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### Relationship between profitability and growth of the quoted non-financial firms: Evidence from Nigeria

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#### Abstract

Studies on the relationship between firms' growth and profitability are inconclusive. Most studies in the past do not account for the variation that exist among different sectors in the economy when investigating on the relationship between growth and profitability. This study was conducted to fill this gap by examining the dynamic relationship between growth and profitability in 124 quoted non-financial firms in Nigeria. Specifically, the study examined the relationship across three sectors (manufacturing, services and construction) between the periods 2005 to 2015. The study employed generalized method of moments (GMM). The results of the analyses is mixed: (1) the effect of past profitability on current profitability varies with the sector; negative and significant in the manufacturing; positive but not significant in the services and construction sector. (2) Growth in the previous period impedes current profitability of firms in the manufacturing and services sector, but positively affect profitability of firms in the construction sector. Corporate managers that pursue growth objectives in these two sectors are most likely to be unprofitable. The study recommends that policies (such as subsidies, tariffs, and investment related performance requirement) aimed to enhance growth and profitability of the Nigerian firms, should be selective rather than general.

**Keywords:** profitability, growth, sector, firm level, Nigeria

#### 1. Introduction

Both economists and organisational theorists agreed that the two most conflicting objectives of a firm are growth and profit. This is because of the fact that managers find it difficult to pursue these two objectives concurrently without forfeiting the other. Although, some see the two objectives as complimentary, but many others see them as competing objectives. Even among those that see them as opposing objectives, there is disagreement as to whether the negative relationship is from profit to growth, or from growth to profit. However, despite these controversies, there are widespread beliefs that show the existence of close association between profitability and firms' growth (Jang & Park, 2011) <sup>[11]</sup>. What is still unclear is whether the relationship hold same across all sectors.

Over the years, policymakers in Nigeria have been designing several policies with the hope to develop the country's private sector in order to boost the economy and create jobs for the growing labour force, but the pace at which the private sector responds to these policies was very slow considering rapid growth of labour force and increasing urban unemployment. The unemployment keeps rising with improvement in educational attainment and rapid urbanization. Experience in the past few years show that if Nigeria's firms are to survive in a globalized world and absorb the growing workforce, there is need to identify the actual problems limiting the growth of the private sector. Therefore, understanding the nature of the relationship between growth and profitability in various sectors of the economy might be an important consideration in revealing the necessary information for the formulation of strategic policy that will stimulate the industrial growth of the nation, particularly the possibility of trade-offs among the variables and the degree of the association in various sector. This study sets out to analyse the relationship between growth and profitability in Nigeria specifically looking at the heterogeneous nature of the relationships in the various sectors of the economy. Analysing this relationship is important because it would assist in designing sector-specific policy to help boost the private sector development agenda of the country above its current state. Thus, we expect the study to shed light on how to overcome the challenges and how it affects performance private firms in Nigeria.

Majority of the previous studies dwelled much on developed countries, perhaps due to data availability whereas little is known about developing countries. In addition, most of the studies from Nigeria yield mixed and inconclusive results. Furthermore, the available studies focused mainly on manufacturing sector overlooking the diverse nature of other sectors particularly services and construction firms. This study fills this gap using firm-level data from Nigeria. Thus, the heterogeneous nature of the relationship was examined and the result was presented accordingly. Unlike previous studies, this paper contributes to existing literature in two ways. Firstly, the study used dynamic estimators with the hope to get a more robust result by addressing the problem of endogeneity. Secondly, the study also looked at how the growth-profit relationship differs across different sectors in the economy rather than focusing on a single sector. The major finding of the study shows that growth-profit relationships varies across sectors of the economy. The result provides a key implication for designing sector-specific policy to restore growth in various sector in the Nigerian economy.

To achieve the set objectives, we structured the paper as follows. Section one covers introduction, section two review some of the relevant literature, section three present the methodology. Section four deals with analysis and presentation of the result. Lastly, section five summarized and highlight on the policy implication of the study.

## 2. Growth-profitability relationship

Profitability is a central measure of firm's performance and it constitutes a vital aspect of its financial reporting. It is an indicator that firms generate earnings at rate of sales, level of assets and stock of capital in a specific period of time (Margaretha and Supartika, 2016) <sup>[16]</sup>. Consequently, firms' profitability and modalities for improving profitability have generated serious debates in the literature and have remained topical in the field of economics, finance, accounting and management. The ability of firms create value, employ workers, be innovative, more socially responsible and are beneficial to the entire economy through tax payment depends on profitability. Profitable firms significantly contribute to income generation and overall development of an economy (Olutunla and Obamuyi, 2008; Lazar, 2016) <sup>[14, 20]</sup>. Thus, researchers have made concerted efforts to unravel factors driving profitability both at firm and industry level using novel and sophisticated theoretical models (Al-Jafari and Samman, 2015) <sup>[2]</sup>. Here we review some studies on the relation between profitability and growth.

Literature on relationship between firms' growth and profitability show relatively degree of inconclusiveness. Early studies in this area include Steer and Cable (1978) <sup>[25]</sup>. Their study tested the effect of organisational form on profitability based on 82 sample of large UK companies over the period of 1967 to 1971. Their finding shows that there exist significant differences between what they called 'optimal' and non-optimal' firms with respect to profitability. For instance, with regards to non-optimally organised firms, large firms were more profitable than the small firms. Contrarily, with respect to optimally organised firms, the result was found not to be valid. The result further indicates that firms that are controlled by owners performed better in terms of profitability than firms that were controlled by managers. This strengthen the argument that

conflict of interest exists between firm-managers and owners of the business. While the later focussed much on growth, the former concern much on profitability.

Cowling (2004) <sup>[6]</sup> investigated the relative importance of firm and market effect on the profitability using a sample of independent unquoted firms in United Kingdom for the period 1991 to 1993. The study used Ordinary Least Square (OLS) and Two-Stage Least Square (2SLS) estimation techniques to estimate the relative importance of the relationship between the variables. The result shows complementarity relationship between sales growth and profitability measure. In other words, growth and profitability move in a parallel direction with no evidence of short-run growth-profit trade-off as identified in other studies <sup>[1]</sup>. Furthermore, Cowling (2004) <sup>[6]</sup>, unlike Steer and Cable (1978) <sup>[25]</sup>, did not observed any significant relationship of growth on profitability when taking internal governance into account.

Another important issue concerning growth-profit nexus is the dynamic nature of the relationship between the two variables. Previous studies that attempted to address this dynamic relationship of firms growth and profitability include (Goddard, Molyneux & Wilson, 2004; Goddard, Tavakoli & Wilson, 2005; McDonald, 1999; Stierwald, 2010; Vätavu, 2014) <sup>[7, 8, 18, 26, 28]</sup>. Goddard, Molyneux and Wilson (2004) <sup>[7]</sup> for example, examined the performance of Europeans banks for the periods 1992 to 1998 using dataset comprising 583 banks within the European Union that have different ownership characteristics. Their investigation revealed little or no evidence of mean-reversion in bank size, but show some evidence of weak and positive growth persistence. One important contribution of this study is that current profit is a prerequisite for future growth, but current growth can cause future profit to fall. Meaning that profit has a negative impact on growth.

One other important contribution to the literature that contrasted, particularly, the result of Goddard *et al.* (2004) <sup>[7]</sup>, are the findings of (Coad, 2007, 2010; Coad, Rao, & Tamagni, 2011) <sup>[3, 4, 5]</sup>. These three studies both have similar conclusion that profit and growth are entirely independent of one another, while at the same time they observed a positive relationship between growth and profit. Coad, (2007) <sup>[3]</sup> in particular, examined data from French manufacturing firms with 20 employees and above. The analysis utilised ordinary least square (OLS), fixed effect (FE) and generalised method of moment (GMM) to estimate the effect of profits on growth, while the effect of growth on profit was estimated with only OLS and FE but not GMM because of the difficulty encountered in getting a valid instrument for the GMM estimation. Similar data from same French manufacturing firm was still used in Coad, (2010) <sup>[4]</sup> but with different estimating technique. Here, the least absolute deviation (LAD) regression was used to estimate the result. Basically, this technique was employed by the authors in other to account for the non-Gaussian nature of growth rate residual. While Coad *et al.* (2011) <sup>[5]</sup> used data from Italian firm using same technique as in Coad (2010) <sup>[4]</sup>. The growth variables used in both the three studies are the same that is sales and employee growth. However, in the profit variables, Coad (2007) <sup>[3]</sup> used value addition (VA) and operating surplus (OS), while the last two studies used only gross operating surplus (GOS). Despite slightly differing in; techniques, variables and case study, their results appeared to be similar.

An opposing results to the above mentioned literature is that of Jang and Park (2011) [11] and Lee (2014) [15]. Jang and Park (2011) [11] used data over the period 1978 to 2007 for 2927 restaurants firms from the United States (US). The study adopted GMM (VAR) estimation technique to examine the dynamics of firm growth and profitability in the restaurants industry. The result revealed that prior year's profitability had positive impact on the current year's growth rate. But current year's previous year's growth rate had a negative impact on current year's profitability. Meaning that in the US restaurant industry, profit create growth but growth deteriorate profits, validating that argument of positive relationship between profitability and growth, and negative relationship between growth and profitability.

However, the result of Lee (2014) [15] refute this conclusion by Jang and Park (2011) [11]. Using firm-level data for 606 quoted Korean firms for the period 1999 to 2008, Lee, (2014) [15] examined the relationship between growth and profitability of these firms. The study employed system GMM, FE, non-linear regression as well as LAD regression to estimate the effect of the relationship. The non-linear regression was used in order to observe the possibilities of non-linear relationship between growth and profitability which the previous studies failed to address. As argued by Lee, if such possibilities are not taken into consideration, it may yield a mixed result that the previous studies reported. The result shows no evidence of non-linearity between growth and profitability based on the regression results

All of the studies that have been mentioned so far relates to developed economies. Studies on growth-profit relationship with respect to developing countries are scarce, especially with respect to Nigeria. However, the most recent and relevant studies identified in the literature are those conducted by (Lasisi, Dikki, & Okpanachi, 2017; Razaq & Akinlo, 2017) [13, 22] as well as (Ogunleye, Adeyemi and Asamu, 2018) [19] and (Lasisi, Mustapha and Okpanachi, 2018). These four studies, even though, both were conducted in Nigeria, but have different findings just like

the studies conducted in developed countries. Razaq and Akinlo, (2017) [22] examined the relationship between firm size, growth and profitability using a sample data of 115 quoted non-financial firms listed on the Nigerian stock exchange for the period 1998 to 2012. The study employed GMM technique to estimate the effect and the result shows that profit has positive impact on growth but growth was found to have insignificant impact on profit.

However, Ogunleye, Adeyemi and Asamu (2018) [19] contrasted Razaq and Akinlo (2017) [22] as they found that it was growth that has positive impact on profit but the relationship between profit and growth is independent or rather insignificant. Although, their study was also based on quoted manufacturing firms listed in the Nigeria stock exchange for the period 2007 to 2011, their technique of analysis differ with Razaq and Akinlo, (2017) [22] as the used FE to estimate the relationship. However, their result does not shows sameness with what Alex and colleague constantly reported with respect to France and Italy even though, they too differed in estimation techniques.

Other variables found in the literature that significantly influence the relationship between profitability and growth of the firm are age, leverage or debt ratio and financial constraints (Yazdanfar, 2013; Stierwald, 2010) [30]. Both theoretical and empirical literature within diverse academic field (economics, strategic management and finance) have attempt to examine the argument whether older firms are more profitable than smaller ones. Some of the evidences showing positive influence of age on profitability argued that firm's experience, business reputation and consideration easies access to financing. However, older firms often try to codify decision-making procedures, which makes them very bureaucratic and reduces their organizational flexibility and their ability for prompt changes. Such rules and procedures can be major obstacles for organizational change and innovation that are crucial in a competitive business environment (Pervan, Pervan & Ćurak, 2019) [21].

**Table 1:** Some selected empirical work on the relationship between growth and profitability

Author(s)	Country	Industry	Period	Variables		Method	Result	
				Growth	Profit		p → g	g → p
Cowling (2004) [6]	UK		1991-1993	Sales	Profit	OLS 2SLS	+	+
Goddard <i>et al.</i> (2004) [7]	EU	Banks	1992-1998	Assets	ROE	OLS GMM(VAR)	+	0
Coad (2007) [3]	France	Manufacturing	1996-2004	Sales Employees	OS VA	OLS GMM	0	+
Coad (2010) [4]	France	Manufacturing	1996-2004	Sales Employees	GOS	LAD(VAR)	0	+
Coad <i>et al.</i> (2011) [5]	Italy	Manufacturing	1989-1997	Sales Employees	GOS	LAD(VAR)	0	+
Jang and Park (2011) [11]	US	Restaurant	1978-2007	Sales	ROS	GMM(VAR)	+	-
Lee (2014) [15]	Korea	Various	1999-2008	Sales Employees	NIS	Fixed Effect GMM NLR LAD	-	+
Razaq and Akinlo (2017) [22]	Nigeria		1998-2012	Log of TA	EBIT	GMM	+	0
Ogunleye, Adeyemi and Asamu, (2018) [19]	Nigeria		2007-2011	Δ net Asset	ROA	Fixed Effect	0	+
Yoo and Kim, 2015 [31]	Korea	Construction	2000-2014	Sales Total assets	Net Income	GMM	+	+
Lasisi, Mustapha and Okpanachi (2018)	Nigeria		2008-2016	Sales ROA	ROE	Fixed Effect	Nil	+
								0

Source: compiled by author.

Note: g = growth, p = profit, ROS = return on sales, ROA = return on asset, ROI = return on investment, ROE = return on equity, EBIT = earnings before interest and tax, NIS = net income from sales, TA = log of total assets, VA = value addition, OS = operating surplus, GOS = gross operating surplus, NLR = nonlinear regression, Δ = change. The +, - and 0 refers to positive, negative and insignificant (or very weak) effects, respectively.

Yazdanfar (2013) [30] shows that age and industry affiliation negatively influence the profitability of firms in Sweden

while a positive relationship exists between growth of the firm, lagged profitability, productivity and profit earning of

non-financial micro firms. Using a dynamic profit model for 961 large Australian firms Stierwald (2010) [26] discovered that lagged profitability, size, leverage, lagged productivity and contemporaneous productivity impacted positively on current profit margin of firms.

From what has been observed so far in the literature, it shows that growth-profit relationship is inconclusive and inconsistent. The result from this study is intended to fill this gap. Table 1 summarised some of the empirical studies that investigated the relationship between growth and profitability both in Nigeria and in some developed countries. The table also reported the variables used by different researchers to proxy growth and profitability as well as the results obtained from the analyses. To sum up, based on table 1, studies on growth-profit relationship both within and outside Nigeria show that the relationship varies across different sectors of the economies.

**3. Data and variable**

The main objective of this study is to examine the relationship between firm growth and profitability of quoted non-financial firms listed on the Nigerian stock exchange, and to examine whether the relationship differs across sectors in the economy. Panel data technique was fitted to secondary data extracted from balance sheets of 126 sample firms for the period 2005 to 2015. The study was based on

quoted non-financial firms because financial services firms have different accounting standards and different capital structure, which is regulated by bodies such as Central Bank of Nigeria (CBN), Nigeria Deposit and Insurance Corporation (NDIC), National Insurance Commission (NICOM). We retrieved data from the annual reports of the firms listed on the Nigerian stock exchange (NSE). Not all the firms listed were included; we excluded some firms due to missing information.

Determinants of firm’s profitability can be analysed from various perspectives, with the application of different methodologies and within different theoretical frameworks. We chose all the variables in this research based on relevant theories, empirical research and data availability. Table 2 displayed the descriptive statistics of the key variables used in the regression and their measurement. The overall average growth in profitability over the period is 85 percent. Although, the least performing firms recorded a minimum loss of 15 percent, some productive and good performing firms their profitability improved by more than 100 percent over the period. However, growth in asset declined at an average of 5.8 percent. The deviation of asset growth is 0.48. In addition, the average age of the firms is 31 years during the period of the study. The variability in cash flow is 2.7 percent with 15 percent average growth.

**Table 2:** Descriptive statistics

Variable	Calculation	Mean	SD	Min	Max
Profitability	Earnings Before Interest &Tax/Total Assets	0.85	0.10	-0.15	1.42
Growth	Ln (Total Assets <sub>t</sub> ) – Ln (Total Assets <sub>t-1</sub> )	-0.058	0.48	-0.99	5.32
Cash flow	Ln of net income	0.15	0.027	0.10	0.20
Leverage	Total Debt/Total Debt and Total Equity	0.81	0.37	-2.03	2.99
Size	Ln of Total Assets	0.13	0.57	0.17	0.24
Age	Ln of age	0.31	0.15	-2.10	1.31

Source: Author’s computation

**4. Empirical analysis**

Following the literature, the indicators commonly used to calculate the growth of firms include total assets, sales, employee growth and return on assets. These variables were systematically chosen by researchers based on the objectives they want to achieve, because they were found to have a significant sensitivity to both financial and economic

fluctuations. This study opts to use the growth in total assets as proxy for firm growth due to availability of data. The lagged values of the growth variables were also included as explanatory variables. Similar to the work of Yoo and Kim, (2015) [31], we proposed a model that shows the relationship between current profitability and past growth as expressed in equation (1)

$$\pi_{it} = \beta_0 + \beta_1 gro_{it-1} + \beta_2 \pi_{it-1} + \sum \beta_3 X_{it} + \gamma_i + d_t + \varepsilon_{it} \dots \dots \dots (1)$$

Where;  $\pi_{it}$  stands for the current firms’ profitability,  $gro_{it-1}$  is firms’ growth in the past period,  $\pi_{it-1}$  stands for the previously accumulated profit.  $X_{it}$  is a vector of other control variables (cash flow, firm size, age and leverage ratio). While,  $\gamma_i$  represents the firms’ characteristics that do not vary with time and could not be observed but likely to be correlated with the explanatory variables,  $d_t$  is the year dummy that controls the time effect and  $\varepsilon_{it}$  is an error term that changes with respect to time and firm. While,  $\beta_1$  is the regression coefficient showing the persistence of growth,  $\beta_2$  is the regression coefficient explaining the effect of past profit on current profit and  $\beta_3$  is the regression coefficients of the control variables. The equation was used to test the

hypotheses about (1) the effect past growth on current profitability (2) examine how the relationship between growth and profit vary across sector.

In a dynamic model of the type specified in equation (1) where lagged dependent variable is included in the regression, a potential problem of endogeneity occurs. The problem arises due to reciprocal relationship between the error term and the explanatory variables. Under this condition, ordinary least square estimator will be biased, and the biasness will not be disappeared even if the number of firms are increased. To solve this problem, previous studies used generalised method of moment (GMM) method suggested by Arellano and Bond (1991). This method provides an appropriate condition for identification strategy by targeting the level equation of a dynamic panel model.



This study adopts this method in line of the literature.

### 5. Estimation result

The result of the correlation matrix is shown in table 2. The result shows that the correlation among the variable in most cases are less than 0.5 except in the case of growth, thus ruling out the possibility of multicollinearity among the

regressors (Gujarati, 2005) <sup>[9]</sup>. Furthermore, the correlation matrix also shows positive relationship between profitability and; growth, cash flow leverage ratio and age. While the relationship between profitability and size is negative. The variable with the weakest correlation with profitability is size (-0.034) and growth has the strongest (0.89).

**Table 3:** Correlation matrix

	Profitability	Growth	Cash flow	Leverage	Size	Age
Profitability	1.0000					
Growth	0.8931	1.0000				
Cash flow	0.1476	0.2543	1.0000			
Leverage	0.0184	0.0600	-0.0430	1.0000		
Size	-0.0359	-0.1682	-0.0332	0.0136	1.0000	
Age	0.1765	0.1795	0.1748	0.0179	-0.1520	1.000

*Source:* Authors' computation

As stated in section 4, we used system G.M.M. for our estimation and it shows that instruments for levels were valid implying that the steady-state assumption is satisfied. We present the results of the estimation in Table 4. In order to eliminate any common time-varying shocks and to control for cross-sectional dependency, a time dummy variables were included in the model, as suggested by Sarafidis, Yamagata and Robertson (2009) <sup>[24]</sup>. The insignificant p-value of Hansen test suggests the acceptance of the null hypothesis, which confirms that over-identifying restrictions (all chosen instruments) are valid. It is important to notice that in a situation where the number of instruments

is greater than the number of groups, the previous test can be weak. However, in this case, the number of instruments are quite low as compared to the number of groups or firms, indicating that this test is not likely to be weakened. Additionally, the results of the Arellano–Bond second-order autocorrelation test indicate the acceptance of the null hypothesis, suggesting the nonexistence of autocorrelation. Since the results of the statistical tests are in line with the requirements that the GMM postulates, we can conclude that the model specification, as well as all instruments, are valid.

**Table 4:** The effect of growth on profitability (System GMM Estimation)

Dependent variable = profitability	All Sectors (1)	Manufacturing (2)	Services (3)	Construction (4)
<i>Profitability<sub>t-1</sub></i>	0.536*** (0.195)	0.489*** (0.039)	0.031 (0.043)	0.0233 (0.0573)
<i>growth<sub>t-1</sub></i>	-0.005*** (0.001)	-0.003*** (0.0002)	-0.001* (0.0007)	0.0004** (0.0002)
<i>Cashflow<sub>t-1</sub></i>	0.011 (0.044)	0.005 (0.005)	0.038* (0.020)	-0.0064 (0.0048)
<i>Leverage<sub>t-1</sub></i>	-0.012 (0.112)	-0.011 (0.024)	0.042 (0.087)	0.147** (0.0628)
<i>Size</i>	-0.009 (0.026)	0.008 (0.013)	-0.017** (0.008)	-0.006*** (0.00477)
<i>Age</i>	1.08*** (0.003)	0.876*** (0.0188)	1.08*** (0.0008)	1.104*** (0.0134)
constant	-0.703 (1.191)	-0.511** (0.211)	-0.425 (0.353)	0.135** (0.053)
No. instrument	17	12	19	13
Year dummy	Yes	Yes	Yes	Yes
Hansen Stat.	0.263	0.728	0.157	0.167
AR(1)	0.023	0.0312	0.054	0.067
AR(2)	0.625	0.307	0.443	0.441
No. observation	126	53	33	31

Standard errors in parenthesis; p-values: significant at \* 10 percent, \*\* 5 percent and \*\*\* 1 percent

From table 4, starting with the general model, the coefficient of past profitability is positive and significant at 1 percent significance level. Meaning that the higher the profit earned in the preceding year, the higher would be the profit in the current year. This finding is similar to (Vätavu, 2014; McDonald, 1999; Stierwald, 2010; Goddard, Tavakoli & Wilson, 2005) <sup>[28, 26, 18, 8]</sup>. In other words, the result indicates that the ability of firm to generate higher profit in the present year potentially provides basis for earning higher profit in the future. Firms can reap this benefit possibly

through re-investment of retained earnings, re-training of employees, research and development, product rebranding and effective innovations. However, the result contradicts the finding of Margaretha and Supartika (2016) <sup>[16]</sup> who reported negative effect of lagged profitability on contemporaneous profit. Generally, a unit increase in current profitability may leads to 0.54 unit increase in the future profitability of the firms. Although, the signs of the coefficients appear to be the same across all the three sectors, it is only significant with respect to manufacturing

firms. In other words, past profitability significantly influences only the current profitability of the manufacturing firms but not services or construction firms. The effect of previous growth on current profitability is not uniform across the three sectors. The coefficient is negative and statistically significant in column (1) to (3) but positive in column (4), indicating that past growth impedes current profitability of firms in the manufacturing and services sectors but enhances the profitability of firms in the construction industry. This clearly shows that there is important industry effect of growth on profitability as noted by Cowling (2004)<sup>[6]</sup> that construction firms are less vulnerable to macroeconomic shocks as compared to manufacturing or services firms. Thus, previous growth tends to significantly enhance current profitability for only the construction firms as observed by Yoo and Kim (2015)<sup>[31]</sup> in the Korean construction firms. The finding, with respect to manufacturing and services firms follows a concept similar to the Penrose effect that state future profitability decreases with high operating cost due to rapid firm growth, but contrarily in case of firms in the construction sector.

Past financial constraint as represented by the cash flow variable is independent of current profitability as the coefficient is not statistically significant in all the regressions except for firms in the service sector. In their own case, the coefficient is positive and statistically significant. This shows that firms in the service sector are less constraint and hence previously cash flow enhances their profitability, although, the effect is weak at 10 percent significance level. Similarly, leverage ratio has independent effect on current profitability for firms operating in the manufacturing and service sectors. Whereas for firms in construction sector, the relationship is positive and statistically significant. This corroborates the early findings of Hurdle (1974)<sup>[10]</sup> and supported by Jensen (1986)<sup>[12]</sup> and Stulz (1990)<sup>[27]</sup>. The positive relationship means that firms with high debt ratio would be mindful of wasteful investment project and hence increase their profitability. Furthermore, there is also negative and significant relationship between size and profitability of firms in the services and construction industry and positive but not significant relationship with respect to firms in the manufacturing sector. This indicates that small size firms tends to be more profitable in these sectors than large firms are. The result is similar to the findings of (Lazar, 2016; Al-Jafari & Samman, 2015; Margaretha & Supartika, 2016)<sup>[14, 2, 16]</sup> and contradicts (Akinlo, 2012; Olutunla & Obamuyi, 2008)<sup>[20]</sup>.

Lastly, we observed the effect of age on profitability. The result indicates that younger firms are less profitable as compared to older ones. Alternatively, as the firms grow, profitability tends to increase. This is in line with expectation and supported by previous studies such as Vijayakumar (2011)<sup>[29]</sup>. The positive association between firm age and profitability is contrary to findings from (Olutunla & Obamuyi, 2008; Margaretha & Supartika, 2016; Yazdanfar, 2013; Salman & Yazdanfar, 2011)<sup>[20, 16, 30]</sup>

## 6. Conclusion

Using firm-level data, this study examines the relationship between growth and profitability of private firms in Nigeria, specifically paying attention on industry heterogeneity. The empirical finding shows that the effect of firm growth on

profitability is not uniform across all the sectors. While in the manufacturing and service sectors the relationship was negative and significant, it was positive and significant in the construction sector. The conclusion is that construction sector responds very sensitively to economic, demographic and political environment, thus, growth through continuous innovation is very important.

Another important finding from the result is that aggressiveness for growth has a damaging effect on the profitability of young firms across all the sectors. In other words, younger firms are less profitable than older firms are. That is the more the firms are growing older, the more profitable they are. This is because younger firms are prone to innovation and keen to growth; it thus explains the reason why profitability increases with age. The implication here is that if young firms are not profitable, there exit and closure in the industry might be prevalent. Hence, policymakers should pay greater attention to policy that would enhance the profitability of the younger firms, given that majority of the firms in the economy fall under this category. The effect of other control variables is mixed and not robust particularly the financial constraint and leverage variables. This may partly due to selection of variables and lack of rich data. It is thus, recommended that, future studies should pay greater attention to these points.

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