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Abstract

Purpose: The main purpose of the study was to determine the influence of backward vertical integration strategies on the competitiveness of firms in the Export Processing Zones (EPZ), Kenya.

Methodology: Both quantitative and qualitative approaches were used in this study, meaning that both descriptive statistics and inferential statistics were employed. Descriptive technique, specifically survey was used in the research design. The target population was all the 137 EPZ firms within Kenya and the sample was drawn from this population. The stratified random sampling technique was used. The EPZ firms are situated within the 74 gazetted zones, out of which 69 are privately owned and operated while 5 are public zones. The quantitative data that was collected was analyzed using the Statistical Package for Social Scientists. Further, the significance level of each independent variable was tested against the dependent variable at 95% level of confidence using ANOVA, regression and correlation techniques.

Findings: The findings showed that backward vertical integration strategies had a positive and significant influence on the competitiveness of firms in EPZ, Kenya, at 0.151, $p<0.05$ and 0.432, $p<0.05$ when the moderating variable firm size is included.

Unique Contribution to Theory, Practice and Policy: This study contributes to both the resource-based view and the theory of dynamic capabilities. It lays emphasis on the importance of resources in attaining competitiveness as suggested in these theories. Besides, the study emphasizes the need for firms to have policies aimed at ensuring raw materials supply stability, lower transaction costs and enhanced economies of scale. The findings of this study are significant because the Government of Kenya envisages that the EPZ program is expected to play a critical role in the manufacturing sector contributing 20% to Gross Domestic Product (GDP) by 2030. This will subsequently lead to an increase in employment opportunities, real-value added growth, and foreign direct investment (KNBS, 2022). The study recommends a review by the EPZ Authority in Kenya , of the underlying aim of using backward vertical integration strategies as means of gaining competitive advantage competitiveness and the inclusion of this strategy in the various EPZ firm's policies and procedures.

Keywords: *Backward Vertical Integration, Competitiveness, Export Processing Zones*

INTRODUCTION

Backward integration is a strategy of seeking ownership or increased control of a firm's suppliers. This strategy can be especially appropriate when a firm's current suppliers are unreliable, too costly, or cannot meet the firm's needs (David & David, 2015). Backward integration takes place when a firm supplies or engages in manufacturing operations within its activities (Morden, 2007). For example, in Malaysia, PETRONAS, an oil and gas company wholly owned by the Government of Malaysia is pursuing backward vertical integration by purchasing its own ships to transport its oil and gas. The strategy enables PETRONAS to have direct access to the Shipping capacity at the lowest possible costs (David & David, 2015).

A backward vertical integration strategy involves a firm moving back along the value chain and entering a supplier's business. It is related with a manufacturer's decision to integrate with its components or equipment towards taking over supplies, whether to produce or purchase an input (Frank et.al., 2021) and it can be adopted by EPZ firms. Some firms use this strategy when executives are concerned that a supplier has too much power over their firms (Kennedy et.al., 2020). Different firms use backward vertical integration strategies for different reasons. It is in fact the preferential access to raw materials. Barrera-Rey (1995) points out that security of supply is one of the advantages of backward integration within the oil industry. Besides, backward integration enables the manufacturer to make a better prediction of the input price, thereby making a more profitable investment decision.

Within manufacturing firms, Suppliers provide inputs that are needed to create the goods and services that the firms in turn sell to their buyers. A variety of supplies are important to these firms, including raw materials, financial resources, and labor (David & David, 2015). Clearly, if a firm is not able to regain its profits due to cost increases by its suppliers through using its pricing structure, then it incurs losses because of the supplier's actions (Schmitz, 2012).

Studies indicate that there exists a rival competition to attain sustained competitive advantage in the Export Processing Zones and several factors are responsible for it. To compete successfully in this environment, these zones need to adopt backward vertical integration as a strategy. The Export Processing Zones (EPZ) make a significant contribution to Kenya's economic growth. By mid- 2022, Kenya had 153 EPZ firms which had attracted Ksh. 45.23 billion in the form of investments (EPZ firms step up hiring, 2023). These firms enjoy a range of attractive fiscal, physical and procedural incentives including a 10-year corporate and withholding tax holiday as well as 100 per cent investment deduction on new investments. A majority of these EPZ firms are in textiles and Apparel and they largely export to the US under the quota-and-duty-free Growth and Opportunity Act.

There is a lot of literature on the global production networks (Egger et.al., 2021). However, this literature does not clearly show the contribution of backward vertical integration strategies to attaining economies of scale and reduced costs of production in manufacturing, factors that lead to firm competitiveness. This study will also discuss how backward vertical integration influences the market structures. Besides, there is limited literature on the relationship between backward vertical integration strategies and firm competitiveness. This study will bridge that gap because it examines the influence of backward vertical integration on competitiveness of EPZ firms in Kenya. The study seeks to assert that if a manufacturer invests in facilities to produce raw materials or component parts that it formerly purchased from outside suppliers, it remains in the same industry, but its scope of operations extends to two stages of the industry value chain (Thakur, 2020).

Problem Statement

The manufacturing sector plays a significant role in Kenya's economic growth. In 2022, this sector contributed 7.2% of the Gross Domestic Product. The Kenyan government aspires that production in these firms is able to competitive in the global market place. However, these firms encounter different challenges which limit their productivity and, in some cases, lead to the closure of some of the firms. One of these challenges is the high cost of raw materials caused by the escalating global prices. Hence, backward vertical integration strategies will ensure that these firms are protected against price distortions, that there is control of the quality of their products and the uncertainties caused by supply instabilities are dealt with.

Existing empirical literature indicates that there exists a positive relationship between backward vertical integration strategies and competitiveness of firms. These are Masese et al., (2019), Benmehaia & Brabez (2016) and Tey & Arsil (2021) among others. Notably, most of these studies are carried out in Western and Asian countries. The focus of this study will be Kenya.

The aim of this study will be to investigate the influence of backward vertical integration strategy on the competitiveness of firms in EPZ Kenya. While prior studies have discussed the effect of horizontal integration strategies on firms in both the financial and non-financial sectors, this study will only focus on the Kenyan export processing zones. Besides, the measurement of backward vertical integration poses many theoretical and practical problems that make it difficult to study the degree of backward vertical integration at the firm and industry level.

LITERATURE REVIEW

Theoretical Review

Resource-Based View

Different economic theories have explained the phenomenon of backward vertical integration. This study discusses the resource-based view theory and the dynamic capability theory in relation to backward vertical integration strategy.

The resource-based view of the firm was first proposed by Wernerfelt (1984) and it was later developed by Barney (1986,1991), Teece, Pisano and Shuen (1997) and Barnet, Ketchen and Wright (2011) who renamed the resource-based view to resource-based theory (Lujan-Salazar, 2017). This theory advocates that integration provides competitive advantages for the firm (Monsur & Yoshi, 2012). It asserts that resources are what help a firm to exploit opportunities and neutralize threats and that the internal resources of a firm are more important than its external factors in obtaining and sustaining a competitive advantage (David & David, 2015). This view expresses the diversity of competitiveness based on the assumption that direct competitors differ in their resources and capabilities in ways that are important to the firm (Bhalla, 2001). The view can be used to study the competitive advantage concept of the firm (Naliaka & Namusonge, 2015). Chigara (2021) seeks to assert that resources influence the competitiveness of the Algerian small and medium enterprises (SMEs).

Previous Studies have used this theory to indicate the influence of backward integration strategies on their competitiveness. The model facilitates the understanding of the competitiveness of EPZ firms in Kenya in relation to backward vertical integration. It is an important framework for identifying the relationship between the two variables as well as the magnitude of their association. Kimetei et al., (2019) use this view to explain how firms can acquire and control resources in order to improve the performance of logistic firms in Kenya.

Besides, the model posits that boundary expansion through backward vertical integration is undertaken for strategic use in return for sustainable return on invested capital, a common measure of competitive advantage (Tey & Arsil, 2021).

Dynamic Capability Theory

This concept was defined by David Teece, Gary Pisano and Amy Shien in 1997. Their work on Dynamic Capabilities and Strategic Management refers to the firms' ability to engage in adopting, integrating and reconfiguring the functional competencies in order to be able to match the requirements of a changing environment. Notably, a firm with strong dynamic capabilities can attain abnormal returns (Teece, 2010).

Firms may integrate vertically in order to acquire other firms and leverage on their internal capabilities or fully utilize the existing superior management capabilities (Bresnahan & Levin, 2012). Ogundipe et.al., (2012) point out that DCs are designed to alter the firm's resource base in order for a firm to achieve a competitive advantage within a rapidly changing environment. The study provides an overview into the types of DCs which lead to competitive advantage within the SMEs. The findings also showed that DCs have a significant impact on the competitive advantage of a firm and that they can influence the SMEs valuable, inimitable and rare resources in order to obtain a competitive advantage.

Bleady et.al., (2018) in their study examined whether there was a commonly agreed-upon empirically based definition of the theory of Dynamic Capabilities (DC). Their findings indicated that there was lack of consensus on a commonly agreed-upon empirically based definition of DC.

The study by Mutongoreya (2021) asserts that the dramatic social changes among SMMEs in South Africa have led to organizations adopting the dynamic capability. This provides an opportunity to adopt their products and service offerings so that they remain viable and competitive in a technological era that is fast-changing.

Nyachanchu et.al., (2017) examined the influence of the three dimensions of dynamic capabilities on the performance of 271 manufacturing firms in Nairobi County, Kenya. These dimensions were sensing capabilities, seizing capabilities and reconfiguration of capabilities. The study findings indicated that the firms which embraced a paradigm shift from conventional manufacturing to models that are based on appropriate capabilities have an improved performance.

Mureithi et. al., (2021) investigated the role of dynamic capabilities on the relationship of social capital and research productivity of academic staff in Kenyan Universities. The findings revealed that dynamic capabilities partially mediates the influence and it could be used to improve on the research productivity within the Kenyan Universities. Notably, firms develop capabilities or know-how that is within its management and employees and this is not easily traded or shared across its boundaries (Bresnahan & Levin, 2012).

Fernandez-Olmos et.al., (2013) links the presence of a particular skill set within a firm to its decision to integrate vertically. The study indicates that this decision is also based on the opportunity to a factor through the market-place and also the expected cost of creating that factor within the firm.

Firms may decide to vertically integrate because of the similarities between their capabilities along the different stages of the value chain. This enables the firms to fully utilize their skills, knowledge and experience (Li &Tang, 2010). The theory of dynamic capability explains the firm's competitive advantage as observed in a dynamic and fast-moving environment. DC

helps firms dealing in the volatile International business market to develop specific capabilities and continuous learning (Samsudin & Ismael, 2019).

Empirical Review

Studies on the influence of backward vertical integration on firm competitiveness show a mostly positive relation between the two variables. For example, in their study, Benmehaia and Brabez (2016) test the determinants of backward vertical integration that contribute to the literature by an empirical analysis. The main results indicate that food industry structure, transaction costs, and market conditions independently and significantly influence the level of backward vertical integration in Algeria. They use data for the period of 16 years (2000- 2015) to estimate a linear regression model. Through an econometric analysis, three vertical integration measures are utilized to examine the determinants of vertical integration in food manufacturing industry. Their empirical results support that there are variations in terms of the effects of industry structure and market conditions, whereas the transaction costs involved in the food industry coordination seems to have a significant effect on vertical integration trends.

To evaluate backward vertical relationships in value chains where one stage competes on product variety under great uncertainty and the other stage competes on scale, Zhou and Wan (2017) compared operations data at about 300 distribution centers within a major soft-drink bottler before and after it was integrated into an upstream concentrate producer. They found that backward vertical integration improved coordination for the integrated firm by aligning incentives and reducing strategic information asymmetry, but that it worsened coordination for upstream rivals that shared the same downstream facilities.

In their study, Pozzi and Vassilopoulos (2007) analyze the long-run return performance of 27 value-weighted equity portfolios based on a classification of the US energy sector that follows traditional industrial organization categories. When adjusted to market and fuel risks, portfolio returns show that both backward vertical integration and horizontal diversification failed to produce shareholder value during the 1990-2003 period. This confirms the theoretical predictions of both financial economics and industrial organization and shows that the wave of corporate restructuring that has interested US energy industries over the last decade may have occurred at a net cost to firm shareholders.

The study by Tey and Arsil (2021), analyzed the influence that backward vertical integration strategies had on the financial performance of Broiler firms in Kuala Lumpur, and Luciana (2008) points out the benefits of this strategy among the Brazilian beef processors. Both studies indicate that backward vertical integration strategies enable firms to guard against price distortions, control the quality of their products and reduce the uncertainties caused by supply instabilities.

Further, Masese et al., (2019) analysed the role of backward vertical integration strategies on the performance of Huduma Centres in Nyamira and Kisii counties, Kenya. The study adopted the descriptive survey design and the findings indicated that backward vertical integration had a positive impact on performance.

The study by Doan (2007) contributes to the literature of the transaction cost economies and quality management by validating the relationships among vertical integration and quality improvement. It is deemed valuable as not much empirical study has been done in this sector so far. The quality of Pangasius is the result of all the activities performed and all the facilities and equipment used during production, harvesting, processing, distribution and export. Fish quality management directly affects the fish yield and quality, as well as the production costs and profit level of the fish farming practices.

The study by Isaksen et al., (2012) examines the strengths and weaknesses of the various measures they control for the industry-effect by applying various measures of backward vertical integration in the Norwegian fish processing industry. In doing so, a unique data set from a panel of firms containing detailed information about performance indicators and vertical integration is applied. Their findings show variations in the vertical integration-performance link across measures and firms. They observe that backward vertical integration strategies led to improved competitiveness of firms within the Norwegian fish processing industry.

Research Gaps

The existing research on backward vertical integration is limited to study on firms in industrialized countries such as the retail stores run by Microsoft and Zara, the dealers of Ford Automobiles, franchising by McDonalds, the production of chips by Apple technology and Dell computers and Amazon (Periwal et.al. (2018), David & David (2015). This gap was addressed by this study which has analysed backward vertical integration strategies within firms of different sizes in the export processing zones in Kenya.

In this study, the reviewed literature shows that backward vertical integration practices have been identified as possible drivers and enablers of firm competitiveness. However, there exist less empirical studies that have sought to explore the relationship between backward vertical integration studies and competitiveness of firms in EPZ, Kenya.

Besides, the studies carried out on backward vertical integration strategies among firms in Kenya analyze the companies largely based on their performance. This study however, discusses competitiveness as the dependent variable (it looks at the product demand, customer numbers and the market position) and firm size as the intervening variable. This study clearly gives a new dimension to the study of backward vertical integration strategies for future studies.

METHODOLOGY

Research Design

This study adopted the quantitative research design. Quantitative research involves the generation of quantitative data that can be formally analyzed (Kothari, 2004). The study was also a cross-sectional explanatory survey research design. This means that the researcher made observations from different people at different points, without interference (Field, 2009).

Target Population

Population is the complete set of cases or group members (Saunders et al., 2012). The target population of this study composed of 137 firms in the Kenya Export processing zones. These zones are managed and promoted by the export processing zones authority. From this target population, a sample of 402 employees was drawn. This was composed of 3 staff from each firm, mainly the manager, accountant and Human Resource Officer. The target population for this study was the 15 sub-sectors in the EPZ which are further broadly categorized as Agriculture, Manufacturing and other sectors. The top managers were targeted because strategic management issues are mostly handled at that level within organizations. This study as a result specially selected top management including the accountants and human resource officers from the EPZ firms on the basis that they were more knowledgeable about strategic issues and they undertake strategic responsibilities in the organization.

Notably, unlike the other firms, the EPZ firms offer free trade conditions and a liberal regulatory environment. It is a trade policy instrument used to promote non-traditional exports hence becoming a pathway to industrialization and growth. They are designed to enhance export-led growth (Biketi et al., 2017).

Sampling Technique

This study used stratified random sampling techniques. This technique accepted the variability of the population and it aimed at reducing its potential unrepresentativeness (Baker, 2003). The random sampling was then applied within each stratum independently. This further improved the representativeness of the sample by reducing the sampling error since each item in the population stood an equal chance of being included in the sample (Stanley & Smee, 2007).

Sample Size

The sample size for any study depends on the acceptable level of significance; power of the study; expected effect size; underlying event rate in the population and the standard deviation in the population. Some more factors that can be considered while calculating the final sample size include the expected drop-out rate, an unequal allocation ratio, and the objective and design of the study. The sample size depends on the study purpose and the population that is being scrutinized (Cohen et al., 2007).

The following formula was used:

$n = N/1+N (0.05)^2$

$n= 411/1+411(0.05)2$

$n=202.7 \approx 203$

Where:

N = size of population

n = size of sample

Data Collection

In this study, structured and non-structured questionnaires were used. The structured questionnaire contained definite, concrete and direct questions, whereas the non-structured questionnaire consisted of partially completed questions or statements. The questionnaire used in this study used a Likert scale. Likert scales were developed by utilizing the item analysis approach. This study used a questionnaire with a diverse set of questions for the respondents to answer. All questionnaire items were anchored on a five point scale with 5 = strongly agree, 4 = agree, 3 = neither agree nor disagree, 2 = disagree and 1 = strongly disagree.

In this study, secondary data covering diverse fields was easily available. Examples of secondary data used in the study include; published printed sources, books, journals, periodicals, magazines and newspapers, published electronic sources and unpublished personal records.

Data Analysis, Presentation and Discussion

In this study, a pilot study was carried out in order to ascertain the validity and reliability of the questionnaire. The subjects participating in the pilot study were not included in the final study to avoid research fatigue and response biasness. To test data reliability the study employed Cronbach's alpha coefficient whose value falls between .7 to .8 (Field, 2009). All the items tested for reliability posted a score above the recommended 0.7 an indication that there was internal consistency in the questions. Therefore, the research questionnaire met the reliability threshold with all the constructs recording a Cronbach's alpha coefficients > 0.7. Table 1 shows the reliability test results.

Descriptive Statistics Results

The study analysed the views of the respondents in respect to Backward vertical Integration strategies and competitiveness of firms in EPZ. Table 1.1 shows the results of the analysis.

Table 1: Descriptive Statistics for Backward Vertical Integration

	N	S.D (%)	D (%)	N (%)	A (%)	S.A (%)	Min	Max	Mean	Std. Dev
To what extent does input supply stability influence the transaction cost?	337	0.0	9.5	32.3	20.8	37.4	2	5	3.86	1.030
To what extent would you say that your firm encourages economies of scale?	337	4.2	4.2	29.1	25.7	36.8	1	5	3.83	1.210
To what extent would you say that the market structure is diversified?	337	11.9	4.2	15.4	42.7	25.8	1	5	3.55	1.509
To what extent would you agree that routinization of transactions lowers transaction costs?	337	7.7	4.2	9.5	44.8	33.8	1	5	3.47	1.694
Weighted Mean	3.68									
Valid N (Listwise)	337									

The findings of the study indicate that the respondents answered the question with (Mean = 3.86; Std Dev =1.030) as to what extent input supply stability influences the transaction cost. The Standard Deviation of 1.030 implied that the data was distributed around the mean. This also meant that majority of the respondents shared similar opinions regarding this statement. These findings conform to findings in the study by Pu et al. (2023) on 305 firms in China's manufacturing industry. The study informed that supply chain disruption caused by environmental uncertainty makes it more difficult for firms to be competitive.

Respondents also answered the question on what extent they would say their firm encourages economies of scale with (Mean = 3.83; Std Dev =1.210). The Standard Deviation of 1.210 implied that the data was distributed around the mean. This also meant that majority of the respondents shared similar opinions regarding this statement. The cost of producing each unit falls as output increases. This fall in average costs as output increases indicates that a business is benefitting from economies of scale. This reduction in average costs is what gives larger businesses a competitive advantage over smaller businesses. Economies of scale are an important aspect of efficiency in production (White, 2004).

The findings of the study further indicated with (Mean = 3.55; Std Dev = 1.509) on the question as to what extent would you say that the market structure is diversified. In addition, respondents answered with (Mean = 3.47; Std Dev =1.694) the question as to what extent would you agree that routinization of transactions lowers transaction costs? The study indicated that transaction processes are standardized to improve the flow of goods and services through market channels in the EPZ. According to Larsson and Jakobsson (2019), the main argument for the use of routinization of transactions is that the world is becoming more and more homogenous because of advancements in technology and communication.

Descriptive Statistics Results on Firm competitiveness

The study analysed the views of the respondents in respect to Competitiveness. Table 1.2 shows the results of the analysis.

Table 2 : Descriptive Statistics for Firm Competitiveness

	N	S.D (%)	D (%)	N (%)	A (%)	S.A (%)	Min	Max	Mean	Std. Dev
Product demand determines firm competitiveness.	337	0.0	0.0	6.3	34.4	59.3	3	5	4.13	.957
Number of customers determine the customer base	337	2.1	4.1	6.2	48.7	38.9	1	5	4.25	.829
The market position of a firm determines its competitiveness	337	2.1	4.1	6.2	48.7	38.9	1	5	4.03	1.016
Weighted mean	4.14									
Valid N (Listwise)	337									

The findings in Table 2 indicate that the respondents agreed (Mean = 4.13; Std Dev = .957) with the statement that Product demand determines firm competitiveness. The Standard Deviation of 0.957 implied that the data was distributed around the mean. This also meant that majority of the respondents shared similar opinions regarding this statement. The study by Kimantiria (2014) supports these findings. In the study, the researcher concluded that product competitiveness was used as a tool to measure a supply chain management practices by the national government ministries in Ruiru Sub-county.

Respondents also agreed with (Mean = 4.25; Std Dev = .829) that Number of customers determine the customer base. The Standard Deviation of 0.829 implied that the data was distributed around the mean. This also meant that majority of the respondents shared similar opinions regarding this statement. These findings are supported by the study carried out by Ronald (2021) which indicated that a focus on the customers leads to increased firm competitiveness.

The respondents in this study also agreed with (Mean = 4.03; Std Dev = 1.016) that the market position of a firm determines its competitiveness. These findings are supported by the study carried out by Naeini et al., (2017). They discuss the positive role of market position in influencing the brand identity, brand loyalty and the brand equity.

Table 3: Descriptive Statistics for Firm Size

	N	S.D (%)	D (%)	N (%)	A (%)	S.A (%)	Min	Max	Mean	Std. Dev
Resource-based firms in the EPZ with large branch networks have an increased revenue.	337	0.0	0.0	6.3	34.4	59.3	3	5	4.47	.866
The production capacity in the sector of the EPZ is determined by the size of the firm	337	2.1	4.1	6.2	48.7	38.9	1	5	4.14	1.018
Weighted mean	4.31									
Valid N (Listwise)	337									

The findings in Table 3 indicate that the respondents agreed (Mean = 4.47; Std Dev = .866) with the statement that firms in the EPZ with large branch networks have an increased revenue. The Standard Deviation of 0.866 implied that the data was distributed around the mean. This also meant that majority of the respondents shared similar opinions regarding this statement. These findings agree with the study by Irungu (2015) who observed that there was a significant positive relationship between firms with large branch networks and horizontal integration in the study on market channel choice among smallholder dairy farmers in Lower Central Kenya. Green (2016) also notes that an increase in the size of a firm led to an increase in the market share and power.

Respondents also agreed with (Mean = 4.14; Std Dev = 1.018) that the production capacity in the sector of the EPZ is determined by the size of the firm. The Standard Deviation of 1.018

implied that the data was distributed around the mean. This also meant that majority of the respondents shared similar opinions regarding this statement. These findings are supported by Chican et al., (2021) in their study on the Hungarian Industry. This study analyses the capabilities of the production area and concludes that the production capacity impacts on the competitiveness of manufacturing firms. Further, Schrank (2001) agrees that the size of the relevant market determines whether the export processing zones fit into the world market. The study indicates that the manufacturers from large economies are able to compete more easily in the world markets as compared to those from small economies.

Exploratory Factor Analysis

Principal Component Analysis for Backward Vertical Integration

To describe the variability among the observed variables Factor analysis was carried out and also to check for any correlated variables with the aim of reducing data that would otherwise have been considered unusable. Traditionally, statements scoring more than 30% and above were included (Hoque, & Awang, 2016). Factor analysis on Backward vertical Integration on Competitiveness. Table 4 shows the results of the component matrix for backward integration.

Table 4: Component Matrix for Backward Vertical Integration

Communalities	Extraction
To what extent does input supply stability influence the transaction cost?	.602
To what extent would you say that your firm encourages economies of scale?	.707
To what extent would you say that the market structure is diversified?	.796
To what extent would you agree that routinization of transactions lowers transaction costs?	.744
KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.732
Bartlett's Test of Sphericity — Approx. Chi-Square	500.02
Df	21
Sig	.000

Extraction Method: Principal Component Analysis.
a. 1 components extracted.

From the results in Table 4 the loadings of all the four statements attributed to the backward vertical integration showed that the higher the extract value the more the factor contributed to the variable. Thus, most of the respondents agreed with the questions put across in reference to their organizations' backward vertical integration strategies to >30% Jovic et al., (2017) and hence none was viable for dropping.

The results indicate that the statements related to Backward Vertical Integration are suitable for factor analysis based on the Kaiser Meyer-Olkin (KMO) Measure of Sampling Adequacy of 0.732. Additionally, Bartlett's Test of Sphericity chi square value of 500.020 with a df = 21 at p value = 0.000 suggests that there are significant correlations among the variables, supporting the notion that they can be analyzed together to explore underlying factors or dimensions.

Correlation between Backward Vertical Integration and Competitiveness

The correlation between Backward Vertical Integration and Competitiveness of firms in EPZ Kenya was examined and results presented in Table 5:

Table 5: Backward Vertical Integration

		Competitiveness
	Pearson Correlation	.300**
Backward Vertical Integration	Sig. (2-tailed)	.000
	N	337

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

The results from Table 5 indicate that there is a positive and statistically significant correlation between Backward Vertical Integration and Competitiveness (r=0.300, p = 0.000) at 0.01 level of significance. This implies that Backward Vertical Integration Influences Competitiveness of firms in EPZ Kenya. Further, a positive increase in backward vertical integration strategies at the firm would result in corresponding increase in firm competitiveness.

Table 6: Correlation between Size of Firm and Firm Competitiveness

		Competitiveness
	Pearson Correlation	.730**
Size of the Firm	Sig. (2-tailed)	.000
	N	337

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

The results from Table 6 indicate that, there is a positive and statistically significant correlation between Size of the Firm as a moderating variable and Competitiveness (r = .730, p = 0.01). This implies that Size of the Firm was linearly correlated with Competitiveness. Further, a positive increase in firm size at the firm would result in corresponding increase in firm competitiveness. This is a clear indication that when Size of the Firm indicators increases there is likelihood of Competitiveness increasing. It thus implies that Size of the Firm is very crucial when it comes to Competitiveness of EPZs in Kenya and therefore the EPZ should pay keen attention to the Size of branch networks and also production capacity of these EPZs.

Regression Analysis

The objective of this study was to establish the influence of backward vertical integration strategies on the competitiveness of EPZ firms in Kenya. The study predicted that backward vertical integration strategies had no significant statistical effect on the competitiveness of firms in EPZ Kenya.

A simple regression model was used to determine the relationship between backward vertical integration and firm competitiveness. The model that tested the hypothesis was as follows:

$Y=\beta_0+\beta_1X_1+\varepsilon$

Where Y-Firm competitiveness

β_0-Constant (Coefficient of intercept)

X_1-backward vertical integration strategies

ε - The error term

The findings shown on Table 7 and Table 8 and 9 show a model summary for Backward Vertical Integration.

Table 7: Regression Model Summary for Backward Vertical Integration

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.300a	.090	.087	.769	.090	33.123	1	335	.000
2	.626b	.392	.388	.630	.302	165.613	1	334	.000

a. Predictors: (Constant), Backward Vertical Integration
b. Predictors: (Constant), Backward Vertical Integration* Firm Size

From Table 7 a positive relationship between Backward Vertical Integration and Competitiveness (R = 0.300, R^2 = 0.090) and (F $(1,335)$ = 33.123, p = 0.000). The R of 0.300 represents the simple correlation between backward vertical integration and competitiveness. The R square explains the variations in the Competitiveness as explained by the Backward Vertical Integration as a strategy. R^2 of 0.090 indicates that 9.0% of the variations in the Competitiveness can be accounted for by Backward Vertical Integration. The adjusted R^2 of 0.807 shows that in the regression model constructed, the independent variable backward vertical integration strategy accounts for 8.07% of the variance in the dependent variable firm competitiveness. This value shows that there may be a number of variables which can have impact on competitiveness at EPZ firms.

The results yet again shows Model 2 which displays the results after the interaction of independent variable and the moderating variable i.e (Backward Vertical Integration* Firm Size). The results show a positive relationship between the moderated variable term and Competitiveness. An R squared value of 0.392 indicates that 39.2% change in the Competitiveness of firms in EPZ Kenya as can be influenced by the interaction between Backward Vertical Integration and Firm Size that is (Backward Vertical Integration* Firm Size).

Analysis of Variance (ANOVA) for the Regression Model

The Anova tests whether the regression model is generally a good fit for the data.

Table 8: ANOVAa of the Backward Vertical Integration

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	120.848	5	24.170	82.584	.000b
	Residual	96.873	331	.293		
	Total	**217.721**	**336**			

a. Dependent Variable: Competitiveness
b. Predictors: (Constant), Backward Vertical Integration

The results in Table 8 show that the ANOVA model fitness on the influence of backward vertical integration strategies on competitiveness of firms was statistically significant (F=82.584, P<0.05). This means that there is less than 0.5% chance that an F-ratio this large would be obtained if the null hypothesis were true (Field, 2009). These findings indicate that backward vertical integration strategies is a significant predictor of firm competitiveness. Hence, the null hypothesis was rejected and it was concluded that backward vertical integration strategies had a significant effect on competitiveness of firms.

These findings are supported by Miidom et al., (2014). Their study indicated that a firm can attain competitive advantage through backward vertical integration strategies. They noted that the fast food eateries in Nigeria would also be able to increase the customer and shareholder

values if they adopted this strategy. This is because backward vertical integration would ensure a steady supply and flow of raw stock for processing within these fast-food eateries.

Table 9: ANOVAᵃ of the Size of the Firm

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	144.086	9	16.010	71.099	.000ʰ
	Residual	73.635	327	.225		
	Total	**217.721**	**336**			

a. Dependent Variable: Size of the firm

The results in Table 9 show that the ANOVA model fitness on the influence of firm size on competitiveness of firms was statistically significant (F=71.099 P<0.05). Given that the calculated F=71.099, while the Fcritical = 1.88 Then $F_{cal} \geq F_{critical}$ α0.05. These findings indicate that firm size is a significant predictor of firm competitiveness. Hence, the null hypothesis was rejected and it was concluded that firm size had a significant effect on competitiveness of firms.

Table 10: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.913	.424		9.240	.000
	Backward Vertical Integration	.153	.051	.151	3.013	.000

a. Dependent Variable: Competitiveness

Table 10 indicates that the relationship between Backward Vertical Integration and Competitiveness was positive and significant (b1 = 0.153, p = 0.000, Beta = 0.151). Thus, for every unit increase in Backward Vertical Integration, Competitiveness is predicted to increase by 0.153 at p = 0.000.

From the study, the beta of 0.151 means that for every one standard deviation unit change in the independent variable, backward vertical integration, the dependent variable, firm competitiveness will rise by 0.151 (15.1%) of one standard deviation unit. The results are also highly statistically significant since the significance column indicates 0.000 reporting a significance level stronger than 0.001. (p< 0.001).

Table 11: Coefficients Using the Moderator

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.682	.312		15.019	.000
	Backward Vertical Integration*firm size	.455	.348	.432	4.183	.000

a. Dependent Variable: Competitiveness

From these results in Table 11, it is evident that Backward Vertical Integration Strategies are significant in influencing the competitiveness of the firms in EPZ Kenya. It is also evident that when the moderating variable Firm Size is interacted with the independent variables, there is a significant influence of the interactive variable on the competitiveness of these firms in EPZ Kenya.

The research findings are in consist with Hamdaoui and Bouyad (1990) who state that backward vertical integration is a way of gaining competitive advantage. This would lead to reduced transaction costs for the firms, increased economies of scale and market structures. Further, the studies by Gonclaves (2014), Periwal et al., (2018), Acemoglu et al., (2010) and Li (2013) conclude that backward vertical integration strategy is a significant determinant of firm competitiveness. Hence, EPZ firms should maximize on the supply of raw materials needed in the production of finished products.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study findings revealed that backward vertical integration had a positive and significant influence on competitiveness of EPZ firms in Kenya. This was ascertained by high mean scores in transaction costs and economies of scale. In addition, market structure diversification had a score that was above average. The study concludes that backward vertical integration strategies may be enhanced if the Kenyan EPZ firms enhance transaction costs, economies of scale and market structure diversification to allow the Kenya EPZ firms to have raw materials stability thus increasing competitiveness locally and globally.

Recommendations

The study recommends the management of EPZ firms in Kenya to review the underlying aim of using backward vertical integration strategies as a tool for gaining competitiveness. Further, the study recommends adoption of a business model by EPZ firms that would accommodate constant supply of raw materials and creative marketing strategies. In ensuring a steady flow of raw materials, businesses will benefit from cost savings, increased revenues and improved efficiency.

The study recommends that EPZ Authority should come us with policies and procedures that may assist the EPZ firms in arranging successful backward vertical integration strategies by laying out competent guidelines.

This study makes significant contributions in the field of strategic management in general and also specifically on the issues regarding competitiveness of firms in EPZ Kenya. Notably, despite there being abundant literature on backward vertical integration strategies, there is little or no documented evidence on the study of influence of backward vertical integration strategies on competitiveness of EPZ firms in Kenya. This study contributes to knowledge by bridging the literature and conceptual framework gap in the vital area of backward vertical integration strategies and competitiveness of EPZ firms in Kenya.

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