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IMPACT OF SHARE PRICES OF LISTED LIVESTOCK-BASED COMPANIES ON PERFORMANCE OF THE NIGERIAN LIVESTOCK SUB-SECTOR

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Abstract
The performance of any sector of the economy is primarily determined by companies operating in such a sector. The performance of listed companies using livestock products as a primary raw material reflects in the prices in which their shares are traded in the stock market. This article examined the impact of listed livestock-based companies' share prices on the Nigerian livestock subsector's performance (1996- 2016). The specific objectives were to identify some listed livestock companies in the Nigerian Stock Exchange (NSE); examine the trend of share prices and the number of shares of the listed livestock companies; and examine the listed companies' short-run and long-run impact of share prices on the Nigerian livestock sector performance. The data were sourced from Nigeria Stock Exchange and the World Bank Development Indicators, while descriptive statistics, unit root test, Johnsen cointegration, and error correction models were applied for the data analysis. The result showed that some listed livestock companies in the Nigerian Stock exchange are Livestock Feed Nigeria PLC, Nestle Nigeria PLC, and UAC Nigeria PLC. The livestock-based companies quoted in the NSE have a long-run impact on Nigeria's livestock sub-sector performance. The livestock sub-sectors long-term performance is hinged on the stock of companies operating in the sector. The government and entrepreneurs therefore, should invest more in companies operating in the sector.

Keywords: LPI, LFP, NES, GDP, Inflation, Interest rate, Cointegration

Introduction

The livestock sub-sector includes businesses that make dairy, leather, eggs, and meat, among other things. This group includes businesses that use livestock products as a primary raw material. The sub-sector can boost governments' revenue since it provides employment, food, farm energy, manure, fuel, and transportation (Hesie *et al*., 2015). Despite its acclaimed significance, the livestock sub-sector in Nigeria tends to play a declining role in job creation and employment, resulting in a limited number of livestock-based companies listed on the NSE (Chidi *et al*., 2013). This situation may be an inevitable consequence of investors' lack of interest in investing in livestock enterprises as a function of the unique constraints confronting the livestock sector, leading to volatility of companies' stock prices in the livestock subsector.

The cost of purchasing a stock on an exchange is referred to as its share price. That is the monetary value received by an investor for the selling of a share. It is affected by a combination of factors, such as market volatility, current economic conditions, and the company's popularity (Izedonmi and Abullahi, 2011; Malaolu *et al*., 2013). According to Ejuvbekpokpo and Edesiri (2014), share prices serve as the foundation for deciding whether a firm is profitable or not. In general, in a competitive market, any company's share price provides investors with a fair measure of its performance and worth. The share price of listed companies determines the amount of capital investors are willing to plunge into the company. The paucity of capital affects the capacity of production and profitability of livestock companies listed in the NSE. One alternative for companies to obtain funding or additional capital is to issue securities. Then the securities or shares newly issued by the company are sold in the primary market in the form of Initial Public Offerings (IPO) or the initial offering of the shares or can be with how to add new securities if the company is already going public. However, the present study is poised to evaluate the impact of listed companies' share price in the livestock subsector on the Nigerian livestock subsector performance from 1996-2016. The specific

objectives are as follows:

1. Identify some listed livestock companies in the Nigerian Stock exchange;
2. Examine the short-run and long-run impact of the listed companies' share prices on the Nigerian livestock sector performance.

Methodology

Nigeria is a West African Country. The International Monetary fund considers Nigeria to be an emerging economy; it has also been recognized as a regional force on the African continent, a middle force in world politics, and a developing global power. However, it currently ranks low in terms of ease of doing business, which has a negative impact on investment in the country's livestock business. Performance of livestock industry was measured using livestock production index (LPI). This study is treated as ex-post factor research since it relied on historical data. This choice is appropriate because ex-post factor research seeks to measure and determine the relationship between variables or the effect of one variable on another, in which the researcher does not manipulate the variables involved. Quarterly data were used for this study. However, data were collected from the Nigeria Stock Exchange (NSE) and World Bank Development indictors from 1996-2016. Data were analyzed using descriptive statistics; Johansen cointegration model and vector error correction model. The Philip Perron unit root test was used to test if the data have a unit root.

Model Specification

This study therefore specifies the implicit form of the model as follows:

LPI= f (LFP,NES,UAC,GDP,INF,INT) ….....1

Explicitly, equation 1 is also specified thus:

$LPI = b_o + b_1LFP + b_2NES + b_3UAC + b_4GDP + b_5INF + b_6INT + e$ 2

Where:

LPI = Livestock production index

LFP = Livestock Feed Production Nigeria PLC share price

NES = Nestle Nigeria PLC share price

UAC = UAC Nigeria PLC share price

GDP = Gross Domestic Product

INF = Inflation

INT = Interest rate

$b_1 – b_6$ = Coefficients to be estimated

b_0 = Constant

e= error term

Results and Discussion

Descriptive statistics were used to analyze the listed livestock companies' share prices in the Nigerian Stock Exchange Market and other macroeconomic indicators. The result is presented in Table 1. The results show that some listed livestock companies in the Nigerian Stock exchange are Livestock Feed Nigeria PLC, Nestle Nigeria PLC, and UAC Nigeria PLC. The result showed that the average Livestock Feed Nigeria PLC share price is N 0.575 with a negative skewness value- of 1.87, kurtosis 4.52, and Jarque-Bera 51.92 (P-value <0.05). This result implies that the Livestock Feed Nigeria PLC share price is not normally distributed (Oyinbo and Rekwot, 2014). The result showed that the average Nestle Nigeria PLC share price is N 1469.92 with a positive skewness value- of1.23, kurtosis 2.53, and Jarque-Bera 20.10 (P-value <0.05). This result implies that the Nestle Nigeria PLC share price is not normally distributed. However, the average UAC Nigeria PLC share price is N 10.12 with a negative skewness value- of 2.5, kurtosis 7.6, and Jarque-Bera 151.3 (P-value <0.05). This finding implies that the UAC Nigeria PLC share price is also not normally distributed. The Livestock production index average is 1.56 with a positive skewness value- of 0.18, kurtosis 2.00, and Jarque-Bera 3.52 (P-value > 0.05). This finding implies that the Livestock production index is normally distributed. The gross domestic product, inflation, and interest rate showed an average value of 325552.8, 1.63, and 6.64 with skewness values- of -0.44, 0.87, and -0.30 respectively. The kurtosis values were 2.08, 2.77 and 2.77 for gross domestic product, inflation and interest rate respectively, with Jarque Bera values of 5.17, 9.91 and 1.34 (P-value >0.05 each). This finding implies that the gross domestic product and the interest rate have normal distribution, while the inflation rate is not normally distributed.

Table 1: Descriptive statistics of listed livestock companies in the Nigerian Stock Exchange, share prices and other macroeconomic indicators

	GDP	INF	INT	LFP	LPI	NES	UAC
Mean	325552.8	1.63	6.64	0.58	1.60	1469.92	10.12
Median	344549.9	1.51	6.69	0.59	1.61	1469.90	10.25
Maximum	409635.5	5.83	18.18	0.59	2.93	1470.00	10.25
Minimum	214805.40	-1.22	-5.63	0.50	0.50	1469.90	9.05
Std. Dev.	54282.47	1.77	5.79	0.03	0.72	0.04	0.37
Skewness	-0.44	0.88	-0.31	-1.88	0.18	1.24	-2.57
Kurtosis	2.08	2.78	2.78	4.52	2.01	2.53	7.62
Jarque-Bera	5.17	9.91	1.35	51.92	3.53	20.10	151.35
Probability	0.08	0.01	0.51	0.00	0.17	0.00	0.00
Sum	24742013	124.56	504.64	43.76	121.45	111714.20	769.40
Sum Sq. Dev.	2.21E+11	235.92	2514.78	0.08	38.97	0.14	10.31

Source: Authors computation using Eviews 9. GDP = Gross domestic product, INF = inflation, INT = Interest rate, LFP = Livestock Feed Nigeria PLC, LPI = Livestock production index, NES = Nestle Nigeria PLC share prices, UAC = UAC Nigeria PLC share prices

Unit root test using Philip Perron was used to estimate the stationarity of the series. The result is presented in Table 2.

Table 2: Unit Root Test of Variables (Philip Perron)

Variables	5% Critical Value	Level	First Difference	Decision
LFP	-3.46	-3.06	-8.61	I(1)
UAC	-3.46	-3.70	-16.54	I(0), I(1)
NES	-3.46	-1.99	-4.51	I(1)
INF	-3.44	-3.26	-8.49	I(1)
INT	-3.44	-1.43	-9.51	I(1)
GDP	-3.44	-1.61	-8.50	I(1)
LPI	-3.44	-2.55	-9.63	I(1)

Source: Authors Computation using Eviews 10 (2019)

The results show that LFP, UAC, and Nestle Nigeria PLC share prices, inflation rate, interest rate, and gross domestic product were stationary at first difference. This trend implies that the variables have a unit root at the first difference. Therefore, the Johansen co-integration method can be used to study the impact of the share price on the listed companies' performance in the livestock sub-sector. Table 3 also showed the optimal lag lengths for the model.

Table 3 Lag length selection

Lag	LogL	LR	FPE	AIC	SC
0	-995.32	NA	1372.96	27.09	27.31
1	-572.47	754.27*	0.6*	16.58*	18.73*
2	-536.92	56.69	0.08	17.34	20.62

**** indicates lag order selected by the criterion***

LR: sequential modified LR test statistic (each test at 5%level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

The result showed that the optimal lag length for the listed livestock companies' share prices in Nigeria Stock Exchange using Akaike information criterion at 5% significance level is one (1). The study employed Johansen's cointegration techniques to determine the presence of cointegration within the model. This technique ensures that the regression of the variables will be meaningful and non-spurious. If the trace statistic and the Max-Eigen statistic are greater than the 5% critical values, the null hypothesis of no cointegration will be rejected in favour of the alternative hypothesis at that level. The result is presented in Table 4.

Table 4: Johansen co-integration test result

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.56	182.78	125.62	0.00
At most 1 *	0.43	123.06	95.76	0.00
At most 2 *	0.31	82.04	69.82	0.01
At most 3 *	0.25	54.70	47.86	0.01
At most 4 *	0.21	33.18	29.80	0.02
At most 5 *	0.16	16.14	15.50	0.04
At most 6	0.05	3.56	3.84	0.06

Trace test indicates 6 cointegrating eqn(s) at the 0.05 level

** denotes rejection of the hypothesis at the 0.05 level*

***MacKinnon-Haug-Michelis (1999) p-values*

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.56	59.73	46.23	0.00
At most 1 *	0.43	41.02	40.08	0.04
At most 2	0.31	27.34	33.88	0.25
At most 3	0.26	21.51	27.58	0.25
At most 4	0.21	17.04	21.13	0.17
At most 5	0.16	12.58	14.27	0.09
At most 6	0.05	3.56	3.84	0.06

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

** denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) p-values*

The co-integration test was conducted with the assumption of linear deterministic trend and estimated lag of one to one. Based on the results, the trace test indicates five (5) cointegrated at a 0.05 (5%) level of significance. Besides, the trace statistic of the five equations was greater than their respective individual critical value at 0.05 or 5% level of significance. Similarly, the maximum eigenvalue test indicates two (2) cointegrates at a 0.05 (5%) level of significance; the maximum eigenvalue statistic at this level was greater than the critical value at 0.05 or 5% level significance. By the maximum eigenvalue test criterion, two co-integrating vectors are specified in the model. This result suggests a long-run equilibrium relationship among the dependent and independent variables in the model, as shown by the trace and maximum eigenvalue (Mbanasor and Onwusiribe, 2014).

Table 5: Impact of Share Price on the Performance of the Listed Companies in the Livestock Sub-Sector in the Long run

Variables	Coefficient	Std. Error	T-Statistics
Constant	3568405		
LFP(-1)	-2996.13	918.24	-3.26**
UAC(-1)	166.46	64.37	2.59**
NES(-1)	-2427.78	381.86	-6.36***
INF(-1)	-8.66	9.31	-0.93^{ns}
INT(-1)	-5.22	3.10	-1.68^{ns}
GDP(-1)	0.02	0.01	2.16**

Source: Authors computation using Eviews 10 (2019).

****, **, ***& ns indicates that the values are significant at 10%, 5%, 1% & not significant respectively***

Table 5 presents the long-run relationship equation, and shows that all the listed companies' share prices in the livestock subsector significantly influenced the performance of the listed companies in the livestock subsector. The coefficient of Livestock Feed Production Nigeria PLC share price (LFP) has a significant negative value of -2996.127. This result implies that the share price of LFP has an indirect relationship with the listed companies' performance in the livestock subsector. Therefore, an increase in the share price of livestock feed production PLC will lead to a 2996.127 unit decrease in the livestock subsector's performance. The coefficient of UAC Nigeria PLC share price was significant with a positive value of 166.4569. This result implies that the share price of UAC has a direct relationship with the performance of the livestock subsector. Therefore, an increase in UAC Nigeria PLC's share price will lead to a 166.4569 unit increase in the performance of the listed companies in the livestock subsector. The coefficient of Nestle Nigeria PLC share price (NES) was significant with a negative value of -2427.775. This result implies that Nestle's share price has an indirect relationship with the performance of the listed companies in the livestock subsector. Therefore, an increase in Nestle Nigeria PLC's share price will lead to a 2427.775 unit decrease in the performance of the listed companies in the livestock subsector. These imply that companies quoted in the NSE have a long-run impact on Nigeria's livestock sector performance. This finding is in tandem with some authors' report that the stock exchange's performance contributes significantly to economic performance (Olowe *et al*., 2011; Poopola, 2014; Okonkwo *et al*., 2014). The speed of adjustment is positively signed (0.00025) and not statistically significant. This result implies there is no equilibrium to which the listed companies' short-run share prices tend to return to the long-run's share prices; this might be caused by the adverse effect of financial crises over the years. The R-square is 0.1892, implying that an 18.9% change in the listed livestock companies' performance was caused by the selected livestock company share prices included in the model.

The result in Table 6 showed that all the livestock listed companies' share price coefficients are not statistically significant in the short run. Also, the F-statistic value is 0.052 (not statistically significant at 5%). This result implies that listed companies' share prices have no short-run impact on Nigeria's livestock sector performance. This result implies that investments in the stock market have a significant impact on the economy in the long run and no significant impact in the short run.

Table 6: Impact of Share Price on the Performance of the Listed Companies in the Livestock Sub-Sector at the short run

Variables	Coefficient	Std. Error	T-Statistics
Constant	0.02	0.04	-0.40^{ns}
D(LFP(-1))	0.77	4.13	0.19 ^{ns}
D(UAC(-1))	-0.05	0.29	-0.18 ^{ns}
D(NES(-1))	0.34	1.04	0.39 ^{ns}
D(INF(-1))	0.01	0.06	0.11 ^{ns}
D(INT(-1))	0.01	0.01	0.14 ^{ns}
D(GDP(-1))	9.00E-07	4.8E-06	0.19 ^{ns}
ECM(-1)	0.01	0.01	0.63 ^{ns}
R-square	0.19		
F-statistic	0.05^{ns}		

Source: Authors computation using Eviews 10 (2019). *, **, ***& ns indicates that the values are significant at 10%, 5%, 1% & not significant respectively

The result in Table 7 showed diagnoses test values of 771.51 (P-value <0.05), 23.62 (P-value > 0.05) and 7788.8 (P-value < 0.05) for heteroskedasticity, no autocorrelation and normal distribution respectively. This result implies that the model suffered from heteroskedasticity, not normally distributed but has no autocorrelation.

Table 7: Diagnosis test

Residual Diagnosis	Chi-Squ.	Q-Statistics	Jarque-B Stat	Decision
Heteroskedasticity test	771.51**	-	-	Heteroskedasticity
Autocorrelations test	-	23.62^{ns}	-	No Autocorrelation
Normality test	-	-	7788.80***	Not normally distributed

Source: Authors Computation Using Eviews 10 (2019). *,**, *** & ns indicates that the values are significant at 10%, 5% , 1% & not significant respectively

Conclusion

The finding showed that some listed livestock companies in the Nigerian Stock Exchange were Livestock Feed Production Nigeria PLC, Nestle Nigeria PLC, and UAC Nigeria PLC. The result showed that the average Livestock Feed Nigeria PLC share price is ₦0.575, Nestle Nigeria PLC ₦ 1469.92, and UAC Nigeria PLC ₦ 10.12. The stationary test result showed that all the variables have a unit root at the first difference. Therefore Johansen co-integration method was used to study the impact of the share price on the performance of the listed companies in the livestock sub-sector at an optimal lag length of one (1) for the Akaike Information Criterion. The Johansen co-integration test results suggest a long-run equilibrium relationship among the dependent and independent variables in the model, as shown by the trace and maximum eigenvalue statistics. The study of the impact of the share price on the listed companies' performance in the livestock sub-sector showed that the coefficient of Livestock Feed Production Nigeria PLC share price (LFP) and Nestle Nigeria PLC share price (NES) has a significant negative value of -2996.127 and -2427.775 respectively. However, the UAC Nigeria PLC share price (LFP has a value of ₦ 166.4569, impling that listed companies' share prices have a long-run impact on Nigeria's livestock sector performance. In contrast, there is no equilibrium to which the listed companies' short-run share prices tend to return to the long-run's share prices. The result showed that all the livestock listed companies' share price coefficients are not statistically significant in the short run; implying that listed companies' share prices have no short-run impact on Nigeria's livestock sector performance. There is need therefore for the companies to reduce their share prices to attract more investors who will buy their shares. This finding will increase the listed livestock subsector's performance in the Nigeria stock exchange. Since the livestock sector's long-term performance is hinged on the stock of companies operating in the sector, the government and entrepreneurs should invest more in companies operating in the sector. Policies should be geared to creating an enabling environment for more companies to operate in the sector; more competition will result in more competitive share prices since there is no equilibrium to which the listed companies' short-run share prices tend to return to the share prices of the long run.

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