



THE MODERATING EFFECT OF INTERNAL CONTROLS ON THE RELATIONSHIP BETWEEN SUPPLIER MANAGEMENT AND PROCUREMENT PERFORMANCE IN PUBLIC UNIVERSITIES IN KENYA

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Abstract

The aim of this study was to assess the moderating effect of internal controls on the relationship between supplier management practices and procurement performance in public universities in Kenya. The study adopted a correlational research design with a target population of the study was 1,016 employees from the selected public universities. The study adopted stratified and simple random sampling to select a sample of 287 respondents. Primary data was obtained using a structured questionnaire, which was self-administered using a drop-and-pick later technique. The obtained quantitative data was analysed descriptively using means, frequencies,

and standard deviation, and inferentially, correlation and regression analysis were used. The study established that internal controls had a negative moderating effect on the relationship between supplier management (R^2 , change of -0.04; $p < 0.05$), and procurement performance. The study concluded that supplier management was an important factor in determining the procurement performance in public universities because it significantly explained the change in procurement performance. Therefore, the study recommends that public universities improve internal controls to ensure efficiency in the supplier management practices as well as the procurement performance in public universities in Kenya. The study findings could be significant to the management of public institutions and policymakers in public procurement, enhancing knowledge in academia and theory development in procurement activities.

Keywords: Internal controls, supplier management, tendering process, procurement performance, public universities

INTRODUCTION

Supplier management refers to the systematic approach organizations use to oversee and optimize their interactions with suppliers. This encompasses a range of activities, including supplier selection, evaluation, development, and relationship management. Effective supplier management ensures that suppliers meet the organization's requirements in terms of quality, delivery, cost, and compliance. Chiappinelli (2020) argues that by maintaining robust supplier relationships and implementing rigorous performance evaluations, government institutions can ensure timely and consistent supply, which is essential for the uninterrupted delivery of public services. Additionally, effective supplier management helps in mitigating risks related to supply disruptions and compliance issues, ensuring that procurement activities adhere to regulatory standards and ethical practices. This enhances operational efficiency and bolsters public trust and confidence in government procurement processes.

According to Yang and Zhang (2017), supplier management in public universities is a comprehensive approach that involves strategically overseeing and optimizing a university's interactions with its suppliers to ensure the efficient and effective procurement of goods and services. In public universities, supplier management is particularly crucial due to the need for accountability, transparency, and adherence to regulatory requirements. Effective supplier management begins with the selection of suppliers, which involves evaluating potential suppliers based on criteria such as cost, quality, reliability, and compliance with procurement policies. Once selected, supplier evaluation and performance monitoring are continuous

processes to ensure suppliers meet the agreed-upon standards and contribute positively to the university's procurement objectives.

In developed countries such as the United States of America, the United Kingdom, and Brazil, supplier management is centered on building strong relationships with suppliers to foster collaboration and innovation. This involves regular communication, performance reviews, and the development of long-term partnerships that can lead to better pricing, higher quality products, and more reliable delivery schedules (Reis & Cabral 2018). As indicated by Reeves et al. (2017), supplier management practices include capacity building for suppliers, helping them to improve their processes and better meet the organization's needs. This proactive approach to supplier management can lead to the development of a more resilient supply chain, which can enhance the overall procurement performance of the organization.

In assessing the relationship between supplier management and the performance of Metropolitan and Municipal Assemblies in Ghana, Hannah and Nani (2021) indicated that once suppliers are onboarded, supplier management shifts towards ongoing relationship management and performance evaluation. The study emphasized the need for government agencies to continuously engage in continuous monitoring of supplier performance through metrics such as delivery timeliness, product quality, adherence to contractual terms, and responsiveness to issues. These evaluation metrics were crucial for identifying areas of improvement, addressing potential risks, and maintaining high standards of service delivery within the procurement process. Moreover, proactive supplier management practices involve fostering collaborative partnerships with suppliers, promoting mutual understanding, and exploring opportunities for innovation and cost savings (Akubuko, Obodo, Musa, & Jimoh 2019).

In the context of public universities in Kenya, effective supplier management could have a direct relationship with procurement performance. According to Chebet and Kwasira (2016), Procurement performance is measured by the efficiency, cost-effectiveness, and quality of the goods and services acquired. Therefore, Effective supplier management ensures that the procurement processes in the public universities are streamlined, thus reducing delays and minimizing costs. Jepchumba and Kibet (2019) suggest that organizations should maintain a pool of reliable suppliers to enhance procurement performance, ensuring a steady supply of necessary materials, which is critical for the uninterrupted operation of academic and administrative functions.

Developing robust internal control systems in public universities ensures that the integrity of financial management and operational processes in the institution are carried out according to the available regulatory requirements. In the context of supplier management,

internal controls refer to the established policies and practices designed to prevent fraud, ensure compliance with procurement regulations, and enhance the accuracy of financial reporting (Hashmi, Amirah, & Yusof, 2020). Zadawa, Hussin, and Osmadi (2018) assert that adequate internal control systems can significantly enhance the relationship between supplier management and procurement performance by improving the vetting and approval processes to prevent the selection of unreliable suppliers. Conducting regular audits and reviews can also detect and address any discrepancies in procurement activities. Finally, internal controls can provide a framework for consistent and fair evaluation of supplier performance, ensuring that procurement decisions are based on objective criteria rather than subjective judgment.

Problem Statement

The procurement function plays a critical role in ensuring that the main goals of public universities are realized in a cost-effective, transparent, efficient, and responsive way to the procuring institution's needs. The tendering process, specifically supplier management processes followed by the universities in Kenya, is entrenched in the constitution of Kenya 2010 and other subsidiary legislations such as the Public Procurement Oversight Authority, the Public Procurement and Asset Disposal Act, and the Universities Act. Despite these legislations on supplier management, public universities in the country have consistently been affected by mismanagement of procurement principles, procedures, and unethical tendering practices, leading to poor service delivery and losses running to millions of shillings. In addition, unethical supplier management practices in the universities have led to inflated budgetary allocations and several pending bills due to limited financial allocation from the exchequer. It is not yet clear which area of supplier management practices yields more ineffectiveness, thus affecting the procurement function of these institutions. The link between supplier management and the performance of the procurement function has not been established in earlier research studies that have sought to assess the relationship between supplier management and procurement performance. The results of most of these studies have been largely inconsistent. Contextual, conceptual, and methodological deficiencies mainly account for this. Furthermore, the previous research's major objective was to evaluate the direct correlation between supplier management and the effectiveness of the procurement function, omitting the potential influence of moderating factors, such as internal controls, that might affect the relationship between the variables. In light of this, the study aimed to determine how internal controls affected the relationship between supplier management and the procurement performance of Kenya's public universities and the bidding process.

Research Hypothesis

H₀₁ Internal Controls have no moderating effect on the relationship between supplier management and procurement performance in public universities in Kenya.

LITERATURE REVIEW

Theoretical Review

The study was anchored on Commitment Trust Theory which was first introduced by Morgan and Hunt (1994) and later expounded by Berndt and Brink (2004) who published it in their book "Relationship Marketing and Customer Relationship Management". According to the relationship management theory which is also known as Commitment Trust Theory, which is supported by Jeans, Parmeteu, and Ismail (2018), a relationship must have two key components, trust and commitment in order to be effective. The confidence two individuals develop and create over time towards each other in a relationship that none of them is going to predispose the other to harm, risky situation in terms of business lead to trust developing by standing on their promises or the covenant entered. Kuhn and Mostert (2016) noted, in marketing relationship involve establishing bonds with the clients for example through fulfilling their expectation, on need basis which leads to honoring the commitment in place.

Companies that deal with procurement follow the relationship marketing principles and establish enduring connections with their suppliers. Customers therefore have greater faith in these businesses than in those that aim for rapid profits, and the shared loyalty enables both parties to satisfy their demands. In relationship marketing, partnerships with suppliers are developed through meeting their needs and maintaining your word. According to Berndt and Brink (2004), commitment entails a long-term desire to maintain a reputable partnership. A business wants to make ongoing investments in forging and maintaining relationships with its clients, for instance, following up after a customer purchasing an item to ensure their satisfaction with the service rendered, if not, the business in the next purchase by the same customer can offer a deduction or a refund.

Further, to ensure that other customers do not have the same bad experience, the business could integrate the automated feedback into the system. A series of these initiatives that promote connections that are mutually beneficial serve as the company's way of showing its obligation to its clients (Handfield & Bechtel 2002). By sticking to relationship marketing principles rather than concentrating on short-term earnings, organizations may develop enduring connections with their suppliers which will result in suppliers developing confidence hence trusting these businesses. This mutual loyalty to a larger extent facilitates both parties to fulfil their desires. Heikkila (2002), in defining trust concluded that it is that confidence both

parties over time in a relationship have towards one another, such that the other party will not do something detrimental or risky.

Developing long-term relationship with every customer has been an achievement of a few businesses, that is why it is vital and a responsibility of a business to concentrate on clients who are valuable to the company (Spsychalska-Wojtkiewicz, 2020). According to (Brink & Berndt, 2009), by locating and building relationships with the right customers, firms may concentrate their resources on the customers who are most important to their overall business plan.

For businesses to develop trust, they should remain truthful to their promises such as contract entered with suppliers. A long-term intention to preserve a trusted alliance is required for a commitment. Williams (2006) concluded that a company's investment in forging and maintaining relationships with its customers is motivated by desire. With regards to the payment period, for example, the company takes a variety of steps to strengthen its relationships with its suppliers. According to Chen-Chen and Wu (2018), a partnership based on commitment and trust results in cooperative activities that allow both parties to satisfy their requirements. Customers feel valued in addition to obtaining the commodity or service they paid for.

The objective that linked well with this theory was supplier management. It gave an explanation on how the management of an organization ought to create a mutual commitment that was binding for the benefit of both the firm and the supplier. It was a must for the supplier to make a commitment on the quality, timeliness of supplies they made while the procuring entity has a role to play of committing to the agreement and the procurement laws binding the two working groups.

Empirical Review

The research analysed previous studies that examined relationship between supplier management, internal controls, and performance of the procurement function in various organizations. The reviewed studies included scholarly research, journal articles, and other publications.

Supplier Management and Procurement Performance

This is a process meant to ensure that the organization receives the maximum value for the money they pay to the suppliers. The suppliers play a critical role in the smooth operation of the organization, hence, there is a need for the organization to engage the suppliers effectively. Organizations establishing a good relationship, having clear communication with the suppliers, and managing requirements efficiently calls for more than supplier management policies (Akubuko, Obodo, Musa & Jimoh, 2019).

A study carried out by Caran, Krueger, Ayres, and Araujo (2016) sought to identify the role of the supplier management process on organizational improvement in Brazil. A qualitative and exploratory research design was used in this study. The sample size for the study was 13 employees who provided relevant information for the study. Data was collected using both primary and secondary techniques. Primary data was obtained through semi-structured interviews, while secondary data was obtained from organizations' reports and relevant literature. The obtained data were analyzed using the content analysis technique. The findings indicated that with effective suppliers' management process, it leads to continuous improvement of the organization. Therefore, the study concluded that organizations must have a well-established and effective supplier management process within their procurement practices for improved performance.

Yang and Zhang (2017) examined on the role of sustainable supplier management on performance of buyer-supplier performance in China. The study adopted cross sectional research design where both primary and secondary data was collected from 256 manufacturing companies. Data was statistically analyzed using structural equation model technique. The study finding revealed that supplier category management and supplier records had a positive significance effect on performance of buyer supplier in manufacturing companies. The study was conducted in china which is technologically advanced while this study was conducted in Kenya which is still in the process of adopting advanced technology.

Akubuko, Obodo, Musa, and Jimoh (2019) did a study in Nigeria which aimed at finding out the effect of procurement management practices on vendor performance in oil-producing companies in river states. Purposive sampling method was employed to obtain 10 respondents that were used in the study. A Survey technique was used to obtain primary data. Specifically, the study used a questionnaire to gather primary information. Data analysis was done using a chi-square statistical tool, and the findings indicated a significant relationship between the procurement process and vendors' performance. The study concludes that organizations need to emphasize cost management and supplier database management.

Kanini and Wandera (2019) examined the impact of supplier management on procurement performance. The study focused on state corporations in Kenya and it employed a descriptive survey research design with a target population comprising 230 state corporations. A stratified random sampling technique was used to come up with sample size. Data was collected using primary and secondary methods. Multiple regression models were adopted to determine the impact of independent variables on dependent variables. The results found that the organization helped those suppliers who won the tenders with how to manage the contracts. Further, it was established that organization had a deadline by when the contract was to be

delivered. The study concluded that there should be a mutual relationship between the organization and the suppliers regarding how the contracts are managed for better procurement performance.

Njagi and Shalle (2016) explored on the influence of supplier management on performance of procurement in East Africa Breweries, Kenya. The study focused on quality management, supplier training and supplier integration. Descriptive research design was adopted and primary data was obtained from the employees of the company. Descriptive and inferential statistics were used to analyze data. Quality management was found to have a positive significance influence on procurement performance. Supplier integration and supplier training indicated there was no significance influence on procurement performance. The study adopted quality management, supplier training and supplier integration as indicators of supplier management while the current study used supplier database, category management, expediting and supplier rationalization as the key indicators.

Internal Controls and Procurement Performance

Rendon and Rendon (2016) carried out a study to examine procurement fraud in the department of defense in the United States of America. The study specifically sought to assess the implications for contracting process, internal controls and performance of the procurement function in the department under study. Data for the study was collected through examining actual procurement fraud incidents in the department to identify the specific phase where the procurement fraud took place. The study established that most fraud incidents happened at the selection of the supplier and contract administration. It was therefore held that for the tendering process to be effective there is need to have efficient internal control components such as monitoring and evaluation control activities.

Abd Aziz, Said, and Alam (2015) sought to assess the current internal control systems among different sectors and departments in the public sector in Malaysia. The study relied on primary data collected using a structured questionnaire from 109 heads of departments from 24 federal ministries including that of the prime minister of the country. The study singled out 10 factors of internal control practices undertaken by the state departments using a 7point likert scale. The study findings established that majority of the departments had in place several internal control mechanisms however the priority of the practices were different among the service schemes. The findings further revealed that internal control systems in the education, engineering, information and the health sector were below the average while those of the financial sector were above average. The study, however did not establish the basis of the differences between different departments.

Zadawa, *et al.*, (2018) examined the moderating effect of enforcing public procurement guidelines and performance of construction projects in the federal universities of Nigeria. The study used data collected from construction parties and procurement stakeholders of nine federal universities selected randomly using a questionnaire. The obtained data was analyzed scientifically using regression analysis while the moderating effect was assessed using Process Macro. The obtained results indicated that enforcement of compliance mechanisms as part of internal controls have a moderating effect on the relationship between procurement process and the procurement performance. Therefore, the study concluded that enforcement of compliance measures can lead to improved performance thus recommends that institutions should develop prompt enforcement actions in form of strict measures and penalties against those defaulting

Omollo, (2018) sought to assess the procurement process, internal controls and procurement performance in government agencies. Specifically, the study sought to assess the effects of reporting, monitoring controls and internal controls on procurement performance. The study was anchored on self-control theory, agency theory and normative ethical theory. The study further relied on primary data obtained from 55 respondents, 50% of the entire target population using a structured questionnaire. The obtained data was analyzed inferentially using regression and correlation. The findings revealed that internal controls in the government agencies were not effectively used thus negatively affecting the procurement performance. Effective internal control practices ensure effective monitoring and reporting channels which can be used to prevent fraud and other unethical practices.

Procurement Performance in Public Universities in Kenya

An efficient public procurement process is a key concept of corporate governance in public institutions (Musau, 2016). Abolbashari, Chang, Hussain and Saberi (2018) indicate that irregular procurement practices in public organizations create a loophole for easy embezzlement or misappropriation of funds. However, where there is an open system or policy of tendering process could result to effective procurement performance. The effective procurement performance could yield efficient service delivery, timely frame for delivery and cost effectiveness.

A study by Chiappinelli (2020) on decentralization and performance of public procurement indicated that procurement performance is enhanced when the institutions lowers the costs of procurement, when the process is efficient, when there is quality delivery of goods and services and when the goods and services are delivered on time. Musau (2016) conducted a study to determine the effectiveness and efficiency of procurement process and performance.

It was found that cycle time, purchasing effectiveness and quality of the products determined procurement performance.

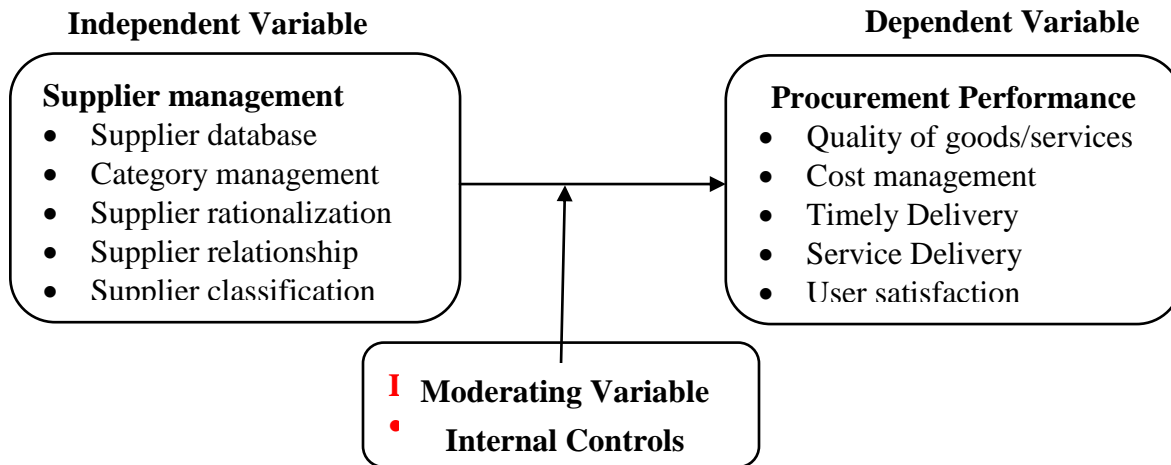
Nyakundi and Muturi (2017) and Omollo (2018) in their studies revealed that delay in service or product delivery, procuring sub standards goods and services and ineffective procurement process hampers performance of procurement in organization. Therefore, in their conclusion, for organizations to enhance their procurement performance, they need to focus on the efficiency of the procedures, non-financial and financial outcomes, effectiveness, and ability to establish a relevant range of indicators to measure performance. The current study adopted cost-effectiveness, timely delivery, and quality of goods and services delivered as key measures of procurement performance.

Kakwezi and Nyeko, (2019) sought to assess the procurement process and performance with a main focus on effectiveness and efficiency of the procurement function by public entities in Uganda. The study focused on establishing non-financial and financial measure of procurement in the public sector. The study targeted staff members at the management level who were privy with the procurement process and activities in their respective institutions. Thus, purposive sampling technique was used. The study findings established a small variance between financial measures (vendor rating, budgetary controls, cost accounting, and purchasing audit) and non-financial measures (quality of products, cycle time, flexibility, customer satisfaction, purchasing effectiveness, knowledge of market supply).

Chebet and Kwasira (2016) examined the role of public procurement practices in enhancing procurement cost reduction in Embu University in Kenya, the study examined the role of the tendering process, outsourcing and inventory control management practices and e-procurement practices. The study was anchored on general systems theory, transactional cost economics theory, public value theory and theory of procurement contracts. The study adopted a cross-sectional research design with the target population of all the 250 employees of Embu university in Kenya. Primary data was collected using structured questionnaire from a sample of 75 employees. The study findings revealed that the tendering processes had a positive effect on cost reduction at the university Conceptual Framework

In *Figure 1*, Supplier management is the independent variable whose parameters are supplier database, category management, supplier rationalization, supplier relationship and supplier classification. Procurement performance is the dependent variable measured by quality of goods/services, cost management, timely delivery, service delivery and user satisfaction.

Figure 1: Conceptual Framework



MATERIALS AND METHODS

Research Design

This study adopted a correlational research design to determine the moderating effect of internal controls on the relationship between supplier management and procurement performance in public universities in Kenya. A correlational research design was considered ideal because it allows the researcher to explore the extent to which variations in the supplier management may correspond with variations in the performance outcomes of the selected public universities (Rotich et al., 2015).

Target Population

The target population of the study was 1,016 employees working in the user department, procurement department, and accounting department in the selected universities; that is Moi University, Bomet University, Masai Mara University, Egerton University, Laikipia University, and the University of Eldoret. The study adopted stratified and simple random sampling to select a sample of 287 respondents.

Sample Frame

Table 1: Sample frame

Institution	Target population (Departments)							
	User		Procurement		Accounting		Total	
	P	S	P	S	P	S	P	S
Moi University	112	32	78	22	63	18	253	71
Bomet University	68	19	22	6	24	7	114	32
Laikipia University	85	24	16	5	35	10	136	38

Maasai Mara University	69	19	19	5	46	13	134	38
Egerton University	98	28	60	17	56	16	214	60
University of Eldoret	101	29	24	17	40	16	165	47
Total	533	151	219	72	264	79	1016	287

Table 1...

Key; P=Population S= Sample

Data Collection

The study relied on primary data, which was collected using a self-administered structured questionnaire whose validity was enhanced through extensive literature review and consultation with subject experts. Reliability of the research instrument was measured through carrying out a pilot study at the University of Kabianga using 29 respondents being 10% of the sample size. The obtained data from the pilot study was used to test the internal consistence of the research instrument using Cronbach's alpha coefficient where an alpha coefficient of 0.834 was obtained and this was considered sufficient as per the recommendation of Mugenda and Mugenda (2013), that a Cronbach's alpha of 0.7 and above is acceptable.

Data Analysis and Presentation

The obtained data were analysed descriptively using means, frequencies, and standard deviation and inferentially using correlation and multiple regression analysis. The findings were presented using frequency tables.

RESULTS AND DISCUSSION

Demographic Characteristics

The researcher obtained 284 completed questionnaires out of the 287 issued questionnaires representing a response rate of 98.9%. This response rate was considered adequate for the study (Mugenda & Mugenda, 2013). In examining the demographic attributes of the respondents, the study revealed that 149 (52.5%) of the respondents were male, while 135 (47.5%) were female. The study ensured gender parity as the difference between the number of male and female respondents was small. On the age distribution, the study found that 37 respondents (13%) were between 18-27 years of age, 96 respondents (33.8%) were between 28-37 years old, 102 respondents (35.9%) were between 38-47 years old, and 49 respondents (17.3%) were over 48 years old. Based on these results, it can be inferred that the majority of the respondents were in the age range of 38-47 years. In assessing the highest academic qualification, the findings revealed that 17 (6%) of the respondents had obtained a Ph.D. degree. The majority, which amounts to 112 (39.4%) respondents, had completed their master's degree, followed by 100 (35.2%) respondents who had completed their undergraduate

degree. Additionally, 48 (16.9%) respondents held a diploma and only 7 (2.5%) respondents held a certificate. It is worth noting that most of the respondents had attained either a master's or bachelor's degree, which suggests that they were highly knowledgeable and could comprehend the research instrument's items with ease. On the length of service at the university, the findings revealed that 18 respondents, which accounts for 6.3% of the total number of respondents had worked for less than one year. 108 respondents, or 38% of the total, had worked for 1-5 years and 77 respondents, or 27.1% of the total, had worked for 6-10 years. Finally, 81 respondents, or 28.5% of the total, had worked for over ten years at their respective departments of the University. Finally, the study revealed that 76 (26.8%) of the respondents worked in the user department, 120 (42.3%) respondents worked in the procurement department, and 88 (31%) respondents worked in the accounting department in the said institutions. The findings imply that most of the respondents were drawn from the procurement department, where most procurement activities take place.

Descriptive Statistics

The study aimed to evaluate the relationship between supplier management, and procurement performance in selected public universities in Kenya. The participants were asked to rate their level of agreement on a scale of 1 to 5, with 1 being "Strongly disagree" and 5 being "Strongly Agree" in response to various statements related to the variables being studied. The results were analysed and presented using tables showing the responses' frequency, mean, and standard deviation.

Supplier Management

The study provided statements on supplier management process at the selected public universities. The frequencies, mean, and standard deviation of the findings are tabulated in *Table 2*.

Table 2: Supplier management (N = 284)

Statements on supplier management	5(SA)	4(A)	3(UD)	2 (D)	1(SD)	N	Mean	SD
The procurement department maintains a supplier database.	158 (55.6)	98 (34.5)	28 (9.9)	0 (0)	0 (0)	284	4.458	0.668
The University keeps good relations with suppliers.	111 (39.1)	148 (52.1)	16 (5.6)	9 (3.2)	0 (0)	284	4.271	0.709
The procurement department encourages feedback from suppliers on issues affecting them.	111 (39.1)	118 (41.5)	34 (12)	27 (7.4)	0 (0)	284	4.123	0.891

The procurement department addresses supplier concerns regularly and promptly.	75 (26.4)	144 (50.7)	41 (14.4)	21 (7.4)	3 (1.1)	284	3.940	0.894
The procurement department has classified suppliers into various categories.	126 (44.4)	126 (44.4)	26 (9.2)	3 (1.1)	3 (1.1)	284	4.299	0.765
Suppliers are enlightened through training on compliance and other regulations affecting public procurement.	92 (32.4)	98 (34.5)	58 (20.4)	33 (11.6)	3 (1.1)	284	3.856	1.035
Effective supplier management influences procurement performance.	137 (48.2)	125 (44)	19 (6.7)	3 (1.1)	0 (0)	284	4.384	0.706
Overall mean							4.190	

Table 2...

The findings in Table 2 showed that 158 (55.6%) respondents strongly agreed and 98 (34.5%) respondents agreed, while 28 (9.9%) respondents were undecided that the procurement department maintains a supplier database. It also revealed a mean of 4.458 and a standard deviation of 0.668. According to these findings, the majority of the respondents agreed that the procurement department maintains a supplier database.

The study found that the university keeps good relations with suppliers. This was shown by 111 (39.1%) respondents who strongly agreed, 148 (52.1%) respondents who agreed, 16 (5.6%) respondents who were undecided, and 9 (3.2%) respondents who disagreed. The findings also revealed a mean of 4.271 and a standard deviation of 0.709, implying that most respondents agreed.

The results indicated that the procurement department encourages feedback from suppliers on issues affecting them as 111 (39.1%) respondents strongly agreed, 118 (41.5%) respondents agreed, 34 (12%) respondents were undecided, and 27 (7.4%) respondents disagreed. The findings revealed a mean of 4.123 and a standard deviation of 0.891, showing that the majority of the respondents agreed that the procurement department encourages feedback from suppliers on issues affecting them.

According to the findings, 75 (26.4%) respondents strongly agreed, 144 (50.7%) respondents agreed, 41 (14.4%) respondents were undecided, 21 (7.4%) respondents disagreed, and 3 (1.1%) respondents strongly disagreed that the procurement department addresses supplier concerns regularly and promptly. The mean of 3.940 and standard deviation of 0.894 showed that most respondents agreed with this statement.

The research findings revealed that the procurement department has classified suppliers into various categories: 126 (44.4%) respondents strongly agreed, 126 (44.4%) respondents agreed, 26 (9.2%) respondents were undecided, 3 (1.1%) respondents disagreed, 3 (1.1%) respondents strongly disagreed. A mean of 4.299 and a standard deviation of 0.765 also

revealed that the majority of the respondents agreed that the procurement department had classified suppliers into various categories.

In response to whether the suppliers are enlightened through training on compliance and other regulations affecting public procurement, 92 (32.4%) respondents strongly agreed, 98 (34.5%) respondents agreed, 58 (20.4%) respondents were undecided, 33 (11.6%) respondents disagreed, and 3 (1.1%) respondents strongly disagreed. The mean was 3.856, and the standard deviation was 1.035. These findings implied that most respondents agreed that suppliers were enlightened through training on compliance and other regulations affecting public procurement. However, there was need for improvement as a significant number were undecided and disagreed with this.

The study showed that effective supplier management influences procurement performance as 137 (48.2%) respondents strongly agreed, 125 (44%) respondents agreed, 19 (6.7%) respondents were undecided, and only 3 (1.1%) respondents disagreed. A mean of 4.299 and a standard deviation of 0.765 also revealed that most of the respondents agreed that procurement performance was influenced by effective supplier management. These findings imply that majority of the respondents agreed (Grand mean=4.190) that supplier management had a positive relationship with procurement performance in public universities.

The findings concur with those of Caran *et al.* (2016), which found that effective supplier management had a significant effect on organizational improvement in Brazil. Similarly, Yang and Zhang (2017), in assessing the role of sustainable supplier management on the performance of buyer-supplier performance in China, established that supplier management had a positive significance effect on the performance of buyer-supplier in manufacturing companies. Akubuko *et al.* (2019) established a significant relationship between supplier management and procurement function performance in oil-producing companies in river states.

Further, Kanini and Wandera (2019) established that supplier management has a significant impact on the procurement performance of state corporations, further revealing that organizations had clear and proper deadlines for when the contract was to be delivered. On the contrary, in a study exploring the influence of supplier management on the performance of procurement in East Africa Breweries, Kenya, Njagi and Shalle (2016) established that supplier management had no significant relationship with procurement performance.

Internal controls

The study provided statements on internal control practices at the selected universities. The frequencies, mean, and standard deviation of the findings are tabulated in *Table 3*.

Table 3: Internal controls

Statements on Internal controls	5 (SA)	4 (A)	3 (UD)	2 (D)	1 (SD)	N	Mean	SD	
The University has established specific internal controls for different stages of the procurement process.	135 (47.5)	116 (40.8)	24 (8.5)	9 (3.2)	0 (0)	284	4.327	0.762	
Segregation of duties at the procurement department ensures that no single personnel has absolute control over the procurement process.	144 (50.7)	99 (34.9)	32 (11.3)	9 (3.2)	0 (0)	284	4.331	0.799	
The University has a system for monitoring the effectiveness of internal controls in the procurement process.	96 (33.8)	144 (50.7)	32 (11.3)	12 (4.2)	0 (0)	284	4.141	0.776	
Feedback from internal control assessments is used to enhance the procurement control environment.	108 (38)	119 (41.9)	42 (14.8)	15 (5.3)	0 (0)	284	4.127	0.852	
The procurement department efficiently documents and keeps records of all the procured items.	114 (40.1)	137 (48.2)	27 (9.5)	6 (2.1)	0 (0)	284	4.384	0.755	
The University has established sufficient authorization controls that allow approvals and signoffs at every stage of the tendering process.	114 (40.1)	137 (48.2)	27 (9.5)	6 (2.1)	0 (0)	284	4.264	0.716	
Internal controls significantly contribute to the overall performance of procurement activities in our university.	163 (57.4)	88 (31)	24 (8.5)	9 (3.2)	0 (0)	284	4.426	0.778	
Overall Mean								4.286	

Table 3 shows that the university has established specific internal controls for different stages of the procurement process since 135 (47.5%) respondents strongly agreed, 116 (40.8%) respondents agreed, 24 (8.5%) respondents were undecided, and 9 (3.2%) respondents disagreed. The mean was 4.327, and the standard deviation of 0.762 also reiterated the same.

When questioned whether segregation of duties at the procurement department ensures that no single personnel have absolute control over the procurement process, 144 (50.7%) respondents strongly agreed, 99 (34.9%) respondents agreed, 32 (11.3%) respondents were undecided and 9 (3.2%) respondents disagreed. The findings showed that the majority of the respondents agreed that the segregation of duties at the procurement department ensured that no single personnel had absolute control over the procurement process. This was also proven by the mean of 4.331 and standard deviation of 0.799.

The study revealed that the University has a system for monitoring the effectiveness of internal controls in the procurement process. 96 (33.8%) respondents strongly agreed, 144 (50.7%) respondents agreed, 32 (11.3%) respondents were undecided and 12 (4.2%) respondents disagreed. The mean was also 4.141, and the standard deviation was 0.776.

These results showed that most universities had a system for monitoring the effectiveness of internal controls in the procurement process.

According to the study, feedback from internal control assessments is used to enhance the procurement control environment. This is because 108 (38%) respondents strongly agreed, 199 (41.9%) respondents agreed, 42 (14.8%) respondents were undecided, and 15 (5.3%) respondents disagreed. The mean of 4.127 and standard deviation of 0.852 also implied that feedback from internal control assessments is used to enhance the procurement control environment.

As per the findings, the procurement department efficiently documents and keeps records of all the procured items. 114(40.1%) respondents strongly agreed, 137 (48.2%) respondents agreed, 27 (9.5%) respondents were undecided, and 6 (2.1%) respondents disagreed. The mean was 4.384, and the standard deviation of 0.755. These findings showed that the University's procurement department efficiently documents and keeps records of all the procured items.

The results revealed that the universities had established sufficient authorization controls that allowed approvals and signoffs at every stage of the tendering process. This is because 114 (40.1%) respondents strongly agreed, 137 (48.2%) respondents agreed, 27 (9.5%) respondents were undecided, and 6 (2.1%) respondents disagreed. The mean was also 4.264, and the standard deviation was 0.716. These findings implied that the majority of the respondents agreed with this statement.

The study showed that internal controls significantly contributed to the overall performance of procurement activities in the Universities. 163(57.4%) respondents strongly agreed, 88 (31%) respondents agreed, 24 (8.5%) respondents were undecided and 9 (3.2%) respondents disagreed. The mean was 4.426, and the standard deviation was 0.778. Therefore, in conclusion most respondents agreed (Grand total =4.285) that internal controls significantly contributed to the overall performance of procurement activities in the Universities.

This study's findings were supported by Rendon and Rendon (2016), who established that most fraud incidents happened during supplier selection and contract administration. In addition, Abd Aziz et al. (2015), in a study assessing internal control systems among different sectors and departments in the public sector in Malaysia, established that the majority of the departments had in place several internal control mechanisms; however, the priority of the practices was different among the service schemes. However, Omollo (2018) found that internal controls in the government agencies were not effectively used, thus negatively affecting procurement performance.

Procurement Performance

The study provided statements on procurement performance at the selected public universities. The frequencies, mean, and standard deviation of the findings are tabulated in *Table 4*.

Table 4: Procurement performance

Statements on procurement performance	5 (SA)	4 (A)	3 (UD)	2 (D)	1 (SD)	N	Mean	SD
An efficient tendering process improves the quality of services and goods delivered.	183 (64.4)	90 (31.7)	11 (3.9)	0 (0)	0 (0)	284	4.606	0.563
The procurement department obtains goods and services at the most cost-effective prices.	132 (46.5)	96 (33.8)	32 (11.3)	18 (6.3)	6 (2.1)	284	4.162	0.999
An effective tendering process enhance timely delivery of goods and services to the University.	135 (47.5)	105 (37)	35 (12.3)	3 (1.1)	3 (1.1)	284	4.732	4.245
The University consistently achieves value for money in its procurement activities.	108 (38)	103 (36.3)	55 (19.4)	15 (5.3)	3 (1.1)	284	4.049	0.938
The quality of goods and services procured by the University meets expectations.	93 (32.7)	129 (45.4)	47 (16.5)	15 (5.3)	0 (0)	284	4.056	0.839
An efficient tendering process enhances cost management.	129 (45.4)	124 (43.7)	22 (7.7)	9 (3.2)	0 (0)	284	4.313	0.750
Stakeholders (end-users, departments) are satisfied with the procurement services provided	99 (34.9)	129 (45.4)	29 (10.2)	21 (7.4)	6 (2.1)	284	4.035	0.969
Overall Mean							4.279	

Table 4 shows that the majority of the respondents agreed that an efficient tendering process improves the quality of services and goods delivered. This was evident as 183 (64.4%) respondents strongly agreed, 90 (31.7%) respondents agreed, and 11 (3.9%) respondents were neutral. A mean of 4.606 and a standard deviation of 0.563 also confirm that most respondents agreed on this.

The study showed that the procurement department obtains goods and services at the most cost-effective prices since 132 (46.5%) respondents strongly agreed, 96 (33.8%) respondents agreed, and 32 (11.3%) respondents were undecided. However, 18 (6.3%) respondents disagreed, and 6 (2.1%) respondents strongly disagreed. A mean of 4.162 and a standard deviation of 0.999 showed that most respondents agreed that the procurement department obtains goods and services at the most cost-effective prices.

According to the findings, the majority of the respondents agreed that an effective tendering process enhances the timely delivery of goods and services to the University. The findings were that 135 (47.5%) respondents strongly agreed, 105 (37%) respondents agreed, 35

(12.3%) respondents were undecided, 3 (1.1%) respondents disagreed, and 3 (1.1%) respondents strongly disagreed. A mean of 4.732 and a standard deviation of 4.245

The findings revealed that the University consistently achieves value for money in its procurement activities as 108 (38%) respondents strongly agreed, 103 (36.3%) respondents agreed, 55 (19.4%) respondents were undecided, 15 (5.3%) respondents disagreed, and 3 (1.1%) respondents strongly disagreed. A mean of 4.049 and a standard deviation of 0.938 also imply that most respondents agreed that the University consistently achieves value for money in its procurement activities.

Further, the quality of goods and services procured by the University meets expectations as 93 (32.7%) respondents strongly agreed, 129 (45.4%) respondents agreed, 47 (16.5%) respondents were undecided, and 15 (5.3%) respondents disagreed. The mean was 4.056, and the standard deviation was 0.839, showing that the majority of the respondents agreed that the quality of goods and services procured by the University meets expectations.

Most respondents agreed that an efficient tendering process enhances cost management. This is because 129 (45.4%) respondents strongly agreed, 124 (43.7%) respondents agreed, 22 (7.7%) respondents were undecided, and 9 (3.2%) respondents disagreed. The statement was also proven by the mean of 4.313 and the standard deviation of 0.750.

As per the findings, stakeholders (end-users, departments) are satisfied with the procurement services provided since 99 (34.9%) respondents strongly agreed, 129 (45.4%) respondents agreed, 29 (10.2%) respondents were undecided, 21 (7.4%) respondents disagreed, and 6 (2.1%) strongly disagreed. The mean was 4.035, and the standard deviation was 0.969. These findings showed that most respondents agreed (Grand mean=4.279) that stakeholders are satisfied with the procurement services provided.

The findings are supported by those of Chiappinelli (2020), Nyakundi and Muturi (2017), Omollo (2018), Kakwezi and Nyeko (2019), and Chebet and Kwasira (2016), who established that the tendering process, including supplier management had a positive and significant relationship with procurement performance.

Inferential Statistics

The study examined the direction and nature of the research variables using the Pearson moment correlation coefficient, analysis of variance, and regression analysis. The study also used the moderated regression analysis to assess the moderating effect of internal controls on the relationship between the supplier management and procurement performance of public universities in Kenya.

Table 5: Correlation analysis

		Board Composition	Supplier management
Supplier management	Pearson Correlation	1	0.449**
	Sig. (2-tailed)		0.000
	N	284	284
Procurement Performance	Pearson Correlation		1
	Sig. (2-tailed)		
	N		

The results on *Table 5* show that there exists a positive significant correlation between supplier management and performance of the procurement function ($r = 0.449$, $p < 0.05$). These findings were supported by Caran, Krueger, Ayres, and Araujo (2016) who established a correlation between supplier management and procurements performance in assessing the role of the supplier management process on organizational improvement in Brazil. Other studies that support these findings include Yang and Zhang (2017), Akubuko, Obodo, Musa, and Jimoh (2019), Kanini and Wandera (2019) and Njagi and Shalle (2016).

Testing of the Research Hypothesis

The study conducted a regression analysis to test the research hypotheses. Linear regression was carried out on the predictor variable to assess the effect of the independent variable on the dependent variable.

The Moderating Effect of Internal Controls

The hypothesis of the study stated that internal controls have no statistically significant moderating effect on the relationship between supplier management and procurement performance in public universities in Kenya. However, before determining the moderating effect, the study sought to assess the direct relationship between supplier management and procurement performance in public universities. The results are presented in *Table 6*.

Table 6: Model summary for the direct relationship between supplier management and procurement performance

	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
							F Change	df1	df2	Sig. F Change
Supplier management	1	0.607 ^a	0.368	0.366	0.673	0.368	164.55	1	282	0.000

The significance test results for supplier management shows a positive relationship between supplier management and procurement performance ($R=0.607$, $R^2= 0.368$) and ($F (1, 282) = 164.556$, $p<0.000$). The obtained R^2 of 0.368 implies that 36.8% of the variation in procurement performance in public universities can be explained by supplier management. The study subsequently examined the moderating effect of internal controls on the relationship between supplier management and procurement performance and the results presented in Table 7.

Table 7: Model summary for the moderating effect of internal controls on the relationship between supplier management and procurement performance

	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
							F Change	df1	df2	
Supplier management	1	0.603 ^a	0.364	0.361	0.67573	0.364	161.211	1	282	0.000

Table 7 presents the results obtained after the interaction of the moderator variable (supplier management *internal controls) was introduced in the regression model. The findings reveal a negative relationship between supplier management and procurement performance of public universities ($R=0.603$, $R^2= 0.364$) and ($F (1, 282) = 161.211$, $p<0.000$). The obtained R^2 of 0.364 implies that 36.4% of the variation in procurement performance in public universities can be accounted for by supplier management*internal controls. The inclusion of the moderator variable resulted in a change of the coefficient of determination of -0.004 which implies that the moderation effect accounts for -0.4% of the variation in procurement performance above and in addition to the variation that was accounted for supplier management. Therefore, the moderating effect of internal controls on the relationship between supplier management and procurement performance in public universities in Kenya shows a negative effect.

These findings are supported by Njagi and Shalle (2016), who established that supplier management had no significant relationship with procurement performance when exploring the influence of supplier management on the performance of procurement in East Africa Breweries, Kenya. However, findings are contrary to those of Caran et al. (2016) which found that effective supplier management had a significant effect on organizational improvement in Brazil. Similarly, Yang and Zhang (2017), in assessing the role of sustainable supplier management on the performance of buyer-supplier performance in China, established that supplier management had a positive significance effect on the performance of buyer-supplier in manufacturing companies.

Akubuko et al. (2019) also established a significant relationship between supplier management and procurement function performance in oil-producing companies in river states. Further, Kanini and Wandera (2019) established that supplier management has a significant impact on the procurement performance of state corporations, further revealing that organizations had clear and proper deadlines for when the contract was to be delivered

Table 8: ANOVA results for the moderating effect of internal controls on the relationship between supplier management and procurement performance

		Model	Sum of Squares	df	Mean Square	F	Sig.
Supplier Management	1	Regression	74.575	1	74.575	164.556	0.000b
		Residual	127.800	282	0.453		
		Total	202.376	283			
	2	Regression	73.611	1	73.611	161.211	0.000b
		Residual	128.765	282	0.457		
		Total	202.376	283			

The results on *Table 9* indicate that the models (for direct relationship and moderated relationship) were statistically significant. This implies that the coefficients of the models were not equal to zero, suggesting that the models significantly fit the data.

Table 9: Coefficients for the moderating effect of internal controls on the relationship between supplier management and procurement performance

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.514	0.296		1.734	0.084
	Supplier Management	0.899	0.070	0.607	12.828	0.000
2	(Constant)	0.247	0.320		0.770	0.442
	Supplier Management	0.952	0.075	0.603	12.697	0.000

Table 9 demonstrates that the moderating effect of internal controls on the relationship between supplier management and procurement performance in public universities was positive and significant ($\beta=0.247$, $p<0.05$). This implies that when supplier management increases by an additional unit, procurement performance is predicted to increase by 0.247 given that internal controls are held constant. The beta coefficient of the moderating variable was 0.952 with a p -value <0.05 implying that internal controls have a significant moderating effect on the effect of supplier management and procurement performance in public universities in Kenya. Therefore, the null hypothesis (H_{04}) was rejected indicating that internal controls have a statistically significant moderating effect on the relationship between supplier management and

procurement performance in public universities in Kenya. This implies that the contribution of supplier management to the procurement performance variable can be enhanced by internal controls.

Joint Relationship Between Supplier Management and Procurement Performance

The study examined the joint relationship between supplier management, internal controls and procurement performance.

Table 10: Model summary for the joint relationship between supplier management, internal controls and procurement performance

Model	R	R ²	Adjusted R ²	Std. Err of the Estimate	Change Statistics				
					R ² Change	F Change	df1	df2	Sig. F Change
1	0.789 ^a	0.590	0.587	0.66640	0.388	44.176	1	279	0.000
2	0.781 ^a	0.611	0.609	0.66452	0.393	36.058	2	278	0.000

1. Predictors: (Constant), supplier management
2. Predictors: (Constant), supplier management, and internal controls

The findings presented in *Table 10* indicate that R² in the moderated model changed from 59% to 61.1% indicating a 2.1% increase in variation as a result of the interaction effect of moderating variable. Further, the increase was statistically significant since the probability value of 0.000 was less than 0.05 (P<0.05).

Table 1: Coefficients for the joint relationship between supplier management, Internal Controls and procurement performance

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.106	0.330		0.323	0.747
	Supplier Management	0.675	0.114	0.456	5.931	0.000
2	(Constant)	0.067	0.346		0.195	0.845
	Supplier Management	0.537	0.142	0.363	3.771	0.000
	Internal Controls	0.190	0.119	0.126	1.607	0.109

a. Dependent Variable: Procurement Performance

The findings in *Table 11* show that after moderation, the beta coefficient for supplier management was 0.537 with a p-value<0.05. The results also indicate that the beta coefficient of the moderating variable (internal controls) was 0.190 with a p-value>0.05, implying that internal controls does not have a significant moderating effect on the relationship between supplier management and procurement performance in public universities in Kenya

CONCLUSION AND RECOMMENDATIONS

The findings from this study revealed that internal controls had a negative significant moderating effect on the relationship between supplier management and procurement performance ($\beta = 0.952$, $p < 0.05$). In addition, the study established that supplier management had a positive significant correlation with procurement performance in public universities in Kenya ($R = 0.449$, $p < 0.05$). These findings imply that most procurement departments maintain a supplier database, keep good relations with suppliers, encourage feedback on issues affecting them and address supplier concerns regularly and promptly. Further, most university had classified suppliers into various categories and enlightened them through training on compliance and other regulations affecting public procurement. Therefore, the study found that internal controls in universities does not have any moderating effect on the relationship between supplier management and procurement performance.

Based on the findings, the study concluded that there exists a statistically significant positive relationship between supplier management and procurement performance in public universities. Internal controls also have a negative and insignificant moderating effect between supplier management and procurement performance. Therefore, the study concluded that the moderating effect of internal controls on the relationship between supplier management and procurement performance is negative and insignificant.

SCOPE FOR FURTHER STUDIES

The results of the regression analysis revealed that the independent variable accounted for 61.1% of the variance in procurement performance in public universities in Kenya. This means that 38.9% of the variance is influenced by other variables not considered by this study. The study suggests that future research should focus on validating these findings by conducting similar research in Kenya and collecting data from other public higher education institutions, as other factors may impact procurement performance in different institutions. Furthermore, it is recommended that a comparative study be conducted based on responses from public universities and responses from other public institutions of higher learning.

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