

A Strategic Study of the Nigerian Pharmaceutical Sector: Organizational Leadership, Market-share, and Competitive Performance

Dr. Ogechukwu C. Ugbam

Department of Management
University of Nigeria
Enugu Campus

Ephraim A. Okoro, PhD

Department of Marketing
School of Business
Howard University
Washington D.C.

Abstract

The Nigerian economy relies on sale of crude oil for much of its revenue and foreign exchange; and like most mono-product economy, it is highly vulnerable to global economic shocks. Dwindling income due to persistent fall in the price of crude oil has forced the country to look towards agriculture and industry for more revenue. In this regard, the pharmaceutical sector has high potentials but broad indices of performance for the sector indicate poor performance. Researchers and the government agree that the general environment of business particularly the political environment is responsible for the poor performance. This study, acknowledging that the business environment is broader than the general environment focuses on the industry environment and seeks to determine how industry structure and firm size affect the performance of firms in the Nigerian pharmaceutical sector. Specifically, it seeks to analyze the balance of competition in the pharmaceutical sector with a view to determining its impact on the performance of Nigerian pharmaceutical firms and establishing the nature of the relationship existing between organizational size and organizational performance. It further establishes the implication on the performance of Nigerian pharmaceutical firms and determines the implications of organizational size on the innovation capability of Nigerian pharmaceutical firms. Relevant literature on the topic was reviewed to provide, among other things, a structure for analysis and assessment. The study employed and relied exclusively on secondary data. Quantitative and qualitative analysis was applied to the data collected and the results of the analyses show that the Nigerian pharmaceutical sector is monopolistic competition in nature and is characterized by a very high level of competition; particularly from substitutes and consequently, the profit expectation for the sector is low. The study concludes that there is a strong positive relationship between firm size and firm performance in the Nigerian pharmaceutical industry, implying that the bigger the size of a pharmaceutical firm, the better its performance. Therefore, the Nigerian pharmaceutical sector is not an ideal sector for small firms. These firms by virtue of their small sizes cannot mobilize the huge amount of resources required for research and development, therefore cannot perform effectively and successfully in the competitive global marketplace. On the basis of these findings, the study determines that the nature of the industry in which the pharmaceutical firms operate and their (small) sizes impact negatively on their performances and results. The study recommends that the government of Nigeria should establish some minimum requirements in terms of resources for firms in the sector taking cognizance of global trends. Additionally, Nigerian pharmaceutical firms should seek for opportunities to collaborate with producers, distributors, and sellers of alternative medicine (herbal remedies) that are currently competing with them. Finally, until firms in the Nigerian pharmaceutical sector become large enough to engage in research and development independently and successfully, they should consider joint venture initiatives in research and development.

Key Words: Industry Structure, Firm Size, Innovation, Performance

Background of the Study

Recent developments in the global economy have once more demonstrated that undiversified economies tend to be more vulnerable to global economic shocks. As of today, crude oil is the major and practically the only source of foreign exchange to Nigeria and about 80 per cent of export revenue comes from oil. The prices of oil have experienced a sustained downward trend for about two years now and this has adversely affected the Nigerian economy. The value of naira has depreciated by more than 100 percent within this period triggering general increase in the prices of products in the country including those that do not have import content. The government is now making genuine effort to diversify the country's economy and is therefore focusing more on agriculture and industry. The pharmaceutical sector has tremendous potentials and it plays a pivotal role in the economic growth and development of any given economy due to its strong link to health and consequently, labor productivity. Apart from the fact that it provides the drugs and other health products that helps to ensure a healthy and productive workforce, a vibrant pharmaceutical sector provides quality employment to citizens and contributes significantly to the gross domestic product (GDP) and in the process helps to save and also generate foreign exchange for the country.

The Nigerian pharmaceutical sector has come a long way from the pre-independence era when the pharmaceutical sector involved the distribution of imported drugs by the representatives of the different foreign manufacturers such as Beecham, May and Baker, Pfizer, Glaxo and J.I. Morrison. Today, there are about 130 pharmaceutical firms operating in the country and 5 indigenous companies control 58 percent of the manufacturing of pharmaceutical products. Available performance indices for the sector suggests poor performance; capacity utilization is 40 per cent, the sector is only able to satisfy 25 per cent of the local demand for drugs while imports mainly from Asian countries account for the remaining 75 per cent, about 70 percent of the drugs marketed by pharmaceutical firms in Nigeria are imported. As at 2013, pharmaceutical imports reached a value of \$481million and are estimated to reach \$789 by 2018. The global pharmaceutical sector is growing rapidly and is expected to more than double to \$1.3 trillion but Nigeria does not feature among the identified 17 growth markets in the sector. The contribution of the sector to gross domestic product (GDP) in 2009 was just about 0.19 percent. Although sector specific data on survival is not available for the pharmaceutical sector, the manufacturing industry to which the pharmaceutical sector belongs has a very poor survival rate; as at 2006, a survey by Manufacturers Association of Nigeria (MAN) shows that 30 per cent of the industries were classified as closed down, 60 per cent were classified as ailing while only 10 per cent of the firms in the sector were classified as operating at sustainable level (MAN, 2006:49;Gumel, 2014; UNIDO, 2011)

The poor performance of the sector has clearly manifested in the poor health indicators of the country. According to the Federal Ministry of Health, life expectancy at birth is currently estimated at 46 years for males and 47 years for females, while the under-five mortality rate is estimated at 19 per cent. In comparison, estimates for life expectancy in Ghana and South Africa are 55 and 59 and 50 and 52 years for males and females respectively. Under-five mortalities in Ghana and South Africa were estimated at 11.2 and 6.7 per cents respectively (WHO, 2006). There is a high prevalence of diseases in the country which have a debilitating effect on the health and productivity of the citizens. Malaria alone is responsible for 60 percent of all outpatient attendance, 30 per cent of all hospital admissions and 300,000 deaths annually (Federal Ministry of Health, 2010). As of 2003, the volume of economic output lost because of malaria was estimated to be 4 per cent of GDP per annum (Petu, 2004).

Statement of the Problem

The business environment, particularly the political environment is often blamed for the poor performance of the manufacturing industry. The Manufacturers Association of Nigeria (2008) and studies by Aluko et al, 2004: 120, Onyeonoru (2003:37) support this position. While agreeing that the government (the key component of the political environment) may not have done all that is required to create an enabling environment for the private sector flourish, it is important to realize that the business environment is bigger than the political environment and that to begin to fully appreciate the causes of the poor performance of the manufacturing sector, it will be necessary to also examine other components of the business environment especially the industry environment.

The industry is the primary source of competition to any firm and the aspect of the general environment that the firms have the greatest control over because the dynamics of the industry is precipitated by the individual and collective decisions made by firms in the industry.

Objectives of the Study

Consequently, this research was designed to evaluate, analyze, and determine the effects of industry structure and organizational size on the performance of the firms in the Nigerian Pharmaceutical Sector. The specific objectives of the study are: To analyze the balance of competition in the pharmaceutical sector with a view to determining its impact on the performance of Nigerian pharmaceutical firms; To establish the nature of the relationship existing between organizational size and organizational performance, and its implication on the performance of Nigerian pharmaceutical firms; and To determine the implications of organizational size on the innovation capability of Nigerian pharmaceutical firms.

Review of Related Literature

There is an ongoing debate currently in the field of strategic management on which of two variables – industry structure and organizational resources – better explains the variations in firm performance. The two schools of thought on this debate base their arguments on two theories of management namely the resource based view of the firm (RBV) and Porter's five forces analysis. A lot of research works have been done trying to establish which of the two variables contributes more to firm performance (Galbreath and Galvin, 2008). This research work is of the opinion that both variables are relevant in explaining organizational performance and therefore will not be concerned with the debate but will rather focus on determining how industry structure influences organizational performance. The importance of industry structure is underscored by the fact that a strategic planning process cannot be complete without a detailed analysis of the industry environment on the basis of which a competitive strategy is crafted. Moreover, the industry is the primary source of competition to any individual firm and competition influences profitability and survival.

An industry can be seen as a group of firms whose products have so many of the same features that they compete for the same buyers, target market, market segment, or a group of firms producing products that are close substitutes of each other (Porter 1980, Thompson & Strickland 2001, p.77). There are four types of industry or market structure namely perfect competition, monopolistic competition, oligopoly and monopoly. Perfect or pure competition represents a type of market with so many sellers selling basically the same product or products that are deemed to be perfect substitutes; because the products are undifferentiated, the sellers cannot compete on the basis of price and must therefore follow the market price. There are very low entry and exit barriers in perfect competition, no single seller is able to influence the price and it is assumed that both buyers and sellers have perfect information about prevailing prices and quality of products in the market. Pure competition rarely exists in real life but it has strong theoretical appeal because it helps us to understand how markets that approximate it function. Monopolistic competition closely approximates perfect competition in the sense that they share almost the same characteristics the only difference being the presence of product differentiation in monopolistic competition. Oligopoly exists where few large markets dominate a market. The products could be standardized or differentiated; there is high barrier to entry due to huge capital requirement and the presence of scale. In this type of market, each of the few large firms closely monitors the strategies of the others. In a *pure monopoly*, a firm constitutes the industry. This is usually true of government owned public utility firms. The product(s) in question do not have close substitutes, the firm sets the price of its product and also decides the quantity and entry or exit from the market is often blocked¹.

¹ seei). Finance Train (2016) Types of Market Structures, Lecture Notes for CFA Exam Level 1 Economics, [Http://Financetrain.Com/Types of Market Structures, 11/17/16](http://Financetrain.Com/Types of Market Structures, 11/17/16) and ii). Four Market Structures (2016) [Https://www.lahc.edu/classes/social science/economics/chan/microlecture4.ppt](https://www.lahc.edu/classes/social science/economics/chan/microlecture4.ppt) 11/17/16.

Market structure has implications for the research and development capability of the firms operating therein. The small size of the firms in a pure competition market coupled with the fact that they earn zero profit (theoretically) makes it practically impossible for an individual firm to engage in research and development which is a capital intensive venture. However, it is possible for a number of such firms to pool their resources together to engage in research and development. In monopolistic competition, the need for product differentiation is an incentive for firms to engage in research and development but in most cases most of the firms are too small to mobilize the required fund and consequently, there is limited R&D in this type of market structure. Expenditure on research and development is highest in Oligopoly; while the need for product differentiation provides the incentive for R&D, the huge size of the firms and the significant economic profit they earn ensures the ability to mobilize the tremendous amount of resources required for it. The incentive for research and development is the least in pure monopoly due to lack of competition and high barriers to entry.

There seems to be an inverse relationship between profit and competition. Firms in markets that experience high level of competition tend to earn very low profit margin while those in markets characterized by little or no competition experience high profit margin. Consequently firms in industries in which there is considered to be perfect competition earn the least profit margin while those that are monopolies earn the highest profit margin. This is what Porter (1980) had in mind when he stated that competitiveness or competition has the effect of driving down the rate of return on invested capital in an industry toward the rate of return that would be earned in a perfectly competitive industry. It is possible to derive a relative measure of the extent of competition in any given industry by computing a measure of market concentration for the industry. Market concentration is a concept that measures the extent of domination of sales by one or more firms in the industry and is used mostly when smaller firms account for large percentage of the total market. It is a good measure of the level of competition in the industry. (the economic times, marketing, economictimes.indiatimes.com). There are at least ten measures of market concentration the most popular among them being the Herfindahl-Hirschman Index (HHI), which is used in 20 countries including the United States to measure and rank bank concentration. HHI is often referred to as the full-information index because it captures features of the entire industry. By definition, the HHI is the sum of the squares of the market shares within the industry sometimes limited to the largest 50 firms. The result can range from 0 to 1 where 0 represents perfect or pure competition and 1 represents pure monopoly. Generally, increases in the HHI indicate a decrease in competition and an increase of market power, whereas decrease dictates the opposite (Bikker & Haaf (2002)).

Because of the strong link between industry structure and competition, analysis of the industry usually reduces to or at least is usually coupled with an analysis of the sources and intensity of competition. Porter's *five forces model*, a landmark work on industry analysis has always served as a reference point for researchers and practitioners and will be adopted here in discussing the industry environment. Porter believes that the intensity of competition in an industry "is neither a matter of coincidence nor bad luck" but is rather rooted in the underlying economic structure of the industry and goes beyond the behaviour of current competitors. He believes that the intensity of competition in an industry is a function of the relative strength of five basic competitive forces namely the threat of new entrants, threat of substitute products or services, bargaining power of suppliers, bargaining power of buyers and rivalry among existing firms (Porter 1980).

The threat of new entrants will depend on the perceived profitability of an industry, and the ease with which new firms can enter the industry which in turn depends on the barriers to entry, and expected retaliation of already existing firms. The seven major sources of barrier to entry are: "Economies of scale, Product differentiation, Capital requirements, switching costs, Access to distribution channels, Cost disadvantages independent of scale, and Government policy Switching costs, Access to distribution channels, Cost disadvantages independent of scale, and Government policy." "The perception or expectation of prospective entrants with regards to the reaction-expected retaliation- of already existing firms will act as a barrier to entry if it is expected that they will act in such a way as to inhibit the entrance of other new firms (Porter 1980, p.109).

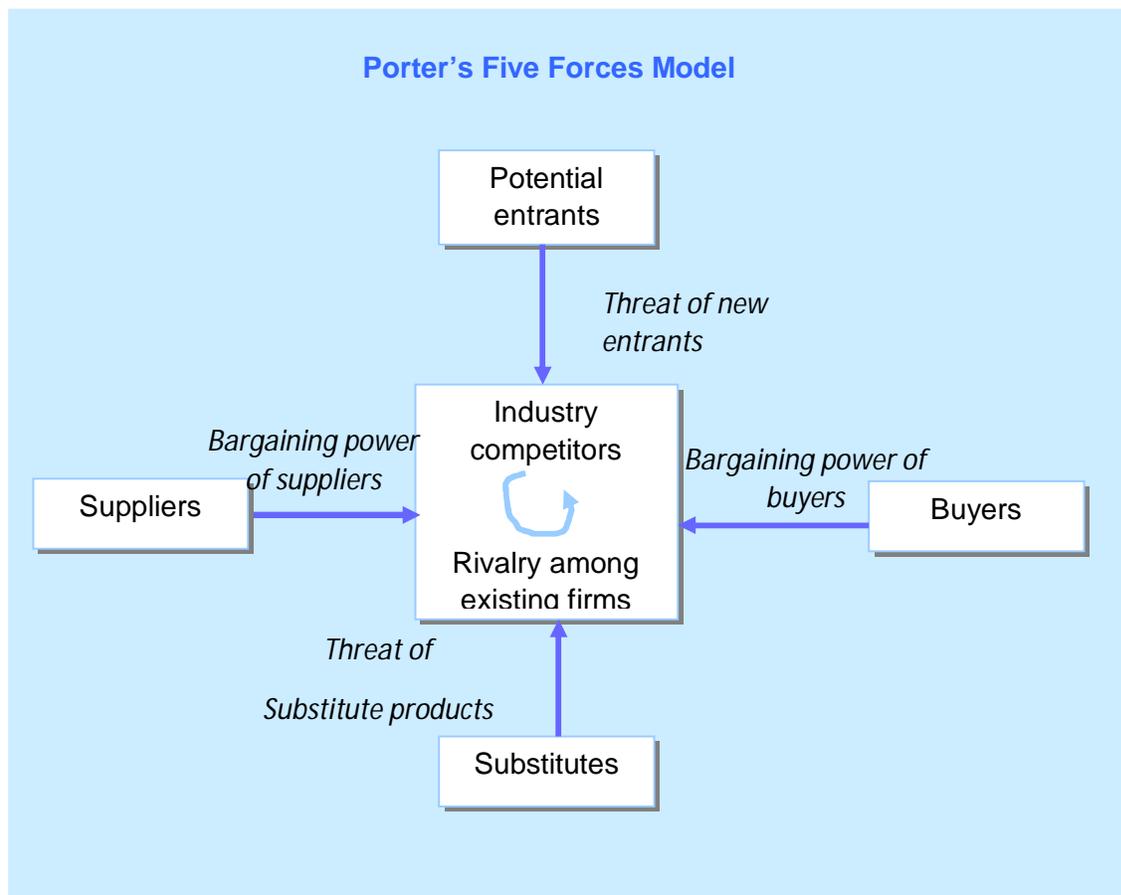


Fig.2.8 Porter's Five Forces Model, Source: Porter,M.E. (1980) competitive strategy: Techniques for Analyzing Industries and Competitors by Michael E. Porter, Copyright © 1980 by Michael E Porter.

Rivalry among Existing Firms

Rivalry among existing firms in an industry is usually indicated by price competition, advertising battles, product introductions and increased customer service or warranties. Thompson and Strickland (2001:82-84) sees the intensity of rivalry among existing firms to be a function of how vigorously they pursue such tactics as lower prices, snazzier features, expanded customer services, longer warranties, special promotions, and new product introductions and that the problem with crafting a successful competitive strategy is that the success of any one firm's strategy hinges on what strategies its rivals employ and the resources rivals are willing and able to put behind their strategic effort. Porter (1980) has also pointed out that firms operating in the same industry are mutually dependent so that a move by a firm will always be countered by his rivals. Based on Porter's work cited above, Thompson and Strickland (2001) highlighted the following as factors that determine the intensity of rivalry in an industry:

- Rivalry increases as the number of competitors increases and as competitors become more equal in size and capability.
- Rivalry is usually stronger when the demand for the product is growing slowly.
- Rivalry is more intense when industry conditions tempt firms to use price cuts or other competitive weapons to boost unit volume.
- Rivalry is stronger when customer's cost to switch is brands are low.
- Rivalry is stronger when one or more competitors are dissatisfied with their market position and launch moves to bolster their standing at the expense of rivals.
- Rivalry increases in proportion to the payoff from a successful strategic move.
- Rivalry tends to be more vigorous when it costs more to get out a business than to stay in and compete.

- Rivalry becomes more volatile and unpredictable the more diverse competitors are in terms of their visions, strategic intents, objectives, strategies, resources, and countries of origin.
- Rivalry increases when strong companies outside the industry weak firms in the industry and launch aggressive, well-funded moves to transform their newly acquired competitors into major market contenders.

Threat of Substitutes and Bargaining Power of Suppliers

Products from an entirely different industry could be a source of competition in the industry if such products are seen as close substitutes by buyers. Substitutes render a product redundant, introduce new technology or reduce the cost of producing a product (Lynch 1997:105). According to Thompson and Strickland (2001:87) the strength of the competitive pressure from substitutes will depend on the price and availability of such substitutes, the extent to which buyers see the substitute as being satisfactory in terms quality, performance and other relevant attributes and the ease with which buyers can switch to substitutes and “good indicators of the competitive strength of substitutes are the rate at which sales and profits are growing, the market inroads they are making and their plans for expanding production capacity”.

The bargaining power of the supplier according to Porter will be high if 1) there are only few suppliers, 2) there are no substitutes for the products they offer, 3) suppliers’ price form a large part of the total cost of the organisation and 4) if a supplier can potentially undertake the value added process of the organisation. On the other hand, the bargaining power of the supplier is weakened if there are so many of them and the products they supply are undifferentiated, if there are good substitutes that are relatively cheap, it does not cost the buyer much to switch from one supplier to the other, and where the company they supply is a major customer (Lynch 1997:102). On the other hand, buyers’ bargaining power is strongest when few large buyers purchase a reasonably high proportion of the output of an entire industry. It is equally strong under the following circumstances: If it does not cost the buyer much to switch from one buyer to the other, if there are few buyers or if a customer is particularly important to a seller, if buyers are well-informed about sellers’ products, prices, and costs, if buyers pose a credible threat of integrating backwards into the business of sellers and if buyers have discretion in whether and when they buy the product (Thompson and Strickland 2001:91).

Methodology

This study adopted the ex-post facto research design relying on secondary data for analysis and it will involve both qualitative and quantitative analyses. Available secondary data would be presented in tabular form and subjected to correlation; theoretical and judgmental analyses using competition and revenue as proxies for industry structure and firm size respectively. In addition, profit, research, and development were utilized as proxies for firm performance.

Analyses

The balance of competition in the pharmaceutical sector and its impact on the performance of Nigerian pharmaceutical firms

What type of industry structure were the pharmaceutical firms in Nigeria operating in? This question guided this phase of the study. Determination of industry structure type will depend on the number of firms operating in the industry and their size distribution, the extent to which the products sold and bought in the industry are homogeneous or differentiated, the level of barriers to entry into the industry, how much control a seller has over the price of his product and the amount of information available to operators in the industry. Apart from pure competition which does not actually exist in real life, no market or industry structure has the characteristics of perfect information. With regards to the Nigerian pharmaceutical sector; the sector/industry is populated by numerous (over 130) firms out of which only nine is listed in the Nigerian stock exchange while there is little visibility on the other firms (Gumel 2014).

Obviously most of the firms in the industry are small sized. There is a significant level of branding (differentiation) of pharmaceutical products which in turn confers some powers on pharmaceutical firms to determine the price of their products. However, buyers realize that the different brands are merely different versions of the same generic product and this limits the ability of firms to charge a premium on account of differentiation. In terms of entry barriers, since most of the firms are small, they do not have advantage of economies of scale and the capital requirements is not huge enough to pose a barrier, consumers can easily switch from one seller to another without incurring much cost since most of the products are consumer as opposed to industrial goods. On the other hand, the products are differentiated and new entrants encounter cost disadvantages independent of scale. The industry does not have a history of retaliation to new entrants and if a new entrant comes in at a small scale like most incumbents, it is expected that there will not be any effort by the incumbents to edge it out of the new market. Generally one can say that there is a moderate barrier to entry into the industry. Based on the discussions so far, it is quite clear that pharmaceutical firms in Nigeria operate a market that could be called monopolistic competition.

Monopolistic competition is characterized by a high level of competition which in the case of the Nigerian pharmaceutical sector is made even more intense by the threat from substitutes in the market. There is a wide array of very close substitutes that exists in the sector mainly in the form of herbal remedies and food supplements. Prior to the incursion of conventional pharmaceutical products, Nigerians, like most African countries relied on herbs to cure diseases and maintain their health. Consequently, apart from the numerous homeopathic doctors in the country, every family have at least one person who is capable of preparing some of these remedies and people share the recipes freely among themselves. This presents us with a peculiar industry dynamic – a situation where producers and/or sellers are competing with their customers. There are several types of herbal products that have gained wide acceptance in the Nigerian market and are sometimes considered to be more efficacious than the conventional pharmaceutical products and most of them are imported mostly from Asian countries. Companies like Tianshi, GNLD, and Forever living products compete with pharmaceutical firms in Nigeria because not only do buyers consider their products to be very effective, they perceive that these products do not have any of the negative side effects of synthetic drugs. There is also the indigenous producers of herbal remedies who are becoming increasingly more scientific and sophisticated in their operations. To all this will also be added the numerous individuals, mostly religious leaders, whom people perceive to possess the gift of magnetic healing. Such people pose serious competition for pharmaceutical firms because they claim and sometimes are actually able to heal without administering any drugs, and their sponsors grow by the day dueto the spiritual appeal².

Based on the analysis so far, it is obvious that Nigerian pharmaceutical sector is monopolistic competition and is characterized by a high level of competition. Management literature has long established that there is an inverse relationship between competition and profitability. Since perfect competition rarely exist in real life, monopolistic competition is arguably the market/industry structure with the least profit expectation. Therefore the profit expectation of the firms in the sector is very low.

The nature of the relationship existing between organizational size and organizational performance and its implication on the performance of Nigerian pharmaceutical firms.

In this section, we used the correlation analysis technique to derive a measure of the strength of the relationship firm size and performance employing net asset and profit after tax as proxies of size and performance respectively based on data (audited accounts) from Securities and Exchange Commission (SEC) of Nigeria. The computed coefficient of correlation based on available information yields an r value of 0.744 indicating a strong positive relationship. The fact that r has a positive value shows that the two variables move in the same direction – performance increases as size increases and vice versa. The coefficient of determination for the data r^2 which can easily be derived from r yields a value of 0.55 implying that 55 percent of the changes in firm performance is explained by firm size.

² It was not possible to compute any measure of concentration for the industry due to lack of reliable data on the actual size of the Nigerian pharmaceutical market.

Considering that firm performance is a random variable whose values is influenced by numerous factors, a factor that explains more than half of the changes in its value deserves a closer attention. There are very good explanations for the results being discussed. First of all, large firms experience economies of scale which reduces their production costs and also make them more competitive; secondly, large firms are more likely to operate in consolidated industries that are usually populated by few large organizations and where the level of competition is relatively low.

According to world bank business monitor international, the total output of the Nigerian pharmaceutical industry is \$1.28 billion and this is approximately the output of a medium sized firm elsewhere in the world. One can therefore safely state, at least from a global perspective, that the sector being discussed is predominantly populated by very small firms. The pharmaceutical sector may not be an ideal sector for small firms because inevitably, Nigerian firms must deal with global competition and they are ab initio disadvantaged by size. Moreover, globally, the pharmaceutical sector is driven by innovation and therefore, research and development (R&D) capability becomes a key factor for success. If size plays a vital role in determining the profitability of firms and Nigerian pharmaceutical firms are predominantly small, then it is obvious that they will not perform as well as expected. The average size of a Nigerian pharmaceutical firm measured by its revenue is N360 billion while the average size of one of the top 20 pharmaceutical firms is approximately \$21 billion. At current exchange rate, the dollar value of the average size of the Nigerian pharmaceutical firm is less than \$1billion³.

To determine implications of organizational size on the research and development capability of Nigerian pharmaceutical firms

Globally, the pharmaceutical industry is driven by innovation. Firms constantly engage in research and development to come up with new cures (drugs) and new and better ways of doing things and conducting successful research and development leads to patents. Patents give firms exclusively rights to produce and market specified products for a given period of time, thereby shielding them from competition for that period. Research and development in the pharmaceutical sector is a very capital intensive venture and requires tremendous amount financial resources and time to execute. It takes an average of 12 years to develop an innovative new drug (Congressional Budget Office, 2006). It is difficult to state exactly what it costs to engage in research and development in the pharmaceutical sector. Four studies between 1990 and 2007 place the range of the cost of pharmaceutical innovation between \$12 billion to \$1.8 billion. Dimasi, Gabrowski and Hansen (2016) place it at \$2.87billion in 2013, and the costs seem to be increasing at the rate of 8.5% annually. Carrol (2014) posits key factors for the huge tally to be increased by clinical trial complexity, larger clinical trial sizes, higher cost of inputs from the medical sector used for development, greater focus on targeting chronic and degenerative diseases, changes in protocol design to efforts to gather health technology assessment information, and testing on comparator drugs to accommodate payer demands for comparative effectiveness data. But, Glaxo Smithkline's Chief Executive Officer, Andrew Witty, contends that it is a myth that it costs a billion dollars to develop a drug, explaining that from his own professional experience, the costs figure totaled \$186 million. Considering the fact that not every research and development effort turns out successfully, the latter figure was still huge and seemingly unrealistic.

It has already been established that Nigerian pharmaceutical sector is populated by very small firms; how does this impact their research and development capability? In Nigeria, compared with other West African countries, a huge percentage of patents granted by the patent registry belong to foreigners. The 1999 – 2002 data shows that of the 2544 patents issued, 1,458 are foreign and 986 are to local applicants in which case some of the local grants are made under license from foreign owners (Adewopo, 2011). Obviously, not much research and development have been going on in the sector and this is most likely because their small size makes it practically impossible for them to mobilize the huge resources required. The implication is that they sell mostly products whose patents have expired since they do not have much patents of their own and this ensures that they will always play second fiddle to firms that have the capacity to engage in research and development.

³ The figures used to compute these averages were culled from Nigerian Capital Market Statistical Bulletin (2010) and global data (2016) top 25 pharma companies by global sales published in PMLiVE at pmlive .com (3.29pm, January 13, 2017)

Specific Findings

The Nigerian pharmaceutical sector is monopolistic competition in nature and is characterized by a very high level of competition particularly from substitutes and consequently, the profit expectation for the sector is low. There is a strong positive relationship between firm size and firm performance in the Nigerian pharmaceutical sector implying that the bigger the size of a pharmaceutical firm, the better its performance. The pharmaceutical sector is not an ideal sector for small firms. Nigerian pharmaceutical firms by virtue of their small sizes cannot mobilize the huge amount of resources required for research and development and therefore cannot perform in a world of global competition.

Conclusion and Recommendations

The nature of the industry in which the pharmaceutical firms operate and their (small) sizes impact negatively on their performances. The pharmaceutical sector is not an ideal sector for small firms or fragmented industry. The Nigerian pharmaceutical sector must be consolidated if the firms operating in it are to be globally competitive and profitable. The government needs to establish some minimum requirements in terms of resources for firms in the sector taking cognizance of global trends.

Collaboration is a good strategy for defusing competition. Nigerian pharmaceutical firms should seek for opportunities to collaborate with producers and sellers of alternative medicine (herbal remedies) that are currently competing with them. The demand for such remedies is growing globally and a lot will be gained by both parties if the drug manufacturers combine their professionalism and expertise with the indigenous know-how of the producers of herbal remedies. Research and development of new herb-based products may not be as expensive as that of conventional medicine.

Until firms in the Nigerian pharmaceutical industry become large enough to engage in research and development independently, they should consider research and development venture. This would enable a number of firms to pool their resources together with the understanding that they would all share in the costs and benefits of the venture.

References

- Adebambo, A. (2011). Public health, access to medicines and the role of patents system in Nigeria. *NIALS Journal of Intellectual Property*, Maiden edition P.165-190.
- Aluko, M.A.O, Akintola, G.O and Shola, F (2004). Globalization and the Manufacturing Sector: A Study of Selected Textile Firms in Nigeria. *Journal of Social Sciences* 9 (2).
- Congressional Budget Office (2006). Research and Development in the Pharmaceutical Industry, [www.Cbo.Gov](http://www.cbo.gov).
- Dimasi, Gabrowski, Hansen (2016). Innovation in the Pharmaceutical Industry: New estimates of R&D costs. *Journal of Health Economics* vol 47 pp20-33.
- Farouk Gumel (2014). Investment Opportunities in the Pharmaceutical Sector-Nigeria/Pakistan,
- Fidson Healthcare Plc (2015). Report of the Directors and Audited Financial Statements for the Year Ended 31 December 2015.
- Finance Train (2016) Types of Market Structures, Lecture Notes for CFA Exam Level 1 Economics, [Http://Fin.ancetrain.Com/Types of Market Structures](http://Fin.ancetrain.Com/Types of Market Structures), 11/17/16.
- Four Market Structures (2016)
[Https://Www.Lahc.Edu/Classes/Social Science/Economics/Chan/Microlecture4.Ppt](https://www.lahc.edu/classes/social%20science/economics/chan/microlecture4.ppt) 11/17/16.
- Bikker, J.A and Haaf, K. (2002). Measures of competition and concentration in the banking industry: A review of the literature. *Economic & Financial Modelling*, Summer. Pp1-46
- Galbreath, J. & Galvin, P. (2008). Firm factors, industry structure and performance variation: new empirical evidence to classical debate. *Journal of Business Research* (61)109-117
- Jibran Khan (2015). Nigeria Pharmaceutical Market Share and Growth, [Linkedin.Com](https://www.linkedin.com/in/jibrankhan), 01/02/2017

- Joshua Ikoni Ogaji, Anthony Olaniyi Alawode and Titus Afolabi Iranloye (2014). Pharmaceutical Industry Utilization in Nigeria. *African Journal of Pharmacy and Pharmacology*, Vol 8(21) pp579-585
- John Carrol (2014). Average cost of drug R and D? Try \$2.9B for size , Fierce Biotech, Wwww.Fiercebiotech .Com.
- Lead Capital Limited (2008). Nigeria's Pharmaceutical And Health Care Sector: A Critical Analysis Lynch, R (1997). *Corporate Strategy*, London: Pitman Publishing
- Matthias Buente, Stephan Danner, Susanne Weissbacker and Christoph Ramme (2013). Pharma Emerging Markets 2.0: How Emerging Markets are Driving the Transformation of the Pharmaceutical Industry. Booz and Company
- Michael Porter (1979). The Structure Within Industries and Companies' Performance. *The Review of Economics and Statistics*, Volume 61, Issue 2, 214-227
- Meristem Securities Limited (2008). Meristem Equity Research: Performance Updates On Neimeth International Pharmaceuticals Plc
- Manufacturers Association Of Nigeria (2006). Quarterly Report, July-September
- Manufacturers Association Of Nigeria (2006). *Quarterly Report*, July-September.
- Manufacturers Association Of Nigeria (2008). *21st Annual General Meeting*.
- Obasanjo, O. (2000). *Obasanjo's Economic Direction (1999-2003)*, Abuja: Office of The Honourable Minister, Economic Matters.
- Onyeonoru Ifeanyi (2003). Globalization and Industrial Performance in Nigeria *Africa Development* Vol. Xxviii. Nos. 3.
- Porter, M.E. (1980) *Competitive Strategy*, New York: Free Press.
- Securities and Exchange Commission (2010). Nigerian Capital Market Statistical Bulletin
- Thompson, A.A., and Strickland (2001). *Strategic Management: Concepts and Cases*, Boston: Mcgraw-Hill.
- United Nations Industrial Development Organisation (2011). Pharmaceutical Sector Profile, Nigeria, Strengthening The Local Production Of Essential Generic Drugs In Least Developed And Developing Countries.