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Research Paper

Costing Techniques And Profitability Trade Off: An Investigation On The Agricultural Firms Listed In The Nairobi Securities Exchange.

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Abstract
Costing techniques have great impact on life and global economy especially the profitability levels of Agricultural companies in the Nairobi Securities Exchange (NSE). The profitability levels in the Agricultural firms in Kenya have declined, stagnated or suffered losses in the recent past leading to price fluctuations hence low profitability levels. The drive of this study was to investigate the costing techniques and profitability trade off of agricultural firms listed in the NSE. Specifically the study sought to establish the effect of job costing on determination of the level of profitability in the quoted agricultural firms in NSE. The study was steered by transaction cost theory and applied descriptive research design. The target population of seven (7) listed agricultural firms listed in the NSE, hence adopting the census technique where all the seven respondents were used. Data collection sheet was used to obtain secondary data from audited published financial statements of listed agricultural firms in NSE. The period of the study was five years from 2018 to 2022. The data collected was analyzed using descriptive statistics that were summarized using mean and standard deviation. Diagnostic tests used to test the research hypothesis included tests of normality, autocorrelation, collinearity and linearity tests. Correlation, regression analysis and multiple linear regression models was carried out to show whether and how strongly changes in costing techniques were related to firms' profitability and to determine the association amongst costing techniques and profitability. The findings were presented in figures and tables and prose form for its discussions. Job costing had a significant effect on the profitability of agricultural firms listed in the NSE when measured alongside other costing methods. Both the coefficient is positive (β_1=0.565) and the p-value is lower than 0.05, indicating statistical significance. The recommendation to the industry is to prioritize Job Costing given its significant positive effect on profitability of agricultural firms should consider implementing and expanding its use. Firms using other costing methods should reassess their effectiveness and consider integrating Job Costing elements into their existing systems. For academia, conduct more studies to authenticate these findings across different contexts, firm sizes and geographical locations within the agricultural sector. Emphasize on Job Costing method in accounting and agricultural management curricula while still maintaining a balanced approach to other costing methods. For policy formulators, consider policies that encourage or incentive the adoption of Job Costing method in agricultural companies like, tax benefits or grants for implementation and developing guidelines or standards of costing.

Key words:** **Costing Techniques, Job costing, Profitability, Nairobi Securities Exchange

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I. Introduction

Profit is the residue after deducting all costs from accrued revenue from sales and the extent to which the management can control revenue is through price and costs hence a controllable factor (Hussein, 2022). Profit, of course, embodies the balance from revenue after all costs has been deducted. The success or otherwise of any organization be it profit or non-profit concern is based on the effective management of materials or resources in the organization (Sitienei & Memba, 2016).

Profitability is used to estimate or ration the efficacy or success of a firm's management in utilization of assets optimally in generating and adding value so as to bring forth a return since, profit maximization is primal

for it guarantees a firm's going concern and in terms of economic basis, it measure the success achieved in regards to its investments (Okello, 2021).

Profitability is one of the main accepted indicators of a firm's performance which is of interest to the: owners and investors as it indicates the increase in the value of the business and generation of income, management in respect to the development and technical modernization of the firm, and the state in terms of the profit subjected to taxation, thus, it is influenced by many factors reflecting within the firm insofar as efficiency in production and the resource and good markets influence (Spitsin, Ryzhkov, Vukovic, & Anokhin, 2020).

The four prominently used profitability measures include; return on assets (ROA) which is the quotient of gross profit and total assets, return on investment (ROI) which is the ratio of net income and shareholders' equity, operating profit margin (OPM) the difference of the entire inventory cost and all the sales revenue and net income (NI) - difference between business expenses and operating costs from the total sales revenue (Srbinoska, 2018). Other methods are earnings per share (EPS), return on capital employed (ROCE) and ability of a business enterprise to make a profit after doing business.

It has become a necessity for industrial firms to implement contemporary policies and strategies that are well-suited with the changes in both the local and global arena as there have been large industrial and technological developments in the recent past (Al-Shattarat, Al-Shattarat, & Dannoun, 2021). Thus, the strategic goal of management of these companies is the continuity to maximize their profitability while considering their investment ability. The traditional cost systems burden total costs to final products as it heaps final product costs which are not necessary or associated directly to it hence, without a regular process control there will be a strain in accurately determining, identifying and measuring the cost of each product, profitability and quality therefore, the use of modern cost systems need to be adopted by the management of the firms to facilitate planning, control and reduction of production costs (Abdullah & Mansour, 2015).

Job costing is the process where cost of materials, labor and overheads are accumulated for a specific job (Bragg, 2019). It is quite significant towards addressing costs associated with specific job as it determines whether to reduce costs on a later date to attract a lower one, for purpose and determination of tax and profit therefore, managers utilize job costing in determining cost related with direct labor, overheads and direct material cost.

Nairobi Securities Exchange has listed 66 companies. The uncertainty on Kenya's future independence trend, however, resulted to slumping of activities in the securities market after independence. Since 1988, by selling 20% of its holdings, the Kenyan government has been undertaking denationalization of the NSE through the operation of Central Depository and Settlement Corporation (NSE, 2021). In the agricultural segment companies mostly offer non-commercial facilities like ethical investing, corporate social responsibility, community social investment and resource management, these firms are; Eaagads Ltd., Kakuzi Ltd., Kapchorua Tea Co. Ltd., Limuru Tea Co. Ltd., Rea Vipingo Plantations Ltd., Sasini Ltd., and Williamson Tea Kenya Ltd.

The companies listed in NSE are expected to be financially steady with viable a going concern in order to boost investors' confidence hence contribute to growth of the economy. During listing period these companies are required to meet the standards set by NSE, despite meeting the set requirements for listing, the effects of exposure to market dynamics is either negatively or positively. The dynamics comprise of the government guidelines, risk insights, management and investment resolutions taken (NSE, 2021).

Statement of the problem

The agricultural segment is one of the most major sectors in Kenyan economy in relation to development and growth, not only does it provide food for the country's economy, but also offers a good share allocation to international markets (Ayuma, 2016). Even though this is so, the segment has continuously experienced either low or shortfalls in the levels of profitability which would not be unexpected given that the rates of costs have skyrocketed and predictions illustrate that agricultural stocks would continue to decline or stagnate in profitability for the firms at the NSE with expectation that most investors continue going after liquid stands in business. This is because of the numerous uncontrollable influences which are not exaggerated like adverse weather and pattern changes, environmental factors and external factors like local against international currency disparity, economic depressions in agricultural export markets and excessive costs of inputs influence agricultural firms' incomes in addition to dividend payout to farmers (Otieno, Tibbs, & Musiega, 2020).

A financial review report showed three firms indicated poor performance due to dropped profitability that is Eaagads' Ltd net profit for year 2018 dropped by 80,634,000; Limuru Tea Co reported a net loss of 22,134,000 which was a drop by 3,060,000 in 2017; Sasini's profit dropped by 237,578,000 in 2017 (NSE, 2018).

Inadequate resource and endless competition influence firms to institute improved and proficient costing techniques which involve job costing among others; as one of the ways to cope and reduce costs of production through cost analysis so as to boost its profit levels since, traditional costing techniques have lost its competitive edge in this new competitive environment. Due to this, it is of abundant significance in the spirit of costs that the

firms' management should evaluate and integrate various costing techniques so as to manage the costs to curb the shortfall of profits in the respective firms hence improving the performance of the companies. Although this has proven to be an obstacle since there is scarce information causing a shortfall in literature therefore it has left an evident research gap which, this study seeks to question the link between costing techniques with a focus to job costing and profitability of agricultural firms listed in NSE.

Objective of the study

The key drive of this study was to probe the sway of costing techniques on profitability of listed agricultural firms in the Nairobi Securities Exchange.

Specific Objective of the study

i. To examine the control of **job costing** on profitability of listed agricultural firms in the Nairobi Security Exchange.

The study was guided by the following hypothesis

H_{01}: There is no substantial influence of **job costing** on profitability of listed agricultural firms in the Nairobi Security Exchange.

II. LITERATURE REVIEW

Theoretical Review

Transaction Cost Theory

This concept was developed by Laureate Ronald Coase in 1937 who acknowledged that all costs are involved in transactions other than costs of production- production costs (Shahab, 2022). The elementary unit of economic analysis in a company is transaction, since the theory seeks to expound on the existence of a company, its expansion or outsourcing activities to and from the external environment.

The theory postulates that organizations try to minimize costs of resource exchange with the environment and in turn firms try to minimize exchange bureaucratic costs within the firm (Hennart & Verbeke, 2022). Cheaper ways of exchanging resources with the environment are sought for and done occasionally by companies with reference to internal performing activities of bureaucratic costs for institution and markets are perceived differently as forms of coordinating and organizing economic transaction therefore, there will be general growth when transaction costs are greater than the organizational costs because the establishment will be able to operate cheaply with lesser costs hence low product costing in turn diversifying product lines and product-markets (Cuypers, Hennart, Silverman, & Ertug, 2021).

Every company expands as long as the activities performed within the company are cheaper than those from subcontracting activities to external providers in the market (Aivazian & Callen, 2023). Transaction costs arise when a product or service is technologically transferred across a separable interface from one procedure to another where new technological set of proficiencies are required to create the product or service.

The theory is of relevance to this study since costing techniques affect the several transaction costs carried out, implying that the profitability of agricultural firms is affected by transaction costs incurred by firms as the theory suggests.

Empirical Literature Review

Job costing on profitability of listed Agricultural Firms in the NSE.

Job costing is appropriate in circumstances where goods or services are produced upon receiving a customer order, in regards to consumer terms or in separate sets hence, it is commonly referred to as the job order costing method therefore, job cost incorporates not only direct costs specifically; labor and material but also indirect or overheads costs (Walther & Skousen, 2010).

Triwidatin (2022) investigated on the influence of raw materials and direct labor costs on profit margin ratio in Indonesia. Using descriptive statistical and multiple linear regression analysis the collected data was evaluated the variables being raw materials, direct labor cost and profit ratio margin. It was found that material costs have a significant positive impact on profit margin ratio whereas labor costs have a negative impact.

Pervan, Pervan, & Curak (2019) conducted a research on the determinants of firm profitability in the Croatian manufacturing industry with a three-category profitability determinants; firm-specific, industry-specific and macroeconomics, a period from 2006 to 2015. It was found that labor costs which falls under firm-specific determinant has a negative influence on profitability as explained in economic theory that is, with increase in labor cost profitability levels of the firm lowers.

Etale & Bingilar (2016) explored the effect of inventory cost management on profitability of listed brewery companies in Nigeria. The study used multiple regression analysis technique on collected annual reports from 2005-2014 using the SPSS-20 computer software. It was found out that proxy by material cost, inventory cost management has an affirmative influence on the profitability of the brewery companies listed

companies on the Nigeria Stock Exchange hence a positive correlation. With effective and efficient inventory cost management it would save the companies from losses thus lead to higher profitability.

Anichebe & Agu (2013) tested the influence of inventory or material management on firm's efficacy in a selection of organizations in Enugu Nigeria. Descriptive research was used with a sample size of two hundred and forty eight 248 respondents; it was proven that there is a substantial link between good inventory management and organizational effectiveness. It was found out that there is a significant effect on organizational productivity when inventory is efficiently managed hence, a positive correlation between good inventory management and a firm's profitability. The conclusion was that for the success and growth of a firm, inventory management is crucial that is, the entire profitability of a business is clasped on the production volume sold that has a direct connection with the product's quality.

Mulumbi (2019) conducted a study on job costing, activity-based costing and management and cost control in Unilever Kenya and found out that the firm receives bulk orders from suppliers, so as to ensure that goods are received at reasonable price, the firm uses job costing activities which enables them to make profit by determining labor and material cost for every job hereafter giving specific price quotation to the wholesalers. Even though, in the public sector job costing structure are somehow hyperbolic for personal gain as overheads and other form of costs are considered inferior and there is limited prudence with because overhead and material costs.

Mwangi (2016) examined the effects of inventory management on firm profitability and operating cash flows of Kenya Breweries Limited targeting beer distribution firms. The study adopted descriptive research design on secondary data collected from 2006 to 2015 with a population of 6 distribution firms and it was established that there is a positive relationship between management of inventory and the firms operating cash flows and profitability.

Profitability

The main condition of technical and technological re-equipment in agricultural firms is to ensure capable and steady operations to cultivate an innovative ideal in terms of expansion in production on the basis of quality improvement, environment affability and technical brilliance thus, increases the competitive advantage in both domestic and foreign markets therefore profitability increase (Shmatkovska, et al., 2022).

Shmatkovska, et al., (2022) investigated the trends and conditions for the formation of profitability of agricultural enterprises in Ukraine with a focal point on key factors on profitability increase so as to successfully use the resource prospective of agricultural producers. Multifactorial regression analysis was used to evaluate the correlation between profit turnover and income with factors like material and labor costs, capital ratio and it was concluded that profit levels are not only substantially swayed by production activities but also it is influenced by external factors that are indirectly related to production events.

Spitsin, Ryzhkov, Vukovic, & Anokhin (2020) researched about companies' profitability under economic instability in Russia exploring aspects influencing the efficiency (profitability) of firms in unstable economy. Data from 6134 companies over period of 2012–2016 operating across various sectors was used and it was suggested that production and scale efficiency generally have positive influence on profitability.

Oyedokun, Tomomewo, & Owolabi (2019) examined cost control and profitability of selected manufacturing companies in Nigeria between the years of 2005-2017. The method used to analyses the data of the 23 sampled firms from a population of 78 companies were descriptive and regression. The costs being controlled were those of raw material and salaries where it was determined that there was a negative correlation between raw material cost and profit before tax of the companies whereas for salaries displayed a direct relationship. Therefore, cost control has a substantial impact on profitability of the firms.

Alan (2018) investigated on the effects of cost management strategies on financial performance of manufacturing companies in Uganda which focused on Britania Limited. The study used stratified, simple random and purposive sampling techniques and its variables were internal cost management (material, labor and overhead costs) and financial performance (ROI) as independent and dependent variable respectively. It was concluded that management of costs had an impact on the financial performance of the firm and effective management led to the increase of profits hence better financial performance.

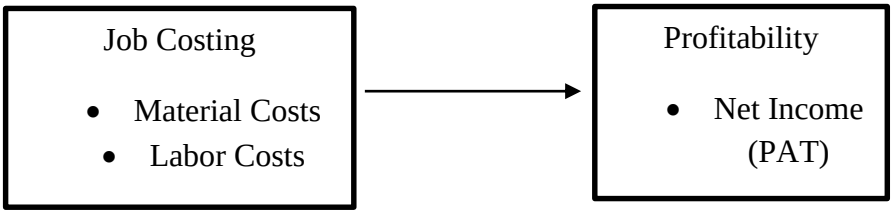
Okello (2021) examined the effect of financial leverage on profitability of agricultural and manufacturing firms listed on the NSE between the years of 2009-2018. Secondary data was analyzed using descriptive, correlation and regression methods and the conclusion drawn was that financial leverage has an insignificant outcome on assessing profitability in the agricultural and manufacturing listed firms.

Judy (2019) investigated on the financial leverage and performance of listed agricultural firms in the NSE targeting all the 7 agricultural firms from 2011 to 2015. The variables being long-term debt, debt-equity levels, size of the firm and ROA to measure performance of the firms it was found out that both long-term debt and debt-equity levels had a positive relationship though insignificant while the size of the firm had a negative correlation which is rather insignificant.

Sitienei & Memba (2016) evaluated the effect of inventory management on profitability of cement manufacturing companies in Kenya from year 1999 to 2014. The variables consisted of inventory; levels, turnover, conversion period, firm size, cost of storage, gross profit margin and firm growth. For data assessment ordinary least squares was used in form of multiple regression so as to institute a link between management of inventory and companies' profitability. The results showed that there was a negative correspondence between inventory turnover, conversion period, cost of storage and the firms' profitability, while level of inventory has a direct relationship with companies' size and storage.

Conceptual Framework

Independent Variable Dependent Variable



III. METHODOLOGY

This study used a descriptive research design since it is most suitable to examine hypothesis as it defines how things are conveyed, it is orderly, practical diagnostic which the assessor does not have a direct mechanism of independent variable as its display has already arose because the essentiality cannot be biased (Mchopa, 2021). This research relied primarily on census as the target population was small and study focused on all listed agricultural firms. The study targeted all seven listed agricultural firms at the NSE which are Eaagads Ltd., Kakuzi Ltd., Kapchorua Tea Co. Ltd., Limuru Tea Co. Ltd., Rea Vipingo Plantations Ltd., Sasini Ltd. and Williamson Tea Kenya. To collect data, Kibabii University and Nacosti approval was sought. Secondary data was composed of the publications from NSE, Annual Financial Reports and Statement of Accounts from the respective firms found on the company's website for the time series. Exploratory approaches (statistical charts and diagrams), bivariate description (using panel regression), and inferential analyses (significance tests) was used to analyze the collected data. The quantitative data collected was analyzed using SPSS version 22.

IV. RESULTS AND DISCUSSION

Descriptive Analysis

It summarized and organized characteristics of data sets which were employed in the research study to describe the basic features of the data (Vetter & Analg, 2017). Metrics of central trend such as the mean, maximum, minimum and standard deviation variations were measured.

Table 1. Descriptive Statistics results of Job Costing on Profitability.

Variable	Observations	Mean	Std. Dev.
Material costs	35	1.361	2.347
Labour costs	35	5.504	8.324

Source: Research Data (2024)

Table 1 illustrated the sub variables of job costing which were, the material costs incurred by the 7 firms in the five year period hence the 35 observations the mean material cost being 1.361 with a standard deviation of 2.347. The mean labor cost amounted to 5.504 while the standard deviation gotten was 8.324

Regression Analysis

Regression analysis model involved assisted the researcher in identifying the link between the independent and dependent variables. It was significant as it aided the researcher to not only indicate whether the independent variables had a significant affiliation with a dependent variable but also to direct the effect of various variables and their relative strengths on the dependent variable hence, it facilitated in making of predictions (Sarstedt & Mooi, 2014).

Regression analysis contained model summary, ANOVA and coefficient table; a multiple regression model was used to define the relationship between the independent variables and dependent and variable

(Hodeghatta & Nayak, 2023). Model summary table delivered information about the regression line's ability to account for the total variation in the dependent variable.

Table 2. Regression results of Job Costing on Profitability

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error
1	.633	.594	.405	3.020

Source: Research Data (2024)

Table 2 indicated that a single unit increase in job costing causes a 59.4% variation in profitability as accounted for by the coefficient of determination R^2. The adjusted R meant that 40.5% of profitability was influenced by job costing and that job costing had a high correlation with profitability as shown by (R= 0.633). The standard error which is an approximation of the standard deviation of the coefficient was measured.

Table 3. ANOVA results of Job Costing on Profitability

		SS	***df***	***MS***	***F***	***Sig. F***
1	Regression	1.569	1	1.569	15.510	.000[a]
	Residual	3.338	33	1.011		
	Total	4.906	34			

a. Predictors: (Constant), jc

b. Dependent Variable: profitability

Source: Research Data (2024)

Table 3 depicted that F statistics value was 15.510, with a p-value of .000< 0.05 which is lower than the level of significance indicating that job costing was significant to the study and was substantial to impacting profitability in the agricultural firms.

Table 4. Coefficient results of Job Costing on Profitability

Model		Unstd. Coefficient		Std. Beta	T	Sig
		B	Std. Error			
1	(Constant)	90396.627	67068.604		1.348	.019
	JC	5.004	.044	.565	3.938	.000

Source: Research Data (2024)

Table 4 showed that by holding job costing is at zero, profitability of the agricultural companies listed in Nairobi Securities Exchange would be 90396.627 furthermore, one unit increase in job costing will cause profitability of listed companies at NSE to increase by 0.565 (p=000).

The regression model was:

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

$Y= 90396.627+ 0.565X_1+ \varepsilon$…..

V. CONCLUSIONS & RECOMMENDATIONS

CONCLUSIONS

The study inspected costing techniques as an apparatus for profit in selected quoted agricultural firms in the NSE, the study concluded that job costing affects and sways profitability positively in the listed agricultural firms in that, the higher the job costing the lower the profitability of the companies.

RECOMMENDATIONS

Recommendations of the study

For policy makers, they should focus on policies which encourage job costing execution as it showed a strong positive relationship with profitability (B=0.565, p=0.000). Consider developing guidelines and regulatory frameworks or standards for implementation of job costing as a costing practice by encouraging or supporting incentive based programs that adopt job costing methods given its significant impact.

The management of agricultural firms should be mindful of the distinctive characteristic of the companies, conduct cost-benefit analysis minding the changes in costing systems and yoke it to implement new systems so as to be resource-intensive such that, prioritizing the implementation of job costing systems given its positive bearing while incorporating elements of the other costing methods maintaining a balanced approach. Thus, the industries would evaluate their current costing methods such that companies should reassess their effectiveness and put into consideration of adopting and integrating costing elements into their existing systems.

For scholars further research should be conducted to explore and validate the relationship between job costing and profitability within the agricultural sector scrutinizing possible arbitrating and moderating factors that might influence this relationship. The use of costing approaches in accounting for and develop agricultural management curricula, while still maintaining a balanced approach with other costing methods within the segment.

Also, scholars should develop additional case studies to understand the reason why job costing have a lower impact as compared to other costing methods and under what circumstances their influence might strengthen so as to provide practical insights for both practitioners and students to discover the nuances of costing methods.

Recommendations for Further Study

The research range was constricted hence the researcher suggests that more studies should be conducted on the subject and a broad range in both time period and aspects that influence profitability not just cost alone within the agricultural sector.

Similar studies should be embarked on where primary data would be gathered and utilized in place of secondary data. In such a study, the findings would be matched to the findings of this study making certain that they are alike and in case of a disparity it is observed and feasibly explained.

A study should also be undertaken not just aiming for listed agricultural firms, but rather include all agricultural firms in Kenya either listed or not regardless of the different circumstances, firm sizes, geographical positions where an apt sampling method should be assumed and results findings be paralleled to the findings of this study.

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