

Firm-specific Indicators and Firm Value of Quoted Health Firms in Nigeria: a Balanced Panel Methodology

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ABSTRACT

This study investigated the firm-specific indicators of firm value of listed healthcare firms in Nigeria using the panel data methodology. The study covered a period of ten (10) years spanning from 2010 to 2019. The regressor is firm-specific indicators measured by investment decisions, dividend decisions, financing decisions, operational efficiency, profitability, and firm size while the regressed is firm value measured by average share price (ASHP) and TOBINQ. Data was collected from the annual reports and accounts of the sampled firms and from Nigeria stock exchange. Based on the Hausman test, Model 1 (ASHP) supports the REM while Model 2 (Tobin Q) supports the FEM. The result revealed that Investment decision has a positive significant impact on ASHP and negative insignificant impact on Tobin Q. Meanwhile, financing decision has a negative statistical significance impact on ASHP and negative insignificant impact on Tobin Q. More so, dividend decision has negative statistical insignificance impact on firm value proxies. Further, operating efficiency decision has positive statistical significance impact on ASHP and negative insignificant impact on Tobin Q. Again, profitability has positive insignificant impact on firm value proxies. Lastly, firm size exerted positively and insignificant impact on average share price and negative significant effect on Tobin Q. Premised on this, we conclude that, firm value is better determined jointly by investment decision, financing decision, dividend decision, profitability, and firm size than when it is examined individually. To this end, we recommend amongst others that for management of listed healthcare firms to enhance their firm value, they must opt for optimal leverage level. Again, investors should ensure that they carefully consider the risk-return maxim before deciding to invest in the Health care sector.

Keywords: Firm-Specific Indicators, Firm Value, Quoted Health Firms, Balanced Panel Methodology

INTRODUCTION

The concept of profit optimization (maximization) forms the bedrock on which all business activities are laid. However, on the long-run no business can stand the test of time on the premise of profit maximization alone. This is because maximizing profit on the short-run without increasing firm value on the long-run may not keep the firm afloat in the near future. Hence, there is need to consider the firm's value since every firm tends to be more futuristic than present minded. More expediently, one way through which firms can actually maximize (increasing) shareholders' value is by increasing the bargaining power of the firm's stock which in turn increases the value of the firm. This therefore suggests that, the higher the share price the higher

the firm value (Safdar, Hazoor, Toheed & Ammaral, 2013). Meanwhile, if the firm value is low as reflected by the stock market value, the firm is considered not to have good future investment prospects.

Based on the foregoing submissions, Nuru (2014) argued that, firm's market price (share price) is used by different stakeholders to gauge the soundness of the firm's investment, financing (funding), and operational decision in that one of the greatest desires of investors is to invest in assets that add economic value to their investment by ensuring that the investing firms are financially competent enough to convert their business resources to investment opportunities based on the firm's current market price. Investors may as well do a spot check of the financial statement of the firm so as to ensure that their investment decision is coherent and worthwhile. This to a large extent will assist shareholders to ascertain the optimal gains from investment as well as forecast the extent to which the firm has achieved its firm value objective.

Away further, Abdullahi (2016) argued that, it is not possible for corporate managers to maximize firm's value without knowing the factors that influence its value, the size, and the direction of influence of each of these factors on the value of the firm. Consequently, scholars report that firm value is affected by both firm-specific variables and macro-economic variables. A good example of firm-specific variables which impact on firm value include firm size, dividend, financing (funding), investment, operational decision, and firm growth while gross domestic product accounts for the macro-economic determinants of firm value. However, most scholars focused more attention on the firm-specific determinants. This is premised on the fact that, unlike macro-economic determinants, the firm-specific determinants are within the confine of the firm. Still, existing literature lacks conceptual clarification on the firm-specific determinants as well as the direction of movement in firm value as influenced by a range of firm-specific variables. Meanwhile, we also noticed that, most empirical studies used share price to proxy firm value (Ibrahim & Hussaini, 2015, Abdullahi 2016). This approach is however inappropriate because investors react to corporate outcomes, which is reflected in the prices of shares, when the news becomes available. Thus, measuring firm value as the share price at the end of the financial year will not give a true picture in arriving at the determining factors of firm value. It is on the basis of this that the study is considered essential as an attempt to fill these literature gaps by taking the share price and Tobin's Q as a measure of firm value.

Furthermore, a cautious survey into extant studies revealed that, though avalanche of empirical studies abound on the subject matter, yet none of these studies are exhaustive since they are limited in geographical and time scope, faced with series of methodological weaknesses, and also reported conflicting results. Specifically, while some studies reported a positive relationship between firm value and its determining factors others discovered negative relationship between the two constructs instead. For example, Mbugua, Oluoch, and Ndambiri (2018), Awan, Muhammad, & Hussain (2018); Adiputra, (2016) in separate studies discovered a positive relationship between firm value and its determining factors measured by profitability, investment and financing decision and firm size and firm value and its determinants. However, Paolo and Pablo (2018) discovered that, on the whole using the F-statistics determinants have positive and significant impacts on firm value but on individual levels some of the determinants of firm value behave in negative fashion. Mbuga, Oluoch, and Ndambiri, (2018) discovered a negative

relationship between firm value and its determining factors. Meanwhile, prior literature also reports that, most prior scholars only focused on the construction, manufacturing and food & beverages industry while little or no action was directed towards the healthcare sector despite its significant impact on the Nigerian economy (Ibrahim & Hussaini, 2015, Abdullahi 2016). Moreover, given that the basic tenets which guides the health care sector differs from that of other sectors in all respects since it is backed by some additional regulations and standards, it become cumbersome for studies conducted outside the health care sector to be applicable in the health care sector. This therefore offers a good reason why the sector should be examined in isolation from the other manufacturing firms. Again, even few empiricists that indicated interest in the Nigerian healthcare sector only covered few periods of study and they are as well limited in time scope. As such, they may not reflect current happenings in the Nigerian health care sector.

Accordingly, the foregoing perceived study gaps highlighted above further justify the need for more studies, and so embarking on this study in the Nigerian context, expanding the time and conceptual scope of the study will fill the perceived gap highlighted above as well as contribute to the existing body of knowledge by analyzing the firm-specific indicators of the value of quoted health care firms in Nigeria from 2010 – 2019. Specifically, the study examined the impact of investment, dividend, financing policy decisions, operational efficiency, profitability, and firm size on firm value in the Nigerian healthcare sector.

Significantly, this study contributes to extant studies in different respects. Theoretically, the present is beneficial as it would revalidate various theories in relation to the subject matter. In practical terms, the present study would aid policy makers in the Nigerian health care sector to make informed decision based on the findings and the conclusion drawn from this study. Also, the study would provide useful information to investors and management on how to use the investment decisions, funding decisions and dividend policies to predict the value of the firm. The rest segments of the study is organized into four (4) sections: The first section takes into consideration the literature review; the second section analyzed the researcher's own methodology; the third section discussed the regression results alongside its policy implications while the last segment considered the concussions drawn from the findings of the study alongside various policy recommendations.

LITERATURE REVIEWS

This section discusses the conceptual issues associated with the subject matter. It also discusses the theories that underpin the study. Finally, it reviewed the relevant empirical literature in relation to the subject matter with a view to bridge and fill missing gaps in existing body of knowledge.

Conceptual Clarifications/Linkage

Firm Value

The term “firm value” is viewed from different perspectives. Firstly, it is assumed that firm value is the value of a firm's assets using the book value per share of the company. This method is

simple because financial analyst can easily pinpoint firm value without much stress. Secondly, firm value refers to certain conditions that have been achieved by a company as an overview of public confidence in the company having undergone series of developmental stages. In other words, firm value represents the past, present and future performance of a firm as well as the long-term interest of investors (shareholders and stakeholders). Thirdly, firm value is an investor's perception of the company, which is often associated with stock prices (Purwohandoko, 2017; Sabrin, Sarita, Takdir&Sujono, 2016); and Hussaini, 2015)

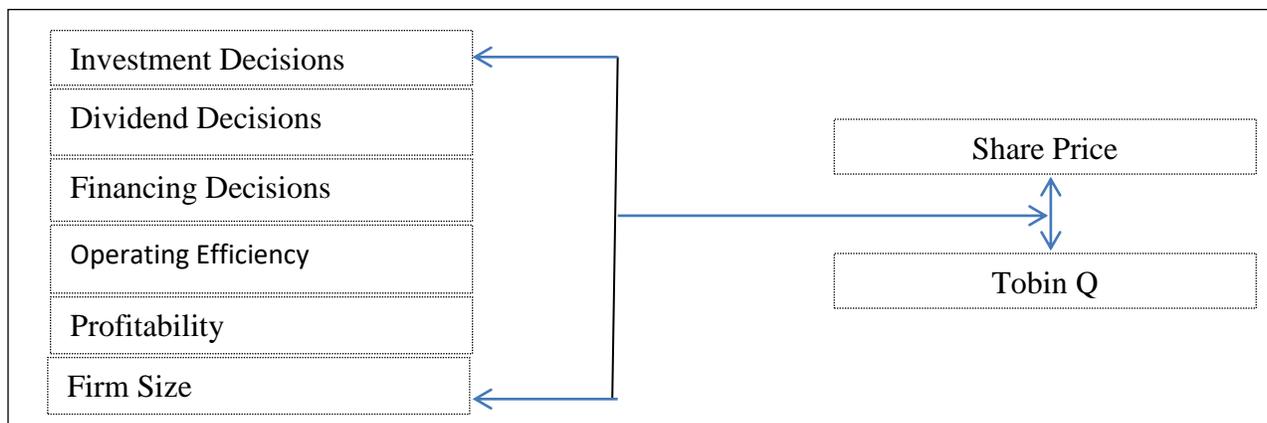
Wikipedia (2020), conceptualized firm value otherwise known as enterprise value, or total enterprise value as the case may be as an economic measure of the market value (price) of a firm. In other words, it is the sum of claims (obligations) by all claimants such as secured and unsecured creditors and shareholders. Broadly speaking, it is one of the fundamental metrics used in financial modeling, security valuation, and portfolio and risk analysis. More so, it is more comprehensive than market capitalization. Importantly, firm (enterprise) value reflects firm's opportunistic nature as well as substantial change which occurs within and outside the firm due to both external and internal factors.

According to Bhullar (2017) firm value is used to estimate future cash flow, business risk, and time (CRT) in current value:

- a. What amount of cash flow firm can generate? (C - Cash flow)
- b. How much is the risk in the business of firm? (R - Risk in business)
- c. What is the minimum time period to achieve the desired target? (T - Time).

Based on the foregoing, it is striking to note that firm value plays instrumental role during business operations like calculation of acquisition price of firm, initial public offering (IPO), formulating different corporate restructuring strategies etc. Indeed, it serve as a major factor which affect the growth, sustainability, and doggedness of every human endeavor especially the Nigerian health sectors that is faced with series of operating inefficiencies. However, that firm value (Tobin Q and Share Price) depends on investment, dividend, financing decision, operating efficiency, profitability (see figure 1 below).

Figure1: Determinants of Firm Value



Source: Researcher's Paradigm (2020)

Description of Research Variables

Regressed: The regressed in this study is Firm Value. Firm value can be measured in different ways. The most basic and easiest way to measure this value, both the company and the stock, is to look at the company's market value. This is also known as the company's market capitalization. Market capitalization is the value arrived at when all the outstanding shares of the company's stock are multiplied by the current price of a single share.

Accordingly, for the purpose of this study, firm value is measured by Average Share Price and Tobin Q. Tobin Q is considered as the best market correction indicator and also explains investment variability (Pett, 2013; Cooper & Ejarque, 2003). Invariably, high firm value indicated that the replacement value of the firm's non-current assets (plant and equipment) are very low and vice versa (Sweety & Mandeep, 2014; Jahani, Zalghadr-Nasab & Soofi, 2013). Due to the data limitations, a substitute measure of Tobin's Q ratio is used for the present study. It is mathematically represented as:

$$\text{Tobin Q} = \frac{\text{Market Value of Equity} + \text{Book value of preferred stock} + \text{Book Value of Debt}}{\text{Book value of asset}}$$

Regressor: The regressor in the paper is determinants operationalized by investment decisions, dividend decisions, financing decisions, operational efficiency, profitability, and firm size.

Investment Decisions: The term 'investment decision' is a provision made by a company in spending its own funds in the form of certain assets with the hope of benefiting from such investment in the near future. In other words, investment decision is the allocation and reallocation funds and resources into projects, assets and division in the firm (Layyinaturobaniyah, & Sekartadjie, 2016).

Maulana (2016) asserts that, investment decisions made by a company are directed towards addressing both short-term and long-term liquidity needs of the company. Hence, investment decision is very paramount for the growth and sustainability of every human endeavor since it balances both situations without ought-rightly affecting firm value negatively.

Harjito and Martono (2013) opined that, firm growth is a major factor which investors use to envisage expected returns in the near future. In the same vein, Cahyono and Sulistyawati (2017) argued that investment opportunities have positive impact on firm value. To further substantiate this, research conducted by Afzal and Rohman (2012) shows that the investment decision relates to firm value directly. The results also support the theory of signal (signaling theory), where their investment expenditure provides a great signal of the company's performance in the future, so stock prices' increasing is used as an indicator of the firm value.

Financing Decision:

Ordinarily, the decisions to either investment in a particular security or asset or not will determine the source and nature of financing such asset or security. Hence, financing decision

otherwise known as funding decision is a decision made by a firm to restructure the structure and composition of financing the firm (Achmad and Amanah, 2014).

Usually, debt financing can be in the form of short-term debt (current liabilities) and long-term debt while equity financing otherwise known as company's share capital consists of preferred stock (preferred stock) and common shares (common stock). In a situation where the internal source of financing (equity financing) is not enough, the manufacturing firm may decide to source for funds externally using deficit financing. More so, their portfolio may be a mix of debt and equity financing. Succinctly, debt-equity ratio (DER) was used as an indicator of the financing decisions in this study.

Dividend Decisions:

Egbeonu, Edori and Edori (2016) viewed dividend decision as a deliberate action of managers to share portion of earnings to shareholders in proportion of their holdings in the firm at the end of a fiscal year. The sharing of profits to shareholders can be in form of cash dividend, bonus or script dividend, repurchased stock etc. In other words, dividend policy refers to the company's choice whether the net income (profits) generated in a fiscal year by the company should be distributed to shareholders in the form of cash dividends or be ploughed back into the firm in order to finance worthwhile investment in the near future. Such decisions are usually reached during the company's annual general meeting.

Based on the foregoing, the company's choice to pay or not to pay dividends to shareholders and further options to increase, decrease or maintain the level of dividend is one of the policy areas of corporate finance that is most decisive and complicated due the fact that equity holders (shareholders) have heterogeneous expectations such that while some equity holders prefer consistent payment of dividend whereas others will prefer capital gains arising from increased share prices. Again, we expect that both retention ratio and dividends paid-out ratio should be inverse yet the duo work together for shareholder's wealth maximization, it is practically impossible to formulate one without affecting the other (Egbeonu et'al, 2016). This suggests that, the larger the company's retained earnings, the smaller the company's dividend payout and vice versa. In another direction, if the company's management decides to raise the proportion of earnings per share (EPS) to retained earnings, then it will also increase shareholders' value (firm value)

Maulana (2016) submitted that, the reaction of investor to information on dividend decision increases firm value. This is because dividend payments to shareholders reflect rising stock market prices which will in turn increase firm value. As such, firm value provides assurance to shareholders to earn more income (dividends or capital gains) in the near future. Irvaniawati (2015) and Achmad (2014) reported that, dividend decision policy affect firm value significantly. However, not all the time high dividend improves firm value (Cahyono & Sulistyawati, 2017). This is consistent with the theory proposed by Miller and Modigliani (1961) stating that the dividend decision policy does not affect the firm value because they feel that dividend payout ratio is simply the details and does not affect the welfare of shareholders.

Operating Efficiency

One of the most salient goals of board of directors is to maximize both the present and future financial and operating performance since these factors impact on the market price per share and consequently, shareholders' wealth. Common business practice implies that operating efficiency (OPEF) plays an important role in improving current and future operating performance (Mou & Wanrapee 2015).

Bhullar (2017) Operating efficiency refers to the profitable, efficient and judicious use of resources (financial) available to an organization in perfect consonance with clearly laid-down financial policies relating to the operation. In other words, operating Efficiency is defined as the extent to which changes in the cash conversion cycle, operating expenses to sales revenue ratio, operating cash flow, and total asset turnover ratio, total debt to total assets ratio, firm size, and operating risk impact on the firm value in the near future. The term "efficiency" is viewed as the product of firm-specific factors such as innovation, management skills, cost control, and market share. Accordingly, in this study, we measured operating efficiency using turnover ratio as suggested by Mou and Wanrapee (2015).

Turnover Ratio (TOR):

In accounting, turnover ratio are the financial ratios in which an annual income statement amount is divided by the average asset amount for the same year. Generally, large turnover ratio indicates the efficiency or effectiveness of a company's management. These ratios include inventory turnover ratio, total asset to turnover ratio, fixed asset turnover ratio, working capital turnover ratio. However, this study adopted total asset to turnover ratio. It is expressed as:

$$TOR = \frac{\text{Turnover}}{\text{Total Assets}} \frac{100}{1}$$

Profitability

Firms usually follow the goal of maximizing shareholder wealth. This goal is not achievable without ensuring that the firm's profits or rupee is adequate to cover both the companies' operation and other obligations. Conversely, if firms profits relatively small, then firms can be said less successful or less good performance. Profitability is end result of a number policies and decisions of corporate management. Thus, it can be asserted that firm profitability is a firm's ability to generate net income from activities performed in an accounting period. In other words, profitability is the firm's ability to generate profits and measure the level of operating efficiency in using its assets. According to Sucuahi & Cambarihan (2016), profitability is a description and performance management in managing the company. Profitability is one of the factors that affect the value of the company.

A way further, high profitability reflects the company's ability to generate high returns for shareholders. High profitability ratio owned by a company will attract investors to invest in the company. The high interest of investors to invest in companies with high ROE will increase stock prices.

Further, in this study, we used return on equity (ROE) to proxy profitability because this performance metrics is closely related to the capital structure in that it is influenced by either the proportion of long-term debt or own capital (Manoppo & Arie, 2016; Sucuahi & Cambarihan, 2016,).

Firm size

With the advent of globalization, changes in customers taste, expansion of manufacturing capacity, geographical presence, market shares and so on the survival of manufacturing firms are imperative and that manufacturing firms that have large size and competitive advantage can stay afloat in the midst of intense competition in the industry (Dogan, 2013). However, there is the tendency that all firm size is better off since large firm are more prone to institutional and regulatory bottlenecks compared to small firms. Such bottlenecks impede or reduce firm value.

The term firm size is defined as assessment of how large or small a firm that represented by assets, sales number, average total sales and average total assets. Thus, Firm size is size or amount of assets owned by firm. Firm size is very important for investors and creditors as it relates to risk of investment made. This is because firm with great total assets will have a positive cash flow; hence, such firm is considered to have good prospects on the long-run. It may also suggest that firms with large business operations in terms of revenue, size of facilities, and number of employees. Again, larger firms are more desirous to achieve maximized value than smaller firms. This is because, if firm value is measured by volumes of operation, then firms with large volumes of operation will outperform firms with small volumes of operation since they are more able to use economics of scale and scope, and they may organize their activities more efficiently and effectively (Pervan & Visic, 2012)

Generally, researches in Nigeria use the natural logarithm of total assets or total sales, asset, employment, and market capitalization to proxy firm size. However, this study measured firm size as natural logarithms of firm's total assets, which can be easily regressed so as to determine the influence of the firm's total assets on its. Again, a lot of empirical studies have been conducted using firm size. Some of them used firm size as a control variable while others used it as a predictor variable in their studies. Firm size is used in this study as independent variable, because the study is on firm characteristics and size is among the proxies of firm attributes.

Theoretical Framework

Different theories have been used by previous researchers to underpin studies in this area. However, signaling theory, and trade-off theory have been found to be the most appropriate theories that fits this study

Signaling theory

Signaling theory otherwise known as information asymmetry theory is concerned with understanding why certain market signals affects firm's decision making while others do not. The theory looks at the quality and reliability of accounting information sent by a company to its

users of accounting information for investment decision making by the potential investors. Spence (1973) posited that a well performing firm distinguishes itself from the nonperforming one by sending a credible signal about its performance to capital markets as well as potential investors. Signals sent by a firm are the results of its operating activities which would inform investors about the company's future prospects. The theory assumed that managers and shareholders of a company differ in terms of getting access to some vital information about firm operation. Some information can only be accessed by the managers while the shareholders do not have access to such information.

Signaling theory was adopted in this study to underpin the determinants of firm value represented by investment decisions, financing decisions, dividend decisions, firm size, operating efficiency, because an effective management and staff would enable a company to maximize its operating efficiency of production thereby leading to an improvement in firm's financial performance and firm value which by implication is showing a good signal to both current and potential investors that the company can continue to operate in line with the going concern concept of accounting as well as satisfying the interest of its stakeholders through wealth maximization. Also, managers use dividend paid out to send useful information or signals to the financial market about current and future profits of their firm. To further substantiate of this claim, Bhattacharya (1979) suggests that dividend payouts determines a firm's financial health. By implication, a higher firm value is caused by higher dividends. The argument of the theory is relevant in anchoring the study because it holds that accounting information sends signal to the market which influences the investment decisions. This decision is reflected in the price of the stock (i.e. firm value).

Trade off Theory

According to Kraus and Lichtenberger (1973), tradeoff theory explains how a firm chooses how much debt or equity to use to balance both its costs and benefits. In other words, the trade-off theory assumes that financial leverage will only be beneficial if a firm choose an optimal debt-equity ratio (Murray and Vidhan, 2005).The theory is very relevant to the study because listed firms especially the firm under study

Empirical Studies

Previous studies have revealed that there exist directional relationship between firm value and its determining factors both in developed and developing economies of which Nigeria is no exception. Thus, this section provides an in-depth understanding of previous studies done by different authors in various countries at different periods in the area of firm value and its determining factors with a view to address various methodological issues and fill perceived gaps in extant literature.

Investment Decision and Firm Value

Hajering. Mahfudnurnajamuddin, Ibrahim, and Muhammad (2018) examined the effect of investment decisions, funding decisions, and dividend policies on firm performance and the

value of banking companies in Indonesia from 2013 to 2015. The data were analyzed using Path Analysis Model with the help of Analysis Moment of Structure (AMOS) program version 21. The results reported that investment, funding, and dividend policy decisions all have positive insignificant impact on firm performance and value.

Kusiyah and Arief (2017) examined the impact of investment, funding, and dividend policy decisions on firm value. The data for the study mainly secondary data gathered from the banking industry and analyzed using multivariate analysis. The results revealed that investment, funding, and dividend policy decisions affect firm value simultaneously. Hence, the researchers recommend among others, that firms should also pay more attention on investment decisions.

Efni (2017) sought to find the mediating effect of investment decision on corporate risk and value using companies listed in Indonesia from 2001 to 2008 and averred that the firm's risk and investment decisions increase the company's value while the dividend policy and funding decisions decrease the company's value.

Based on the foregoing, this study sought to re-examine the effect of investment decision on firm value.

Financing Decision and Firm Value

Harsha, Nikitha, Madhura, and Girish (2018) empirically investigated the financial indicators of firm's value. Variables adopted include: net profit, sales, current ratio, debt-equity ratio, quick ratio, fixed asset, and asset turnover ratio are used. Money control, National stock exchange, Bombay stock exchange and many other websites were used for collecting relevant data. The OLS result revealed that all the financial indicators impacted on firm value significantly.

Conversely, Hang, Geyer-Klingeberg, Rathgeber and Stöck (2018) examined the nexus among risk management, capital structure, and firm value by aggregating the existing competing explanations into a new integrated theoretical model, which we test by means of meta-analysis based on 411 empirical studies. The result revealed that capital structure mediates between risk management and firm value negatively. Therefore, managers should not focus on debt capacities unused instead use their internal funds.

An Indian panel study carried out by Aggarwal, & Padhan, (2017) reported positive significant relationship exist between financing decision and firm value from 2001 to 2015

Maina (2016) examined the impact of debt- finance decision, profitability, and firm value using evidence from fourteen quoted manufacturing in Kenya. The correlation and regression techniques were adopted in the study. The result revealed that firm's debt- finance decision impact positively on firm value.

Same in Kenya, Ayako and Wamalwa (2015) analyzed the determinants of firm value of quoted banks in Nairobi Securities Exchange (NSE) from 2002 to 2012 and affirmed that although the relationship between leverage and firm value is positive, it was not significant. The study supported random effect model (REM) regression. However, the study is Kenya-based; the result may not be the same when applied to the Nigerian.

Kulati (2014) examined the efficacy of capital structure on firm value of companies in from 2009 to 2013 and found positive significant relationship between capital structure and firm value.

Although, panel data was applied in the study, panel diagnostic tests were excluded from the study.

Kodongo, Mokoaleli-Mokoteli and Maina (2014) examined the effect of debt-equity mix on profitability and firm value of listed firm in Kenya covering the periods of 2002 to 2011. Capital structure was operationalized by financial leverage, profitability was proxied by ROE, while firm value was measured by Tobin Q. Using various panel procedures, the study evidenced that debt-equity mix negatively yet significantly affects selected firms' profitability but does not affect firm value.

Based on the foregoing, this study sought to re-examine the effect of financing decision on firm value.

Dividend Decision and Firm Value

Nur and Deden (2019) in a study on the effect of investment, funding and dividend policy decisions on the value of listed property and real estate firms in Indonesia from 2013 to 2016 discovered that both funding and dividend policy decisions impact on firm value but investment policy decisions does not.

Anton (2016) investigated the impact of dividend policy on firm value. Our sample consists of sixty-three non-financial firms listed on the Bucharest Stock Exchange over the period 2001-2011. The study supported the FEM. It was discovered that dividend pay-out ratio amongst other influences firm value positively.

Egbeonu, Edori, and Edori (2016) investigated the effect of dividend policy on the value of firms as reflected on shareholder's wealth maximization using the multiple OLS regression. The result of the study revealed that dividend per share specifically affect firm value both negatively and significant.

Based on the foregoing, this study sought to re-examine the effect of dividend decision on firm value.

Operating Efficiency and Firm Value

Njagi, Aduda, Kisaka, and Iraya (2017) examined the influence of a firm's efficiency on the relationship between capital structure and firm value in Kenya from 2008 to 2013. Capital structure was operationalized ratio of retained earnings to total capital, ratio of debt to total capital and ratio of equity to firm capital. The firm's efficiency is measured by operating efficiency, cost efficiency and profit efficiency. Meanwhile, firm value is measured the firms' input factors such as financing and distribution costs, administrative expenses, tax liability and output factors such as earnings per share and share price. This study supported the FEM. The results showed that cost efficiency influences firm value negatively. Further, operating efficiency mediate between capital structure and firm value negatively.

In India, Bhullar (2017) investigated operating efficiency and firm value nexus in the consumer goods (FMCG) and pharmaceutical sector covering the periods of 30 years spanning from 2005 to 2015. Fixed asset turnover ratio and net profit margin were used to measure operating efficiency while enterprise value to measure firm value. The results evidenced that fixed asset

turnover ratio (FATO) and net profit margin exert negative impact on firm value in both the pharmaceutical and profit margin consumer goods sector.

In Nigeria, Mohammed (2017) explored the nexus between firm-specific variables and firm value of quoted firms in the healthcare sector from 2008 to 2015. Liquidity, operating efficiency, leverage, firm size, and profitability served as the firm-specific variables while share prices and Tobin Q were used to measure firm value. Using the panel data analysis, the result revealed that firm size impacted positively and significantly on firm value throughout the study period while liquidity, operating efficiency, leverage, and profitability negatively impacted on firm value. Based on these findings, the researcher recommends that, management and regulatory agencies of health care firms must ensure that their operating efficiency is worked upon since it is inadequate as depicted by the result.

Conversely, Bhatnagar, Bhatnagar and Bhulla (2014) examined the impact of operating efficiency on firm valuation in India spanning from 2005 through 2012. Using the panel data analysis, the result revealed that, gross profits, asset turnover, operating efficiency, return on capital employed, and sales have significant impact on the firm value at the inter-industry level. To this end, this study sought to re-examine the effect of operating efficiency on firm value.

Profitability and Firm Value

Hirdinis (2019) examined the effect of capital structure and firm size on firm value, moderated by profitability and discovered that capital structure has a significant positive effect on firm value while firm size has a significant negative effect on firm value. Profitability has no significant effect on firm value. However, profitability is not able to mediate the influence of capital structure and firm size on firm value.

Mbugua, Oluoch, and Ndambiri (2018) investigated the determinants of firm value among firms which had initial public offering in 2006 to 2016 in Nairobi securities exchange. The descriptive, correlation, and regression analysis were used to analyze the sourced data. The study reported that profitability specifically impact on firm value. Based on the findings of the study, the researcher recommends that firms should adopt measures to increase their profitability.

Andawasatya, Indrawati and Aisjah (2017) investigated importance of profitability to the firm value through capital structure for the manufacturing companies in Indonesia stock market. Through the use of determined criteria, a total of 67 companies were selected for analysis. The results of mediating test showed that capital structure was able to mediate between the profitability and firm value.

Sucuachi and Cambarihan (2016) documented that firm profitability influences value of firms in 86 well-diversified companies positively.

Elsewhere, Sabrin, et'al (2016) examined the effect of firm's profitability on value of manufacturing companies in Indonesia stock market from year 2009 to 2014 and reported that all the firm profitability variables impacted significantly on firm value. Thus, this study intends to re-examine the effect of profitability on firm value.

Firm Size and Firm Value

Setiadharna & Machali (2017) investigated the influence of asset structure and firm size on the value of companies listed in Indonesia and reported that a positive significant relationship exist specifically between firm size and firm value.

Similarly, Purwohandoko (2017) explored the effect of asset structure and firm size on firm value of selected 14 listed agricultural companies from 2011 to 2014 and reported that firm size specifically has a positive significant effect on firm value.

Rizky, Indrawati and Aisjah (2017) investigated the influence of growth opportunity, profitability and firm size on value of 30 selected manufacturing firms from 2011 to 2015. The study reported firm size affect firm value positively.

To this end, this study sought to re-examine the effect of firm size on firm value.

Literature Gap

Based on the literature reviewed above, the following perceived research gaps were noticed:

Extant empirical research studies on the subject matter focused more on banking and manufacturing sector while only few studies have focused on the health sector. This constitutes a gap in existing body of knowledge which the present study seeks to fill.

Again, most of the studies were conducted in developed as well as some developing economies like Kenya and Ghana. However, only few studies were conducted in Nigeria. This study therefore try to view the subject matter from the Nigerian context since studies conducted outside Nigeria may not be applicable in Nigeria though such studies served as input to the present study.

Further, all the study reviewed above are limited in scope in that none of the researcher extended the scope of their study to 2019. However, the scope of this research was extended to 2019 with a view to keep changing business scenario and interest of shareholders in check. As such the current study provided a more timely result than previous studies.

Unlike previous studies, the current study used six variables to proxy the independent variable (determinants) and two variables to proxy the dependent variable (firm value). Hence, the current study provided a more robust, accurate, and comprehensive result than previous studies.

RESEARCH METHODOLOGY

Research Design, Population, and Methods

The fundamental objective of this study is to examine the firm-specific determinants of value of quoted in the Nigerian Health Care firms using the descriptive research design. This design is that it ensures that there is no bias in data collection, and also ensure that data collected covers a significant proportion of the target population without necessarily incurring huge cost. Specifically, we gathered data from the study population from 2010 to 2019 (see Table 1). This documentary source of data was used because of the nature of the study variables.

Table 1: List of Study Population

S/N	Name of Company	Year of Incorporation	Date of listing
1	Eko Corporation Plc	1984	1984
2	Evans Medicals Plc	1954	1959
3	Fidson Healthcare Plc	1995	2008
4	GSK Consumers Plc	1971	1977
5	May and Bakers Plc	1944	1944
6	Morison Industries Plc	1955	1978
7	Neimeth Pharmaceuticals Plc	1957	1979
8	Nigeria-German Plc	1963	1979
9	Pharma-Dekopl	1969	1979
10	Union Diagnostics Plc.	1994	2007

Source: Adapted from NSE Fact book, 2020.

Data Analysis and Model Specification

The statistical package used in this study is econometric views version 9.0. The choice of this statistical tool is adjudged from its global acceptability, better output organization, and effective data management. We used the Hausman test to determine which of the panel data models (Random or Fixed effect) seems okay for the study. While the random effect model (REM) exhibits random characteristics such that all the variables are random in nature, the FEM suggests that the effects of the regressor on the regressed are the same to all individuals throughout the study period. Meanwhile, the OLS regression was first presented before determining which of the panel data models is deemed appropriate for the study. The choice of the balanced panel data model is adjudged from its enhanced accuracy in estimating regression parameters, elimination of data aggregations or bias, and provision of additional as well as more robust information on both time series and cross sectional data.

Functionally, the study employed two measures of firm value- Average Share price and Tobin Q as dependent variables which are regressed against the independent variables that comprise of investment, financing, dividend decision policy decision, profitability, operating efficiency, and firm size. The model in this study was adopted from the works of Kusiyah and Arief (2017) with little modification. Their model is presented below:

$$Y = \alpha_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + u_t$$

Where:

- Y = Regressed (value companies)
- x1 = Regressor 1 (Investment decision)
- x2 = Regressor 2 (Financing decision)
- x3 = Regressor 3 (dividend policy)
- α_0 = Constant value

b1	=	Regression coefficients of Regressor 1(X1)
b2	=	Regression coefficients of Regressor 2(X2)
b3	=	Regression coefficients of Regressor 3(X3)
ut	=	Error Term

However, for the purpose of this study, two models were adopted and three other independent variables are included. It is explicitly presented below:

Model 1:

$$ASHP = a + \beta_1 INVD + \beta_2 FIND + \beta_3 DIVD + \beta_4 OPEF + \beta_5 PROF + \beta_6 FSIZ + ut$$

Model 2:

$$TOBINQ = a + \beta_1 INVD + \beta_2 FIND + \beta_3 DIVD + \beta_4 OPEF + \beta_5 PROF + \beta_6 FSIZ + ut$$

Where:

TOBIN Q	=	Tobin Q
ASHP	=	Average Share Price
INVD	=	Investment Decisions
FIND	=	Financing Decisions
DIVD	=	Dividend Decisions
OPEF	=	Operating Decisions
PROF	=	Profitability
FISIZ	=	Firm Size
$\beta_1 - \beta_6$	=	Regression coefficients of Regressor 1-6 ($X_1 - X_6$)
α_0	=	Intercept/constant value

More explicitly, to avoid scaling problems, all variables were logged:

Model 1:

$$\log(ASHP) = a + \log(b_1 INVD) + \log(b_2 FIND) + \log(b_3 DIVD) + \log(b_4 OPEF) + \log(b_5 PROF) + \log(b_6 FSIZ) + ut$$

Model 2:

$$\log(TOBINQ) = a + \log(b_1 INVD) + \log(b_2 FIND) + \log(b_3 DIVD) + \log(b_4 OPEF) + \log(b_5 PROF) + \log(b_6 FSIZ) + ut$$

Apriori Expectation

The proposed expectation is presented as: $INVD > 0$, $FIND > 0$, $DIVD > 0$, $PROF > 0$, $OPEF > 0$, $FSIZ > 0$

Operationalization and Justification of Study Variables

The regressor in the study is determinants measured by investment, financing, and dividend policy decisions. We also included operating efficiency, profitability, and firm size while the regressed is the firm value measured by Tobin Q and Average Share Price. They are explicitly presented in table 3.2 below:

Table 2: Operationalization and Justification of Study Variables

Variable Name	Denotation	Nature of Variable	Variable Measurement	Justification	Source
Share Price	ASHP	Dependent	The quarterly average market (shares) prices	The choice of this variable is because the share price is a reflection of the investment decision, financing (financing) and operational decision of management. In addition, market price indicates market confidence toward firm intrinsic value.	Mahmud (2016)
Tobin's Q	TOBINQ	Dependent	Market value of equity plus (+) book value of preferred stock plus (+) book value of total debt divided by (/) the book value of total assets.	The choice of this variable is adjudged from the fact that, companies with high Q coefficient were appropriate.	Hajering et'al (2018)
Investment Decisions	INVD	Independent	This is the ratio of ratio of stock price to earnings per share.	The choice of this variable is adjudged from the fact that, investment decision vis-à-vis decisions on investible funds, investment returns, and risk is important in determining firm value	Harjito and Martono, (2013); Kusiyah and Arief (2017)
Financing Decisions	FIND	Independent	This is expressed total debt-to total equity ratio.	The choice of this variable is adjudged from the fact that lenders prefer a low debt ratio because the lower the debt ratio, the greater the protection against creditors in case of liquidation losses.	Kusiyah and Arief (2017)
Dividend Decision	DIVD	Independent	This is expressed as the ratio of dividend to profit attributable to ordinary shareholders.	The choice of this variable is adjudged from the fact that, if the dividend paid is high, stock prices tend to be high so that the firm value is too high, otherwise if the dividends paid by small, then the company's stock price too low and cause the firm value decreases.	Kusiyah and Arief (2017); Nur and Deden (2019)
Profitability	PROF	Independent	Expressed as net profit after tax to equity.	The choice of this variable is adjudged from the fact that, high profitability ratio owned by a company will attract investors to invest in the company.	Sucuahi&Cambar ihan (2016)
Firm Size	FSIZ	Independent	Measured as natural logarithm of firm's total assets.	The choice of this variable is adjudged from the fact that, firm with great total assets will have a positive cash flow; hence, such firm is considered to have good prospects on the long-run.	Dogan and Topala (2014)
Operating Efficiency	OPEF	Independent	Expressed as turnover divided by total asset.		Mou and Wanrapee (2015)

Source: Researcher's Compilation Based on Extant Literature

Regression Results and Diagnostic Tests

This section contains three (3) forms of estimations namely: pooled OLS, REM, and FEM. Also, the Hausman cross sectional test was conducted to know the most appropriate model that best fit the study. The results are presented in model 1 and 2 below:

Table 3: Results of Model Estimation (Model One)

Dependent Variable: ASHP

Study Variables	Pooled OLS	Random Effect Model	Fixed Effect Model
C	-9.430072 (-1.270613) {0.2079}	-5.741372 (-0.870196) {0.3870}	-9.430072 -1.224356 0.2248
INVD	0.454811 (4.308620) {0.0001}	0.272424 (3.717875) {0.0004}	0.454811 (4.151765) {0.0001}
FIND	3.337385 (2.063245) {0.0426}	3.505019 (3.132960) {0.0025}	3.337385 (1.988132) {0.0505}
DIVD	-0.452801 (-0.082119) {0.9348}	-0.656790 (-0.180780) {0.8570}	-0.452801 (-0.079129) {0.9371}
OPED	7.993952 (1.710442) {0.0914}	6.795488 (2.088347) {0.0403}	7.993952 (1.648174) {0.1036}
PROF	3.76E-05 (0.002125) {0.9983}	0.008095 (0.711725) {0.4789}	3.76E-05 (0.002048) {0.9984}
FSIZ	0.629506 (0.763488) {0.4476}	0.343623 (0.449160) {0.6546}	0.629506 (0.735693) {0.4643}
R-squared	0.448084	0.279010	0.448084
Adjusted R-squared	0.402721	0.219751	0.402721
F-statistic	9.877744	4.708281	9.877744
Probability Value	0.0000	0.000420	0.000000

Durbin-Watson stat	1.560033	1.579947	1.560033
Hausman Cross-Sectional Test			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	2.289062	6	0.8913

Note: t-statistics and P-value are in bracket () and parenthesis { } respectively

Source: Researcher’s Compilation Based on E-Views 9.0. Output (2021).

In view of the panel data, FEM and FEM were run. Hausman specification test was then used to decide between the two results. The result from the Hausman test revealed a Chi-square value of 2.289062 with p-value of 0.8913 that is statistically insignificant. This implies that the test considered the REM as the most appropriate estimator. Therefore, robust REM results were adopted for the study.

From the REM, the F-statistics value for model 1 above stood at 4.708281 while its P-value is estimated at 0.000420 indicating that on the overall, all the study variables jointly determine firm value. Also, the value of R² is 27.90% indicating that about 27.90% of the variations in firm values could be explained by changes in the determinants while about 72.10% could be accounted for by other unexplained factors, including the error term. Lastly, the Durbin-Watson test of first order autocorrelation which has a value 1.579947 (approximately 2) indicates that errors are uncorrelated indicating absence of serial correlation within the period of the study.

Table 4: Results of Model Estimation (Model Two)

Dependent Variable: TOBINQ

Parameters	Pooled OLS	Random Effect Model	Fixed Effect Model
C	6.159755 (4.308957) {0.0001}	7.632608 (4.587487) {0.0000}	38.55842 (5.189823) {0.0000}
INVD	0.012738 (0.626479) {0.5330}	-0.013280 (-0.947224) {0.3466}	-0.016881 (-1.080570) {0.2838}
FIND	0.426286 (1.368220) {0.1754}	-0.119778 (-0.566198) {0.5730}	-0.267360 (-1.170474) {0.2460}
DIVD	1.834242 (1.727038) {0.0884}	0.770539 (1.164944) {0.2478}	0.197411 (0.292595) {0.7707}
OPED	-3.131847 (-3.479028) {0.0009}	-1.731389 (-2.814469) {0.0063}	-0.994639 (-1.481940) {0.1431}

PROF	0.004696 (1.378436) {0.1723}	0.002118 (1.034338) {0.3044}	0.001968 (0.948226) {0.3465}
FSIZ	-0.481048 (-3.029008) {0.0034}	-0.662710 (-3.301269) {0.0015}	-4.714447 (-4.813420) {0.0000}
R-squared	0.218949	0.157893	0.759111
Adjusted R-squared	0.154753	0.088679	0.711663
F-statistic	3.410634	2.281224	15.99883
Prob(F-statistic)	0.005058	0.044971	0.000000
Durbin-Watson stat	0.642959	0.917508	1.562012
Correlated Random Effects - Hausman Test			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	45.004732	6	0.0000

Note: t-statistics and P-value are in bracket () and parenthesis { } respectively

Source: Researcher's Compilation Based on E-Views 9.0. Output (2021).

In view of the panel data, REM and FEM were run. Accordingly, the Hausman specification test was then used to decide between the two results. The result from the Hausman test revealed a Chi-square value of 45.004732 with p-value of 0.0000 is statistically significant. This implies that the test considered the FEM as the most appropriate estimator. Therefore, model 2 supports the FEM.

The F-statistics value for model 2 above stood at 15.99883 while its P-value is estimated at 0.000000 indicating that on the overall, all the study variables jointly determine firm value. Also, the value of R^2 is 75.91% indicating that about 75.91% of the variations in firm value which are explained by changes (variation) in the determinants while about 24.09% could be accounted for by other unexplained factors, including the error term. Lastly, the Durbin-Watson test of first order autocorrelation which has a value 1.562012 (approximately 2) indicates that errors are

The individual results are presented below:

Investment Decision and Firm Value

The regression result in table 3 and 4 clearly revealed that that Investment decision denoted by INVD has a positive significant impact on average share price and negative insignificant impact on Tobin Q. The positive result is in line with the a priori expectation of the study. This is further buttressed by their respective coefficient values, t-statistics values and p-values. The policy implication of this result is that average share price is a better measure of firm value than Tobin Q. The positive result of model 1 is in line with the a priori expectation of this study. This result is in tandem with the findings of Hajering, et al (2018); Kusiyah and Arief (2017) but contradicts the findings of Efni (2017).

Financing Decision and Firm Value

Model 1 above clearly revealed that financing decision has negative statistical significance impact on average share price and negative insignificant impact on Tobin Q. This connotes that 1% increase in financing decision will increase average share price by 0.197411 and decrease Tobin Q by -0.267360. The negative result contradicts the apriori expectation of the study. This implies that financing decision does not necessarily determine firm value and in most time it reduces firm value insignificantly as in the case of Tobin Q. This result is in support of the Harsha, et'al (2018); Hang, et'al (2018); Kausar, et'al (2014) but conflict with the findings of Aggarwal, &Padhan, (2017); Maina (2016); Ayako and Wamalwa (2015); Kulati (2014); Kodongo, et'al (2014); Lawal (2014); Ahmad, Fida and Zakaria (2013).

Dividend Decision and Firm Value

Model 1 above clearly revealed that dividend decision has negative statistical insignificance impact on stock value of listed healthcare firms in Nigeria. With respect to the Tobin Q model, the finding is similar as the result returned coefficient of 0.197411 and a t. value of 0.292595 which is also insignificant. The difference between the results of the two models, however, lies in the direction of the relationship. The negative result contradicts the apriori expectation of the study. This implies that dividend decision does not necessarily determine firm value and in most time it reduces firm value insignificantly. The result provides a basis for failure to reject the third hypothesis which states that operating efficiency has no significant influence on the firm value of listed healthcare firms in Nigeria. This result supports the dividend irrelevance theory which states that dividend payment does not add value to a company stock price. Also, this result supports the Jakata and Nyamugnre (2015); Ilaboya and Aggreh (2013) but contradict the findings of Nur and Deden (2019); Egbeonu, Edori, and Edori (2016); Majanga (2015); Al Masum (2014); Profilet and Bacon (2013).

Operating Efficiency Decision and Firm Value

Model 1 above clearly revealed that operating efficiency decision has positive statistical significance impact on stock value of listed healthcare firms in Nigeria. The positive result is in line with the apriori expectation of the study. The reason behind this result is not farfetched in that when wherein there are efficient operating policies in place, the value the average share price will definitely increase as well. With respect to the Tobin Q model, the result reported a negative insignificant impact instead. This implies that operating efficiency decision have statistical significant effect on firm value as in the case of stock value. The policy implication of this result is that the more efficient the health care sector, the more enhanced the value of the health care sector. However, the result provides a basis for failure to reject the third hypothesis which states that operating efficiency has no significant influence on the firm value of listed healthcare firms in Nigeria. However, Tobin Q refutes this claim. The policy implication of this result is that any further effort of the healthcare firms in the area of asset utilization will not enhance the value of the firms. The two results support the works of Bhullar (2017), Mohammed (2017), and Bhatnagar, Bhatnagar and Bhulla (2014) but contradict the findings of Njagi, et'al (2017).

Profitability and Firm Value

The regression result in table 3 and 4 clearly revealed that profitability has positive insignificant impact on firm value. The positive result is in line with the apriori expectation of the study. This

is because their respective p-values are greater than 5% significant level. This connotes that 1% in the sector's profit margin, will lead to the sector's average share price to rise by 34.36 while TOBINQ will rise by 0.2%. This result supports the apriori expectation of this study. Also, the result support the work of Hirdinis (2019); Mbugua, et'al (2018); Andawasatya, et'al (2017); Sucuachi and Cambarihan (2016) but contradict the findings of Sabrin, et'al (2016).

Firm Size and Firm Value

Model 1 revealed that firm size exerts positively and insignificant impact on firm value of listed healthcare firms in Nigeria which is in line with the apriori expectation of this study. The positive result is in line with the apriori expectation of the study. The implication of this finding is that the bigger the size of the firms the higher the stock prices. However, when Tobin Q is used as the dependent variable, it shows a negative significant effect on firm value. This is evidenced by the negative coefficient estimated at -4.714447 and a t. value of -4.813420. The implication of this finding is that if the sector expands its size above optimal level, diseconomies of scale will set in and this will reduce the firm value. The positive insignificant result in model 1 supports the findings of Safdar, et'al (2013) but contradict the findings of Rizky, Indrawati and Aisjah (2017); Setiadharna and Machali (2017). Meanwhile, studies of Setiadharna and Machali (2017); Rizky, et'al (2017) partially supports Model 2.

CONCLUSIONS AND RECOMMENDATIONS

This study was conducted to investigate the determinants of firm value of listed healthcare firms in Nigeria. The study was divided into five chapters. The first chapter discussed the background issues, which led to developing six objectives and formulating six hypotheses for the research with a scope covering years (10) years, from 2010 to 2019. The review of conceptual literature and empirical studies revealed inconsistency in findings of previous studies.

Ex-post facto research design was used in measuring the relationship among the variables of the study. Data was sourced from the annual reports and accounts of the sampled firms and from Nigeria stock exchange. The study population consisted of only the listed healthcare firms in Nigerian Stock Exchange with complete annual report. The panel regressions were presented, analyzed and discussed implicitly and explicitly in section four. Based on the Hausman test, Model 1 (Average Share Price) supports the REM while Model 2 (Tobin Q) supports the FEM. Generally, the result reported mixed findings as articulated by the discussion of findings. Premised on this, we conclude that, firm value is better determined jointly by investment decision, financing decision, dividend decision, profitability, and firm size than when it is examined individually.

In the light of the above, the following recommendations were made:

1. Investors should ensure that they carefully consider the risk-return maxim before deciding to invest in the Health care sector. This is because the study reported that at the moment investment decision affect firm value in diverse ways.

2. For management of listed healthcare firms to enhance their firm value, they must opt for optimal leverage level. This is based on the fact that the sector's financing decision may either improve or reduce its value as reported in both model 1 and 2.
3. The healthcare firms 'managements should reduce the current amount of dividend paid to each shareholder since it has been found to have affected their firm value adversely.
4. Regulators must ensure that the assets of the Health care sector are efficiently utilized since firm's operating efficiency enhances firm value. However, when attention is not placed on the firm size, it would reduce their firm value.
5. Regulators must ensure that series of income yielding avenues should be encouraged since it has the potential to enhance firm value.
6. The healthcare firms 'managements should ensure that their firms expand in a controlled way with the aim of achieving an optimal size so as to enjoy the economies of scale which will ultimately result to a higher firm value. However, if they expand above optimal level, diseconomies of scale will set in and this will result to decline in firm value.

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