INFLUENCE OF VERTICAL INTEGRATION STRATEGY ON PERFORMANCE OF NON-FINANCIAL FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE, KENYA

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ABSTRACT
The choice of firms’ diversification strategies and their performance has been the centre of attention in the strategy and finance fields both empirically and theoretically. However in general, previous studies have analysed the integration–performance relationship without differentiating the firms into financial and non-financial sectors, but rather the samples were pooled from both sectors. The aim of this study is to investigate the influence of vertical integration strategy on performance of non-financial firms listed at the Nairobi Securities Exchange. The study used descriptive correlational survey design. Target population was all 45 listed non-financial firms. Primary and secondary data were required; primary data was collected using a semi-structured questionnaire and audited financial reports of the firms were used to collect secondary data. Through descriptive, correlation and regression analyses, the study findings revealed that there was a significant positive relationship between vertical integration and firm performance. Regression analysis revealed that 19.5% of changes in firm performance were attributed to the use of vertical integration strategy. This study concluded that vertical integration is an essential strategy for use by firms in their quest to lower transaction costs, increase market power and improve on firm’s technical efficiencies. The study recommended that management of firms that are yet to adopt this strategy should put in place an internal organizational policy and culture to encourage its adoption. Managers should also create initiative in their firms with regard to vertical integration which should consider vertical integration issues as part of their performance review.

Key Words: Vertical Integration Strategy, Backward Integration, Forward Integration, Firm Performance
INTRODUCTION AND BACKGROUND TO THE STUDY

Due to the introduction of competitive policies and numerous changes that occur in the business environment many companies have been forced to rationalise their business operations and review their corporate strategies. The business environment has become highly dynamic with changes that are not only rapid and bewildering but also appear to be in a state of constant flux. Technological innovations, as presented in this new era, are growing at a fast pace leading to a more globalised world and firms are changing in their form, structure and scope. These new technologies have enabled firms to lower their production costs in comparison to firms using older technologies (Selen, 2011). To benefit from these production opportunities firms require to have reliable suppliers of inputs and accessible wide spread distributors and retail outlets. Relationship among these players has thus been affected by product lines and volume expansion.

Development arising from these forces and the need for organizations to survive in today’s fiercely competitive market are causing many organizations to rethink the way of doing business in order to remain relevant to their stakeholders. The technological innovations (Selen, 2011) and intense competition faced by firms (Ng’ang’a, Namusonge, & Sakwa, 2016) have forced these firms to rethink their ways of doing business to remain afloat among the various competitors. Diversification is one of the strategies that have been used by several organizations across the globe in order to enhance their business objectives. Marinelli (2011) asserts that most organizations around the world consider diversification as one of the ways of value creation.

Vertical Integration Strategy
According to Harrigan (1984) vertical integration is one of the first diversification strategies that a firm considers in its attempt to progress from being a focused company. Harrigan defines it as a variety of decisions concerned with whether a firm should via its business units provide certain goods and services in-house or purchase them from outsiders. It is a strategy used by firms so that they can obtain control over their suppliers and distributors. The firms employ it so that they increase their market power, lower their transaction costs as well as secure their supplies and distribution channels. It occurs where two or more production and marketing process stages are controlled effectively by one management (Rehber, 1998). According to Fan and Lang (2000) two businesses are said to be vertically integrated if one firm uses as input the other firm’s product for its own production or supply output as the other firm’s input.

**Firm Performance**

Firm performance is the extent to which an investment is profitable (Murimiri, 2009). In the corporate world performance is the criterion by which a firm measures its capability to prevail. Effectiveness and efficiency are the commonly used measures of firm performance (Robbins, 2000). Effectiveness is about achieving the set objectives whilst efficiency is about how the firm is able to achieve its objectives. Efficiency comes into play especially where a firm strives to reduce its operational costs and achieve its objectives. If a firm is inefficient but effective it might survive, but the operational, management, processes and input costs would be too high. Cost inefficient firms have poor resource allocation management. These firms might break even or have very little profit. Ineffective-efficient firms need to reconsider their resource allocations. Organizations that are efficient and effective are high performance entities. They demonstrate excellence in their organizational performance and also in their strategic planning. The outcome of such firms is usually high, management is under control, and tasks are distributed and
completed in a timely manner. The research study used accounting based measures of firm performance represented by return on capital employed, return on total assets and profit margin.

**Listed Firms in Nairobi Securities Exchange**

According to Saleemi (1993) a listed or quoted company is the one whose shares are bought and sold at the stock / securities exchange. There are sixty four (64) listed firms presently at the NSE (NSE, 2015-2016). These firms are in different industries or sectors. The Nairobi Securities Exchange (NSE) was renamed after the Nairobi Stock Exchange in July 2011. It was constituted in 1954 as a voluntary association of stock brokers in the European community and was registered under the Societies Act.

**Statement of the problem**

Based on the dynamics of the business environment in Kenya, firms face a lot of challenges especially from intense competition and technological innovations. This has resulted in the erosion of their profit levels. There are various forms of diversification strategies that firms can adopt to curb this profit erosion. However, it is not clear which strategy would aid these firms to improve on their profit levels. As an extension of the studies on diversification-firm performance (Penrose, 1995; Rumelt, 1974) the aim of the study is to investigate the influence of vertical integration strategy on performance of listed non-financial firms. Prior studies generally have taken the effect of diversification strategies homogenous across firms both in financial and non-financial sectors where as this study investigates the influence of this strategy by focusing on non-financial firms only. The homogenous approach is neglected since the firms have different structural characteristics which lead to various averages in each sector. Studies examining influence of diversification strategies on firm performance also show mixed findings. There is still disagreement as to whether diversification increases or reduces firm performance. The
relationship is still controversial, contradictory and inconclusive (Mashiri & Sebele, 2014; Santalo & Beccera, 2008).

Objective of the Study
The study was carried out to evaluate the influence of vertical integration strategy on the performance of the non-financial firms listed at the NSE in Kenya.

Hypothesis of the Study
\( H_0 \): There is no significant influence of vertical integration strategy on the performance of the listed non-financial firms at the NSE in Kenya.

**Figure 1:** Conceptual Framework

THEORETICAL REVIEW
Transaction Cost Theory
Transaction cost theory (TCT) can be traced back to Coase (1937). Transaction cost within a firm takes place when the organisation of production cost through the market exchange is higher than within the firm. This means that a firm prefers to carry out activities in-house in order to avoid costs of transacting with other firms in the market. The costs may include cost of finding, selling, negotiating, monitoring and resolving disputes with other firms in open market transactions.
According to Joskow (1988) the main focus of TCT is the definition of the coordination determinants of transactions through markets or hierarchies. According to Williamson (1994) TCT seeks to address why economic transactions are organized in the way they are in modern society. Different firms’ economic transactions are internalized within its boundaries while others are procured from external parties. Firms generally internalize activities inside it when there is some form of market failure and especially that of its intermediate inputs.

The theory also argues that there are costs to conduct transactions through the market; Coase (1937) and Williamson (1975) noted that these transaction costs can be reduced through other mechanisms other than markets. This theory claims that transaction costs incurred are as important as production cost and they form an important part of total costs of ex-ante costs and ex-post costs. TCT views a firm as a hierarchy which adds value by economizing on these transactions. It claims that a firm provides a more efficient method of organizing relative to the market when it optimizes the transaction costs.

It rests upon several assumptions about human and its behaviour and environment characteristics (Williamson, 1979; Williamson & Ouchi, 1981). These assumptions throw light into why firms face higher costs for market-based transactions and why they may be more efficient at transaction organisation than markets. A firm also selects the form of governance that minimizes both transaction and production costs. Opportunism with guile views the human beings as individuals who may engage in behaviour that is deceitful both ex-ante and ex-post to agreeing to contracts. The assumption is about motivation of human behaviour and Williamson (1985) viewed human beings as simply self-interested.
This assumption is important since in the absence of potentially opportunistic behaviour, contracts would be enforced without costs and there would be no need for other forms of organisation besides the market. It has been criticised for ignoring the contextual grounding of human action as it has presented an under socialised view of human motivation and over socialised view of institution control (Granovetter, 1985). Ghoshal and Moran (1996) claim that opportunism with guile is bad for practise and that TCT is normative or prescriptive and opportunism if taken seriously by managers could result to negative consequences for organisations.

Bounded rationality as an assumption means that individuals are unable to process large degrees of information and is also difficult for them to assign probability values to the occurrence of future events. This results to incomplete contracts due to uncertainty of future in the contracting moment. Jones (1998) who adopted a positive or entrepreneurial view criticises it and argues that the assumptions are not problems to be managed and overcome but are opportunities to be taken advantage of.

Asset specificity, uncertainty and frequency of transactions are assumptions about the environment. Asset specificity as defined by Williamson (1985) is “durable investments that are undertaken in support of particular transactions, the opportunity cost of which investment is much lower in best alternative uses should the original transaction be prematurely terminated”. TCT focuses on asset specificity and the role it plays in determination of how better to organize exchanges. When assets are not specific to an exchange the market may be the most efficient way to organize it otherwise, the firm would be efficient. Uncertainty is especially critical as it is a state of not knowing about the future or inability to determine who is more prone to behave opportunistically (Williamson, 1993b).
Without the existence of bounded rationality and opportunism Williamson asserts that uncertainty would be much less of a problem since general rules would generally prevail. Contract would not be costlessly written and enforced because it is not easy to determine ex-ante who will behave opportunistically. The degree of frequency of transactions range from occasional to recurrent, depending on the volume, number or temporal spread of transactions a firm may decide to have alternative governance structure. A major critique to TCT is its tautological nature, Williamson failed to operationalize the measures of transaction cost.

According to Whyte (1994) on the basis of transaction cost economics, the author explains that occurrence of vertical integration is by asset specificity with significant transaction specific sunk costs and uncertainty. Frank and Henderson (1992) assert that this theory predicts that by organisation of transactions over the market will outweigh management’s internal cost and this will lead to inter-firm profit claim thus making the firm profitable. This strategic decision is then a transaction-cost-minimising response to the limited information and contracting cost.

**Make-Or-Buy Decision**

The make-or-buy decision answers the question “why do some firms choose to vertically integrate while others choose not to?” The firm managers make decisions on whether to produce their own inputs or outsource from outside independent suppliers or have a contractual relationship with a specific supplier. This decision goes a long way in determining the firm’s level of integration (Walker & Weber, 1984). According to Sudarsanam (2010) the thinking determines whether a firm integrates vertically backward or forward. Where backward means that the firm is involved in production of its own input rather than buy from external suppliers. This implies the ‘make’ decision which enables a firm to have joint ownership and control rights while the ‘buy’ decision means separation. As the firms make these decisions costs and benefits
of either alternative should be considered. This would aid a firm to decide whether to carry out activities in-house or buy from specialists outside the firm (Besanko et al., 2007).

**EMPIRICAL REVIEW**

According to Harrigan (1984) vertical integration is one of the first diversification strategies that a firm considers in its attempt to progress from being a focused company. Harrigan defines it as a variety of decisions concerned with whether a firm should via its business units provide certain goods and services in-house or purchase them from outsiders. It has also been defined by Cox and Blackstone (2001) as the degree to which a company chooses to produce in several value adding stages from raw materials to the final consumer.

It is a strategy used by firms so that they can obtain control over their suppliers and distributors. The firms employ it so that they increase their market power, lower their transaction costs as well as secure their supplies and distribution channels. It occurs where two or more production and marketing process stages are controlled effectively by one management (Rehber, 1998). Fan and Lang (2000) allude that two businesses are said to be vertically integrated if one firm uses as input the other firm’s product for its own production or supply output as the other firm’s input.

Besanko et al., (2007) assert that firms choose to integrate vertically thus produce their own materials and distribute their finished goods instead of transferring the supply and distribution to independent outsiders. Vertically integrated firms maximize return on investments through value addition, complimenting own produce from other sources as well as offering diversified products from the same material inputs. They use marketing channels that enable their produce get to the market at the lowest per unit cost.
Vertical integration according to Sudarsanam (2010) leads to increased technical efficiencies in coordinating, monitoring and enforcement of production process. It has two variants; backward and forward integration. A firm has an option to choose either, the choice is pegged on the scope of the firm and the venture’s cost (Andrade, 2001). Through backward or forward integration companies may reduce risks and interdependencies on partners external to the businesses’ supply chain. This can be achieved when a company pursues either of the variants as this would increase a company’s decision making power over its key resources and competencies which are important to a company’s competitiveness (Amir, 2009).

A firm is said to have employed backward integration when it diversifies closer to its raw materials in the production process and allowing it to control the quality of supplies being purchased (Thomas, 2010). Backward integration is aimed at moving the firm’s activities lower in the production process stages so that a firm can have control over the quantity and quality of supplies or it can supply its own raw materials. It involves moving towards the present product’s input. Forward integration is employed when a firm enters the business of selling or distributing its own output to the consumers and it involves a firm moving upwards the production or distribution process of its present products.

In this case a firm moves closer to the consumers allowing it to control how its products are sold. The firm can decide to establish its own retail outlets for the sale of its produce. How best a firm can manage its needs for limited supplies or accessibility to channels of distribution is answered by the various vertical integration alternatives. According to Dobashi et al., (1999) vertical integration can be applied in three levels; non-integration, semi-integrated (quasi integration) and full integration.
Non-integration strategies are followed by the firms that obtain raw materials and access markets with no transfers internally and no ownership. They are like “contracts” as noted by Harrigan (1984). Firms that follow the quasi-integration alternative need not own 100% of the business units adjacent in their vertical chain. Harrigan notes that under appropriate circumstances, the quality and access to stable supplies can be obtained through quasi-integration arrangements.

Taper integrated companies are those that have adopted either backward or forward integration alternatives but also depend on outsiders for part of their supplies or distribution.

While full integration occurs where a firm transfers all its needs for product either the supply or distribution to outsiders and this may increase the firm’s exposure to information loss about their customers and competitors, flexibility in competition and also increase the excess capacity risk. Fully integrated firms face higher capital costs and higher barriers to exit due to asset specificity and inflexibility of use of the assets especially the physical such as machine and equipment.

Vertical integration as a strategy is a multi-dimensional concept as Harrigan (1985b) notes. According to Mpoyi and Bullington (2004) there are different vertical integration measures which examine specific dimension and yield complementary insights into this complex phenomena.

The old concept of vertical integration as being 100% owned operations that are interconnected physically to supply 100% of the firms’ need is outdated. This has necessitated firms to obtain supplies through quasi-integration arrangements. Firms could contract for instance R&D in form of joint ventures and utilize genetic engineering technology to obtain this capability. Firms may prefer to use outsiders for some of the functions otherwise if a firm prefers not to use outsiders as extensions of their corporate entity a variety of other vertical arrangements are possible.
The form of integration ownership which is ownership of suppliers and distributors indicate the proportion of a firm’s equity invested in a vertically linked venture. When firms have 0% ownership of suppliers or distributors this is termed as contract. This form of ownership as stated by Harrigan (1984) is attractive when firms are reluctant to buy specialised assets, need to lower breakeven points because of underdeveloped demand or can make arrangements for delivery schedules with the suppliers (distributors) as these outsiders are extensions of the firm’s assets. In this kind of vertical arrangement firms risk the least proportion of their assets.

In the case of quasi-integration firms own less than 95%. The quasi-integration has two variants down stream and upstream quasi-integration arrangements. The down stream enable firms to retain qualified distributors to maintain quality images while upstream enable firms to enjoy vertical integration advantages without the assumption of any risks. Full integration is when a firm has more than 95% ownership of suppliers or distributors. In this scenario a firm exerts complete control over the activities of the vertically linked businesses. This kind of ownership the firms risks the greatest proportion of equity.

The findings of the study carried out by Ravichandran and Bhaduri (2015) for the period between 2003 to 2014 on firms in the Indian manufacturing sector and using standard econometric analysis on panel data revealed that there was a negative relationship between diversification and performance of the firms. The study used Tobin’s q as a measure of performance and the results also showed that that highly diversified firms performed poorly on account of vertical diversification while horizontal diversification had a positive effect on performance.

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Findings of the study by Dorsey and Boland (2009) revealed that significant premiums were found for food processors and restaurant with vertical integration or diversification strategies. While on the other hand for food wholesaler and retail supermarket integration and diversifications strategies had significant premiums too. During this period food processors were integrating towards retail supermarkets this meant that the firms were using forward vertical integration.

Findings of a study carried out by Forbes and Lederman (2010) on the US airline industry revealed that vertical integration had a positive effect on the operational performance of the large US airlines. The integrated airlines performed better than the non-integrated and performance advantage increased especially on days when the weather was bad and the airports were congested. These airlines used regional partners to operate some of the flights and these regional partners could either be owned or governed through contracts.

Oloda (2017) carried out a study on the effect of vertical integration on organisational survival in selected manufacturing firms in Nigeria. The study’s sample size was 205 managers who were selected from six firms. Both primary and secondary data was used. To test the relationship between the variables reviewed the Spearman Rank-order correlation coefficient was used. The findings of the study revealed that there was a positive and significant relationship between the dimensions of vertical integration (both forward and backward) and organizational survival. Conclusion from this study is that vertical integration enhances organizational survival.

A study by Kimani et al., (2016) that adopted descriptive analysis for its individual research indicators and correlation and regression analysis to establish the effect of vertical, horizontal and diagonal integration on competitive performance. The findings revealed that vertical and
horizontal integration contributed significantly to the competitive performance of the firms while
diagonal integration was found to be insignificant. Its regression analysis also revealed that 74% of change in competitive performance of firms was attributed to collective use of the integration strategies.

RESEARCH METHODOLOGY

Research Design

Research design is the method used in carrying out a research (Mugenda & Mugenda, 2003). The study employed the descriptive correlational survey design. It was deemed appropriate because of the observational nature of the data collected from the firm’s annual reports and it explored the relationship among the variables under study. Both quantitative and qualitative data was collected. The quantitative research applied the use of numeric descriptions of opinions and attitudes of the population by use of closed ended questionnaires for data collection (Creswell, 2013). The qualitative approach looked into exploring and understanding of meanings attached by individuals or groups to social problems by use of open ended questions.

Target Population

Cooper and Schindler (2008) define population as the total collection of elements for which a researcher wishes to make some inferences. The study’s target population was all the 45 non-financial listed firms at the Nairobi Securities Exchange (NSE) in Kenya. Firms in the financial sectors were excluded due to the fact that their financial statements were presented differently from those of other sectors and also due to the regulations imposed on them by the central bank prudential on liquidity, assets and other disclosures (Pratheepkanth, 2011).
Census Design

The study targeted 45 non-financial firms listed at the NSE. This was considered small and as recommended by Mugenda and Mugenda (2003) when a population is small census approach is deemed fit and therefore census approach was adopted in this study. Data was from all the firms except for one which was excluded from the study due to delisting. The period for data collection was five years (2011 to 2015) which was considered since during this period some non-financial had dismal performance. The five year period was appropriate as most firms formulated their strategies for five years and during their implementation no major changes are adopted perhaps just incremental changes.

Data Collection Instruments

Both primary and secondary data was collected; a semi structured questionnaire was used to collect the primary data while secondary data was collected from the audited financial reports of the listed non-financial firms. The semi structured questionnaire had both closed and open ended items. It was deemed appropriate for the study since according to Kothari (2004) the questionnaire despite being expensive in extensive inquiries it leads to reliable results and also provides the respondent adequate time to think through the responses

Pilot Testing

Pilot testing is aimed at assisting researchers to check if the data collection instrument will obtain the required results (Mugenda, 2008). It is during the pre-testing that the researcher assesses the clarity of the instrument and its ease of use. Based on recommendations by Cooper and Schindler (2008) the study adopted convenience sampling to pick four firms which constituted a 10% of the main sample size. Out of the four firms three managers from each firm were selected as respondents in the testing of the questionnaire’s reliability and validity.
Reliability of Data Collection Instrument

To ensure reliability in this study, the questionnaire was pre-tested on selected respondents; the aim of doing this was to allow changes on various items of the questionnaire. Cronbach’s alpha coefficient was employed to test data reliability. This coefficient ranges from zero to one according to (Kipkebut, 2010) and higher values mean that the scales are more reliable. The recommended value of 0.7 by Field et al., (2012) is acceptable and therefore was adopted for this study. The results showed that a Cronbach alpha coefficient greater than 0.7 indicated that the factor being investigated is reliable (Suhr & Shay, 2009). Accordingly, none of the items in the questionnaire were deleted after the pilot study. The questionnaire was adequate to be used in the final survey.

Validity of Data Collection Instrument

Validity is the degree to which results obtained from the analysis of the data actually represent the phenomenon under study (Mugenda & Mugenda, 2003). The study considered both construct and content validity. In this study, to ensure validity of the data collection instrument it involved going through the instrument and ensuring that it answered the set objectives. As noted by Bailey (1994) the study used the expertise of the research supervisors and other researchers to improve on the questionnaire items.

Data Analysis Approach

Data analysis is defined by Kothari (2012) as the computation of measures along with the searching of patterns of relationships that exist among data groups. This is essential for ensuring that all relevant data is gathered for making contemplated comparisons and analysis (Mugenda, 2008). The researcher adopted descriptive analysis, correlation analysis and regression analysis to analyse the data.
RESEARCH RESULTS

Response Rate

A response rate of 85.9% was attained which was 116 out of the desired 135. This response rate was considered high enough for analysis and making conclusions as recommended by Babbie (2004) and Mugenda and Mugenda (2003). This response rate is attributed to frequent follow-ups by the researcher to all the respondents and appropriate data collection procedure employed.

DESCRIPTIVE STATISTICS

The objective of the study was to determine the effect of vertical integration on the performance of listed non-financial firms in Kenya. This section presents the descriptive results on the extent of vertical integration among listed non-financial firms and how it affects their performance. The study sought to establish the percentage of inputs a firm obtains from a business unit that it owns. The results as shown on Table 1 revealed that 44% of the respondents indicated that they obtained between 0% to about 80% of their inputs from a business unit they owned, while 41% of the respondents revealed they obtained over 80%. Similarly, the results showed that 47.4 % of the respondents sold more than 80% of their output through or to their own outlets, while 36.2% had sales of between 0% and 80% made through their own outlets.

The study also sought to establish the percentage of firm’s ownership of suppliers or distributors. Majority of the respondents (43.1%) stated that their firms had 0% ownership which implied that the firms dealt with their suppliers and distributors in form of contracts, 40.5% stated that their firms had less than 95% ownership (quasi integration) and 16.4% stated that their firms had more than 95% ownership.
Table 1: Frequency for Vertical Integration Sub-variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Category</th>
<th>Frequency</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of inputs firms obtain from a business unit that it owns</td>
<td>No input at all</td>
<td>17</td>
<td>14.7</td>
</tr>
<tr>
<td></td>
<td>Between 0% and 80% of inputs</td>
<td>51</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>More than 80% of the inputs</td>
<td>48</td>
<td>41.4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>116</td>
<td>100</td>
</tr>
<tr>
<td>Proportion of output a firm sells to (or through) its own outlets</td>
<td>No sales to (or through) a business unit</td>
<td>19</td>
<td>16.4</td>
</tr>
<tr>
<td></td>
<td>Between 0% and 80% of output sold (or through) its own outlets</td>
<td>42</td>
<td>36.2</td>
</tr>
<tr>
<td></td>
<td>More than 80% of output sold to (or through) its own outlets</td>
<td>55</td>
<td>47.4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>116</td>
<td>100</td>
</tr>
<tr>
<td>Percentage of ownership of suppliers or distributors</td>
<td>0% ownership (contracts)</td>
<td>50</td>
<td>43.1</td>
</tr>
<tr>
<td></td>
<td>Less than 95% ownership (quasi-integration)</td>
<td>47</td>
<td>40.5</td>
</tr>
<tr>
<td></td>
<td>95% or more of output sold to (or through)</td>
<td>19</td>
<td>16.4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>116</td>
<td>100</td>
</tr>
</tbody>
</table>

From the findings it is implied that the non-financial listed firms adopted both the backward and forward vertical integration since they sourced their inputs from business units they owned and also sold their output through outlets they owned. The findings also implied that these firms preferred to engage in contracts with their suppliers or distributors as explained by the 0% ownership of suppliers or distributors (contracts) and quasi-integration vertical arrangements with their suppliers and distributors also explained by the less than 95% integration ownership.

Table 2 contains the descriptive results on the level of agreement on the extent of vertical diversification among listed non-financial firms as measured by a five in point Likert Scale where 5 was ‘strongly agree’, 4 ‘agree’, 3 ‘neutral’ 2 ‘disagree’ and 1 ‘strongly disagree’. The responses were analyzed through the mean and standard deviation. The respondents agreed that
their firms supplied their own input materials; the firms distributed or were involved in the distribution of own output; that it was important for the firms to distribute its products through established wholesale or retail outlets and it was also important for the firms to own wholesale/retail outlets. Each of the factors had a mean score of 3.64, 3.84, 3.81 and 3.63 respectively. The average mean score for all the factors was 3.73.

Table 2: Attributes of Vertical integration

<table>
<thead>
<tr>
<th>Statements</th>
<th>SA</th>
<th>A</th>
<th>N</th>
<th>D</th>
<th>SD</th>
<th>Mean</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>To what extent would you agree that your firm supplies its own input materials?</td>
<td>30.2%</td>
<td>34.5%</td>
<td>13.8%</td>
<td>12.1%</td>
<td>9.5%</td>
<td>3.64</td>
<td>1.29</td>
</tr>
<tr>
<td>To what extent would you say that your firm distributes its own output?</td>
<td>38.8%</td>
<td>32.8%</td>
<td>11.2%</td>
<td>8.6%</td>
<td>8.6%</td>
<td>3.84</td>
<td>1.27</td>
</tr>
<tr>
<td>To what extent would you agree that it is important for your firm to distribute its products through established wholesale or retail outlets?</td>
<td>30.2%</td>
<td>39.7%</td>
<td>18.1%</td>
<td>5.2%</td>
<td>6.9%</td>
<td>3.81</td>
<td>1.13</td>
</tr>
<tr>
<td>To what extent would you say it is important for your firm to have own wholesale/retail outlets?</td>
<td>27.6%</td>
<td>38.8%</td>
<td>12.9%</td>
<td>10.3%</td>
<td>10.3%</td>
<td>3.63</td>
<td>1.28</td>
</tr>
</tbody>
</table>

Average 3.73 1.24

INFERENTIAL

Correlation

Correlation was conducted to test the strength of the association between vertical integration strategy and firm performance. The results of correlation analysis as shown on Table 3 indicated that vertical integration strategy had a positive and significant correlation (r=0.441, p=0.000) with performance of listed non-financial firms in Kenya. The association between vertical integration and firm performance of listed non-financial was moderately strong. The findings
implied that positive increase in vertical integration would result in corresponding positive change in firm performance.

| Table 3: Correlation Results Vertical Integration Strategy and Firm Performance |
|--------------------------------|-----------------|-----------------|-----------------|-----------------|
|                                | Vertical Integration | Firm Performance |
| Vertical Integration           | Pearson correlation | 1               | 0.441**         |
|                                | Sig. (2-tailed)     | 0.000           | 0.000           |
|                                | N                  | 116             | 116             |
| Firm Performance               | Pearson correlation | 0.441**         | 1               |
|                                | Sig. (2-tailed)     | 0.000           | 0.000           |
|                                | N                  | 116             | 116             |

** Correlation is significant at the 0.01 level (2-tailed)

**Regression**

The model summary results presented in Table 4 indicated that the model had R-squared of 0.195 which implied that vertical integration strategy accounted for 19.5% of the variation in performance of listed non-financial firms while the remaining percentage of 80.5% is explained by other variables not in the model.

| Table 4: Model Summary for Vertical Integration |
|--------------------------------|-----------------|-----------------|-----------------|-----------------|
| Model                          | R               | R-Squared       | Adjusted R-Squared | Std. Error of the Estimate |
| 1                              | 0.441           | 0.195           | 0.188           | 0.59620         |

a. Predictors: (Constant), Vertical Diversification

**Hypothesis Testing**

The study sought to evaluate the influence of vertical integration strategy on performance of non-financial firms listed at NSE in Kenya. In order to accomplish this, the following hypothesis was formulated;

**H₀:** There is no significant influence of vertical integration strategy on the performance of the listed non-financial companies at the NSE in Kenya.
To test the hypothesis Analysis of variance (ANOVA) was used and a 95% confidence level was adopted for this analysis. The results of ANOVA on Table 5 showed that F value 27.601 with p-value=0.000< 0.05 meant that the null hypothesis was rejected and conclusion made that there is a significant influence of vertical integration strategy on performance of listed non-financial firms at NSE in Kenya.

**Table 5: ANOVA for Vertical Integration**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>9.811</td>
<td>1</td>
<td>9.811</td>
<td>27.601</td>
<td>0.000b</td>
</tr>
<tr>
<td>Residual</td>
<td>40.522</td>
<td>114</td>
<td>.355</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50.333</td>
<td>115</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Dependent Variable: Firm Performance  
b. Predictors: (Constant), Vertical Integration  

To test the significance of the effect of vertical integration strategy on firm performance, the regression coefficients (β), the intercept (α), and the significance of all coefficients in the model were subjected to a t-test to test the null hypothesis that the coefficient is zero. The null hypothesis state that, β (beta) = 0, which meant there is no significant influence of vertical integration strategy on firm performance as the slope β (beta) = 0.

The model \( Y = \beta_0 + \beta_1 X_1 + \varepsilon \) therefore became **Firm Performance = 1.691 + 0.306 (Vertical Integration Strategy) + ε.** The beta coefficient results of the model showed that the constant \( \alpha = 1.691 \) was significantly different from 0, since the p-value = 0.000 < 0.05. The coefficient \( \beta = 0.306 \) similarly was significantly different from zero with a p-value = 0.000 < 0.05. The results established a positive and significant relationship between vertical integration strategy and firm performance. The results implied that a unit change in vertical integration strategy would result in 0.306 units change in performance of the non-financial companies listed at NSE in Kenya.
This confirms that there is a significant positive effect of vertical integration strategy on firm performance of listed non-financial firms in Kenya.

**Table 6: Regression Coefficients for Vertical Integration Strategy**

<table>
<thead>
<tr>
<th></th>
<th>β</th>
<th>Std. Error</th>
<th>Beta</th>
<th>t</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>1.691</td>
<td>0.224</td>
<td>7.537</td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>Vertical Integration</td>
<td>0.306</td>
<td>0.058</td>
<td>0.441</td>
<td>5.254</td>
<td>0.000</td>
</tr>
</tbody>
</table>

a Dependent Variable: Firm Performance

**DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS**

The objective of the study was to determine the effect of vertical integration strategy on the performance of listed non-financial firms in Kenya. The findings revealed that majority of listed non-financial firms had adopted vertical integration. They had adopted both variants of vertical integration i.e. backward and forward.

The correlation analysis established a positive and moderately strong association between the vertical integration strategy and the performance of listed non-financial firms in Kenya. The findings implied an increase in vertical integration strategy would results to increase in firm performance. R-squared = 0.195 indicated that 19.5% of variation in firm performance can be explained by vertical integration strategy. The coefficient β = 0.306 which was significantly different form 0 with p = 0.000. The results implied that a unit change in vertical integration strategy would result in 0.306 units change in performance of the listed non-financial firms in NSE. This confirmed the significant influence of vertical integration strategy on performance of non-financial firms listed at the NSE.
The study concluded that vertical integration contributed positively to the overall performance of the firm. This is because the adoption of this strategy enabled firms to lower their transaction costs, increase their market power and also increase their technical efficiencies in the coordination, monitoring and enforcement in product process. A firm that adopts the vertical integrations variants i.e. backward and forward is better placed to outdo its competitors.

This study therefore recommends that the management of the firms that have not adopted vertical integration strategy should put in place internal organizational policy and culture to encourage vertical integration adoption. These firms can adopt the vertical integration strategy as a competitive tool to achieve technical efficiencies in coordination, monitoring and enforcement of the production process, lower their transaction costs and increase the firm’s market power which will enhance the firm’s performance. The managers should also create some initiative in the firms with regard to vertical integration. This initiative should consider vertical integration issues as part of their performance review. This study also recommends that firms should be careful when adopting vertical integration to avoid conflict of interest and increase in operational costs through hiring of additional labour force to manage extra activities.

REFERENCES


