

Product Diversification and Performance of Manufacturing Firms in Nigeria

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Abstract

The paper examines the effect of product diversification strategy on the performance of manufacturing firms in Nigeria. A sample of listed manufacturing firms in Nigeria for the period 2006 – 2010 was used. Firm performance which is the dependent variable was measured using accounting based measure of return on assets. A dummy variable was introduced to include firms that focused on a single market segment. Data collected was analysed using Panel regression analysis employing fixed, random and Hausmann test of fixed effect estimates. The result indicates that an increase in the size of firms cause manufacturing firms to diversify their products. The Dummy variable result implies that diversifying firms have higher level of ROA. The implication of the study is that as number of shareholders increases, the lesser the decision of firms to diversify. Also, total debt level of firm may also influence diversification decision which will improve performance level.

Keyword: Product Diversification, Portfolio Theory, Core competencies, Consumer Functions, Performance

1. Introduction

The role of product diversification strategy as a catalyst for competitive strategies is well established in the literature (Pawasker, 1999). This role becomes obvious in terms of the benefits diversification in enhancing the performance of firms. These benefits include substantial increase in market power, creation of synergy in market operations, and reduction in the probability of bankruptcy and minimization of risk (Amit and Livnat, 1988; Ramirez and Espitia, 2002; Kotler, 2003).

Despite the abundance of theoretical and empirical literature on diversification, there is little agreement on the nature of the effects of diversification strategy on performance of firms. Furthermore, there is dearth of literature on the link between diversification strategy and performance of firms in Nigeria. Thus, the main objective of this study is to fill the research gap and, hence, contribute to the literature on diversification and strategic management research by investigating the impact of product diversification on performance and stability of manufacturing firms.

In pursuing the benefits of diversification strategy, many manufacturing firms in Nigeria such as beverage industry ventured into production of several related products in order to satisfy many of their customers functions, rather than focusing on a specific product targeted at a particular segment of customers. However, in order to justify such diversification strategy, it is imperative to ascertain that the product diversification strategy has been effective in achieving the set objectives.

2. Literature Review

In order to understand diversification concept, Ansoff (1957) defined diversification as the entry into new markets with new products. However, several dimensions have been added to the definition of diversification. Dundas and Richardson (1980) defined diversification as markets differentiation and pursuing of more than one target market. Amit and Livnat (1988) identified motives for diversification. The study suggested that firms pursue diversification mainly because of financial motives. Further, the diversification of business was viewed as a means of expanding the size of the business, achieves an economy of scale in manufacturing, and thereby generates synergic effects for overall operation of firms.

Several studies on strategic management have examined the relationship between diversification strategy and performance (Schoar, 2002; Shen et al., 2011; Berger and Eli, 1995; Burgers et al., 2009). The resource-based view

as reviewed by Chen and Yu (2011) posit that firms diversify their products to exploit economies of scope in various resources including tangible and intangible resources. Their findings further showed that exploitation of established capabilities via diversification aided firms to pursue increased economic returns. On the contrary, diversification has been found to be a possible cause of increase in cost of production. This is possible through disproportionate growth in administrative costs and rigidity in operations. The former as observed by Markides (1992) may be as a result of creation of additional levels of corporate management to coordinate new operating units, while the latter may be due to poor efficiencies arising from poor adaptability to environmental change strains on top management as the corporate centre seeks to manage an increasing number of diverse businesses. Additional cost relating to corporate diversification is associated with the private and family-related benefits of owner-managers, arising from challenges of agency between owner-managers and shareholders. According to Amihud and Lev (1981), a diversification strategy is often employed by owner-managers to reduce the risks related to employment and reputation, since they can decrease the financial risk of firms by diversifying into unrelated activities. Chen and Yu (2011) observed that increased performance of firms due to diversification occurs when the marginal benefits are greater than the marginal costs of diversification. However, studies on this issue have produced mixed results. Denis et al. (2002) found a negative relationship while Delios et al. (2008) observed a positive linear relationship between diversification and a firm's performance. Studies such as Delios and Beamish (1999) found no relationship.

Delios, et al. (2008) sampled about 800 Chinese firms and found that focused firms outperformed conglomerates across all categories of ownership identity. In a related study conducted by Gonenc and Aybar (2006) weak evidence was found for a positive relationship between group diversification and performance in Turkish industrial firms. This implies that the performance of diversification strategies is hinged upon the performance of the target industry. Hence, when the primary and diversifying target industry attributes are disregarded, the estimated performance of a diversification strategy could result in wrong policy recommendation. Mixed evidence on the cost-benefit effect of diversification on performance, leads to the conclusion that a non-linear relationship may exist between diversification and firm performance (Chen and Yu, 2011).

Christensen and Montgomery (1981) posited that differences in diversification performance may be attributed to market structure. Also, Datta et al. (1991) argued that diversification literature have shown little interest in industry-specific variables, such as concentration, growth, and profit. Hence, it is expected that when the main industry-specific effects are disregarded, as well as the diversifying target industry-specific effects, the predicted performance of a diversification strategy could be misleading.

MacGregor and Sever (1996) observed that the food-manufacturing industry, a frequently diversified segment, is a big challenge because it depends on low profits, slow growth and high volume. The situation of related segments in the restaurant industry is not very different from that of the primary industry. Furthermore, in terms of risk of profitability the income flows of related businesses might be correlated with the main business. Although the portfolio theory as specified by Markowitz, (1952) predicts moderate risk reduction from related diversification, the risk due to the aggregated income flows should behave similarly.

A firm's motivations to diversify was listed by Rijamampianina et al. (2003) to include; profitability enhancement, sales growth, stock value improvement, market efficiency and stability of income flow; implying that low performance could affect diversification decisions, as well as the level of diversification. Firms with enough managerial and financial capacity could easily diversify into other industries since diversification is perceived as an investment behaviour. Hence, performance is a possible determinant of diversification decision. Several studies (e.g. Olusoga, 1993; Kim and Gu, 2003) have attempted to highlight the influence of firm diversification strategies on performance. In spite of this, research evidence is inconclusive as to whether or not a diversification strategy influences improved performance and stability for firms.

Kotler (2003) believed that business diversification is not guaranteed to improve profit, but an important strategic management concept for achieving long-term performance while reducing risk. In order to benefit from such diversification strategy, many manufacturing companies have diversified to benefit from diversified consumers group.

2.1 Diversification and the motives.

Amit and Livnat (1988) further opined that the financial motive for diversification is based on the fundamentals of the portfolio theory which implies that whenever cash flows of individual business units are not perfectly correlated,

the total risk of an overall operation can be reduced by diversification. In the opinion of Rumelt (1974), the main motive for diversification might be related to factors of current environmental conditions of the firm (e.g. competition in the market) and reduction in sales.

According to Shergill, (1991) there is no one measure that is generally acceptable in measuring the extent of firm diversification. Although Rumelt's (1974) categorical measures of firm diversification have been often criticized because of the subjectiveness involved in its measurement, categorical measures are generally accepted by many researchers because they distinguish between different types of related and unrelated businesses (Shergill, 1991; Singh and Gu, 1994).

Results of empirical findings (Singh and Gu, 1994) on the relationship between diversification and financial performance have been mixed and inconclusive. According to Kim et al. (1989) these mixed results have been attributed to a failure to discriminate between diversification across and diversification within industries. Some of empirical studies, however, failed to find a positive relationship between the extent of related diversification and profitability, and stability of return. On the other hand, a few studies (e.g. Luffman and Reed, 1984) suggested an opposite result, arguing that unrelated diversified firms performed better than related firms. Singh and Gu (1994) examined the relationship between diversification and performance in the food service industry. Their findings indicated that while business cycle affects the relationship between diversification and performance and stability of food service firms. Another study did not find any significant difference in market performance and accounting stability between diversified and undiversified groups (Lee and Jang, 2007).

Schultz (1994) also found that market segmentation leads to emphasis on delivering value to the customers. Those benefits were however not empirically validated.

Findings from Li and Greenwood (2004) indicate that product diversification can enhance firm performance by creating synergy through internalization of business activities and also facilitate demand interaction (Siggelkow, 2003). However, earlier studies such as Wernerfelt and Montgomery (1988) and Hitt et al. (1997) reported that it may worsen firm performance by incurring coordination and control costs as well as bring about inefficiency when transferring core competencies to varying markets. In their own study, Hoskisson and Hitt (1990) stressed the complexity of the linkage between product diversification and firm performance, and emphasized the importance of industry structure that significantly affects the relationship between diversification and performance.

According to Kang et al. (2011), who studied the effects of product diversification on firm performance and complementarities between products in US casinos, product diversification strategy is becoming more relevant in attracting consumers who have more options for casino destinations as the US casino industry becomes more competitive.

Hoskisson and Hitt (1990) argued that the relationship between diversification and firm performance is complex; contingent on intervening factors, such as the type of diversification and the industry structure. Thus, according to Kang et al. (2011), the results of examinations of the effect of product diversification on firm performance may be different from one context to another. That is, costs and benefits from product diversification can be dependent on such factors as the type of diversification and the industry structure.

Regarding the type of diversification, Tanriverdi and Lee (2008) emphasized that product diversification relates to intra-industry diversification, defined as a firm's presence in multiple product lines within a single industry. Costs and benefits of intra-industry diversification can be explained with the framework of internal capabilities and demand interactions (Siggelkow, 2003). Summarizing the type of diversification, Kang et al. (2011) opined that intra-industry product diversification engenders a trade-off between potential risks of going beyond the reasonable capacity to effectively offer diverse products and the possible demand externalities generated by offering a broad range of products. That is, as the degree of product diversification within a certain industry increases, a higher probability exists for disturbing managerial skills and alignment of activities that are well suited to the core business of a firm. Consequently, the firm becomes incapable of successfully operating diverse businesses and marketing various products.

As observed by Siggelkow (2003) intra-industry product diversification may positively affect firm performance with additional demands created by providing assortments that maintain more options and reduce customers' shopping costs. He also found that the degree of product concentration negatively relates to profitability due to missed demand externalities, although product concentration can positively affect the capability to offer high-value products.

Li and Greenwood (2004) found that intra-industry product diversification can uniquely drive two benefits; i.e. premiums from mutual forbearance brought by multimarket competition and efficiencies from market structure. According to them, mutual forbearance, defined as tacit collusion to mitigate intensity of competitive behaviours at multiple points of competition, is more likely to exist in the intra-industry diversification context than in the inter-industry context. That is, when firms compete within a constrained market with a higher probability of multiple contacts, severe rivalry may be alleviated due to a greater tendency to mutually forbear offensive activities.

However, the effects of those benefits suggested by Li and Greenwood (2004) vary from one firm to the other and thus should be interpreted cautiously according to the specific study's context. For example, Jayachandran et al. (1999) proposed that mutual forbearance is dependent on the degree of familiarity between firms and their abilities to hinder each other. Also, Golden and Ma (2003) observed that organizational structure that enables intra-firm cooperation and incentive systems which induce cooperation, are critical when implementing a mutual forbearance strategy. A high degree of familiarity due to the homogeneity of businesses and unique organizational characteristics, such as a high turnover rate may exist among firms (Kang et al. 2011).

3. Methodology

This study sampled listed manufacturing firms in Nigeria for the period 2006-2010. Secondary data were sourced from the annual reports and statement of accounts of the sample companies and annual publication of the Nigerian Stock Exchange. We defined firm performance (dependent variable) using an accounting-based measure of return on assets (ROA). Following previous studies (e.g. Chen and Yu, 2011; Hutzschenreuter and Voll, 2008), ROA was measured as the ratio of earnings before interest and after taxes to total assets. Other variables included firm size which represents the physical and financial resources of a firm, and which is frequently used as a proxy for competitive positioning within an industry (Qian, 2002). It is measured by taking the logarithm of net sales (Lu and Beamish, 2004). Firm age was included because it influences the radical innovations and operations of a firm (Chen and Yu, 2011). Firm age was measured as the logarithm of the years since its founding. We also included leverage measured as the logarithm of the ratio of total debt to total assets. Firm leverage gauges the extent to which non-equity capital is used to finance the assets of a firm. A higher fixed-asset ratio means that more physical assets are needed to produce products and services, which implies that firms with a higher fixed-asset ratio have a larger market share. A dummy was introduced to include firms that faced one market segment such that if a company has diversified into production of different goods, it takes a value of one (1) and zero (0) if the firm is one product based. Data collected was analysed using Panel regression analyses taking into consideration fixed effect, random effect, and Hausmann test of fixed-random effect estimate. Descriptive statistics as well as correlation matrix of the variables were analysed. The empirical model for the study is specified as:

$$ROA_{it} = \alpha_0 + \beta_1 SIZE_{it} + \beta_2 DIV_{it} + \beta_3 AGE_{it} + \beta_4 OWN_{it} + \beta_5 LEV_{it} + \beta_6 TAX_{it} + \varepsilon_{it}$$

ROA= return on assets (dependent variable)

SIZE= size of the firms

DIV= Diversification

AGE= Age of the firm

OWN= Ownership structure

LEV= Leverage

TAX= annual tax paid by firms

β = Parameter to be estimated

ε =error term

i= ith firm

t= period of time measures in years

4. Results and Discussion

Table 1: Descriptive statistics and correlation matrix of the variables

| Variables | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------|---------|----------|---------|----------|-----------|----------|----------|
| 1.ROA | 1.000 | | | | | | |
| 2. Size | 0.7262 | 1.0000 | | | | | |
| 3.Diversification | -0.0017 | 0.2841 | 1.0000 | | | | |
| 4.Age | -0.0686 | 0.1463 | -0.2112 | 1.0000 | | | |
| 5.Leverage | 0.3684 | -0.0163 | -0.3560 | -0.7370 | 1.0000 | | |
| 6.Ownership | 0.4137 | 0.3892 | 0.0912 | -0.7158 | 0.7990 | 1.0000 | |
| 7.Tax | 0.2789 | 0.3610 | -0.5875 | 0.3810 | 0.2146 | 0.2305 | 1.0000 |
| Mean | 13.0005 | 17.314 | 0.66667 | 14.3333 | -300239.2 | 12.889 | 5097913 |
| Standard dev. | 6.05151 | 1.80452 | 0.47953 | 5.803289 | 700903.3 | 4.881133 | 1.32e+07 |
| Min | 0 | 9.505768 | 0 | 9 | -24599949 | 0 | -2098408 |
| Max | 17.6214 | 19.0405 | 1 | 24 | 18.3151 | 16.29469 | 4.49e+07 |

Source: Data Analysis, 2010

Table 1 presents the means, standard deviations, minimum, maximum and correlation matrices of the dependent and independent variables. Size of the firms is positively related to performance with a relatively high correlation coefficient of 0.72, mean value of 13.0 and standard deviation of 6.05. Performance is found to be negatively related to non-diversification of firms with a correlation value of negative 0.002, a mean value of 17.3 and a standard deviation of 1.8. Age of the firm is negatively related to performance while leverage, ownership structure and tax were found to be positively associated with performance. As correlation coefficient does not necessarily imply causal relationship. The Hausman test which indicates that random effect is better is thus reported in Table 2

Table 2: Panel regression result of diversification and performance

| Variables | Coefficient | Standard error |
|-----------------|-------------|----------------|
| Size | 2.51619 | 0.3060051* |
| Diversification | 4.76650 | 1.768105* |
| Age | 0.348711 | 0.2232335 |
| Ownership | -2.47744 | 0.6493353* |
| Leverage | 0.000113 | 1.70 e-06* |
| Tax | -2.85e-08 | 6.65e-08 |
| Constant | 2.089576 | 8.84142 |
| R square | 0.8974 | |
| F | 29.15 | |
| Prob> F | 0.0000 | |

*Source: Data analysis, 2010; *, significant at 5% level*

The result from Panel regression estimates indicates that size of firms is positive and significant at 5% level, implying that as size of firms' increases, manufacturing firms would diversify their products the more. Result of the dummy variable-diversification is found to be positive and significant implying that diversifying firms have higher level of return on assets compared to non-diversified firms. Ownership structure of the firms is found to be negative but significantly related to performance of manufacturing firms in Nigeria. The finding implies that increase in number of shareholders of firms may negatively affect diversification decision of firms. Leverage measured by the ratio of total debt to total assets shows a positive and significant influence on performance of firms. The positive coefficients indicate that total debt level of firms may influence their decision to diversify and hence earned improve performance to offset their level of debts.

This result corroborate Pawaskar (1999) study who maintained that the extent of increase in diversification resulting in improved profitability depends significantly on the asset utilisation by the firm compared to the other single

segment firms and also on the type of industries.

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