of Abia State, the total population of registered poultry and piggery enterprises in the state is 63 and 42, respectively. This resulted in a total of 105 registered livestock enterprises (poultry and piggery) being considered for the study. Poultry and piggery enterprises were chosen using a multi-stage sampling technique. To begin, the study was limited to two of the state's three agricultural zones. The agricultural zones that were chosen were Umuahia and Aba, based on the fact that these two agricultural zones had a large number of poultry and piggery enterprises. Second, from each of the two agricultural zones, two Local Government Areas were chosen. Finally, because there were too few in the various communities and villages, the selected ones were gathered at the Local Government Area (LGA) level. Fifty (50) poultry and thirty-three (33) piggery enterprises were chosen at random from the four (4) LGAs studied. Thirteen (13) poultry enterprises were chosen from each of the four (4) Local Government Areas, while nine (9) pig enterprises were chosen from each of the four (4) Local Government Areas. Primary data was used in this investigation. The data for this study was acquired by the administration of a questionnaire and an oral interview. The researcher also aided respondents who were having trouble answering some of the questionnaire's questions, particularly those that they didn't understand. A total of fifty (50) copies of the questionnaire were distributed to poultry business owners in the state, while thirty-three (33) copies were sent to piggery business owners. A maximum of two

days was given to each responder to review the questionnaire and respond appropriately. The researcher and the two research assistants recruited for the study returned at the conclusion of the period to collect the questionnaire from the respondents. The instrument was validated prior to delivery, and item statements were checked to ensure that they addressed the study objectives, questions, and the appropriateness of the constructs employed in the questionnaire. The study's data was analyzed with proper statistical software. Using the Ordinary Least Squares (OLS) multiple regression technique, the effect of capital structure on the performance of poultry and piggery enterprises in Abia State were investigated.

Model Specification

The OLS multiple regression model used to estimate the effect of capital structure on the performance of poultry and piggery enterprises in Abia State is specified implicitly as;

$$\text{LnPEF} = \beta_0 + \beta_1 \ln Z_1 + \beta_2 \ln Z_2 + \beta_3 \ln Z_3 + \beta_4 \ln Z_4 + \beta_5 \ln Z_5 + \beta_6 \ln Z_6 + \beta_7 \ln Z_7 + \beta_8 \ln Z_8 + \beta_9 \ln Z_9 + e$$

Where; PEF = Performance of poultry or piggery enterprise by their rate of Return on Investment (ROI) (naira); the ROI is derived as ratio of net income to total cost expressed in percentage.

Z_1 = Credit receivables (N), Z_2 = Amount of savings (N), Z_3 = Cash at hand (N), Z_4 = Inventory worth (N), Z_5 = Short term debt capital (N), Z_6 = Trade credits (N), Z_7 = Long term debt capital (N), Z_8 = Informal debt capital (N), Z_9 = Credit payable (N), e = Error terms, $\beta_0 - \beta_9$ = parameters estimated and \ln = Natural logarithm.

Results and Discussion

The result of the multiple regression models used to estimate the effect of capital structure on the performance of poultry and piggery enterprises in Abia State is presented in Tables 1 and 2.

Effect of capital structure on the performance of piggery enterprises in Abia State

The result of the multiple regression models used to estimate the effect of capital structure on the performance of poultry enterprise in Abia State is presented in Table 1. Four functional forms – linear, exponential, semi-log and double-log were tried for choice of lead equation. Based on the magnitude of the coefficient of multiple determination (R^2), number of significant variables and the signs of the significant variables as they conform to *a priori* theoretical expectations as well as the significant of the entire model as shown by the F- statistic, the semi-log model was chosen as the lead equation. The value of the coefficient of multiple determinations (R^2) was 0.819, implying that about 81.9% of the variations in the performance of poultry enterprise in Abia State was explained by the explanatory variables included in the model. Credit receivables, amount of savings, cash at hand, trade credits, short-term debt capital and credit payable were the significant capital structure variables

that influenced the performance of poultry enterprise in Abia State. The regression coefficient of credit receivables was positive and significant at 5%, implying direct relationship with performance of poultry enterprise in Abia State. Thus, increase in credit receivables increases the performance of poultry enterprises in Abia. Credit *receivable* being the amount of money that customers currently owe to an enterprise for goods or services that were purchased on *credit will make more capital to be raised by the enterprise through increased volume of sales of its products due to purchase on credit* by consumers. The result with respect to credit receivables is consistent with *a priori* expectations and Bougheas *et al.* (2009) who argued that credit receivable are important for the performance of inventory management. Therefore, strategy for increasing the performance of poultry enterprise should consider allowing for credit purchase by customers, but only to the extent the enterprise can bear in case of refusal to cash in for such purchase by consumers. The regression coefficient of amount of savings was positive and significant at 5%, implying direct relationship with performance of poultry enterprise in Abia State. Thus, increase in amount of savings increases the performance of poultry enterprises in Abia state. Enterprises with huge savings will have higher propensity to invest than otherwise since savings is a components of equity capital and this will increase the performance of the enterprise. This finding agrees with Osundare (2013) and Rikwentishe, Pulka, and Msheliza (2015) who notes that saving increases the level of investment of a given firm which translates to higher performance for the firm. The regression coefficient of cash in hand was positive and significant at 1%, implying direct relationship with performance of poultry enterprise in Abia State. Thus, increase in cash in hand increases the performance of poultry enterprises in Abia state. Cash in hand as a component of current assets of an enterprise and as the amount of money in the form of cash that a company has after it has paid all its costs helps in attaining to the immediate financial obligations of the enterprise as they arise. Enterprises with huge cash in hand will have higher propensity to invest than otherwise and this translate into higher performance for the enterprise. This finding agrees with Gill, Amarjit, Nahum, Neil (2011) who notes that cash in hand had a positive relationship with performance of a firm. The regression coefficient of short-term debt capital was negative and significant at 1%, implying indirect relationship with performance of poultry enterprise in Abia State. Thus, increase in short-term debt capital decreases the performance of poultry enterprises in Abia State. Thus, the higher the debt, the lower the performance. Again this suggests that profitable enterprise depend more on equity as their main financing option. This is explained by the fact that debts are relatively more expensive than equity, and therefore employing high proportions of them could lead to low performance of an enterprise like the poultry enterprise. The results support part of earlier findings by Graham (2000), and Booth *et al.* (2001) who recorded a negative association between debt financing and profitability of an enterprise. The regression coefficient

of trade credit was positive and significant at 1%, implying direct relationship with performance of poultry enterprise in Abia State. Thus, increase in trade credits increases the performance of poultry enterprises in Abia state. Enterprises with more trade credit tend to improve their profitability; this is consistent with Boissay and Gropp (2007), argued that firms that are facing liquidity problems tries to pass on one-fourth of the stock to their suppliers through trade credit in order to overcome this distressed situation. The study is also consistent with Pecking Order Theory, developed by Myers and Majluf (1984), that under information asymmetry, firms favour internal over external financing. The regression coefficient of credit payable was negative and significant at 5%, implying indirect relationship with performance of poultry enterprise in Abia State. Thus, increase in credit payable decreases the performance of poultry enterprises in Abia State. Thus, the higher the credit payable, the lower the performance of poultry enterprise in the study area. Credit *payable* indicates the sum of money the enterprise owes to suppliers. Thus, credit *payable* is credited when goods/services are purchased on *credit* because the liability increases. Increase in credit payable position of a given enterprise increases its liability position and thus, reduce the net-worth of the enterprise. Therefore, the performance of the enterprise reduces as its net-worth decreases due to increase in total liability of the enterprise.

Effect of capital structure on the performance of piggery enterprises in Abia State

The result of the multiple regression models used to estimate the effect of capital structure on the performance of piggery enterprises in Abia State is presented in Table 2. Four functional forms – linear, exponential, semi-log and double-log were tried for choice of a lead equation. Based on the magnitude of the coefficient of multiple determinations (R^2), the significance of the regression coefficients, the number of significant variables and the signs of the significant variables as they conform to *a priori* theoretical expectations as well as the significant of the entire model as shown by the F- statistic, the double-log model was chosen as the lead equation. The value of the coefficient of multiple determinations (R^2) was 0.824, implying that about 82.4% of the variations in the performance of piggery enterprise in Abia State was explained by the explanatory variables included in the model. Credit receivables, amount of savings, cash in hand, short-term debt capital, trade credits, and credit payable were the significant capital structure variables that influenced the performance of piggery enterprise in Abia State. The regression coefficient of credit receivables was positive and significant at 5%, implying direct relationship with performance of piggery enterprise in Abia State. Thus, increase in credit receivables increases the performance of piggery enterprises in Abia state. Credit *receivable* being the amount of money that customers currently owe to an enterprise for goods or services that were purchased on *credit will make more capital to be raised by the*

enterprise through increased volume of sales of its products due to purchase on credit by consumers. The result with respect to credit receivables is consistent with *a priori* expectation and Bougheas *et al.* (2009) who argued that credit receivable are important for the performance of inventory management. The regression coefficient of credit receivables of 1.179 was elastic and suggests that a unit increase in credit receivables leads to 1.179 increase in the performance of piggery enterprises in Abia state. The regression coefficient of amount of savings was positive and significant at 5%, implying direct relationship with performance of piggery enterprise in Abia State. Thus, increase in amount of savings increases the performance of piggery enterprises in Abia state. Enterprises with huge savings will have higher propensity to invest than otherwise since savings is a components of equity capital and this will increase the performance of the enterprise. This finding agrees with Osundare(2013) and Rikwentishe, Pulka, and Msheliza (2015) who notes that saving increases the level of investment of a given firm which translates to higher performance for the firm. The regression coefficient of amount of savings of 1.921 was elastic and suggests that a unit increase in the amount of savings leads to 1.921 increase in the performance of piggery enterprises in Abia state. The regression coefficient of cash in hand was positive and significant at 1%, implying direct relationship with performance of piggery enterprise in Abia State. Thus, increase in cash in hand increases the performance of piggery enterprises in Abia state. Cash in hand as a component of current assets of an enterprise and as the amount of money in the form of cash that a company has after it has paid all its costs helps in attaining to the immediate financial obligations of the enterprise as they arise. Enterprises with huge cash at hand will have higher propensity to invest than otherwise and this translate into higher performance for the enterprise. This finding agrees with Gill, Amarjit, Nahum, Neil (2011) who notes that cash in hand had a positive relationship with performance of a firm. The regression coefficient of cash in hand of 1.150 was elastic and suggests that a unit increase in cash in hand leads to 1.150 increase in the performance of piggery enterprises in Abia state. The regression coefficient of short-term debt capital was negative and significant at 1%, implying indirect relationship with performance of piggery enterprise in Abia State. Thus, increase in short-term debt capital decreases the performance of piggery enterprises in Abia state. Thus, the higher the debt, the lower the performance. Again, this suggests that profitable enterprise depend more on equity as their main financing option. This is explained by the fact that debts are relatively more expensive than equity, and therefore employing high proportions of them could lead to low performance of an enterprise like the piggery enterprise. The results support part of earlier findings by Graham (2000), and Booth *et al.* (2001) who recorded a negative association between debt financing and profitability of an enterprise. The regression coefficient of short-term capital of -1.087 was elastic and suggests that a unit increase in short-term capital leads to 1.087 decrease in

the performance of piggery enterprises in Abia state. The regression coefficient of trade credit was positive and significant at 5%, implying direct relationship with performance of piggery enterprise in Abia State. Thus, increase in trade credits increases the performance of piggery enterprises in Abia state. Enterprises with more trade credit tend to improve their profitability; this is consistent with Boissay and Gropp (2007), argued that firms that are facing liquidity problems tries to pass on one-fourth of the stock to their suppliers through trade credit in order to overcome this distressed situation. The regression coefficient of trade credits of 0.977 was inelastic and suggests that a unit increase in short-term capital leads to a less than proportionate increase in the performance of piggery enterprises in Abia state. The regression coefficient of credit payable was negative and significant at 1%, implying indirect relationship with performance of piggery enterprise in Abia State. Thus, increase in credit payable decreases the performance of piggery enterprises in Abia State. Thus, the higher the credit payable, the lower the performance of piggery enterprise in the study area. Credit payable indicates the sum of money the enterprise owes to suppliers. Thus, credit payable is credited when goods/services are purchased on credit because the liability increases. Increase in credit payable position of a given enterprise increases its liability position and thus, reduce the net-worth of the enterprise. Therefore, the performance of the enterprise reduces as its net-worth decreases due to increase in total liability of the enterprise. The regression coefficient of credit payable of -1.801 was elastic and suggest that a unit increase in credit payable leads to -1.801 units decrease in the performance of piggery enterprises in Abia State.

Conclusion

This study had shown that capital structure has effect on the performance of poultry and piggery enterprises in Abia State, Nigeria. Credit receivables, amount of savings, cash at hand, trade credits, short-term debt capital and credit payable significantly influenced the performance of poultry enterprise in Abia State. Credit receivables, amount of savings, cash in hand, short-term debt capital, trade credits, and credit payable significantly influenced the performance of piggery enterprise in Abia State. The study recommends that policies on enhancing the level of performance of poultry and piggery enterprises should consider such capital structure variables such as credit receivables, amount of savings, cash at hand, trade credits, short-term debt capital and credit payable which significantly influenced the performance of poultry and piggery enterprises in Abia State. Prior to investment, properly determining the appropriate capital structure will help to reduce losses and improve the performance of poultry and piggery enterprises in Abia State, and is thus recommended.

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Table 1: Multiple regression estimates of the effect of capital structure on the performance of poultry enterprise in Abia State

Variable	Linear	Exponential	Double-log	Semi-log+
Constant	591.134 (2.330)**	10.266 (5.216)***	8.881 (6.486)***	27897.572 (4.780)***
Credit receivables	-451.691 (-0.595)	0.025 (0.606)	-0.887 (-0.460)	1310.247 (2.672)**
Amount of savings	745.515 (2.583)**	0.123 (2.258)**	1.029 (3.071)***	311.374 (2.202)**
Cash in hand	-184.521 (-2.389)**	-0.330 (-0.807)	-0.683 (-1.553)	574.080 (3.965)***
Inventory worth	952.9 (0.226)	-0.076 (-0.366)	0.578 (0.480)	119.243 (1.351)
Short term debt capital	-368.9 (-0.704)	-0.130 (-2.253)**	-0.774 (-2.604)**	-403.608 (-2.191)**
Trade credits	195.024 (0.418)	-0.002 (-0.011)	-0.642 (-0.556)	214.663 (3.896)***
Long term debt capital	192.258 (2.325)**	0.001 (1.969)*	1.453 (3.478)***	490.441 (1.455)
Informal debt capital	-298.0 (-0.276)	-5.16E-06 (-1.279)	-0.700 (-1.993)*	116.021 (1.255)
Credit payable	-457.724 (-2.154)**	1.670 (3.977)***	0.683 (0.51)	-144.098 (-2.416)**
R ²	0.450	0.429	0.631	0.819
Adj. R ²	0.433	0.408	0.617	0.795
F-statistic	22.630**	21.809***	33.164***	5.670***

Source: Computed by the author from field survey, 2018. ***significant at 1%; ** significant at 5% and *significant at 10%. + = means lead equation. Values in parenthesis are t-ratio

Table 2: Multiple regression estimates of the effect of capital structure on the performance of piggery enterprise in Abia State

Variable	Linear	Exponential	Double-log+	Semi-log
Constant	11221.33 (10.239)***	12.211 (12.314)***	10.955 (6.105)***	280652.1 (8.983)***
Credit receivables	-193.244 (-2.321)**	-1.78E-05 (-4.227)***	1.179 (2.543)**	1788.088 (0.276)
Amount of savings	528.457 (4.761)***	0.056 (3.411)***	1.921 (2.296)**	2867.112 (3.545)***
Cash in hand	1176.797 (1.594)	1.23E-06 (1.230)	1.150 (3.240)***	2246.277 (0.487)
Inventory worth	211.329 (2.611)**	0.032 (0.275)	0.157 (1.144)	1603.820 (1.961)*
Short term debt capital	307.231 (0.622)	-0.344 (-3.419)***	-1.087 (-2.368)**	-4111.403 (-0.442)
Trade credits	11.121 (0.884)	0.521 (1.098)	0.977 (2.211)**	5443.33 (0.603)
Long term debt capital	221.721 (3.899)***	1.60E-06 (0.621)	-0.047 (-1.586)	7294.68 (3.677)***
Informal debt capital	142.824 (4.247)***	0.026 (3.346)***	0.027 (1.496)	4475.567 (2.294)**
Credit payable	-171.142 (-0.487)	-6.23E-07 (-2.931)***	-1.801 (-3.511)***	1455.428 (4.199)***
R ²	0.751	0.772	0.824	0.719
Adj. R ²	0.736	0.757	0.809	0.693
F-statistic	60.246***	62.292***	76.204***	58.476***

*Source: Computed by the author from field survey, 2018. ***significant at 1%; ** significant at 5% and *significant at 10%. + = means lead equation. Values in parenthesis are t- ratio*