#### Market Performance and Dividend Policy of Listed Manufacturing Firms in Nigeria

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#### Abstract

This paper examines the effect of Market Performance and Dividend Policy of listed manufacturing firms in Nigeria. Market performance was proxied by Economic Value Added (EVA), Market Value Added (MVA), Total Shareholders Return (TSR) and Tobin's Q, while dividend policy is represented by Dividend payout (DPO). The study adopted expost facto research design and multiple regression was used in order to establish the nature and degree of the relationship between the variables under consideration. The study found a positively significant relationship between total shareholders return (TSR) and dividend payout of listed manufacturing firms in Nigeria whilst Tobin's Q revealed positively insignificant effect on dividend payout of listed manufacturing firms in Nigeria should (MVA) revealed negatively significant relationship on dividend payout of the firms. Therefore, it is recommended among others that management of manufacturing firms in Nigeria should try to improve their market performance by ensuring that the company invest in projects that would yield positive return in order to attract more investors and consequently better value for the firm.

*Keyword:* Dividend Payout, Economic Value Added, Market Value Added, Total Shareholders Return, Tobin 's Q, Manufacturing Firms.

### 1. Introduction

Distribution of generated profits is an essential decision that managers have to decide on as well as the amount of earnings to be distributed to shareholders and the portion of earnings to be held back and reinvested in the company for growth and expansion. Dividend is not just a source of income for shareholders, but it acts as an indicator to judge the performance of the firm (AlMalkawi, Rafferty & Pillai, 2010). Dividend is basically the benefit of shareholders in return for their investment. In the meantime, managers have to decide whether to pay dividend or not. If they decide to pay dividend they will face further questions of how much they should pay which call for puzzles in finance decision as one of the most important decisions that corporate managers encounter in the discharge of their primary responsibilities as well as bearing in mind that one of the main objectives of a firm is shareholder's wealth maximization (Hosain, 2016). Dividend decision is important for managers as it determines the source of cash flow to the shareholders and also provides information relating to firm's current and future performance (Ozuomba, Okora & Okoye, 2013).

Dividend of a firm provides a clear picture or position of the company's financial well-being. It as well attracts others willing to invest in the firm (Amarjit, Nahum & Rajendra, 2010). The dividend policy affects the financial structure, flow of funds, corporate liquidity, stock prices, and the behaviour of stockholders. Dividend policy has gone beyond the scope of addressing the frequency of paying its shareholders a cash dividend or to retain earnings, but it includes such issues as whether to distribute cash through share repurchase, bonus shares or through specially designated forms rather than regular cash dividends (Kajola, Adewumi, & Oworu, 2015). Some stockholders prefer receiving maximum current returns on their investment, while others prefer reinvestment of earnings so that the company's capital will increase. If earnings are paid out as dividends, they cannot be used for company expansion which thereby diminishes the company's long-term prospects (Taufik & Bastion, 2018). Companies tend to reinvest their earnings more when there are chances for profitable expansion. Thus, at times when profits are high, the amounts reinvested are greater and dividends are smaller. For similar reasons, reinvestment is likely to decrease when profits decline in the company. Hence, all these indicate the importance of performance to firm (Klapper& Love, 2012).

Dividend policy indicates the level of earnings paid to shareholders on their investment and it is also a critical decision because it relates to other financial and investment decisions (Ifuero & Iyobosa, 2016). Dividend policy, in the context of this study, relates to firm's dividend payout ratio that managers adopt in deciding the pattern and size of cash distribution to shareholders over time. Hence, it is the decision of management about the portion of income that is given to shareholders in the form of dividend.

The firm performance determines the dividend paid out to its shareholders. The greater the amount of earnings generated by a firm as a result of good performance, the higher will be the amount of dividend payout<sub>s</sub> which in turn will boost the stock price of the company in the stock market (Wasike & Jagongo, 2015; Bunyasi 2012; Jensen, 2010). The financial performance of firms also serves as one of the means by which firms are rated, it is also used to measure the success or otherwise of the operations of the firm. There are several ways to evaluate firm performance but the most commonly used method is ratio which covers a number of concepts and can also be grouped into profitability, liquidity, leverage, activity and investment ratios (Thoa & Uyen, 2014; Kurfi, 2006).

Dividend payout decision inclines to focus on the sharing of the profits as a whole or holding some part of it as retained earnings. It is one of the research areas that always attract attention

of groups, financial analyst, researchers, investors and other stakeholders. However, dividend policy controversy is one of the ten major unsolved problems of corporate finance which deserves more research in order to increase understanding of the subject (Bulla, 2013). Hence, this study examines the effect of market performance proxied by economic value added (EVA), market value added (MVA), total shareholders return (TSR) and Tobin's q (TQ) and dividend policy represented by dividend payout (DPO) of listed manufacturing firms in Nigeria.

It is against this background that this study will examine the effect of market performance on dividend policy of listed manufacturing firms in Nigeria. The study will be significant to the management of Nigeria listed manufacturing firms, investors, regulators as well as the general public. In the context of this study, dividend payout, relates to firm's decision on the pattern and the amount of distribution made to shareholders of the firm. Hence, it is the decision of management about the portion of income that is distributed to shareholders in the form of dividend. Thus, the level of earnings paid to shareholders on their investment is a critical decision as it relates to the overall performance of the firms.

## **1.2 Statement of the Problem**

Over the years, performance of manufacturing firms in Nigeria has been unimpressive. Records have shown that the contribution of the manufacturing sector to the total economic output in Nigeria has been negligible and has been on the decline overtime. Statistics indicated that the manufacturing sector's contribution to the economy dropped from N8.97 trillion as at the end of December, 2015 to N8.89 trillion as at the end of December, 2016. It further decreased to N8.81 trillion at the end of the 2017 (Central Bank of Nigeria, 2017; National Bureau of Statistics, 2017). The unimpressive performance of the sector is believed to have an adverse effect on productivity as well as payment of dividend in the sector. This is also related to the poor enabling environment which has led to the poor performance of the sector as well as withdrawal of investors from the sector which equally has multiplier effect on the development of the sector. Therefore, for any firm to be able to declare dividend to its shareholders, the company should be able to generate adequate earnings which can only be attainable when there is a stable and enabling environment to achieve these goals (Adediran & Alade, 2016).

Recent report indicated that about 74 percent of manufacturing firms operating in the country perceived the business environment as unsupportive as a result of some of the problems highlighted earlier, which made it impossible for the manufacturers to produce up to their installed capacity owing to reduction in the purchasing power of Nigerians and inflation (Adeniran, 2018). Affirming the report, Adeniran, (2018) revealed that about 85 per cent of manufacturing companies are not operating up to 75 per cent of their installed capacity.

The manufacturing sector which is expected to contribute an average of 15 percent added contribution to the Gross Domestic Product (GDP) has fallen drastically and these negative trends in the performance of manufacturing production indicated falling productivity (Ibikunle, 2018). In addition, low capacity utilization rate makes it difficult for profitable operations of the manufacturing sector where majority of the companies are operating below their capacity utilization, this is not encouraging when it is recognized that about 48 percent foreign exchange earnings of the Nigeria was allocated to the manufacturing sector that contributed only about 6 percent of the GDP (Adeniran, 2018). Thus, the unimpressive performance of the manufacturing sector in Nigeria was attributed to some of the undermentioned problems which are affecting the sector. Such as: high exchange rate, high interest rate, poor power supply, low capacity utilization as well as low patronage (Adeniran, 2018).

In an effort to understand the consequences of unimpressive performance of manufacturing sector on shareholders in Nigeria, some studies have examined the relationship between dividend policy and firm performance (Sunday, Ademola & Oyefemi, 2015; Oyinlola, Oyinlola & Adeniran, 2014; Oyinlola & Ajeigbe, 2014; Onanjiri & Korankye, 2014; Murekefu & Ouma, 2012). However, most of the existing studies have only considered the impact of dividend policy on firm performance despite the fact that as dividend policy affects firm performance, also firm performance affects dividend policy to shareholders of firms (Rafindadi & Bello, 2019; Kimunduu, Mwagi, Kaijage & Ochieng, 2017; Anwaar, 2016; Giang & Tuan, 2016; Koduk, 2016; Pascareno & Siringoringo, 2016; Kajola, Adewumi, & Oworu, 2015; Yusuf, 2015; Uwuigbe, 2013; Mirza & Javed, 2013; Salehnezhad, 2013; Fong, Zakaria & Tan, 2007). Hence, this implies that relationship exist between firm performance and dividend policy as well as dividend policy and firm performance. Furthermore, past studies have not been using market measures of firm performance although they are one of the fundamental measures of financial performance (Santos & Brito, 2013), The past studies mostly focused on accounting measures of firm performance such as; return on asset, return on equity, return on investment, net profit margin, return on capital employed (Azeez & Latifat, 2015; Oyinlola & Ajeigbe, 2014; Murekefu & Ouma, 2012).

Methodologically, most of the studies conducted on the relationship between firm performance and dividend payout have used multiple regression technique as a tool of their analysis which could not capture heterogeneity of the firms over time. To improve on the literature, this study will make use of panel data regression analysis that would enhance the reliability and validity of the study statistical inferences. Hence, this study is set to fill the aforementioned gaps by examining the effect of market measures of firm performance on dividend payout to shareholders of listed manufacturing companies in Nigeria. The market measures of firm performance to be captured in this study are economic value added (EVA), market value added (MVA), total shareholders return (TSR) and Tobin's q (TQ).

The reviewed literature signifies the importance of performance towards enhancement of dividend payment especially as it relates to the manufacturing sector. However, it portrays that there are few studies which examined the effect of firm performance on dividend pay out to shareholders of manufacturing firms in Nigeria in particular and the world in general (Rafindadi & Bello, 2019; Kimunduu, Mwagi, Kaijage & Ochieng, 2017; Anwaar, 2016; Giang & Tuan, 2016; Koduk, 2016; Pascareno & Siringoringo, 2016; Kajola, Adewumi, & Oworu, 2015; Yusuf, 2015; Uwuigbe, 2013; Mirza & Javed, 2013; Salehnezhad, 2013). Furthermore, most of the studies conducted in Nigeria have not considered market base measure of financial performance. This gap in the literature paved way for further research on the relationship of market performance and dividend policy in the manufacturing sector in Nigeria.

## **1.3 Research Questions**

In the light of the foregoing, the study will address, the following research questions:

- i. To what extent does economic value-added affect dividend payout among listed Nigeria manufacturing companies?
- ii. How does market value-added affect dividend payout among listed Nigeria manufacturing companies?
- iii. How does total shareholders' return affects dividend payout among listed Nigeria manufacturing companies?
- iv. What effect does Tobin's Q has on dividend payout among listed Nigeria manufacturing companies?

### 1.4 Objectives of the Study

The main objective of the study is to examine the effect of market performance on dividend pay out to shareholders of listed manufacturing firms in Nigeria. Specifically, the study will address the following objectives:

- i. To examine the effect of economic value added on dividend payout among listed manufacturing companies.
- ii. To assess the effect of market value added on dividend payout among listed manufacturing companies.
- iii. To identify the effect of total shareholders return on dividend payout among listed a manufacturing companies.
- iv. To determine the effect of Tobin's Q on dividend payout among listed manufacturing companies.

### **1.5 Hypotheses of the Study**

In line with the specific objectives, the study will test the following hypotheses that have been formulated in null form:

- Ho:: Economic value added has no significant impact on dividend payout among listed manufacturing companies.
- Ho<sub>2</sub>: Market value added has no significant impact on dividend payout among listed manufacturing companies.
- Ho<sub>3</sub>: Total shareholders return has no significant impact on dividend payout among the listed manufacturing companies.
- Ho4: Tobin's Q has no significant effect on dividend payout among the listed manufacturing companies.

### 2. Empirical Review

Kimunduu, Mwagi, Kaijage and Ochieng (2017) examined the relationship between financial performance and dividend policy of firms listed at the Nairobi securities exchange under hypothetical view that is not significant which was tested against a sample size of 31 firms selected using purposive sampling technique. The study found that there was a statistically significant direct association between return on equity and dividend policy. This implies that as firm profitability improves; a corresponding proportionate change in dividend payout ratio is initiated by management. In addition, it was established that there was a statistically significant positive linkage between operating cash flows and dividend policy which denotes

that as cash flow levels from operating activities change, dividend payout ratio will change in the same direction leading to increased distribution of cash dividend to investors. Again, a statistically significant direct connection between price earnings and dividend policy was established. This relationship shows that increase in share market value positively prompts increased dividend payout ratio whereby the management follow a more acceptable dividend policy by the shareholders. However, market to book value depicted a weak insignificant inverse relationship with dividend policy and was dropped. In general, the study concluded that the link between financial performance and dividend policy of firms listed at the Nairobi securities exchange was significant. The gap in this study was that the researcher did not consider the use of the market to book value because of its weak insignificant value and was dropped.

Rafmdadi and Bello (2019) investigated the effect of firm performance and dividend policy of 21 listed financial companies in Nigeria for a period of 20 years (1997-2016). Secondary data was obtained and used for analysis, Hausman test were conducted to choose between fixed effect and random effect, and fixed and pooled OLS respectively as well as Wald test was employed for testing normality of data. The outcome from the regression result revealed that all the independent variables significantly affect dividend payout ratio of the sampled companies. It is clear from the analysis that performance affects dividend decisions in both short and long runs. As such, managers of these companies should sustain effective utilization of their assets and should also strive to increase the value of their equity by investing larger portion of their earnings into profitable ventures. The gap in this study was that if this study was conducted on the nonfinancial companies the results of the findings may not be the same.

Pascareno and Siringoringo (2016) analyzed the effect of financial performance on company's value moderated by dividend policy. The variables of the study consist of financial performance, dividend policy, and company's value. Financial performance was measured by liquidity, leverage, and profitability, while dividend policy was represented by dividend payout ratio and company's value was proxied by Tobin's Q. Data were filtered from annual financial repot of 18 insurances and banking companies. These 18 companies were listed in Indonesia Stock Exchange during the period 2010-2013. Data were analyzed using multiple regression analysis. There was evidence that financial performance did not affect the dividend payout and company's value. It was also shown that dividend policy did not moderate the effect of financial performance on company's value. The study revealed that there was no a long-run relationship between variables of the study. Nevertheless, the study fails to consider other market base variables, such as market value added, economic value added and dividend yield in other to test their effect on dividend policy.

Anwaar (2016) investigated the impact of firm performance on stock returns of companies Listed Companies of FTSE-100 Index London, Stock Exchange over the period 2005 to 2014. The study adopted five independent variables and one dependent variable. Earnings per share, quick ratio, return on assets, return on equity, and net profit margin were used as independent variables while stock returns was used as dependent variable. Panel regression analysis method was used for analysis of data. The findings indicated that net profit margin, return on assets have significant positive impact on stock returns while earnings per share has significant negative impact on stock returns. When earnings per share increases, then all those investors who wants short term gain and are conscious for dividend sell their stock in the market due to the fact that in the near future the stock returns of the company will decrease due to excess supply of stocks, while return on equity and quick ratio shows insignificant impact on stock returns.

Giang and Tuan (2016) examined the relationships between financial performance, dividend payment and the firm market value added of listed firms in the food and drink industry in the period 2010 to 2014 in Vietnam. The research finds empirically applicable factors in corporate finance and the management of stock listings in the stock exchange. The study developed an exploratory model reflecting the market value of the firms in the food and drink industry in the Vietnamese stock market in relation to their financial performance and dividend payments. The findings revealed that in the food and drink industry in Vietnam, firms will be more attractive in the stock exchange when dividends are paid in cash, achieved high gross margins, and mobilize a low debt ratio at a low mobilization cost. The study research gap was that it only considers food and drink industry without recognizing other industries that makes up the manufacturing sector as this could affect the outcome of the result.

Koduk (2016) determined the relationship between financial performance and dividend payout of savings and credit cooperative societies registered by SACCO society regulatory authority in Kenya. Data were obtained from secondary source and a sample of 164 firms were collected for the period of five years from 2011 to 201\$. The data were analyzed using descriptive statistics as well as inferential statistics for making conclusions from the data. Correlation and regression analysis was used in determining the relationship between the variables. The findings of the study indicated that there exists a positive relationship between financial performance and dividend payout of registered Sacco's firms and negative relationship also was shown by growth variable. The study recommended that firms should pay dividends based on their financial performance and this entails coming up with a good management strategy and effective dividend policy. However, if same study was conducted in the emerging economy like Nigeria, the results outcome may not be the same as well as if the period of the study was extrapolated to cover up to 2018.

Uwuigbe (2013) investigated on the nature of linkage between financial performance and dividend policy of listed firms at the Nigerian stock exchange. The objective of the study was to examine the effects of financial performance, firm size, financial leverage and board independence on dividend payout ratio of firms listed at the Nigerian stock exchange market. Purposive sampling technique was used to select a sample size of fifty (50) firms for the study. The financial records for the period between 2006 and 2011 were used to collect the relevant data. Regression methodology was used for data analysis where by it was established that the association between firm size, board independence, financial performance and dividend payout ratio were proportional and statistically significant for firms listed at the Nigerian stock market. The gap in this study was that, the period of coverage of the study was 2006 -2011, which by now a lot of changes are believed to have taken place that can alter some of the findings in the earlier study.

Kajola, Adewumi and Oworu (2015) investigated the linkage between financial performance and dividend payout ratio of nonfinancial firms registered at the Nigerian stock exchange. A sample size of twenty -five (25) firms was selected for the study and secondary data were collected for a period of ten years, from 2004 to 2013. Both panel data and pooled ordinary least squares regression models were employed to establish the coefficient of predictor and the control variables respectively. Profitability was used as the predictor variable whereby it was measured using rate of return on assets whereas dependent variable was dividend policy which was measured using the dividend payout ratio. The findings of the result concluded that there was a direct and significant relationship between profitability and dividend policy. The gap in the study was that the sample size used in the study was not adequate enough because if the sample size is more the better the statistical inferences of the study. Yusuf (2015) examined the impact of performance and dividend payout ratio of some selected deposit money banks in Nigeria covering the periods between 2004 and 2013. The study adopted explanatory research design of which four deposit money banks were selected and data relating to the relevant variables of leverage and profitability as independent variables and dividend payout ratio as dependent variable were collected. Multiple regressions and correlation analysis were employed to analyzed the data. The findings revealed that leverage has negative and insignificant impact on dividend payout ratio. The result of profitability of the firm was negatively and significantly influencing dividend payout of some selected deposit money banks in Nigeria in the study, with an indication that profitability and dividend payout of the banks move in an inverse direction. That is, the higher the profit earned by the bank, the lesser the dividend declared by the selected banks to the shareholders. The study was criticized due to the fact that the same study can be conducted in the manufacturing sector and the findings of the will be different from what was obtained in the financial sector.

Gunaratne (2017) explored the relationship between Economic Value Added (EVA) and stock return in Sri Lanka. The study sample consists of 1695 firm year observations covering 113 public limited companies listed in Colombo Stock Exchange (CSE) for 15 years' period from 1999 to 2013. This study was based on secondary data, collected from the CSE data library and the published financial statements of companies considered in the sample. Pearson correlation coefficient and the fixed effect model of panel data regression analysis techniques were adopted as the statistical techniques. The results of the study revealed that there was no significant positive relationship between EVA and stock return in Sri Lanka. Contrary to the arguments of EVA proponents, the researcher suggested the market participants of Colombo Stock Exchange to select other, performance measures instead of EVA to make rational economic decisions. The gap in the result of the finding revealed no relationship between the variables of the study, this can be attributable to the factors that are obtainable in the CSE which may be different from another country like Nigeria stock exchange and this will give a different result.

Threemanna and Gunaratne (2016) have studied the association of EVA on stock return taking data only from the Beverage, Food and Tobacco sector companies in Colombo Stock Exchange. The results of the study indicated that the EVA is not a statistically significant performance measure which could explain stock return in Sri Lanka but other measures should be sought. It was hard to find any other published work other than these two studies. The discrepancies in the reported results of the relationship between EVA and stock returns in the international context for both developed and emerging markets and the inadequacy of the studies conducted in Sri Lankan context creates an obvious necessity to study this matter further in Sri Lankan context for Colombo stock exchange. Accordingly, the present study was conducted to bridge the identified gap with the hypothesis that there is a strong positive relationship between EVA and stock return in Sri Lanka.

Ogundajo, Enyi, Akintoye and Dada (2019) examined the usefulness of accounting information in predicting the investors return especially dividend payout. Ex-post facto research design was adopted using secondary data obtained from financial statement of accounts of 36 selected manufacturing firms for a period of twenty years from 1997-2016. The results of the regression analysis conducted revealed that lagged dividend, market value added, leverage and sales growth have significant positive effect on dividend payout while earnings per share, operating cash-flow and firm size influences dividend payout ratio negatively with the exemption of asset utilization ratio with insignificant effect. It is obvious that accounting information is useful to investors' in predicting the returns on their investment and dividend payout. Investors should look beyond past dividend in forecasting expected returns but several factors as presented in the financial statements in taking informed investment decisions.

Anandavel and Selvarasu (2012) investigated BSE-SENSEX companies profile to demonstrate the direct correlation between the investment in stockholder relationships and corporate performance. Anandavel and Selvarasu (2012) opined that economic value added (EVA) is now being considered as an important management tool across the corporate world for measuring and rewarding performance inside the companies. Most of the companies measure performance with accounting profits which are often seriously biased measure of true profitability, EVA is an unbiased measure of true profitability, unlike accounting profits, EVA indicates the value to what extent has been created by management or agent for shareholders. However, the study concluded that among the 30 companies Ongo group of company and Reliance Industries EVA were topped. Furthermore, the three companies' EVA were negative during the period of the study in the BSE-SENSEX companies. Therefore, the companies should improve their profit which is enough to face their cost of capital. The study fails to describe the methodology adopted for the analysis of data and the research design employed was also not explained in the entire study.

Lehn and Makhija (1996) conducted a study on economic value added and market value added and opined that both performance measures have significant relationship with stock price movements as well as dividend payout. Furthermore, evidence of significant relationship between EVA and MVA was provided by Panahi, Preece, Zakaria and Rogers (2014) examined the relationship between stock price behaviour of companies and value-based measures like EVA, MVA and TSR in Tehran stock market. The result of the study demonstrated that by enhancement of EVA and MVA in the company's financial performance and stock price in Tehran stock market increased and vice versa. However, if the same study is replicated in Nigeria this will give a different result because it is an emerging economy as compared to Tehran.

Liang, Singhal and Parkash (2016) examined the relationship between the Tobin's q ratio and firm performance for a sample of publicly traded US firms. The study defined the q ratio as a firm's market value divided by the replacement cost of the firm's assets and measure firm performance as earnings before interest and taxes (EBIT) scaled by sales. Multivariate analyses were used to ascertained the relationship between the variables of the study. The result of the study revealed a significant superior performance for firms with higher q ratio. This implies that firms with higher q ratios experience superior operating performance in the long run than those with low q ratios and indicates the importance of performance as regards payment of dividend to shareholders. The correlation indicates that Tobin's q ratio has a long-term impact on the firm's operating performance, not just on a short-term effect. Furthermore, the results indicated that q ratio is highly significant with respect to all the future 5-year proxy to the operating performance; which shows that firms with higher Q ratio present superior performance in the future. The multivariate analysis is also consistent with the univariate analysis in that the coefficient on Tobin's q ratio for year +1 is higher than all the subsequent years, and the coefficient on all the subsequent years are quite stable and stationary, which indicated that Tobin's q ratio has constant impact on firms' future operating performance.

Salehnezhad (2013) investigated the relationship between firm performance and dividend policy of listed company in Tehran Stock exchange using fuzzy regression during 2010 and 2012. The findings of the study indicated a significant and positive relationship between financial performance (shareholder returns) and dividend policy and also there was a significant and negative relationship which exists between economic performance (economic

value added) and dividend policy. Furthermore, a significant relationship exists between control variable (size) and dividend policy.

Foong, Zakaria and Tan (2007) investigated firm performance and dividend related factors, the relationship between individual stock returns with dividend yield, dividend stability and changes in dividend yield from 1992 to 2000 in the Malaysian Trading/Services and Plantation firms. The statistical result from the multiple regression indicated weak evidence to support the significant role of dividend yield and dividend stability in explaining firm stock returns. Changes in dividend yield, on the other hand, have negative and significant coefficients in explaining stock returns in Trading/Services firms throughout 1993-1996 and the average crisis period. For Plantation firms, it was negatively significant.

Okoro, Ezeabasili and Alajekwu (2018) examined the determinants of dividend payout of 28 consumer goods companies listed on the Nigerian Stock Exchange. Purposive sampling technique was used and a sample of nine consumer goods companies were selected for a duration often years from 2006 to 2015. Secondary data were collected from audited financial statements of the companies from the websites of the selected companies. Dividend payout ratio was proxied as the dependent variable while market value, profitability, financial leverage and company size were proxied as the independent variables. Descriptive statistics and multiple regressions were used as technique of analysis of data. Results of the study revealed that company market value has significant positive effect on dividend payout; company profitability has positive, but insignificant effect on dividend payout; company leverage has negative and insignificant effect on dividend payout; and previous year's dividend has significant positive effect on dividend payout. The study concluded that market value and previous year's dividend are the major determinants of dividend payout in consumer goods sector in Nigeria.

Hosain (2016) investigated the determinants of dividend payout policy of the listed private commercial banks in Bangladesh. Eight variables were considered as potential determinants of dividend payout policy. Both pooled ordinary least square and dynamic panel regression model were run on a sample often listed private commercial banks of Dhaka Stock Exchange Limited in Bangladesh for the period of eleven years from 2005 - 2015, Technique of fixed effect regression model was employed to test the relationship between dividend determinants and dividend payout. The results indicated that liquidity, firm growth, previous year's dividends were positively and significantly affected by dividend payout ratio but are negatively affected by leverage and profitability. Firm size, firm risk and ownership structure do not have any direct influence on the dividend payments. Thus, Leverage, liquidity, firm growth, previous year's dividend payout of the listed private commercial banks in Bangladesh.

Dada, Malomo and Ojediran (2015) examined the critical evaluation of the determinants of the dividend policy of Nigerian banks. The study was based on panel data of selected banks listed on the Nigerian Stock Exchange (NSE) with financial data from 2008 to 2013. The appropriate diagnostic test on the data was conducted using the data Skewness and Kurtosis test of the data distribution normality while the relationship between the variables was tested using the panel least square regression analysis, however robustness of the result was confirmed with the correlation analysis. Dividend payment is positively related with leverage, performance, corporate governance and last year dividend while it was negatively related with firm's liquidity. This study confirms the relevance of the agency theory to the banks dividend policy while the future dividend can be predicted based on the current dividend.

Odawo and Ntoiti (2015) investigated the determinants of dividend payout policy in public limited banks by examining the effect of liquidity, profitability, firm size and leverage on dividend payout. The study adopted a descriptive research design and the population of the study was CFC Stanbic Bank where secondary data was for a period of eleven years (2003-2013). The data was analyzed qualitatively as well as quantitatively using both descriptive statistics and inferential statistics. The results showed that liquidity was negatively and significantly related to dividend payout while profitability was positively and significantly related to dividend payout. The results further indicated that firm size was positive and significantly related with the dividend payout. Finally, it was also inferred that leverage had a positive and significant relationship with the dividend payout. From the study findings it was recommended that; first, companies should maintain an optimal level of market liquidity as market liquidity has a negative influence on dividend payout. Secondly, since profitability has a positive and significant influence on dividend payout then companies should strive to engage in profitable ventures so as to be in a position to pay dividends to the shareholders. Lastly, the study recommended that leverage (debt/equity ratio) should be held at an optimal level, so that the firm is in a position to pay its shareholders dividends, which is a return for their investments.

Maladjian and El Khoury (2014) sought to investigate the determinants of dividend policy of Lebanese banks, listed at the Beirut stock exchange. To examine this matter, seven variables were put under consideration, namely; firm productivity in terms of profitability, liquidness, debt equity coefficient, size of the firm, firm growth rate, risk profile and dividend payout ratio for the previous period, the study used unbalanced panel dataset of listed banks between 2005 and 2011. Two approaches were tested using the ordinary least squares and the dynamic panel regressions. It was depicted that a proportionate change of the size of the firm, risk level of the firm and previous year dividend payout led to a proportionate change in dividend payout ratio. Whereas a simultaneous upward change in firm growth rate and earnings lead to less attractive change in dividend payout ratio.

Hashim, Shahid, Sajid and Umair (2013) investigated the determinants of dividend policy as it was in the case of Maladjian and El Khoury (2014). The study focused on firms dominating the Pakistan banking sector. In their case, they identified nine independent variables, namely; firm size, leverage, agency cost, firm growth rate, risk, liquidity, profitability, previous year's dividend and ownership structure. A sample size of twenty-seven (27) overseas and local financial firms which provided banking services in both Islamic and orthodox sectors were selected for the study. The researchers utilized stepwise regression methodology and three study outcomes were realized. One, the study revealed that liquidity, profitability, last year's dividend and ownership structure had a strong direct link with dividend payout ratio. Second, liquidity depicted a negative relationship with dividend payout ratio and third, dividend payout ratio was not significantly influenced by size of the firm, leverage, agency cost, firm growth rate and risk level of the firm. Therefore, in the findings of the research, it was ruled out that dividend payout ratio was high where the firm engaged in profitable ventures compared to less profitable ones although Maladjian and El Khoury (2014) established an indirect connection between profitability and dividend payout ratio, contrary to Hashim et al. (2013) study outcome.

## 2.1 Theoretical Framework

There are several dividend theories that supported the prepositions on dividend payment. These theories are often used to explain the relationship between dividend payment, performance and value of firms as previously used in the works of (Kimunduu, Mwagi, Kaijage & Ochieng, 2017; Anwaar, 2016; Giang & Tuan, 2016; Koduk, 2016; Pascareno & Siringoringo, 2016;

Kajola, Adewumi, & Oworu, 2015; Yusuf, 2015; Uwuigbe, 2013; Mirza & Javed, 2013; Salehnezhad, 2013; Fong, Zakaria & Tan, 2007). Notwithstanding the existence of theories like the M&M hypothesis (1961) that propose dividend irrelevance, a lot of more recent theories have proved the existence of positive relationship between firm performance and dividend payout.

## 2.1.1 Bird-in-Hand Theory

Bird in hand theory proposes that a relationship exists between firm value and dividend payout. It states that dividends are less risky than capital gains since they are more certain. Therefore, investors would prefer dividends to capital gains (Amidu, 2007). This is because dividends are supposedly less risky than capital gains, firms should set a high dividend payout ratio and offer a high dividend yield to maximize stock price. The essence of the bird-in-the-hand theory of dividend policy (Fumey and Doku, 2013) argued that outside shareholders prefer a higher dividend policy. Consequently, investors would value high payout firms more highly.

In addition, when making dividend payouts, the firm gets a higher rating from rating agencies as compared to a firm not making any dividend payout with a better rating, the firm will be able to raise finance more easily from capital markets since credit institutions will be willing to give loans to the firm this is because payment of dividend indicates that the firm has the ability to meet its obligations.

## **2.1.2 Signaling Theory**

According to the signaling hypothesis, investors can infer information about a firm's performance and future earnings through the signal coming from dividend announcements, both in terms of the stability of dividend and changes in dividend. However, for this hypothesis to hold, managers should first have possessed private information about a firm's prospects, and have incentives to convey this information to the market (Modugu, 2017). A firm with poor performance should not send false signals to the market by increasing dividend payments. Thus, the market must be able to rely on the signals to differentiate among firms. If these conditions are fulfilled, the market would react favorably to the announcements of dividend increase and unfavorably otherwise (Hosain, 2016).

It has been empirically established that when dividends are increased or initiated, prices of the associated common stocks tend to go up, and when dividends are cut or omitted, prices fall (Kimunduu et al, 2017; Yusuf, 2016; Nwidobie, 2013). Uwuigbe (2013) argued that firms tend to increased dividend when managers believed that profitability has permanently increased. This suggested that dividend increase imply long-run sustainable earnings. Many theorists contended that the rise in the stock price following a dividend increase conveys positive information, that is, managers use dividends to signal their views of future earnings prospects which signify how well firms have been performing. The idea that changes in dividends have information content about the future performance of firm remains the perceived wisdom in corporate finance (Odawo & Ntoiti, 2015). Furthermore, this provides the evidence of relationship that exist between firm performance and dividend policy of listed manufacturing companies.

Signaling theory proposed that dividend payment can be used as a device to communicate information about a firm's future prospects to investors. Cash dividend announcements convey valuable information, which shareholders do not have, about management's assessment of a firm's future profitability which reduces information asymmetry (Yusuf, 2016). Investors may

therefore use this information in assessing a firm's share price and dividend payment under this model is relevant (Al-Kuwari, 2009). Furthermore, where managers have private information about the current and future fortunes of the firm that is not available to outsiders, here, managers are believed to have the incentive to communicate this information to the market. Anwaar (2016), Bhattacharya (1980), argued that information asymmetry between firms and outside shareholders may induce a signaling role for dividends. They show that dividend payments communicate private information in a fully revealing manner. The most important element in their theory is that firms have to pay out funds regularly. An announcement of dividends increase is taken as good news and accordingly the share price reacts favorably, and vice-versa (Modugu, 2016). Hence, only good quality firms can send signals to the market through dividends and poor-quality firms cannot do same simply because of the poor performance.

This study is underpinned by signaling theory of dividend payment, the justification of the choice of the theory is based on the fact that it addresses some of the issues of dividend payout to investors of the company, it also addresses the issue of cash and stable payout of firms as a result of good profit earned from performance, it as well deals with company performance as managers communicates information about the performance of company to outside investors on how well the company is performing.

## 2.1.3 Conceptual Framework

In line with the signaling theory, this paper comes up with the framework of the relationship of effect of market performance on dividend payout of listed manufacturing companies. The conceptual framework is a pictorial representation of the relationship between the variables. Meanwhile, the framework if properly articulated and presented, assist the researcher to make meaning of the findings of the study under review. It can be used to explain the possible connections and relationship between the variables of the study (Saunder, Lewis & Thornhill, 2009). Hence, the proposed conceptual framework of the study, explains the relationship that exists between the independent variables and dependent variable of the study as presented below.

## Independent Variable

#### MARKET PERFORMANCE

# Dependent Variable DIVIDEND POLICY





### **Figure 1: Conceptual Framework**

#### Source: Researcher (2019)

### 3. Methodology

This section explains the methodology adopted in the study. The section discusses on research design, population of the study, sample size and sampling technique, research instrument and technique for statistical analysis of data as well as model of the study. The study adopted the ex-post facto research designs. The ex-post facto research was adopted because the population of the study is grouped based on particular characteristics. The study seeks to explore the effect of market performance on dividend payout of listed manufacturing companies in Nigeria using correlational design. The technique explores the degree of association between all the variables under consideration. The choice of correlational research design in this study is to estimate the effect of one variable (independent variable) on another (dependent variable), so as to establish a causal relationship or otherwise among the variables of the study.

### 3.1 Population and Sample Size of the Study

The population of the study comprised of all the seventy-four (74) manufacturing companies listed on the Nigeria Stock Exchange as at 31st December, 2018. The listed firms are classified under different segments namely; consumer goods sector (27), industrial goods sector (20), health care sector (i 1), conglomerate sector (6), agricultural sector (5), and natural resources sector (5).

The study adopted the stratified sampling technique in its sample selection. The method deemed to be appropriate because the population of the study comprises of companies divided into different subsectors of manufacturing firms. Hence, each subsector forms a stratum.

Furthermore, for the purpose of this study, Krejcie and Morgan (1970) generalized scientific guideline was used for determining the sample size of the study. As a result, a total of 63 firms were indicated to be adequate from the population of 74 listed manufacturing companies in Nigeria. The sample size of the study was drawn based on the criterion of those firms that have been able to pay dividend consistently within the period of the study. The table below indicates the distribution of the sample size (63) based on the strata in the population.

| SN | SECTOR           | NO | Proportion% | SAMPLE |
|----|------------------|----|-------------|--------|
| 1  | Consumer goods   | 27 | 36          | 25     |
| 2  | Industrial goods | 20 | 27          | 17     |
| 3  | Health care      | 11 | 15          | 9      |
| 4  | Conglomerate     | 6  | 8           | 4      |
| 5  | Agriculture      | 5  | 7           | 4      |
| 6  | Natural resource | 5  | 7           | 4      |
| 7  | Total            | 74 | 100         | 63     |

 Table 3.1: Proportionate Distribution of Sample Size

Source: (Author, 2019)

### **3.2 Source of Data**

The data used in this study are collected from secondary sources only. The data in respect of all the variables of the study are extracted from the Nigeria stock exchange fact books, using the annual reports and book of accounts of the listed manufacturing companies. The use of secondary source was considered appropriate because all the variables of the study are quantitative and the paradigm is positivism.

Panel regression was used as a technique of data analysis. The multiple regression analysis will be employed to determine whether firm performance (economic value added, market value added, total shareholders return and Tobin's q) have impacted significantly on the dividend payout of listed manufacturing firm in Nigeria during the period of the study using the Stata software.

|    | Variable                  | Measurement of Variable   |
|----|---------------------------|---|
| 1. | Dividend Payout           | Dividend per share / Earning per share* 100 (Adefila, Oladipo, &      |
|    |                           | Adeoti,2018)  |
| 2. | Economic Value Added      | Net Operating profit after tax (NOPAT) - Capital Invested x Cost of   |
|    |                           | Capital (Sabol & Sverer, 2017; Sharma & Kumar, 2010)                  |
| 3. | Market Value Added        | Company Market Value - Invested Capital (Pandey, 201 1;               |
|    |                           | Kurfi,2006)   |
| 4. | Total Shareholders Return | (Price end - Price begin + Dividend) / Price begin (Mvita & Johaness, |
|    |                           | 2013)   |
| 5. | Tobin's Q                 | Market Value of Assets / Estimated Replacement Cost of Assets         |
|    |                           | (Liang, Rajeev & Mohinder, 2016; Kurfi, 2006)                         |

#### **3.3 Definition and Measurement of Variables TABLE 3.2: Variable Measurement**

#### Source: (Author, 2019)

### 4. Results and Discussion

This section of the study discusses the results obtain from the regression model. This includes, presentation and discussion of descriptive statistics, correlation matrix and finally the summary of the regression result is also presented and discussed.

### **4.1 Descriptive Statistics**

This sub-section presents and describe the nature of the variables, using descriptive statistics and the extent of data normality.

| Variables | Mean      | Std dev   | Minimum | Maximum |
|-----------|-----------|-----------|---------|---------|
| DPO       | 0.5092354 | 0.2098074 | 0.08475 | 0.9976  |
| EVA       | 2.753354  | 1.10803   | 0.47586 | 5.99    |
| MVA       | 1.940737  | 1.373855  | 0.112   | 5.35    |
| TSR       | 0.7573697 | 0.5698765 | 0.135   | 3.964   |
| TQ        | 2.317918  | 0.2977493 | 0.1457  | 2.72157 |

 Table 4.1: Descriptive Statistics

Source: STATA Output, 2019

Table 4.1 shows that the measure of dividend payout (DPO) of listed manufacturing firms in Nigeria has a mean value of 0.5092354 with standard deviation of 0.2098074, with minimum and maximum values of 0.08475 and 0.9976 respectively. Furthermore, the table indicated an average economic value added (EVA) of 2.753354 with standard deviation of 1.10803; the minimum and maximum values are 0.47586 and 5.99 respectively. The Table also indicates average market value added (MVA) of 1.940737 with standard deviation of 1.373855; the minimum and maximum values are represented by 0.112 and 5.35 respectively. Furthermore, Table 4.1 shows average total shareholders returns (TSR) of 0.7573697 with standard deviation of 0.5698765, the minimum and maximum values are 0.135 and 3.964 respectively. Finally, the results in Table 4.1 indicated that Tobin's Q (TQ) have a mean value of 2.317918 with standard deviation of 0.2977493, as well as minimum and maximum values of 0.1457 and 2.72157 respectively. The analysis of the descriptive statistics of the variables of the study shows the nature and extent of dispersion of the data, which strongly suggested that the data did not follow the normal curve as indicated by the higher values of standard deviations, skewness and kurtosis. Therefore, the test of normal data was conducted and the results are presented in the table below:

The analysis of the descriptive statistics of the variables of the study show the nature and extent of dispersion of the data, which strongly suggested that the data did not follow the normal curve as indicated by the higher values of standard deviations. Therefore, the test of normal data is conducted and the results are presented in the table below:

| Variables | W       | V      | Ζ      | Probability |
|-----------|---------|--------|--------|-------------|
| DPO       | 0,98476 | 3.391  | 2.873  | 0.00203     |
| EVA       | 0.96794 | 7.133  | 4.623  | 0.0000      |
| MVA       | 0.87707 | 27.348 | 7.785  | 0.0000      |
| TSR       | 0.71885 | 62.549 | 9.731  | 0.0000      |
| TQ        | 0.68346 | 70.422 | 10.010 | 0.0000      |

 Table 4.2: Normal Data Test

#### Source: STATA Output, 2019

Under Shapiro-Wilk (W) test for normal data, null hypothesis principle is used to check variable that came from a normally distributed population (the null hypothesis of the test is that, the data is normally distributed). Table 4.2 indicated that data from all the variables of the study did not follow the normal distribution, because the p-values of the test statistics(Z-Values) are statistically significant at 1% level of significance for all the variables. Therefore, the null hypothesis (Ho) is rejected at 1% significance levels. This implies that the data did not follow a normal data distribution assumption of kurtosis. Hence, Shao (2003) suggested that normality of data will not affect the inferential statistics estimate. For that reason, regression estimate of the variables will be presented in the following section.

#### 4.3 Correlation Matrix

This section presents and discuss the extent of variables relationship within and between them. Table 4.3 below presents the correlation matrix result.

| Variables | DPO               | EVA               | MVA               | TSR               | TQ     |
|-----------|-------------------|-------------------|-------------------|-------------------|--------|
| DPO       | 1.0000            |                   |                   |                   |        |
| EVA       | -0.0896<br>0.1125 | 1.0000            |                   |                   |        |
| MVA       | -0.4920<br>0.0000 | 0.0224<br>0.6916  | 1.0000            |                   |        |
| TSR       | 0.5142<br>0.0000  | -0.0505<br>0.3720 | -0.5021<br>0.0000 | 1.0000            |        |
| TQ        | -0.0321<br>0.5703 | 0.0228<br>0.6869  | 0.0224<br>0.6918  | -0.1571<br>0.0052 | 1.0000 |

#### Table 4.3: Correlation Matrix

Source: STATA Output, 2019

The results in Table 4.3 shows the degree of association between dividend payout (DPO) and all pairs of independent variables individually as well as between independent variables themselves and cumulatively with the dependent variable (DPO) of the study in the listed manufacturing firms in Nigeria. The table presented a negative relation between dividend payout (DPO) and economic value added (EVA), market value added (MVA) and Tobin's Q (TQ) from the correlation coefficient of-0.0896, -0.4920 and -0.0321 respectively. These negative relationships between dependent variable (DPO) and independent variables (EVA, MVA and TQ) were all insignificant from the probability values of (0.1125, 0.6916 and 0.6869) respectively. This relationship implies that as the proportion of economic value added (EVA), market value added (MVA) and Tobin's Q (TQ) increases, the dividend payout ratio of listed manufacturing firms in Nigeria will reduce. Table 4.3 shows that there is positive association between total shareholders return (TSR) of listed manufacturing firms in Nigeria and dividend payout from the correlation coefficients of 0.5142.

The analysis of the relationships among the independent variables and themselves indicated mix (positive and negative). However, to conclude the relation and the impact of the dependent variable (DPO) and all the pairs of independent variables (economic value added, market value added, total shareholders return and Tobin's q) of listed manufacturing firms in Nigeria, the estimators from the regression of the model of the study are analyzed in the following section.

## 4.4 Summary of Panel Regression Result

This section presents the summary of the regression result which is presented in table 4 below:

## **Table 4: Summary of Panel Regression Result**

| Variables             | Coefficient |              |           |  |  |  |  |  |
|-----------------------|-------------|--------------|-----------|--|--|--|--|--|
|                       | Pooled OLS  | Fixed        | Random    |  |  |  |  |  |
| EVA                   | -0.34       | -0.34        | -0.34     |  |  |  |  |  |
|                       | (-1.41)     | (-1.40)      | (-1.41)   |  |  |  |  |  |
| MVA                   | -0 25***    | -0.26 ***    | -0.25 *** |  |  |  |  |  |
|                       | (-5.82)     | (-5-94)      | (-5.82)   |  |  |  |  |  |
| TSR                   | 0.70***     | 0.68 ***     | 0.70***   |  |  |  |  |  |
|                       | (6.66)      | (6.45}       | (6.66)    |  |  |  |  |  |
| TQ                    | 0.12        | 0.081 (0.46) | 0.12      |  |  |  |  |  |
|                       | (0.70)      |              | (0.70)    |  |  |  |  |  |
| Constant              | 2.59 ***    | 2 72 ***     | 2.59 ***  |  |  |  |  |  |
|                       | (5.61)      | (5.82)       | (5.61)    |  |  |  |  |  |
| <b>Result Summary</b> |             |              |           |  |  |  |  |  |
| Mean VIF              | 1.19        |              |           |  |  |  |  |  |
| F-Statistics          | 40 41***    | 40.04***     | 161.65*** |  |  |  |  |  |
| Metro                 | 3.38**      |              |           |  |  |  |  |  |
| Hausman               | 4.22        |              |           |  |  |  |  |  |
| LM                    | 0.01        |              |           |  |  |  |  |  |
| $\mathbb{R}^2$        | 0.34        | 0.34         | 0.34      |  |  |  |  |  |

#### Source: Stata output, 2019

Note: \*\*\*, \*\* &\* represents 1%, 5% and 10% levels of significance respectively Value in parenthesis represents t-statistics

Table 4.4 above present the result of the Multicollinearity Test where it reveals the mean VIF of 1.19 and also all the VIF's where consistently less than 10 and tolerance value also less 1 (see appendix 1) implies that multicollinearity is not a problem (Cassey & Anderson, 1999).

However, the result obtained from the heteroscedasticity test is significant from the probability value of 0.0661 (see table 4) above which indicated that the panel element was not homoscedastic for that they are heterogeneous which necessitated the test for fixed and random effect.

In addition, the result obtained from the Hausman specification test conducted indicates, that the probability value is greater (>) than 0.05 (see table 4) above which suggested the use and subsequent interpretation of random effect model in favor of the fixed effect.

Furthermore, the result obtained from the Langrangian Multiplier (LM) reveals a probability value of 1.000 which suggested that there is no any significant different between the random effect model and the Ordinary Least Square result (OLS). For that reason, the robust OLS result is hereby presented because of its superiority above the original OLS result.

The cumulative  $R^2$  (0.34) which is the multiple coefficients of determination gives the proportion or percentage of the total variation in the dependent variable as explained by the independent variables jointly. Hence, it signifies 34% of total variation in dividend payout (DPO) of listed manufacturing firms in Nigerian is caused by the collective effort (interaction) of economic value added, market value added, total shareholders return and Tobin's Q. This result further indicates that the model is fit.

The Wald Chi2 which represents the Fisher's statistics (F-statistics) of 485.20 which is significant at 1% indicates that dividend payout and firm performance model is fit. In addition, it also implies that for any change in firm performance variables used in this study, the dividend payout ability of these manufacturing firms will be directly affected. The probability value of (0.000) of the Wald Chi2 which is significant at 1% implies that there is a 99.9 percent probability that the relationship among the two extreme variables (dependent and independent) are not due to mere chance and as such the independent variables (economic value added, market value added, total shareholders return and Tobin's Q) unfailingly predict the dependent variable (dividend payout) of the study.

The regression result reveals that economic value added has a t-value of -4.42 with regression coefficient of -0.3443339 which is statistically significant at 1% level. This implies that economic value added has significant effect on the dividend payout of listed manufacturing firms in Nigeria. However, the result is not surprising because the prior expectation is that firm's economic performance will not translate in the dividend payout ratio of firms. Similarly, in reality, economic performance mostly affects firms share price in the capital market positively and not dividend payout because the gain from the economic performance is normally plough back or invested in a different income stream by the company not using it for dividend payout of listed manufacturing firms in Nigeria. However, this finding gives evidence of rejecting the first null hypothesis of the study which says; there is no significant effect between economic value added and dividend payout of listed manufacturing firms in Nigeria. Thus, hypothesis one (1) is rejected. The finding is in line with the study of Rafindadi and Bello (2019) and contrary to Gunaratne (2016).

The regression result in table 3 above reveal that market value added has a t-value of-7.16 and a coefficient beta value of-0.250319 with a significant p-value of 0.000. This signifies that market value added has a negative, significant and statistical impact on the dividend payout of listed manufacturing firms in Nigeria. This indicates that for every 1% increase in the proportion of market value added of listed manufacturing firms, the dividend payout will reduce by 25'kobo : Another explanation is that the more the market value added achieved by manufacturing firms : listed in Nigeria, the less the likely chances of paying dividend by these firms. This result is not surprising as it did not contradict researchers' expectation that market value added is normally a market base performance measure therefore, less or inverse relation is expected to exist between market base performance and dividend payout by firms which manufacturing firms listed in Nigeria were among. However, the findings from this result serve as a sufficient evidence of rejecting hypothesis two of this study. Thus, hypothesis two (2) is hereby rejected. The finding is in line with the study of Koduk (2016); Yusuf (2015) and contrary to Giang and Tuan (2016).

The regression result in table 4.4 revealed that total shareholders return has a t-value of 5.63, coefficient value of 0.7004551 which is statistically significant at 1% level as prove by the probability value of 0.000. This signifies that total shareholders return is positively, strongly and statistically influencing dividend payout in manufacturing firms listed in Nigeria. This implies that for every 1% increase in the total shareholders return of manufacturing firms listed

in Nigeria, the dividend payout will also increase significantly by 70 kobo. This is not surprising considering the size of the fact that increased shareholders return usually translate by paying dividend. This finding serves as an evidence of rejecting hypothesis three (3) of the study, thus; hypothesis three is rejected. The finding is in line with Salehnezhad (2013) and contrary to Okoro, Ezeabasili & Alajekwu (2018).

In addition, the result of Tobin's Q reveals a t-value of 0.56 and a beta value of 0.1225733 with a p-value of 0.574. This signifies that Tobin's Q is not a factor that influences dividend payout in listed manufacturing firms in Nigeria. The finding provides sufficient reasons for rejecting the fourth null hypothesis of the study. Hence, the fourth null hypothesis which states that Tobin's Q has no significance effect on dividend payout of listed manufacturing firms in Nigeria is hereby rejected. The finding is in line with the study of Liang, Singhal and Parkash (2016) and contrary to Pascareno and Siringoringo (2016).

### 5. Conclusions and Recommendations

The findings of the research, has provided both empirical as well as statistical evidence on the utility of four independent variables of performance (economic value added, market value added, total shareholders return and Tobin's Q) in explaining and predicting dividend payout of manufacturing firms listed in Nigeria.

Secondly, economic value added plays a prominent role in improving the dividend payout of manufacturing firms listed in Nigeria. Thirdly, market value added also play an important role in decreasing the dividend payout of manufacturing firms. Similarly, the study concluded that total shareholders return plays a major role in improving the dividend payout of listed manufacturing firms in Nigeria, Lastly, Tobin's Q was not improving or decreasing dividend payout of manufacturing firms in Nigeria in anyway.

Based on the findings and conclusions of the study, the study proffers the following recommendations to be utilized by the management of listed manufacturing firms in Nigeria, Investors, regulators and the general public.

- i. The management of listed manufacturing firms in Nigeria need to ensure they have improved EVA as this is significantly related to Dividend payout and as such serves as a pointer to investors and the general public who may want to determine the dividend payment pattern of the firm in order to decide whether to invest in the firm or not.
- ii. The management of listed manufacturing firms in Nigeria also need to work hard to present favorable MVA as this portrays the dividend payment policy of the firm and serve as a guide to investors who may wish to invest in the manufacturing sector.
- iii. There is need for the management of the listed manufacturing firms in Nigeria to strive to maintain positive TSR as revealed by this study in order to portray the firms to investors as dividend friendly. This would attract more investors willing to invest to the sector.
- iv. The positive Tobin's Q revealed by the study indicates that Tobin's Q influences dividend payout of listed manufacturing firms in Nigeria. As a result, the management of these firms need to continue to improve this in order to attract more investors and consequently better value for their firm.

#### References

- Adefila, J.J., Oladipo, J. A., & Adeoti, J. O. (2018). The Effect of Dividend Policy on the Market Price of Shares in Nigeria: A study of Fifteen Quoted Companies.
- Adeniran, P. A. (2018). Centre for the Study of Economies of Africa (CSEA). http//: www.daily trust newspaper, retrieved on 26<sup>th</sup> April, 2018 at about 14:30 hrs.
- Adetoso, A. J. & Akinselure, O.P. (2016). Dividend Policy and Market Value Synthesis in the Manufacturing Sector: A Critical Assessment of some Selected Quoted Companies in Nigeria. *Journal of Economics and Sustainable Development*,7(12).
- Afza, T., & Mirza, H. H. (2011). Do Mature Companies Pay More Dividends? Evidence from Pakistani Stock Market. *Mediterranean Journal of Social Sciences*,2(2), 152 161.
- Al- Khalayleh, M. (2011). The Relationship between Accounting Performance Indexes and Market Performance Indexes: An Applied Study on Listed Corporations at Amman Security Exchange, Administrative Sciences Studies Magazine, Jordan University, Amman.
- Al-Kuwari, D. (2009). Determinants of Dividend Policy in Emerging Stock Exchanges: The Case of GCC Countries. *Global Economy & Finance Journal*, 2(2), 38-63.
- Al-Malkawi, H. A. N., Rafferty, M., & Pillai, R. (2010). Dividend Policy: A Review of Theories and Empirical Evidence. *International Bulletin of Business Administration*, 9, 171-200.
- Amarjit., Nahum, B., & Rajendra, T. (2010). Determinants of Dividend Payout Ratios: Evidence from United States. *International Journal of Business and Social Science* 4(9),63-69.
- Amidu, M. (2007). How Does Dividend Polsicy Affect Performance of the Firm on Ghana Stock Exchange? Journal of Investment Management and Financial Innovations, 4(2), 104 – 112.
- Anandavel, V. & Selvarasu, A. (2012). Economic Value-Added Performance of BSE— Sensex Companies Against its Equity Capital. International Journal of Management (IJM) (3) 2,108-123.
- Anwaar, M, (2016). Impact of Firms' Performance on Stock Returns (Evidence from Listed Companies of FTSE-100 Index London, *Global Journal of Management and Business Research: Accounting and Auditing*, (16) 1.
- Azeez, A., & Latifat, M. (2015). Relationship Between Dividend Payout and Firms Performance: Evaluation of Dividend Policy of OANDO Plc. *International Journal of Contemporary Applied Sciences*,6(2),56-71.
- Bhattacharya, S. (1980). Corporate Finance and the Legacy of Miller and Modigliani. *The Journal of Economic Perspectives*, 2(4), 135-147.

- Bulla, D. M. (2013). An empirical analysis of selected factors affecting dividend policy of listed firms at the Nairobi securities exchange. *African Journal of Accounting, Economics, Finance and Banking Research*, 9(9), 14-23.
- Bunyasi, W. (2012). The Effect of Dividend Policy on the Market Value of Shares of Public Companies Quoted at the Nairobi Stock Exchange. Unpublished MBA thesis, Kenyatta University.
- Casey, K. M. & Anderson, D. C. (1999). Examining the Impact of the 1986 Tax Reform Act on Corporate Dividend Policy: A New Methodology, Fin. Rev. 34(3) 5.
- Central Bank of Nigeria (2017) Various Issues.
- Companies and Allied Matters Act (2004) Revised Edition.
- Dada, F. B., Malomo, E. & Ojediran, S. (2015). Critical evaluation of the determinants of dividend policy of banking sector in Nigeria. *International Journal of Economics Commerce and Management*,3(2), 1-11.
- Foong, S. S., Zakaria, N. B., & Tan, H.B. (2007), Firm Performance and Dividend-Related Factors: The Case of Malaysia. *Journal of International Business and Finance*, (5), 95-109.
- Fumey, A., & Doku, I. (2013). Dividend Payout Ratio in Ghana: Does the Pecking Order Theory Hold Good? Journal of Emerging Issues in Economics, Finance and Banking, 2(5),99-133.
- Giang, N. T. & Tuan, D. A. (2016). Financial Performance, Dividend Payment and Firm Value: An Exploratory Research on Vietnam Listed Firms in the Food and Drink Industry. VNU Journal of Science, Economics and Business, (32)2, 47-57.
- Gunaratne, Y. M. C. (2017). Is EVA an Effective Performance Measure Evidence from Colombo Stock Exchange, Sri Lanka. *Asian Journal of Finance and Accounting*, 9(2).
- Haddad, F.S. (2012). The Relationship Between Economic Value Added and Stock Return: Evidence from Jordanian Banks. *International Research Journal of Finance and Economics*, 89, 6-14.
- Hashim, Z., Shahid, R., Sajid, I. & Umair, A. (2013). Determinants of dividend policy: A case of Banking Sector in Pakistan, *Middle East Journal of Scientific Research*, 18(3), 410-424.
- Hosain, M. Z. (2016). Determinants of the Dividend Payout Policy: A Study on Listed Private Commercial Banks of Dhaka Stock Exchange Limited in Bangladesh.
   Journal of Economics and Finance, 7(5), 01-10.
- Ibikunle, A. (2018). Problems Crippling Manufacturing in Nigeria. http://: www.daily Vanguard news, retrieved on 26<sup>th</sup> April, 2018 at about 17:00 hrs.
- Ifuero, O. O., & Iyobosa, L. E. (2016). Does Dividend Policy Affect Firm Earning? Empirical Evidence from Nigeria. *International Journal of Financial Research*, 7(5), 77-86.

- Jensen, G. (2010). Agency Costs of Free Cash Flow, Corporate Finance, and the Market for Takeovers, *American Economics Review*, *3*(5), 323-329.
- Kabajeh, M. A. M., AL Nu'aimat, S. A. M., & Dahmash, N. F. (2012). The Relationship between the ROA, ROE and ROI Ratios with Jordanian Insurance Public Companies Market Share Prices. *International Journal of Humanities and Social Science* (2) 11.
- Kajola, S. O., Adewumi, A. A., & Oworu, O. O. (2015). Firm Financial Performance and Dividend Payout Policy: Evidence from Nigeria Listed Non-Financial Firms. *International Journal of Economics, Commerce and Management*, 3(4), 1-12.
- Kimunduu, G. M., Mwangi, M., Kaijage, E., & Ochieng, D.E. (2017). Financial Performance and Dividend Policy. *European Scientific Journal*, 13(28), 138–154.
- Klapper, L, & Love. I. (2012). Corporate Governance, Investor Protection, and Performance in Emerging Markets. Washington, DC. United States: World Bank. Mimeographed document.
- Koduk, L. A. (2016). The Relationship Between Financial Performance and Dividend Payout of Savings and Credit Cooperative Societies Registered by Sacco Society Regulatory Authority in Kenya.
- Krejcie, R. V. & Morgan, D. W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30, 607-610.
- Kurfi, A. K. (2006). *Principles of Financial Management*. Kano: Benchmark Publishers Limited.
- Lehn, K. & Makhija, A.K. (1996). EVA and MVA: As Performance Measures and Signals for Strategic Change, Journal of Strategy & Leadership, (24),34-38.
- Liang, F., Singhal, R., & Parkash, M. (2016). Tobin's Q Ratio and Firm Performance. International Research Journal of Applied Finance, 7(4), 1-10.
- Lie, E. (2005). Financial Flexibility, Performance, and the Corporate Payout Choice. *The Journal of Business*, 78(6), 2179–2202.
- Maditinos, D., Sevic, Z., & Theriou, N. (2012). Economic Value Added. Is it really the best Performance Measure? A Review of the Theoretical and Empirical Literature. The Case of Athens Stock Exchange. *Review of Economic Sciences*.
- Maladjian, C. & El Khoury, R. (2014). Determinants of the dividend policy: An empirical study on the Lebanese listed banks. *International Journal of Economics & Finance*, 4(6), 240-252.
- Mirza, S.A., & Javed, A. (2013). Determinants of Financial Performance of a Firm: Case of Pakistani Stock Market. *Journal of Economics and International Finance*, 5(2), 43-52.
- Modugu, K. P. (2017). Firm Performance and Corporate Disclosure Level of Listed Companies in Nigeria. *Asian Journal of Finance & Accounting*, 9, (2).

- Muhammad, H., Shah, B., & Islam, Z. (2014). The Impact of Capital Structure on Firm Performance: Evidence from Pakistan, *Journal of Industrial Distribution and Business*, (5).
- Murekefu, T., & Ouma, O. (2012). The Relationship Between Dividend Payout and Firm Performance. A Study of Listed Companies in Kenya. *European Scientific Journal*, 8(9), 1857-1878.
- Musyoka, C. S. (2015). The Effect of Dividend Policy on the Financial Performance of Firms Listed at the Nairobi Securities Exchange. A Research Project Submitted to the Department of Business Administration, Nairobi University.
- Mutisya, B. M. (2014). The Relationship Between Dividend Payout and Financial Performance of Firms Listed at the Nairobi Securities Exchange. Unpublished MBA Project, University of Nairobi.
- National Bureau of Statistic (2017) Various Issues.
- Nigerian Stock Exchange: Nigeria Stock Exchange fact book, various issues.
- Nwidobie, B. M. (2013). Agency Conflict and Corporate Dividend Policy Decisions in Nigeria. *Asian Economic and Financial Review*, *3*(8), 1110-1121.
- Obenbe, O., Imafidon, J., & Adegboye, A. (2014). Product Market Competition and Dividend payout of Listed Non-Financial Firms in Nigeria. *International Journal of Economics and Finance*, 6(11), 117-130.
- Odawo, C. & Ntoiti, J. (2015). Determinants of dividend payout policy in public Ltd banks in Kenya: A case study of CFC Stanbic bank. *Strategic Journal of Business & Change Management*, 2(2), 16-28.
- Ogundajo, G. O., Enyi, P., Ishola, R. A., & Dada, S. O. (2019). Accounting Information and Dividend payout Prediction in Nigerian Listed Manufacturing Firms. *Journal of Accounting and Taxation*, (11)1, 9-16,
- Okoro, C.O., Ezeabasili, V., Alajekwu, U.B. (2018). Analysis of the Determinants of Dividend payout of Consumer Goods Companies in Nigeria. University Economic Series, ICCS (1),141-166.
- Oyinlola, O.M., & Ajeigbe, K.B. (2014). The Impact of Dividend Policy on Stock Prices of Quoted Firms in Nigeria. *International Journal of Economics, Commerce and Management*, 11(9), 1-17.
- Oyinlola, O.M., Oyinlola, F.O., & Adeniran, J.O. (2014). The Influence of Dividend Payout in the Performance of Nigerian Listed Brewery Companies. *International Journal of Economics and Management Sciences*, 3(1), 13-21.
- Ozuomba, C. N., Okora, S.C., & Okoye, P.V. (2013). Shareholder's Value and Firm's Dividend Policy: Evidence from Public Companies in Nigeria. *Research Journal of Management Sciences*, 2(12),9-18.
- Panahi, B., Preece, C. N., Zakaria, W.N. & Rogers, J. (2014). The Correlation of Economic Value Added and Market Value Added with Share price of Companies in Tehran

Stock Market. *Interdisciplinary Journal of Contemporary Research in Business*, 6(2), 291–308.

Pandey, I. M. (2011). Financial Management. India: Vikas Publishing House PVT Ltd.

- Pascareno. B. E., & Siringoringo, H. (2016). The effect of financial performance on company's value moderated by dividend policy. *Journal of Electronics*. 21(1).
- Rafindadi, A. A. & Bello, A. (2019). Is Dividend Payment of any Influence to Corporate Performance in Nigeria? Empirical Evidence from Panel Cointegration, *International Journal of Economics and Financial Issues*, 9(2), 48-58.
- Rufus, A., & Soyeye. L. (2010). Determinants of Dividend Payout Ratio in Nigeria Banking Industry.
- Salehnezhad, H. S. (2013). A Study Relationship Between Firm Performance and Dividend Policy by Fuzzy Regression: Iranian scenario. *International Journal of Accounting and Financial Economics*, 23(11), 23-38.
- Santos, J. B., & Brito, L. A. L. (2013). Towards a Subjective Measurement Model for Firm Performance. *Brazilian Administration Review*, *9*(6), 95-117.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business Students* (5<sup>th</sup>ed.). Harlow: Pearson Education.
- Shao, J. (2003). Mathematical Statistics. New York: Springer, Verlag.
- Shapiro, S.S. & Wilk, M.B. (1965). An Analysis of Variance Test for Normality (Complete Samples). *Biometrical*, (52), 591–611.
- Sharma, K.A., & Kumar, S. (2010). Economic Value Added (EVA) Literature Review and Relevant Issues. *International Journal of Economics and Finance*, 2(2), 200-220.
- Sabol, A., & Sverer, F. (2017). A Review of the Economic Value Added Literature and Application. UTMS journal of economics, 8(1), 19-27.
- Setiabudhi, E. (2017). Financial Performance Analysis Using Economic Value Added. *Journal* of Applied Science and Engineering.
- Taufik, R., & Bastian, A. F. (2018). The Effect of Ownership Structure and Dividend Policy in Determining Company Performance with Intellectual Capital. *International Journal of Advanced Scientific Research and Development*, 5(1), 13-24.
- Threemanna, T. H. M. S. & Gunaratne, Y. M. C. (2016). Performance Measures and Stock Returns: Evidence from Beverage Food and Tobacco Sector of Sri Lanka. *Journal of Research in Management*, 1(6), 15-17.
- Uwuigbe, O. (2013). Determinants of Dividend Policy: A Study of Selected Firms in Nigeria. *Journal Change and Leadership*, (17).
- Wasike, T.W., & Jagongo, A. (2015). Determinants of Dividend Policy in Kenya. *International Journal of Art and Entrepreneurship*, 4(11), 71-80.

 Yusuf, B. R. (2015). Firm Performance and Dividend Payout ratio of Deposit Money Banks in Nigeria. *International Journal of Advance in Management and Economics*, 4(6), 98 - 105.

# Appendixes

| . sum dpo eva | mva tsr tq |          |           |        |         |
|---------------|------------|----------|-----------|--------|---------|
| Variable      | Obs        | Mean     | Std. Dev. | Min    | Max     |
| dpo           | 315        | .5092354 | .2098074  | .08475 | . 9976  |
| eva           | 315        | 2.753395 | 1.10803   | .47586 | 5.99    |
| mva           | 315        | 1.940737 | 1.373855  | .112   | 5.35    |
| tsr           | 315        | .7573697 | .5698765  | .135   | 3.964   |
| tq            | 315        | 2.317918 | .2977493  | .1457  | 2.72156 |

Shapiro-Wilk w test for normal data

| Variable | Obs | W       | V      | Z      | Prob>z  |
|----------|-----|---------|--------|--------|---------|
| dpo      | 315 | 0.98476 | 3.391  | 2.873  | 0.00203 |
| eva      | 315 | 0.96794 | 7.133  | 4.623  | 0.00000 |
| m∨a      | 315 | 0.87707 | 27.348 | 7.785  | 0.00000 |
| tsr      | 315 | 0.71885 | 62.549 | 9.731  | 0.00000 |
| tq       | 315 | 0.68346 | 70.422 | 10.010 | 0.00000 |

|     | dpo               | eva               | mva               | tsr               | tq     |
|-----|-------------------|-------------------|-------------------|-------------------|--------|
| dpo | 1.0000            |                   |                   |                   |        |
| eva | -0.0896<br>0.1125 | 1.0000            |                   |                   |        |
| mva | 0.0224<br>0.6916  | -0.4920<br>0.0000 | 1.0000            |                   |        |
| tsr | -0.0505<br>0.3720 | 0.5142<br>0.0000  | -0.5021<br>0.0000 | 1.0000            |        |
| tq  | 0.0228<br>0.6869  | -0.0321<br>0.5703 | 0.0224<br>0.6918  | -0.1571<br>0.0052 | 1.0000 |

| Source            | SS                       | df       |              | MS               |       | Number of obs         | -   | 315                       |
|-------------------|--------------------------|----------|--------------|------------------|-------|-----------------------|-----|---------------------------|
| Model<br>Residual | 132.123534<br>253.383937 | 4<br>310 | 33.0<br>.817 | 308835<br>367539 |       | Prob > F<br>R-squared | =   | 40.41<br>0.0000<br>0.3427 |
| Total             | 385.507471               | 314      | 1.2          | 277308           |       | Root MSE              | =   | .90408                    |
| dpo               | Coef.                    | Std.     | Err.         | t                | P> t  | [95% Conf.            | Int | erval]                    |
| eva               | 3443339                  | .2435    | 159          | -1.41            | 0.158 | 8234869               | .1  | 348192                    |
| mva i             | 250319                   | .0430    | 361          | -5.82            | 0.000 | 3349987               | 1   | 656392                    |
| tsr               | .7004551                 | .1051    | 223          | 6.66             | 0.000 | .4936117              | .9  | 072985                    |
| ta                | .1225733                 | .1739    | 072          | 0.70             | 0.481 | 2196144               | .4  | 647611                    |
| _cons             | 2.599927                 | .4637    | 953          | 5.61             | 0.000 | 1.687342              | 3.  | 512512                    |

. vif

| Variable                | VIF                          | 1/VIF  |
|-------------------------|------------------------------|--|
| tsr<br>mva<br>tq<br>eva | 1.38<br>1.34<br>1.03<br>1.00 | 0.725332<br>0.744630<br>0.970848<br>0.997221 |
| Mean VIF                | 1.19                         |  |

#### . hettest

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

| chi2(1)     | _ | 3 38   |
|-------------|---|--------|
|             | _ | 5.50   |
| Prob > chi2 | - | 0.0661 |

| . xtreg dpo ev                     | /a mva tsr tq,  | fe   |  |   |  |                                     |   |
|------------------------------------|---|--|--|---|--|-------------------------------------|---|
| Fixed-effects<br>Group variable    | (within) regr<br>e: year                              | ression  |  | Number o<br>Number o                      | of obs<br>of group                     | =<br>os =                           | 315<br>5  |
| R-sq: within<br>betweer<br>overall | = 0.3436<br>n = 0.3582<br>l = 0.3425                  |  |  | Obs per                                   | group:                                 | min =<br>avg =<br>max =             | 63<br>63.0<br>63  |
| corr(u_i, Xb)                      | = 0.0260  |  |  | F(4,306)<br>Prob > F                      | )<br><del>-</del>                      | =                                   | 40.04<br>0.0000   |
| dpo                                | Coef.   | Std. Err.  | t                                      | P> t                                      | [95%                                   | Conf.                               | Interval]   |
| eva<br>mva<br>tsr<br>tq<br>_cons   | 3387503<br>2561903<br>.6781871<br>.0808092<br>2.72215 | .2426368<br>.0431122<br>.1050853<br>.1749763<br>.4673705 | -1.40<br>-5.94<br>6.45<br>0.46<br>5.82 | 0.164<br>0.000<br>0.000<br>0.645<br>0.000 | 8161<br>3410<br>.4714<br>2634<br>1.802 | 981<br>9242<br>958<br>998<br>2483   | .1386975<br>1713565<br>.8849684<br>.4251182<br>3.641816 |
| sigma_u<br>sigma_e<br>rho          | .15122965<br>.89969907<br>.02747761                   | (fraction o  | of varian                              | ice due to                                | o u_i)                                 |                                     |   |
| F test that al                     | ll u_i=0:   | F(4, 306) =  | 1.76                                   | 5   | Pr                                     | op > 1                              | F = 0.1374  |
| . est store fe                     | 2   |  |  |   |  |                                     |   |
| . xtreg dpo ev                     | /a mva tsr tq,  | re   |  |   |  |                                     |   |
| Random-effects<br>Group variable   | s GLS regressi<br>e: year                             | on   |  | Number o<br>Number o                      | of obs<br>of group                     | =<br>)S =                           | 315<br>5  |
| R-sq: within<br>betweer<br>overall | = 0.3434<br>n = 0.3873<br>l = 0.3427                  |  |  | Obs per                                   | group:                                 | min =<br>avg =<br>max =             | 63<br>63.0<br>63  |
| corr(u_i, X)                       | = 0 (assumed  | D  |  | Wald chi<br>Prob > c                      | 2(4)<br>chi2                           | =                                   | 161.65<br>0.0000  |
| dpo                                | Coef.   | Std. Err.  | Z                                      | P> z                                      | [95%                                   | Conf.                               | Interval]   |
| eva<br>mva<br>tsr<br>tq<br>_cons   | 3443339<br>250319<br>.7004551<br>.1225733<br>2.599927 | .2435159<br>.0430361<br>.1051223<br>.1739072<br>.4637953 | -1.41<br>-5.82<br>6.66<br>0.70<br>5.61 | 0.157<br>0.000<br>0.000<br>0.481<br>0.000 | 8216<br>3346<br>.4944<br>2182<br>1.690 | 5162<br>5681<br>193<br>2785<br>9905 | .1329485<br>1659698<br>.9064909<br>.4634251<br>3.508949 |
| sigma_u<br>sigma_e<br>rho          | 0<br>.89969907<br>0                                   | (fraction o  | of varian                              | ice due to                                | o u_i)                                 |                                     |   |

. hausman fe re

|     | —— Coeffi | cients —— |            |                     |
|-----|-----------|-----------|------------|---------------------|
|     | (b)       | (B)       | (b-в)      | sqrt(diag(V_b-V_B)) |
|     | те        | re        | Difference | 5.E.                |
| eva | 3387503   | 3443339   | .0055835   |                     |
| mva | 2561903   | 250319    | 0058714    | .0025603            |
| tsr | .6781871  | .7004551  | 022268     | •                   |
| tq  | .0808092  | .1225733  | 0417642    | .0193131            |

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) = 4.22 Prob>chi2 = 0.3777 (V\_b-V\_B is not positive definite)

. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

dpo[year,t] = Xb + u[year] + e[year,t]

Estimated results: Var sd = sqrt(Var) 1.227731 1.10803 dpo .8094584 .8996991 е u 0 0 Var(u) = 0Test: chibar2(01) =0.00 1.0000 Prob > chibar2 = . xtreg dpo eva mva tsr tq,robust

| Random-effects<br>Group variable   | GLS regress<br>: year                                 | ion  |  | Number<br>Number                          | of obs<br>of group                   | =<br>os =                            | 315<br>5  |
|------------------------------------|---|--|--|---|--------------------------------------|--------------------------------------|---|
| R-sq: within<br>betweer<br>overall | = 0.3434 $= 0.3873$ $= 0.3427$                        |  |  | Obs per                                   | r group:                             | min =<br>avg =<br>max =              | 63<br>63.0<br>63                                      |
| corr(u_i, X)                       | = 0 (assumed  | 1)   |  | Wald cl<br>Prob >                         | hi2(4)<br>chi2                       | =                                    | 485.20<br>0.0000                                      |
|                                    |   | (St  | d. Err.                                | adjusted                                  | for 5 c                              | lusters                              | s in year)  |
| dpo                                | Coef.   | Robust<br>Std. Err.                                      | z                                      | P> z                                      | [95%                                 | Conf.                                | Interval]   |
| eva<br>mva<br>tsr<br>tq<br>_cons   | 3443339<br>250319<br>.7004551<br>.1225733<br>2.599927 | .0778211<br>.0349847<br>.1243165<br>.2177914<br>.4468993 | -4.42<br>-7.16<br>5.63<br>0.56<br>5.82 | 0.000<br>0.000<br>0.000<br>0.574<br>0.000 | 4968<br>3188<br>.4567<br>30<br>1.724 | 3605<br>3877<br>7992<br>0429<br>4021 | 1918072<br>1817503<br>.944111<br>.5494366<br>3.475834 |
| sigma_u<br>sigma_e<br>rho          | 0<br>- 89969907<br>0                                  | (fraction  | of varia                               | ance due 1                                | to u_i)                              |                                      |   |

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