LOGISTICS OUTSOURCING RISKS AND PERFORMANCE OF MANUFACTURING FIRMS IN KENYA

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Logistics Outsourcing Risks and Performance of Manufacturing Firms in Kenya

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DECLARATION

This Thesis is my original work and has not been presented for a degree in any other university.

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James Mutinda Kithuka

This Thesis has been submitted for examination with our approval as the University Supervisors

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DEDICATION

My love Nduta, children Michelle, Alvis and Jeremy thank you for your moral support, may God's blessings be your portion now and in the future.

ACKNOWLEDGEMENT

I forthwith acknowledge the support of my family and my study colleagues who have encouraged me on my studies and predominantly for their unrelenting support. I am genuinely grateful for you and may God bless you always. My supervisors, Prof. Wario and Dr. Kiarie, I owe you this gratitude for your guidance in the course work. Thank you for your support, your patience with me throughout and your understanding is appreciated. For all JKUAT lecturers, I take this chance to recognize you. To all I say, may God bless you in a Mighty way.

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ABREVIATION AND ACRONYMS

3PL	Third Party Logistics
AfDB	Africa Development Bank
CSCMP	Council of Supply Chain Management Professionals
EAC	East Africa Community
GDP	Gross Domestic Product
IF	Information Flow
IS	Information Systems
IT	Information Technology
KAM	Kenya Association of Manufacturers
KNBS	Kenya National Bureau of Statistics
LIS	Logistics Management System
LSP	Logistics Service Providers
ODI	Overseas Development Institute
PwCIL	Pricewaters Consultancy International Limited
RBV	Resource Based View
SCM	Supply Chain Management

SPSS	Statistical Package for Social Sciences
TCE	Transaction Cost Economics
TCT	Transaction Theory Cost
TOC	Theory of Constraints

DEFINITION OF OPERATIONAL TERMS

Contractual risk It is the risk that a third party logistic provider is not in position to meet all responsibilities as per the legally binding agreement (Yazdani et al., 2021).

Cost Risk Cost risk as the variability in cash flows and market values which is caused by unpredictable changes in three major variables such as; commodity prices, interest rates and exchange rates. It implies that the real income on logistic outsourcing venture is lower than expectation (Dana et al., 2021).

Firm Performance: It has to do with the manner in which the resources available to firms are used to achieve output in form of productivity, effectiveness, employee satisfaction and profitability (Hayes et al., 2022)

Information flow Is the movement of information from supplier to customer and from customer back to supplier. This movement is bi-directional, that is, it goes both direction in the supply chain. The type of information that flows between customers and suppliers include quotations, purchase orders, delivery status, invoices and customer complaints. (Wei et al., 2020).

Information technology It is described by Yuan (2022) as a wide range of more and more convergent and related technologies that process the information as well as the information that business generates and apply.

Logistics Outsourcing Is the decision to buy logistics services from external sources rather than operate in-house. It's the process when an organization

	allows a specialist company to provide its logistics activities (Zailani et al., 2017)
Logistics Services	Its creation of value which includes the ability to deliver the right item for consumption, in the correct amount, at the exact location, at the precise time, for the true customer, in the accurate order and at the expected cost (Tatham et al., 2017).
Logistics	Logistics consists of all information and material flows throughout an organization, it is the process of strategically managing the parts and finished inventory (and related information flow) through the organization at cost effective fulfillment of orders (Zhu et al., 2017).
Management risk	It is a type of risk that results from the difference between organization control methods and the culture of the company used by the provider and client (Gurtu et al., 2021)
Manufacturing	Making of products from raw materials using various processes, equipment, operations and manpower according to a detailed plan that is cost-effective and generates income through sales (Kenya Association of Manufacturers, 2019).
Outsourcing risks	These are uncertainties that may lead into losses which are due to the decision to acquire logistics services from service providers (Sen et al., 2020)
Risk	Is represented in terms of uncertain event, which possesses the probability of occurrence of unfavorable outcomes like late delivery, financial burdens, business loss etc. (Hao et al., 2017)

Supplier relationship risk This type of risk is defined as the possibility and consequence of not having acceptable cooperation or as the likelihood and effect of opportunistic behaviour by the partner. Relational risk includes similar risks related with the cooperation and risks associated with the partner's behaviour (Hooshangi et al., 2023)

Supply Chain Management As per Wright *et al*. (2017) SCM is the organization of relationships amongst upstream and downstream suppliers and customers. Particularly, the purpose in this concept of SCM aims at delivering superior customers value with fewer costs.

Third Party Logistics These are firms that provides numerous logistics services for use by customers. The services are integrated, or put together by the provider. These firms are Freight forwarders, Courier companies and other companies integrating and offering subcontracted logistics and transportation services (Premkumar et al., 2021).

ABSTRACT

The study sought to determine the influence of Logistics outsourcing risks on performance of manufacturing firms in Kenya. In particular, the study attempted to achieve the following specific objectives: to analyze the outcome of contractual risk, cost risk, supplier relationship risk, management risk and information flow (moderating variable) on performance of manufacturing firms in Kenya. From the literature reviewed, there was necessity to evaluate the logistics outsourcing risks that face the integration, collaboration, flow of information and goods in manufacturing firms. This helped to determine whether the low performance in these firms was as a result of these risks. Both descriptive and explanatory research designs were adopted jointly. Stratified sampling was conducted on all the one thousand one hundred and twenty three manufacturing firms registered by KAM, simple random sampling was carried out on the strata to identify a sample size of 295 firms. The study relied on both primary and secondary data which was collected through structured questionnaires that were administered to administrators charged with the management of supply chain within the selected firms. Prior to the actual study, pilot test of the measures was conducted on thirty selected respondents drawn from the firms representing 10% of the sample population. The results revealed that the instrument was reliable and valid to carry out data collection. Descriptive statistics were carried out on the study variables using percentages, mean and standard deviation. The results showed that logistics outsourcing risks influence performance of manufacturing firms in Kenya. Diagnostic tests were carried out to assess whether the assumptions of the regression model were met. The tests included; normality test, test for autocorrelation, test for heteroscedasticity, multicollinearity test and linearity test. Regression analysis; correlation coefficient (r) and inferential statistics was done using SPSS version 24. The results revealed that contractual risk, Cost risk, supplier relationship risk and management risk individually and combined had a significant relationship on the performance of manufacturing firms in Kenya. Information flow had a significant moderating effect on the relationship between logistics outsourcing risks and performance of manufacturing firms. It was concluded that through a surge in logistics outsourcing risks such as contractual risk cost risk, supplier relationship risk and management risk, the performance of the manufacturing firms is negatively affected. Managing the logistics outsourcing risks would imply that the manufacturing firms are able to optimize operational costs and achieve the best out of outsourcing logistics, thus enhancing performance. The key recommendations are that management of the manufacturing firms through the supply chain and logistics departments should embrace key strategies of managing logistics outsourcing risks as a way of enhancing the continued performance of manufacturing firms. The study assists policy makers in coming up with better policies on mitigating logistics outsourcing risks. Future areas of study should also focus on other logistics outsourcing risks since the four that were identified did not account for 100% of the variation in firm's performance and Study on how to mitigate these risks beyond information flow.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

This chapter reviewed the study background, statement of the problem, the objectives, research hypotheses and justification. The last part in the chapter was the scope of the study and limitations. The study sought to establish the influence logistics outsourcing risks have on performance of manufacturing firms in Kenya. Currently, businesses are operating on competitive and demanding environments which demand market participants to be more involved, to concentrate on more efficient organizations and constantly innovate new strategies to remain on top of their competitors (Nanjala, 2015).

These firms have doubled their efforts in increasing their core competency by outsourcing a number of their activities and restricting their range of activity in those they have perfected. The grounds for this first flourish of outsourcing was then solely economic, grounded on cost criteria (Gonzalez & Rogers, 2019). Regarding logistics, it was among the first function to be involved in the outsourcing process. Passed from the first phase of outsourcing; a logic driven flows where the only issues were to transport and store to a logical flow with more business oriented vision, creating the end user as top priority on their concerns.

Logistics encompasses all flows of information and material right through an organization. It encompasses everything from product movement or from a service that needs to be rendered, through to the management of inbound raw materials, production, the storage of finished goods, its delivery to the customer and customer services (Akbari, 2018). Logistics is described by (Li, 2014) as the practice of scheduling, implementing and scheming the efficient, cost effective flow and storage of inputs, in-process inventory, finished goods, and related information from point of source to point of utilization for the purpose of conforming to customer requirements.

Their exist uncertainty for an organization to give out its very connectivity to its customers to an outside firm. This is what organizations involved in outsourcing logistics activities are going through (Selvam, 2016). Today, manufacturing companies operate in an environment which is very dynamic and vastly competitive. Different enterprises are targeting to benefit from a share of the global market by taking advantage of sourcing efficiencies and rapid reaction capability of production processes to vibrant market conditions. This shifting market environment lead to escalating complexity of production processes and the whole supply chain management becomes more and more sophisticated. For several enterprises, the challenge is between what they plan to attain and what they can perform in-house. For this reason, the strategy of outsourcing is still on the rise (Aktas, 2011).

Outsourcing is being preferred in most firms because of the extensive structural changes that have caused dwindling budgets, shrinking in house workforce and organizational restructuring. The alternative to transfer all or part of a company's business function to an external unit plays an ever more important role in the strategic configuration of organizations (Sanchez, 2015). Companies have been pressed to look neutrally and critically at business processes due to competition pressures.

Firms have been outsourcing manufacturing operations, business services and even entire business lines for a period now (Akbari, 2018). Many companies are applying outsourcing as a strategic option to advance their competitive situation and targeting business objectives through minimized costs, maximized revenues and profits. It has also been discovered that companies that have embraced outsourcing strategy accomplish in markets that would otherwise be uneconomical and difficult to penetrate (Price Water House coopers, 2010). As companies push to boost their competitive positions in an increasingly international market place, they are discovering that they can optimize costs and sustain quality by relying on outsourced service providers for activities known as noncore to their conventional business. Villani and Greco (2018) argue that the world has acknowledged outsourcing and thus companies have assimilated

its philosophy as a tool for venturing into other markets. Logistics outsourcing levels/layers are summarized in figure 1.1

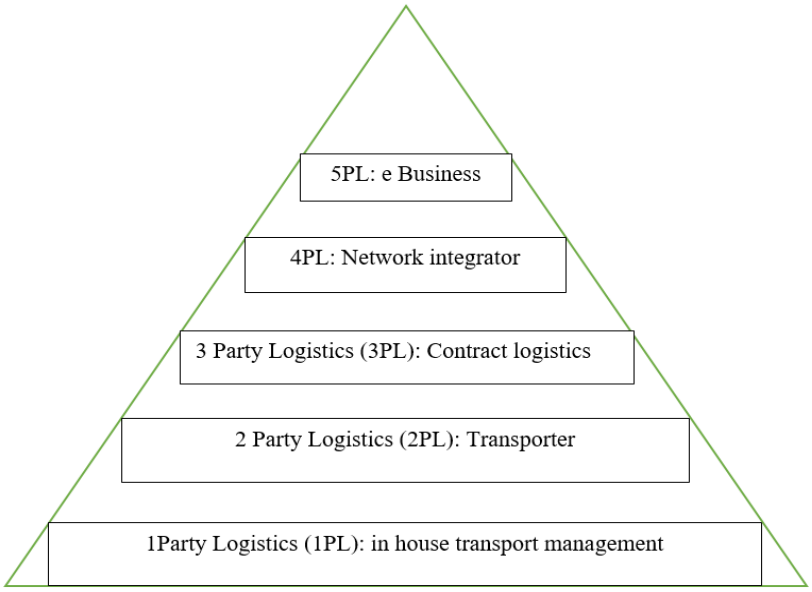

Figure 1.1: Logistics Outsourcing Levels

1.1.1 Global Perspective on Logistics Outsourcing Risks

According to (Zhou *et al*., 2017) the most outsourced logistics services globally include: Domestic transport, 80%, Storage 66%, International transport 60%, Freight forwarding services 48%, Customs broker services 45%, Reverse logistics 34% and Cross-docking 33%. Lin and Xuan (2016) survey showed that about one-third of large manufacturing companies in the USA use third-party logistics services and over 60% of these firms have utilized these services for a period exceeding five years. The three most widely outsourced services were warehousing, shipment consolidation, and selected logistics information systems.

Outsourcing represents a fundamental decision to reject the internalization of an activity (König & Spinler, 2016). It is a strategy to gain access to resources where the firm suffers a shortfall in terms of resources and capabilities. Outsourcing creates value by different means and extends the firm's value formation opportunities by supplementing

internal resources that are expensive to develop within. Internal resources are enhanced by external resources and these new resource combination create more worth (Min, 2015).

Thriving and long-term oriented outsourcing arrangements depend largely on the relationships (Langley, 2016). Firms are increasingly changing to a relationship-based approach to meet challenges posed by the dynamic competitive environment, and growing product/service complexity. Despite the proliferation of collaborative relationship, they are challenging and present an interesting dilemma; while they facilitate reduction of risk, they also generate considerable risk because there is the possibility of opportunistic exploitation arising from dependence. Examination of the potential dark side of inter-organizational relationships, such as relationship risk, is seldom investigated (Liu & Zhao, 2015).

Risk was defined as possible events whose unfavorable consequences are difficult to accept or are even unacceptable. In acquiring services from 3PL, there are two types of risk namely; relationship risk and performance risk (Villani & Greco, 2018). Relationship risk occurs due to the possibility of relationship failure. It arises from failure sources including possible defection by a partner, perception of opportunistic behaviors, lack of understanding between partners, conflict risk, non-learning of competence, loss of core proprietary capabilities and encroachment risk (Langley, 2016). On the other hand, performance risk arises due to factors which impact alliance performance such as intensified rivalry, changing government regulations, demand fluctuations, and lack of competence of partner firms (Villani & Greco, 2018).

Tsai *et al*. (2012) unveiled three types of risks related to engaging logistics service providers in China, namely; relationship, asset, and competence risk. These risks are derived using transaction cost theory (TCT) and the resource based view (RBV) of firms. According to Sodhi and Son (2012) high costs due to outsourcing are not easily detected, especially with the main goal for acquiring the services of 3PL being costs optimization. Unknown to the outsourcing company, these contracts carry hidden costs

and need to be measured vigilantly. In most cases 3PLs are more experienced in the negotiation of contracts than the outsourcing entities.

To cover this gap, the company considering outsourcing may require to engage expertise services at a fee to negotiate the contract with logistics service providers. From a social exchange perspective, relational mechanisms such as trust and commitment are needed to strengthen partner relationship and mitigate the risks arising from unforeseen changes in the logistics chain. Considering that outsourcing can be a strategic choice, the resource-based view (RBV) of a firm has been used as a theoretical lens to examine outsourcing decisions (Brookes, 2016).

Outsourcing logistics function or activities may be on an increasing trend and especially transport and warehousing functions which may have a significant influence on performance of supply chain (Chopra & Meindl, 2010). Through outsourcing the companies in Northern Europe could obtain benefits ranging from cost-optimization, quality improvement, increased focus on core functions, increased market coverage, better customer service, reduction of supply chain complexity, and enhanced management (Akbari, 2018). Nevertheless, the influence of outsourcing on SCM remained in doubt.

Wei and Wu (2020) discussed some of the limitations of outsourcing has in developed countries; loss of control, increase in transportation overheads if the distance from the outsourcing provider to a client firm is extensive and creating future competitors as in the case of Intel who outsourced chip production to Advanced Micro Devices. Within a short period the supplier became a leading competitor to the customer by manufacturing its own chips. Their research also showed that a company that outsources could be hindered if the service provider face insolvency and low on labor. According to Zhu and Wang (2017) organizations are exposed to reliance risk hence failing to realize the purported objective of cost optimization in outsourcing, losing control of critical functions and having to face scenario of managing relationships that may go wrong and lowering the morale of employees.

Logistic outsourcing has various possible benefits but also there are huge potential risks associated with it. Yuan (2022) argue that the growth of gradually more intricate supply chains makes decisions about logistics outsourcing more difficult. Their empirical study indicated that it is not always favorable to outsource some activities, what is proved by an example from the Norwegian oil and gas industry as explained in their paper.

1.1.2 Regional Perspective on Logistics Outsourcing Risks

Research papers in East Africa have explored the relationship between the concept of outsourcing and company performance and the results showed that there exists no direct correlation between these two variables (Kilasi et al., 2013). According to Gitaari (2011) the outsourcing challenges faced were vendors not providing quality services as per service level agreements, minimal commitment to the company and deficient of privacy on company matters.

Dana (2021) found that, high prices are being charged on consumers of outsourcing services because of the high demand for these services. This leads to increased costs to outsourcing firms yet outsourcing should be an organization's strategy on cost optimization. High expectancy on service providers as company management tend to expect too much in terms of superior services. This is because the 3PL are the specialists though the expectations may not be in line once in a while and such issues should not be overlooked.

Similar to any reform strategy and management decision making in business, outsourcing process may come with risks and supply chain professionals should consider the strategy carefully (El Mokrini, 2015). These risks included; the likelihood of over reliance on or leveraged by outsourced party which make costs associated with switching to other providers costly. During the contract period, a supplier of outsourced service may become complacent, change ownership or dissolvent, risk of reduction in employee morale for fear of being made redundant, confidentiality links of company

matters and in some cases loss of intellectual property rights (Zailani & Mohammad, 2017).

According to Solakivi and Ojala, (2011) there several activities more so concerning transportation which are obtained from 3PL providers, but these activities lack a direct effect on the performance of outsourcing companies. The study carried out by Juntunen (2010) indicated that there are reciprocations observed in the outsourcing relationship activities. It explains how the significance of 3PL providers and cost plays a crucial role for the overall customer satisfaction and service.

1.1.3 Local Perspective on Logistics Outsourcing Risks

In Kenya, some manufacturing companies perform their logistics services in house while other companies outsource multiple logistics providers for their supply chain management which is not only costly to run but also cumbersome to manage. As a result, there can be conflicting messages among departments and between the appointing company and the third party logistics provider, which leads to glitches in integration and can result in the company getting less than full value from the outsourced firm (Vishal et al., 2013).

Logistics outsourcing practices in Kenya include information management, transportation management, warehousing management, material handling management, custom clearance, freight forwarding, packing, inventory management and returns management. Half of the manufacturing companies now outsource (part) of their production process within the 3PL level of logistics outsourcing (Bosire, 2011). One way of extending the logistics organization beyond the boundaries of the company is through the use of a third party supplier or contract logistics services (3PL). Logistics outsourcing provides an added value that is not available within an organization's in-house departments. The advantage may appear in many dimensions such as; economic of scale, process know-how, access to resources and access to advanced technology.

A study done by Magutu *et al.* (2012) point out that, 79 percent of the large manufacturing firms in Kenya had outsourced transport management while 90 percent of the firms had outsourced warehouse management. 50 percent of the companies had outsourced information management and inventory handling management whereas 73 percent of the firms had outsourced material handling management. All these are within the 3PL layer of logistics services outsourcing. Wanjiru and Nyamwange (2017) notes there is a possibility that important company information may be at a risk of being shared to the company's competitors. This is dangerous since information on the hands of competitors gives them an edge over the firm. Service providers may turn to be competitors by being exposed to this information.

1.1.4 Performance of Manufacturing Firms in Kenya

Psomas and Kafetzopoulos (2012) argued that firm performance contributes to providing the competitive advantage in a cut-throat competition in the market. The company take advantage over its competitors and outperform them in business. Performance is defined as the actions, outputs and outcomes, and may not be limited to issues of accomplishment of results within the budget limits and in the most efficient way, whether there are any contingent outcomes, whether the performance achieved needs improvement or upholding. According to Jenatabadi (2015) firm performance can be generally defined as a set of financial and nonfinancial indicators which offer information on the degree of achievement of objectives and results. It deals with doing things in the best way. It could be expressed in terms of effectiveness, efficiency or even productivity.

According to Monday and Akinola (2015) organizational performance consists of three specific areas of firm outcomes: financial performance (profits, return on property, earnings on investment); performance of products in the market (sales, market share); and shareholder return (total shareholder return, economic value added). Performance measurement refers to the process of measuring the action's efficiency and effectiveness. Performance measurement is the transference of the complex reality of

performance in organized symbols that can be related and relayed under the same circumstances.

In the present business management, performance measurement is seen to be in a more critical role compared to quantification and accounting (Herly & Sisnuhadi, 2011). The operations of a firm should be proficient and valuable. Proficient (effectiveness) is the expanse to which customers' requirements are fulfilled, while valuable (efficiency) is described as a measure of how economical resources of a firm are put into use. To correctly further accessibility and valuation of operational performance, the right measurement systems should be planned, developed and implemented.

Yuan (2022) placed emphasis on logistics as a through put system which is vital for improving company's capability, both in the flow of raw/end products and information in order to achieve viable, prompt, and dependable delivery objectives internally and throughout a network of firms. Logistics efficiency and effectiveness contributes considerably to a firm's competitive advantage. Company's supply chain abilities and competences are built upon these critical logistics functions and processes. The interrelationship between logistics and customer service and its impact on a firm's competitiveness drive companies to handle their logistics functions cautiously targeting to gain its full potential as a source of competitive strategy (Dzogbewu, 2010).

1.1.5 Manufacturing Firms in Kenya

According to KAM (2019), Manufacturing is to put together or process raw material into a finished produce, especially by means of a significant industrial operation. On regional perspective the East African Community (EAC) is aligning itself as the next global manufacturing destination. These regional initiatives could benefit the manufacturing sector in Kenya and escalate its growth. Visibly opportunity for growth is present as revealed in the fact that the combined manufacturing sector in the seven members in EAC represents approximately a third the size of the manufacturing sector in Vietnam, which has a populace one-third the size of the seven states (AfDB, 2014).

On average the sector has been growing at a rate lower than the economy, which dipped to 4.9% in 2017. This indicate a reducing contribution of manufacturing sector to GDP over time hence it can be argued that the country is going through premature deindustrialization in a context where manufacturing industries are still moderately under-developed. Manufacturing is the industry with the highest demands regarding logistics services and consequently it is judged as the most appropriate industry for comparisons within the logistics context (Gotzamani et al., 2010).

The Kenyan manufacturing industry continue to grow from strength to strength in spite of challenges in economic status of the country. The manufacturing industry in Kenya brings about 14 percent to the country's Production (GDP) and offer over 2 million jobs (KAM, 2016). According to Awino (2011) the sector is essential and contributes significantly to the country's economic advancement. In the vision 2030, the industry is among the top economic pillars and positioned to move the nation to a middle level income country by the year 2030.

According to data from KAM (2019), there was over 1123 registered multi-sector manufacturing firms in Kenya. These companies produce different products and vary in size which is determined by the number of staff they employ. Through export of their products, the industry has the capacity to generate foreign exchange earnings which enhance the country's economy and create job opportunities. The country's share of manufacturing exports to the international market is projected to be about 0.02 percent which is favorable compared with its immediate East Africa neighbors (Kenya Institute for Public Policy Research and Analysis, 2013).

Manufacturing sector grew by 4.8 percent in 2013 in comparison to a revised growth of 3.2 per cent in 2012 and was projected to uphold that growth path through 2014 (KNBS, 2014). PwCIL (2010) and Okoth (2012) showed Kenya's expanded manufacturing subsector has a challenging past in terms of its performance, unstructured strategy and use of obsolete technology. Kangaru (2011) in his research on challenges of business outsourcing in Kenya Power and Lightning Company (KPLC) found out that 3rd party

logistics providers were to the fore of manufacturing companies that operated logistics departments in terms of quality implementation and improved processes in logistics services.

1.2 Statement of the Problem

According to Premkumar *et al*. (2021) it was estimated that close to 40% of the global logistics is outsourced by manufacturing firms. In regional comparison with other East African (E.A) countries, Kenya's manufacturing sector is the largest, part of the big four agenda, most sophisticated and has been experiencing problems in the performance of its processes and operations management (KAM Directory, 2019). In Kenya, the main reason why manufacturing firms outsource their logistics activities to 3PLs is a desire to reduce costs, manage risks and get access to additional markets. The focus on cost optimization hinder majority of these firms from identifying the risks associated with logistics outsourcing (Ojwaka & Osoro, 2023). While most companies have opted to outsourcing their logistics services, their performance has continued to deteriorate and thus several manufacturing companies are in a dilemma if the poor performance is due to logistics outsourcing risks or other factors and whether to perform in-house logistics services or to outsource the services from logistics providers (Joto *et al.*, 2019).

In the year 2000 manufacturing sector was the second largest sub sector of the economy after agriculture but in 2019, it was in the fourth place behind agricultural segment, distribution and small scale trade, transport and communication (World Bank, 2019). Unfortunately for Kenya, the share of the manufacturing sector to gross domestic product (GDP) has been on a declining trend from 11.8% in 2011 to 8.4% in 2017 and contracting by 3.9 % in 2020 (KNBS Quarterly Gross Domestic Product Report, 2020) . There had been a decrease in expansion of manufacturing sector from 3.6% in 2015 to 3.5% in 2016 (KNBS, 2016). The performance of the sector in Kenya has not been stable, it decreased by 0.4% in 2015 from 3.2% in 2014, contributing a reduction of more than $62 billion; 10.3% on GDP.

The sector had a lower growth of 3.6% in the first quarter of 2016 compared to 4.1% growth in the first quarter of 2015. In the third quarter of 2017 the sector's growth rate was 1.9% compared with 3.3% in the same quarter in 2015 (KNBS, 2017). According to KAM, manufacturing priority agenda (2019), the weak performance has been attributed to high production and logistics costs, influx of counterfeits, drought incidences and volatility in international oil prices.

To understand this declining performance in relationship to logistics outsourcing risks, several authors have researched on logistics outsourcing risks from a range of perspectives. For example, Tsai and Lai (2012) studied the links existing among three types of uncertainties in logistics outsourcing: relationship risk, asset risk and competence risk. Their findings were that relationship risk leads to both asset risk and competence risk. Gąsowska (2017) noted that besides the purported effects of logistics outsourcing on organization performance, documentation is inadequate.

This is supported by the fact that previous logistics outsourcing studies give contradicting results. For instance, Wambua (2017) showed a positive relationship between outsourcing and performance results in his study while Julius (2017) showed no significant and Onyebueke *et al.* (2019) had a negative results. However, there is limited research on the influence of logistics outsourcing risks on the performance of manufacturing firms in Kenya. Therefore, to address this gap, this study sought to empirically examine; what was the influence of logistics outsourcing risks on performance of manufacturing firms in Kenya and the moderating effect of information flow.

1.3 Study Objectives

1.3.1 General Objectives

To establish the influence of logistics outsourcing risks on performance of manufacturing firms in Kenya

1.3.2. Specific Objectives

The specific objectives of this study are:

i. To determine the influence of contractual risk on performance of manufacturing firms in Kenya
ii. To analyze the influence of cost risk on performance of manufacturing firms in Kenya
iii. To evaluate the influence of supplier relationship risk on performance of manufacturing firms in Kenya
iv. To assess the influence of management risk on performance of manufacturing firms in Kenya
v. To examine the moderating effect of information flow on the relationship between logistics outsourcing risks and performance of manufacturing firms in Kenya

1.4 Research Hypotheses

The researcher tested the following research hypotheses:

H_{A1}: There is a significant relationship between contractual risk and performance of manufacturing firms in Kenya

H_{A2}: There is a significant relationship between cost risk and performance of manufacturing firms in Kenya

H_{A3}: There is a significant relationship between supplier relationship risk and performance of manufacturing firms in Kenya

H_{A4}: There is significant relationship between management risk and performance of manufacturing firms in Kenya

H_{A5}: There is a significant moderating effect of information flow on the relationship between logistics outsourcing risks and performance of manufacturing firms in Kenya

1.5 Significance of the Study

The problem of risk in logistics outsourcing is varied, negative in nature and for each case specific. The alternative hypotheses is the same as research hypotheses. In other words, it's the claim that the researcher expect or hope will be true. The research was on testing the effects of Logistics outsourcing risks on firm performance which may be greater than or less than hence the use of alternative hypotheses (Wei et al., 2020). The dynamics of the environment and constant changes in business relationships are the source of many risks. Therefore, research in this area is always beneficial and expanding the knowledge base. Low logistics efficiency is a key concern and business risk for companies importing to or exporting from Kenya as well as the 3PL firms involved (KSC, 2013).

The study findings are significant to manufacturing companies in Kenya as they unearth logistics outsourcing risks that may affect supply chain management performance which in essence is the reason for carrying out this research. The study provided background information to other researchers and scholars who may have interest in further studies concerning this concept. It also contributed extra information in this field and the related risks that influence companies to outsource.

1.5.1 Government

To the government, the study provided greater learning into the relationship between logistics outsourced risks and performance of manufacturing sector. This may aid in formulation of policies and regulations that can help improve efficiencies and effectiveness in the sector and improved manufacturing sector could increase national GDP and by extension create employment as envisaged in the big four agenda.

1.5.2 Manufacturing Firms

Manufacturing companies may benefit from the study as they could better understand the underlying logistics outsourced risks influencing performance of their firms and be better placed to mitigate challenges that affect changing management of supply chains. Logistics performance improves manufacturing firm growth, increased efficiency, reduced cost of production, improved distribution, quality products, and increase customer satisfaction.

1.5.3 Logistics Sector

Based on the increased interest on logistics outsourcing in manufacturing firm in Kenya, this study assisted the logistics providers by empirically showing them the influence of logistics outsourced risks on performance of manufacturing companies and the advantages of mitigating these uncertainties intending to improve their performance as preferred suppliers of manufacturing firms. In general it assisted the logistics companies to understand major areas of concern for continuous flow of goods and services from the first tier suppliers to the consumers.

1.5.4 Researchers

The outcome of this study became useful to forming the basis for future research on the subject, providing a critical examination of the field. The findings provided a basis to other researchers in the same field thus facilitating their studies. The researcher made recommendations which built on the existing knowledge on the study and also suggested areas where further studies could be done.

1.6 Scope of the Study

The study focused on influence of logistics outsourcing risks on the performance of manufacturing firms in Kenya. The unit of analysis are the manufacturing firms in Kenya that source logistics service. The study focused on the manufacturing firms in

Kenya. The manufacturing sector is one of the economic backbone in the Country as emphasized in vision 2030 and the economic development agenda. Specifically, the study narrowed down to two hundred and ninety five firms drawn from 1,123 entities in the country as per KAM membership list (KAM 2019). These firms are spread all over the country. Supply chain coordinators from the sampled 295 firms formed the unit of observation. The choice of manufacturing firms was based on the fact that most firms in the sector outsource logistics function to service providers (Wambua, 2017).

On the content scope, the study limited itself to the following independent variables: contractual risk, cost risk, supplier relationship risk, and management risk as logistics outsourcing risks that impact performance of manufacturing companies in Kenya while information flow was the moderating variable. These variables were most favorable to use because according to Zhou (2012) these are the core logistics outsourcing risks which may affect the core competitiveness and increase logistics costs of a firm. According to Tsai *et al*. (2008) the secondary risk in logistics outsourcing are relationship, asset, and competence risk.

1.7 Limitations of the Study

The researcher faced several limitations as some respondents were reluctant to provide the information due to fears that the information they provided could be used against them or bear some adverse effects on the manufacturing firms and therefore they did not wish to participate in the study. This limitation was overcome by the introductory letter from the University reassuring them that the information was strictly for academic purpose and would be treated with confidentiality.

Another limitation was the delayed response to the questionnaires by some respondents and even some lost them in the process. To mitigate this limitation, the researcher frequently provided additional questionnaires. Lastly, the extensive coverage of the sampled manufacturing firms which covered essentially the entire country necessitated

that the researcher makes elaborate logistic arrangements with the assistance of the four trained researchers to cover all of them to guarantee an acceptable response rate.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The literature review presented the setting of major constructs in this proposal and supported the investigation into the hypotheses, as proposed in chapter one. With increasing literature, it emerged that much of the focus in the view of logistics outsourcing risks and firm performance management was directed at making meaning in enhancing the firm's operational efficiency and effectiveness. This chapter introduced the research study review; it focused on past studies on logistics outsourcing risks affecting performance of manufacturing companies. It presented the relevant literature which pointed out various issues in outsourcing logistics risks. It highlighted the theoretical framework, conceptual framework, critique of existing literature and lastly established research gaps.

2.2 Theoretical Framework

This part reviewed the theoretical structure on which the model of logistics outsourcing risks in manufacturing firms is anchored on. A theory is a group of interrelated constructs (concepts), definitions and propositions that showed a systematic view of phenomena by specifying associations among variables, with the purpose of describing and predicting phenomena (Camp, 2010). Theories are formulated to explain, predict, and understand phenomena and, in many cases, to test and extend available knowledge within the limits of critical bounding assumptions. The theoretical framework is the structure that can hold or support a theory of a research study (Saunder et al., 2018). The theoretical framework introduced and described the theory that explains why the research problem under study exists. Logistics outsourcing risks are based on several theories of which supported this research project.

A theory is set of ideas that is intended to explain facts or events, it is syntactic in nature and is only meaningful when given a semantic component by applying it to some content that is, facts and relationships of the real historical world as it is unfolding (Zima, 2007). The study was based on five theories related to Logistics outsourcing risks. They included; Contractual theor**y**, Transaction cost economics (TCE), Resources based view theory (RBV), Core competency theory, and Agency theory.

2.2.1 Contractual Theory

During the 1960s, Kenneth Arrow conducted the first formal research on contractual theory and found that to implement an outsourcing strategy, a legally bounding agreement should be in place to set the institutional framework and clearly define each party's rights, duties, and responsibilities. The contract should specify goals, policies, practices, and strategies on which the arrangement is based on (Luo, 2002). The rationale of the outsourcing pact is to facilitate proper exchange of services between the two parties, prevent misunderstanding, define the expectancy of each party in a cooperative relationship, and provide dispute resolution mechanism. Properly written contracts prevents uncertainties arising from non-performance, misinterpretation, and also reduces ambiguity likely to be faced by firm decision making process.

The contract sets a means for difference solving and legal experts emphasize the need for comprehensive contract which can serve as a reference point specifying how the client and the vendor interact (Kem & Willcocks, 2000). According to Wallenburg (2010) the companies that search to outsource logistics should have an agreement with distinct clauses to safeguard against conflicts of interest. At the same time provide a solid and reliable foundation for the relationship and ultimately minimizing the risk of failure for both partners.

Unfortunately, because of the complications that come with the involvement of various legal entities, conflicting motivational triggers and even because of the passage of time itself, contracts are not foolproof and may even give rise to some long-term

inconveniences. The failure of the outsourcing agreement may have a lasting negative impact on the relationship of the manufacturing firms in Kenya and providers of outsourced logistics services. This theory is based on legal binding agreement between the firm and the outsourced company covering the responsibilities, roles, rights and dispute resolutions mechanisms. It confirms that a contract cannot be foolproof hence creating uncertainties which are source of contractual risk.

2.2.2 Transaction Cost Economic (TCE) Theory

TCE theory was presented by Williamson in 1979 and observed that transaction costs arise from the fact that it is not possible for a firm to completely cover all terms in a contract. Imperfect agreements provide the chance for renegotiations and especially when the balance of control between the transacting parties changes (Williamson, 1979). Firm's transactions closely related to transaction costs include; the requisite of venture in resilient and specific asset, inefficiency of transacting, task complexity and uncertainty, challenge in measuring activity output and interdependence with other transactions.

Transaction cost economics theory is based on a balanced assessment made by firms after considering transaction allied factors such as asset usefulness, ecological uncertainty and others. Activities conducted under conditions of high risks require specific assets e.g. human and physical capital. Asset specifically refers to the non-trivial investments in transaction that is, specific assets. Williamson (1979) described two factors that can lead to transaction costs.

The first is related to limited rationality, the inability of humans is to envisage all matters relating to a transaction. The second factor is the risk of opportunism. This occurs when one party involved in the transaction benefits from unanticipated changes in conditions surrounding the transaction (including changes in quality, technology, and market situation of supply and demand) and, taking advantage of this situation, the stronger party requires contract modifications that bring them unwarranted advantage.

Additionally, the theory viewed the link between customer and service provider as a model that facilitates economic transactions (Reuben et al., 2007). Transaction costs constitute of; time, funds, human capital, contract issues involving negotiation and risks. Therefore the cost considerations make relationship between supplier and customer to be closely integrated (Shaharudin et al., 2014). However, according to Wachira *et al.* (2016) the two theories RBV &TCE can be pooled to form a combined view through which outsourcing decisions can be based upon as they complement each other.

Transaction cost economics argued that, during any economic exchange, the cost of the product or service should include all hidden costs. For example, when setting up a relationship amid Kenya manufacturing firms and their logistics service suppliers, hidden costs might include the time used up developing the relationship, the creation of contracts by a lawyer, or travel between different locations. The explicit focal point for TCE is the reduction of transaction exposure by accounting for all organizational costs that is, transaction and production costs (Wever et al., 2012).

Drawing on transaction cost economics theory, the sourcing decision is often seen as a rational decision made by firms that have considered transaction related factors such as asset specificity, environmental uncertainty, and other types of transaction costs. Whenever an activity is conducted under conditions of high uncertainty, or whenever an activity requires specific assets, transaction costs, the costs of writing, monitoring and enforcing contracts, are likely to be high. When transaction costs are high, outsourcing is deemed to be relatively inefficient compared with internal, hierarchical administration (Wever et al., 2012). TCE provided theoretical basis for the research to examine the relationship between cost risk and performance of manufacturing firms.

2.2.3 Resource Based View (RBV) Theory

According to Barney (1991) key propagator of the theory, the resource based view was constituted on the concept of productive resources. Logistics outsourcing can be viewed from the aspect of association between service receiver and service provider. The

resource based view analyses the internal strengths and weaknesses aspects of a company. A firm's resource perspective generates the core competencies and competitive advantage for specific business activity, RBV defines resources as tangible and intangible assets within the firm.

In view of RBV theory, outsourcing was taken as a strategic resolution for satisfying needs that may exist in the firm's resources and capabilities (Wachira et al., 2016). Normally, firms establish their definite resources which they routinely review in order to counter and align with the changing business world. According to Pettus (2001) companies should establish different capabilities which are adaptable to the environmental adjustments. Capability which is the potential of a firm is the key role of strategic management to skillfully become accustomed, combine and rearrange internal and external organizational skills, resources and functional abilities to match the necessities of a diverse environment. Collective potential, skills and right resources are necessary ingredients used by service providers to make quality products.

RBV theory concentrated more on the entity's internal capacity rather than external opportunities and barriers created by industry conditions. The theory maintains that in order for a firm to generate sustainable competitive advantage a resource must provide economic value and must be in short supply and impossible to reproduce or replace. The theory also relies on two key conditions; that resource determine the firm performance and secondly, they must be uncommon, valuable, difficult to imitate and non-substitutable by other rare resources. Competitive advantage is created by the latter condition (Priem & Butler, 2001).

The RBV theory has provided the theoretical foundation for many logistics outsourcing studies with the focus being on the variation in the performance levels of 3PL providers (Yew Wong & Karia, 2010) and the results on the performance of the outsourcing firm (Zhao et al., 2001; Lai, 2004; Liu & Lyons, 2011). The key conclusion in these studies was that logistics capability is directly interrelated to company's performance. Overall, this theory and the relevant literature employed suggested that the service providers'

logistics capability tends to be the fundamental factor that leads to exceptional firm performance.

This theory was useful to this study because managers played a vital role in enhancing the performance of their firms by creating relationship with stakeholders. RBV theory serves as a good starting point for the theoretical framework of the research, which explained logistics outsourcing as based on rare and valuable resources within the market, hence brought out the influence of supplier relationship risk on performance of firms.

2.2.4 Core Competency Theory

Simchi-Levi *et al*. (2004) introduced core competency as the joint learning in the organization on how to harmonize varied production skills and amalgamate multiple resources that distinguish a firm. This theory is based on make or buy decision which propose that firm's activities should either be performed in house or by outsourced external service providers. Outsourcing of non-core activities should be offered to best appropriate service providers who are experts in that field. However the activities which have a big impact on competitive advantage even if non-core should be retained in house.

Core Competencies are bundles of skills and competencies that firms built over period of time. They are not ordinary skills that can be acquired by any business organization anywhere in the market, easily (Edgar & Lockwood, 2012). The opinion of traditional approaches to strategy which state that outsourcing aspects of the core business is risky is supported by many practitioners and academics. Companies may lose their competencies and become hollow (Prahalad & Hamel, 1990). Furthermore, negative outsourcing effects can be experienced when competitors are able to pinch key aspects of the firm's knowledge base (Bleeke & Ernst, 1991).

Engaging in outsourcing at this point was more or less a way of helping firm to transfer its decision rights and accountability to vendor and let the client pay more attention to its core competencies. While the firm outsources its activities to the vendor, it also helps the firm to connect with the core competency of the vendor and share the information and knowledge with each other. The focus of outsourcing in recent years has been changed, not only for cost economies but also a strategic decision looking for business partner who can contribute to the strategic efforts of the company by providing it with proficiency and competencies that are not available in-house (Wachira et al., 2016).

The practice of outsourcing non-core competencies remained relevant to manufacturing firms in Kenya as it transfers responsibilities such as cleaning, security, IT and transport functions to the hands of accomplished experts in terms of experience and cost management (Chandra & Kumar, 2000). Vendors' knowledge on the outsourced activity is an important factor that influences success of the arrangement (Lavina & Ross, 2003). Core competency theory was consequently constructive in measuring the impact of management risk on performance of manufacturing firms in Kenya.

2.2.5 Agency Theory

Agency theory was authored by Stephen Ross and Barry Mitnick in 1970s and has been broadly used across a variety of disciplines, but little work has been undertaken with regard to how agency theory might be used to explain relations between organizations within the supply chain. Agency theory is relevant for the situations wherein one party (the principal) delegates authority in terms of control and decision-making about certain tasks to another party - the agent (Norman, 2008). Supply chain management scholars have shown budding interest in using agency theory to understand how participants within the SC manage risks, align incentives and forge relationships (Wachira et al., 2016). Nevertheless, its origin can be found in the works on economic risk analysis where it began by addressing a common predicament in organizations, individual group goal incongruence and its impact on risk sharing behaviour. This was reflected in the

theory's appreciation of the broader agency problems as entailing a portfolio of issues that need to be managed under conditions of uncertainty (Heracleous & Lan, 2011).

According to Fayezi (2012) agency theory is applicable under conditions of incomplete information and uncertainty, (which characterizes most business settings), two agency challenges come up, adverse selection and moral hazard. Adverse selection is related to the problem that the principal cannot determine if the agent accurately represents his ability to do the work for which he is paid; moral hazard refers to the problem that the principal cannot be sure if the agent has put onward maximum endeavor (Eisenhardt, 1989).

These two problems give rise to several of methods of monitoring, which may include organizational and capital structure, remuneration policies, accounting techniques and stance towards risk taking. Agency costs refer to the total costs of administering and enforcing these arrangements, as well as resolving any conflict that may proceed (Wachira et al., 2016). Agency theory was for that reason helpful in determining the influence of information flow on the relationship between logistic outsourcing risks and manufacturing firm’s performance.

Table 2.1: Summary of the theories and postulations related to the study

Theory/Postulation	Authors	Focus/Argument	Application
Contractual theory	Simchi-Levi, Keminisky and Simchi-Levi, (2004)	Legally bound framework	Combined learning in the organization to match up varied production abilities and put together a range of streams of technologies
Transaction cost economic theory	Williamson (1979), Blome *et al*. (2013)	Opportunism and limited rationality	Related to limited rationality, the inability of humans are to predict all matters relating to a transaction and risk of opportunism. This occurs when one party involved in the transaction benefits from unanticipated changes in conditions surrounding the transaction and taking advantage of the situation
Resource based view theory	Wong and Karia, (2010); Ramírez *et al*. (2011)	Firm rare resources, capabilities and competitive advantage	Firm odd resources and capabilities determine firm performance and sustainable competitive. Therefore, a firm should develop logistics strategy on its core competencies in order to lessen costs and exploit their value
Core competency theory	Arnold, (2000); Wachira *et al*.(2016)	Make or buy decision	Outsourcing of the firm's core activities may reduce the attractiveness in innovation, reveal of the critical technologies may increase the potential competitors, thus offset the benefits brought by outsourcing
Agency theory	Eisenhardt (1989); Fayezi (2012)	Incomplete information and improbability	Two agency issues: adverse selection and moral hazard. Adverse selection is about the problem that the principal cannot determine if the agent accurately represents his ability to do the work for which he is being paid; moral hazard refers to the problem that the principal cannot be sure if the agent has put forth maximum effort

2.3 Conceptual Framework

Conceptual framework is a set of principles and wide thoughts taken from relevant fields of enquiry and used to structure a consequent presentation (Thomas, 2010). Its aim is to guide a researcher in developing awareness, understanding of the situation under scrutiny and communicate the results in a wide viewpoint. The framework explained the variables and illustrated the principal relationships between the predictor and the responding variables in the study. Mugenda (2008) defined a variable as a measurable characteristic that assumes different values among units of particular population. Success of manufacturing companies was considered as the responding variable for the reason that any triumphant firm performance depends on numerous different factors which are termed as independent variables. The explanatory variables in this case are the core factors that influence the accomplishment of the firms and they include; contractual risk, cost risk, supplier relationship risk, management risk and information flow as a moderating variable as shown in Figure 2.1

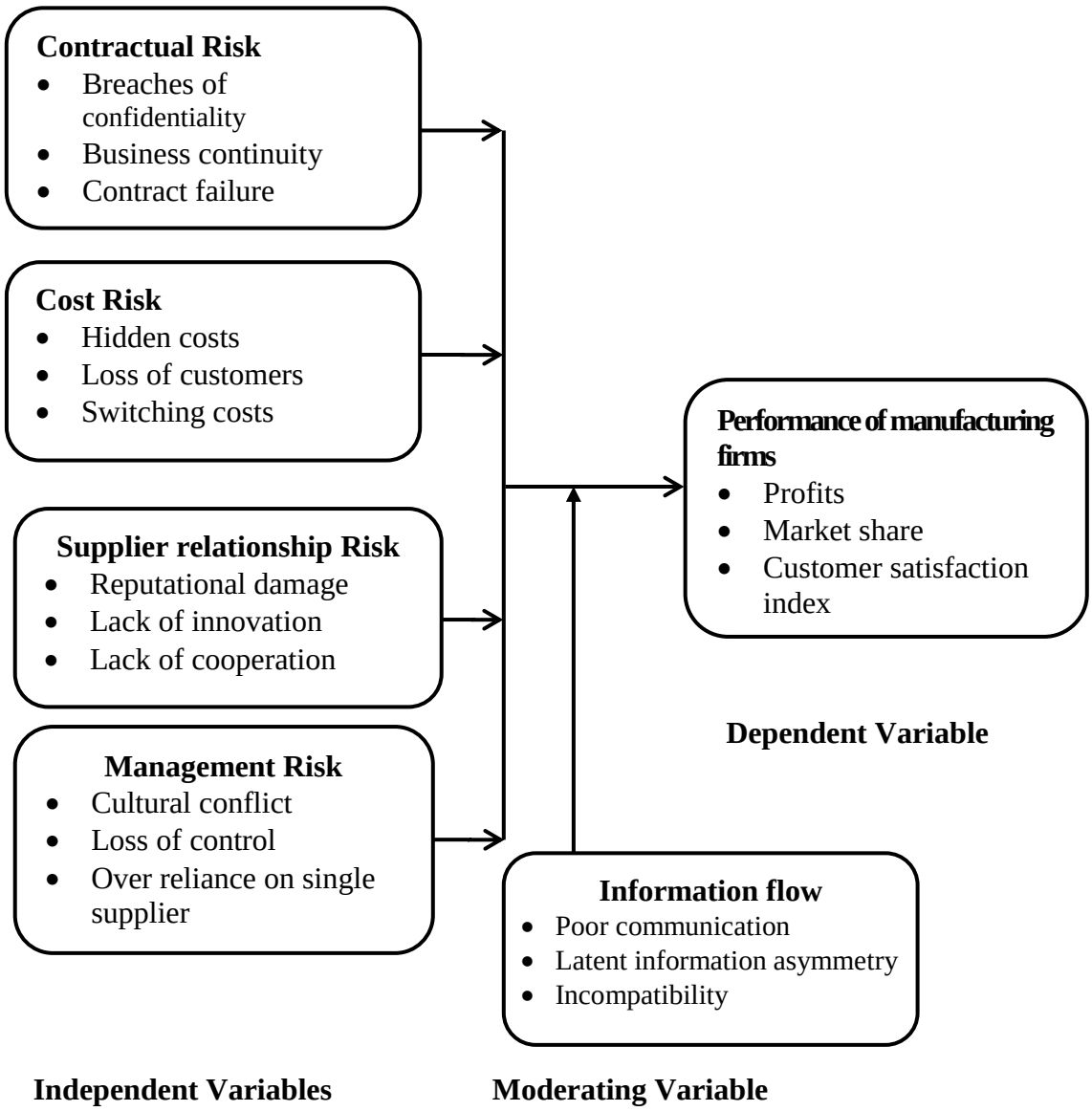

Figure 2.1: Conceptual Framework

2.4 Review of Variables

2.4.1 Contractual Risk

This is the risk that a third party logistic provider cannot fulfill all requirements in expected quality or requisite time (Waters, 2014). The design of outsourcing contract according to logistics outsourcing shall cause agreement risks because the supplier of logistics services cannot discharge their responsibilities or logistics principal is incapable of settling expenses on time as predetermined in the contract. In Generally terms, both the service provider and company are not in position to meet their contractual commitments. However, resource limitation on the side of the logistics provider may impinge on its capability to complete all contracted tasks in a demanding season hence interfering with the results expected from the whole process (Huo, 2015).

Wang *et al*. (2015) noted that the term outsourcing is used to embrace an extremely extensive collection of different measures. Nonetheless, outsourcing entities have universal interests which are based in reassigning to a third party the responsibility for performance of a particular service or function with a consequential lack of direct control. The logistics outsourcing contract is considered vital in maintaining the balance of power between the firm and the logistics service importance of the subject matter.

Poor outsourcing logistics contracts led to the end of the relationship and besides great losses in terms of financial capital (Zailani et al., 2017). Comprehensive contracts create, allocate and defend value as well as coordinate communication, inspiration and control in a company. They are resources not only for managing uncertainties between parties but also for administering commitments (Norrman, 2012). Other authors also emphasized the substance of such written agreements, underlining the fact that excellent contracts mitigate future ambiguities and disagreements and proposed that negotiation of contracts be handled perfectly (Muresan et al., 2012).

There appeared to be no published research and work on the theme of contractual issues with logistics outsourcing though, there are a number of journals on logistics outsourcing. Razzaque and Chang (2010) did a comprehensive review on the outsourcing of the logistics function. This literature can be generally categorized according to different focus areas. Some of these focus areas included; logistics practices, usage of 3PL services, present state and future trends, strategies and performance measurements. In addition, there were a few studies which deal with the concerns and general risks related to this logistics outsourcing (El Mokrini et al., 2016; Wachira et al., 2016; Tsai et al., 2012). However these studies did not appear to discuss contractual risks with logistics outsourcing.

2.4.2 Cost Risk

It is the risk that the project outlay go beyond what was budgeted. It can lead to performance uncertainties if cost overruns cause reductions in scope or quality of services Cost risk can also contribute to schedule risk if the program is extended because of lack of funds to complete the project on time (El Mokrini et al., 2016). Following logistics outsourcing, great changes of the enterprise's surroundings may take place or it may not make thorough considerations when signing a contract, resulting in the return on venture lower than expected. In addition, the company has invested in human, material and financial resources in the procurement process for the right provider including negotiation and contract management. This investment translates to transaction cost which results to the enterprise's cost risk (Zhou Li-jun, 2012).

Drawing on a study of IT outsourcing by Bartholomew (2001) who examines hidden costs and observed that benefits can be eroded by costs that firms' managers are incapable to recognize a priori in the process of logistics outsourcing. Numerous companies do not factored the costs associated with selecting a third party logistics provider including contract negotiations and drawing. Spending time and money at the initial stages of contracting assist in contract management and avoids having to renegotiate contract terms or constantly follow up the logistics provider to get the

expected performance. According to Zsidisin (2008) relying solely on a logistics service provider exposes the company to a greater risk when it comes to the financial security of that provider. Financial failure or bankruptcy of the 3PL leads to loss of a certain services or functions within the company and may potentially limit or completely interfere with production which affected the competitive advantage of an entity.

Estimating changeover costs may be not straightforward. Switching in-house logistics activities to a third party logistics provider presents possibly the most elusive hidden cost (Langley et al., 2015). Majority of firms do track their expenses during on-boarding hence cannot account for the process costs till the transition is complete. Managing the effort probably represents the primary kind of hidden costs because it covers three areas: monitoring to ascertain that logistics providers discharge their contractual obligations, agreeing service level terms with logistics providers, and negotiating any considered necessary contract adjustments. Vendor management overheads for logistics outsourcing are not readily noticeable either. Management gets interested to trace these hidden costs when it became evident that overall outsourcing costs have markedly grown than estimated (Tsai, 2012).

According to Yang (2016) amplified costs are not immediately visible because the company focus is on the objective of outsourcing which is principally to save costs. However, those hidden costs are present, when measured vigilantly. For instance, it is necessary to note that 3PLs have the strength and experience in the negotiation of these contracts. The company considering outsourcing may be limited in expertise hence needed to contract for legal services to negotiate terms with the 3PL.

The company required to be guaranteed that the contract contain clear working principles agreeable by both partners as well as an approved exit strategy for both parties. Without these agreements in place, the risks to the consumer company are noteworthy potential loss of business. It is also necessary to consider the supplementary costs incurred during the intervening period of transition from coordinating the logistics function in-house to moving the same to logistics service providers.

2.4.3 Supplier Relationship Risk

Tsai *et al.* (2012) noted that, in alliances additionally to the common risk of unsatisfactory business performance, there exists the risk of the service provider not devotedly cooperating. By and large, supplier relationship risk is defined as the prospect and consequence of not having reasonable cooperation or risks derived from imbalance of power among trading partners who exercise opportunistic behaviours that in turn lead to poor reputations and lack of business continuity. Relational risk includes comparable risks associated with the collaboration and correlated with the partner's deeds.

In third party logistics outsourcing literature the crucial role of relationships was illustrated by; Li Shuting, Kang Mingu and Haney Mark (2017). Among the issues discussed by these authors are the failure of outsourcing firms to manage providers as a business and a lack of mutual consideration for each other. In turn these conditions cause unsatisfactory sharing of business information among the parties with subsequent challenge to provide an appropriate environment for business relationship to nurture.

In many cases the division of responsibilities among the two partners is not easy to apply thus causing overlapping roles and conflict in execution of activities. The crucial role of relationships in logistics outsourcing is well expressed in a quote by Denault (2006): "logistical considerations and expertise might be important factors when choosing a partner, but never as important as the relationship which includes the networks of contacts the local partner will bring into the project". After a lengthy phase in outsourcing of logistics, the principal is more dependent on the provider, and pays more attention to the cost, thus reducing its own logistics innovation and falling into a passive situation in the cooperation.

However, when the outsourcing enterprise tries running the logistics business by itself, it may come across series of hitches, such as the shortage of talents, experience and the deficiency of management (Yang, 2016). Dependency risk may occur to firms that contracts out their logistics activities to a third party logistics providers. Through

contracting out these activities to the same third party logistics provider over elongated contract period, the enterprise may expose itself in an increasingly vulnerable position including even lacking control of portion of its functions activities and lack of emerging knowledge in the area (Virum, 2001).

According to Zailani *et al*. (2017) when a firm has outsourced its logistics services, its capability to discover new ideas may be compromised. Primarily, if a company desire to preserve its competitive competences entirely, it should develop fresh approach of providing logistics services for the business noting that external sourcing does not warranty innovation. Throughout outsourcing phase, the 3PL provider may not make a distinction when to innovate as the center of attention may be on costs objective henceforward lose on market share. The company may locate itself in gradually more susceptible position and cannot be reactive to changing market environment and customer evolving demands (Schwarz, 2001).

2.4.4 Management Risk

It is risk due to the discrepancy between the management techniques of the outsourcing entity and the way of life of the company used by the provider (Fugate *et al.,* 2010). In the cooperation between the industrial or circulation enterprise and logistics provider, the variance of their management methods and enterprise culture possibly cause the administrative risk of logistics services outsourcing. If the outsourcing enterprise cannot appropriately deal with their cultural encounters, fully gauge logistics provider, effectively manage logistics provider with the result that logistics outsourcing fails to be accomplished (Yang, 2015).

In the operation procedure of logistics outsourcing, there exist all categories of complications. Case in point, if the service provider adjusts the outline of logistics service, which may influence all the staff and even be boycotted by them, the normal production and operation may also be influenced. In addition, the logistics outsourcing may affect the interests of some employees hence reducing their loyalty and morale

(Joto & Odock, 2019). The 3PL may probably lack know how of the company's core business and may have margins as their focal point and optimization of the contractual terms. The company may face incompatible culture and ethos from the commissioning company and consequently experience sinking standards in terms of services and products. This could affect customer service due to reduced concentration on their requirements.

In logistics outsourcing structure, each party may be pushing a divergent objectives so there exist commercial variations between business and the partnerships are being replicated from different perspectives. Other conflicting factors are management approaches and levels of bureaucracy within the firms. For the partnership to succeed, consideration of these factors is crucial to ensure feasibility of the collaborative endeavor (Vagadia, 2012). Many entities who may be considering outsourcing logistics function are more concerned of inability to control running of their business. Good example of these uncertainties is the lack of control over the universal management of the sector or function that has been outsourced. This may manifest itself as a loss of direct control over the transport of the products and could potentially disturb the customer's experience (Ansari et al., 2010).

To objectively appraise the performance of a third party logistics provider, firms must cultivate flawless guidelines with clear key performance indicators for evaluating their results. Nonetheless, this is a factor that is not usually put into reflection by firms when developing a partnership with third party logistics providers. Monitoring logistics outsourcing is habitually a difficult and intricate task. In order to certify that the business provided by the outsourced party is within the established standards, resources such as money, time and expertise are needed to institute an effective monitoring system (Tsai, 2012).

2.4.5 Information Flow

This results from uncoordinated information sharing which could lead to lack of communication and huge losses (Wardaya et al., 2013). In logistics outsourcing practice, outsourcing enterprise should share a proportion of customer information, commodity information and management information with the logistics provider. Consequently, the aforementioned information is probable to be given away. After the completion of their cooperation, though both parties sign confidential agreement, it is more likely that much information of the outsourcing enterprise shall be given away, which may cause great losses (Hartmann, 2012).

Most collaborative schemes are impacted by the lack of visibility and information. In outsourcing arrangements, incomplete control and inadequate information concerning project unavoidably passes from the enterprise to the supplier (Wu et al., 2014). The full control of an outsourced logistics business by firm will critically be decided by the information provided and the timely recognition of problems. Since the information obtainable to the logistics superior would be less inclusive than it would be if the logistics activities were conducted in-house, absence of effective communication could supervene as a result. This could lead to hitches of quality, delivery delays, as well as misinterpretations and even suspicion (Liu et al., 2015).

Because of misconstruction and lack of trust, logistics service providers also have to build limp into their operations. Lack of visibility of consignment and demand schedules may result in the formation of surplus capacity and additional shipping expenditures. It can also lead to the use of inefficient methods of transportation (Yousefi et al., 2015). Outsourcing a supplier could lead to potential violation of confidentiality, bring in the exposure of customer private data or the sharing of commercially strategic information.

According to Liu *et al.* (2018) there could exist an information imbalance among the parties in logistics outsourcing. The third party logistics provider may have bits of information about the contracting company; similarly the interested company may suffer

from the same deficient about the logistics service provider. For illustration, if a vendor has partial information about the customer companies' cost structure; the quoted price complete with profit may not be well matched to the market and expectation of the vendor.

2.4.6 Performance of Manufacturing Firms in Kenya

According to Selvam (2016) it was to be noted that the identified determinants for firm performance are profitability performance, growth performance, market value performance, customer's satisfaction, employee's satisfaction, environmental performance, environmental audit performance, corporate governance performance and social performance. Hervani, Helms and Sarkis (2005) includes both quantitative (Return on Investments (ROI), profitability, market share and revenue growth) and qualitative measures (customer satisfaction and the performance of the inventory) which mostly depend on the goals of the business.

Thrulogachantar and Zailani (2011) also stressed the magnitude in measuring manufacturing performance through evaluating the key competitive priorities which consisted of right quality, on time deliveries and flexibility. However, their performance measurement focused only on three elements and neglecting other competitive priorities element such as operational costs, innovation and customization responsiveness. Cost and new product introduction which directly related towards the innovation and customization responsiveness, was important in creating synergy in the manufacturing growth as this could eventually determine the sales of product created.

Table 2.2: Operationalization of variables

Variable	Theoretical Definition	Operational Definition	Measuring range
Contractual risk	The risk that a third party logistic provider cannot fulfill all requirements in required quality or required time	The level to which firms experience failed contracts or erroneous selection of partner and breach of confidentiality	Likert type scale
Cost risk	The variability in cash flows and market values which is caused by unpredictable changes in three major variables such as; commodity prices, interest rates and exchange rates. It means that the actual output on investment of outsourcing is lower than the anticipation.	The point to which firms have unrealized savings with a potential for increased cost, failure to comply with quality and delivery schedules and bankruptcy of logistics service providers	Likert type scale
Supplier Relationship risk	Risk derived from imbalance of power among trading partners who exercise opportunistic behaviours that in turn lead to poor reputations and lack of business continuity (Tsai et al., 2012)	The degree to which firms are exposed to loss of logistics innovative capacity, reputation or dissatisfied customer and dependence on logistics service provider	Likert type scale
Management Risk	Risk due to the discrepancy between the management techniques of the outsourcing entity and the way of life of the company used by the provider (Fugate et al., 2010).	The extent to which firm's experience cultural conflict, loss of control and reliance on service providers	Likert Type Scale

Information flow	Challenge of poor quality information sharing which can result in serious problems and dramatic losses	The extent to which firms face dormant information asymmetry, incompatibility loss of confidential data to logistics service provider	Likert type scale
Performance of Manufacturing Firm	An assessment of how economically a firm's resources are utilized when providing a pre-specified level of customer satisfaction (Shepherd and Gunter 2006).	The extent to which resources available to firms are used to achieve output in form of productivity, market share, customer satisfaction and profitability	Likert type scales

According to Mugutu *et al*. (2012) the outsourcing approaches applied by the large manufacturing companies resulted in improved productivity, performance efficacy, desired margins, incremental improvement, enhanced quality and improved work life standards thus outsourcing of these processes was an ideal solution that helps the firm expand internationally and operate on a much larger scale. At the same time, outsourcing lead to decline in operating expenses, better customer need fulfillment, improved output, timely delivery of services to clients, expected lead time and enhanced profits, faster reaction to customer needs and use of advanced technology in servicing customers.

This would positively impact firm's performance as it would enable the firm to concentrate on the fundamental activity (core competence) and use best methods and experiences. According to Florian and Constangioara (2014) firms that are exposed to logistic risk experience lower performance as opposed to those whose level of risk is lower. The higher the levels of risks, the higher the consequences which are manifested in terms of customer complaints, quality problems, mismatch of supply and demand as well as delays (Silanpaa, 2010).

2.5 Empirical Review

This sub-section reviewed the empirical literature on the logistics outsourcing risks and firm performance. The studies were reviewed systematically as per the independent

variables of the study. It is through the empirical studies that the critique of the literature and research gaps were obtained.

2.5.1 Contractual Risk and Firm Performance

Mbachu and Taylor (2014) analysed the impact of contractual risks on the construction industry in New Zealand. The authors also sought to analyse the possible mitigation measures to these risks. The study adopted a cross-sectional research design and sampled 213 respondents. The findings revealed that contractual risks were among the key determinants of the success of a project such that the ability of the contractors to deliver and the ability to have the right skills was possible risks that the projects encountered as far as the contractors were concerned. Mbachu and Taylor (2014) however established that through early involvement of the contractors and bringing them closer to the organization, it was possible to mitigate the contractual risks. They further recommended the need for continuous training of the suppliers and contractors, as a way of minimizing the occurrence of the contractual risks.

In the study of Sauvage and Haouari (2011) the authors put the effort in sketch a conceptual model of risk management applicable to logistics outsourcing. Their outcomes demonstrate that risk management could be an innovative tool supporting the achievement of logistics outsourcing. Hsiao *et al*. (2010) empirically surveyed if outsourcing diverse logistics activities causes variances in logistics service quality. They analyzed outsourcing of four ranks of logistics activities; delivery reliability, flexibility and lead time. Their conclusions exhibited that these outsourcing activities have no direct impact on service performance.

Gitahi and Tumuti (2019) did a study on the impact of management of contracting risks on performance of construction projects in Kilifi County, Kenya. The authors subdivided the contractual risks into four other risks which are financial risks, technical risks, scheduling risks and health and safety risks. They surveyed 73 construction projects in the county and specifically focused on the technical staff in these projects. The findings

revealed that the contracting risks were critical in determining the performance of the projects hence managing these risks was essential for the success of the projects. According to Gitahi and Tumuti (2019) as a result of poor management of the contractual risk, companies have recorded declined performance in their projects which is characterized by poor delivery of the expected services and inappropriate handling of the project processes.

Julius (2017) sought to establish the influence of outsourcing Third Party Logistics providers on the performance of food and beverages manufacturing companies in Kenya. The study found out that cost, service quality, lead-time and risk assessment were significant predictors in the performance of food and beverages manufacturing companies in Kenya. The findings revealed that contractual risks were among the main risks affecting the success of the organizations. According to Julius (2017) through delay in logistics service delivery by the contractors and logistics service providers' capacity, logistics provider system, loss or damage of assets, interruptions of service levels, loss of income and liability incurred affected performance.

2.5.2 Cost Risk and Firm Performance

Steria, Micaelli, and Monticolo (2020) analysed the effect of cost risk on continued firm performance in Spain. Their study focused on service delivery firms and surveyed a sample of 174 firms. The findings revealed that the risks of costs skyrocketing to unimaginable levels was always there on most of the projects and firms. This affects the ability of the firms to plan ahead and make stronger investments for their continued performance and sustainability. According to Steria *et al.* (2020) customers are likely to switch to other suppliers while the costs incurred in making the operations of the firms successful could not be direct hence affecting the overall performance of the firms.

Tsai *et al*. (2012) while analyzing the dark side of logistics outsourcing unraveling the potential risks leading to failed relationships, established that cost risk were among the major outsourcing risks that effected the success of most of the modern firms. The

authors identified the potential risk factors and their physical relationships that could lead to logistics outsourcing relationship failure and found that risks such as costs could be distractive to the flow of processes, thus affecting the performance of the firms in the long-run.

Cheong (2015) evaluated logistics outsourcing and 3PL challenges in Singapore. The research attempted to broadly identify and categorize the challenges faced by 3PL companies and discover potential gaps for future research. Through an interview, the research identified four challenges which included costs of the logistics processes, the logistics network configuration, information flow, material flow and relationship management. According to Cheong (2015) through the hidden costs of operations and costs associated with processes not directly contributing to the success of the logistics process, the companies are likely to lose their revenues thus affecting their overall performance. The potential gaps identified included; dynamic logistics network configuration with changes in transportation links and modes, full coordination with upstream and downstream, information sharing for collaborative forecasting from 3PL provider's standpoint and system integration and quantifying the actual money loss accrued due to a unit of non-performing indicator.

Panfilova and Zatsarinnaya (2020) analysed the impact of costs allocations on the supply chain success. Their study analysed the risks associated with supply chain costs and how these risks affected the entire process of supply chain. The study utilized an empirical research approach. The findings revealed that through a well-framed way of managing costs and risks associated with the supply chain costs, the firms became more effective in cost-saving and enhancing the flow of the supply chain processes. According to Panfilova *et al.* (2020) cost risk in supply chain are part of the supply chain process, and managing these risks comes with the reward of enhanced performance.

2.5.3 Supplier Relationship Risk and Firm Performance

Amoako-Gyampah *et al*. (2019) analysed the effect of supplier relationship management on firm performance in developing economies. Their study sought to assess the effectiveness of supplier relationship management and how this had enhanced the performance of companies in developing countries. The authors utilized a correlational research design and sampled 95 respondents drawn from companies in Sub-Saharan Africa.

The findings revealed that while supplier relationship management was upheld in most of the surveyed companies, managing the risks associated with supplier relationship was not effectively looked into. This led to many companies losing their market to the same suppliers that they had relationship with, thus losing their revenue streams and declined performance. According to Amoako-Gyampah *et al.* (2019) one of the ways of ensuring a successful relationship with suppliers is through assessing and mitigating the risks associated with supplier relationship.

Schwieterman, Goldsby, and Croxton (2018) analysed the effect of management of risks through supplier relationships. Their study adopted an empirical approach and sought to assess the ability of supplier relationship to manage the risks associated with the engagement. The findings revealed that suppliers were essential in business continuity and success, but they did not significantly contribute to management of the risks. According to Schwieterman *et al*. (2018) suppliers come with risks, hence it is the duty of the company to manage these risks rather than seeking the help of the suppliers to manage the existing risks.

Logistics outsourcing is apprehensive with likely glitches such as the following: imperfectly scoped work; insufficient control systems concerning how definite services are offered, which on the other side may elevate the company's liability scope; hidden costs and risks; poor high level management support or omission thereof; meager organizational communication; cross-functional partisan problems; blurred expectations;

uncertainties associated with the solidity of the service companies; and matters of confidentiality, security, timing, and shortage of flexibility (Kyusya, 2015).

According to Lazzarotto *et al*. (2014) outsourcing logistics relation has many associated risks, as the norm with business contracts. It is obvious that not all terms can be covered in the contract from commencement, but it is prudent that the two parties identify as many risks as possible and try to get fortification against them through the contract. In this research they examined the main categories of risks found in the outsourcing logistics contracts in the Romanian industry sector. Their discoveries were all risks accompanying outsourcing logistics contracts can be categorized as follows: Strategic risks, operational risks and tactical risks.

2.5.4 Management Risk and Firm Performance

Kamanga and Ismail (2016) studied effects of outsourcing on organization performance in manufacturing sector in Kenya: a case of Del Monte Kenya limited. Results showed that Cost, quality, technology adaption and organization performance had a significant strong positive relationship. There was an insignificant positive weak relationship between risks and organization performance. Based on the study findings, the researchers recommended that: Organizations should not outsource an activity fully until they have confirmed beyond doubt that the service provider is capable of handling the activity, Organization should engage the service provider on the quality standards which are expected before entering into the contract, Organizations should select the service provider on the basis of consistent technical and managerial capabilities, Service providers should only handle particular risks which even if they occurred would not affect the entire organization performance

Bosire (2011) investigated on the consequences of logistics outsourcing on delivery time and customer service among supermarkets in Nairobi. Results came out that outsourcing these services in supermarkets has a direct effect on the lead times of product delivery and that amongst those chains that have outsourced procurement of products from the

suppliers; lead time to deliver the same products to their warehouses has immensely condensed. Onyebueke *et al*. (2019) investigated various challenges of logistics outsourcing that can lead to failure or ineffectiveness when not properly managed, which included: Poor maintenance culture and poor service condition of the Staff of logistics providers, Late payment of invoices by logistics consumers, poor communication management, hidden charges and pricing issues, poor or inadequate documentation, Use of unskilled personnel, change in management or difference in Policy /Modus Operandi (mode of operation), company's secret been at risk and delay. The research was informed by the existence of positive relationship between these challenges and performance of Oil and Gas companies hence the need to investigate how to overcome these challenges in this sector.

Wanjiru and Nyamwange (2017) explored on challenges of import logistics outsourcing by manufacturing firms in Nairobi County. The outcome showed that of the essence, outsourcing motives were satisfying in expounding the decision by manufacturing entities to outsource. The factors of outsourcing are essential in deciding to outsource import logistics. The range of challenges the importers come across when importing services also determined the verdict to outsource in the firms. Mulama *et al.* (2012) on their study on effect of Logistics Outsourcing Practices on the Performance of Large Manufacturing Firms in Nairobi found that the companies were involved in transportation services, warehouse management and material handling controlling.

Table 2.3: Summary of the Previous Studies

Author	Methodology	Focus/Context	Findings
Sauvage and Haouari (2011)	Analysis through risk matrix	Conceptual model of risk management applied to logistics outsourcing in Slovakia	Their results show that risk management could be an innovative tool favoring the victory of logistics outsourcing
Julius (2017)	Survey	Establish the influence of outsourcing Third Party Logistics providers on the performance of food and beverages manufacturing companies in Kenya	On risk assessment, it was established that delay in logistics service delivery and logistics service providers' capacity, logistics provider system, loss or damage of assets, interruptions of service levels, loss of income and liability incurred affected performance.
Tsai *et al*. (2012)	Survey	Studied the potential risk factors and their structural relationships that could result to failed logistics outsourcing relationship	The risk perception increases as the number of functions outsourced increases. Risks related to transaction costs and strategic resources were both significant. The three main risks identified; asset risk and competence risk are more serious concerns than relationship risk.
Onyebueke *et al*. (2019)	Survey	Overcoming the Challenges of Logistics Outsourcing in Selected Oil and Gas Companies in Rivers State Nigeria	The study identified the following challenges: Poor maintenance culture, late payment of invoices, poor communication management, hidden charges and pricing issues, inadequate
Kamanga and Ismail (2016)	Survey	Effects of outsourcing on organization performance in manufacturing sector in Kenya: a case of Del Monte Kenya limited	Results showed that Cost, quality, technology adaption and organization performance had a significant strong positive relationship. There was an

			insignificant positive weak relationship between risks and organization performance.
Lazzarotto *et al*. (2014)	Survey	Examined the main categories of risks included in the outsourcing logistics contracts in the industry sector of Romania.	Their findings were all risks associated with the outsourcing logistics contracts can be classified as follows: Strategic risks, operational risks and tactical risks.
Wanjiru & Nyamwange, (2017)	Survey	Challenges of import logistics outsourcing by manufacturing firms in Nairobi county.	The results indicated that the vital reasons of outsourcing were reasonable in illustrating the choice by manufacturing companies to outsource.
Mugutu, Chirchir & Mulama, (2012)	Sample Survey	The Effect of Logistics Outsourcing Practices on the Performance of Large Manufacturing Firms in Nairobi, Kenya	The results established that the firms were outsourcing transportation management, warehouse management and material handling management. The entities opted to outsource their services due to its benefits and likely influence on organizational performance.

The mentioned assess of literature is by no means exhaustive. However, it is deemed sufficient to highlight several issues. It can be seen that the existing literature is more on effects of Logistics outsourcing on firm's performance but not on the risks associated with logistics outsourcing. Where the outsourcing risks have been mentioned, the literature is based on developed countries.

2.6 Critique of the exiting Literature Relevant to the Study

Onyebueke *et al*. (2019) their study on overcoming the challenges of logistics outsourcing in selected oil and gas companies in Rivers State Nigeria investigated various challenges of logistics outsourcing that can lead to failure or ineffectiveness

when not properly managed, which included: Poor maintenance culture and poor service condition of the staff of logistics providers, Late payment of invoices by logistics consumers, poor communication management, hidden charges and pricing issues, poor or inadequate documentation, Use of unskilled personnel, change in management or difference in policy /modus operandi (mode of operation), company's secret been at risk and delay.

The research was informed by the existence of positive relationship between these challenges and performance of oil and gas Companies hence the need to investigate how to overcome these challenges in this sector. However, the study did not establish qualitatively and quantitatively the relationship between each challenge and the performance of these firms.

Kamanga and Ismail (2016) in their study on effects of outsourcing on organization performance in manufacturing sector in Kenya: a case of Del Monte Kenya limited revealed that Cost, quality, technology adaption and organization performance had a significant strong positive relationship. There was an insignificant positive weak relationship between risks and organization performance. Based on the study findings, the researcher recommended that: Organizations should not outsource an activity fully until they have confirmed beyond doubt that the service provider is capable of handling the activity.

Based on the study findings, the researcher recommended that research should be carried out on procedures which can be used to measure outsourcing performance with more emphasis on Key Performance Indicators (KPI). More research is also needed to evaluate and analyze the risks associated with outsourcing arrangements as most outsourcing contracts are full of conflicts and some of them end prematurely. Lastly, since the current research was carried out in one manufacturing firm, more research needs to be done in other areas in order to compare the results.

On his study Julius (2017) sought to establish the influence of outsourcing Third Party Logistics providers on the performance of food and beverages manufacturing companies in Kenya. The study found out that cost, service quality, lead-time and risk assessment were significant predictors in the performance of food and beverages manufacturing companies in Kenya. On risk assessment, it was established that delay in logistics service delivery and logistics service providers' capacity, logistics provider system, loss or damage of assets, interruptions of service levels, loss of income and liability incurred affected performance. However the research could not clarify how these risks affect performance of these companies.

Wanjiru and Nyamwange (2017) explored on challenges of import logistics outsourcing by manufacturing firms in Nairobi County. The outcome showed that of the essence, outsourcing motives were satisfying in expounding the decision by manufacturing entities to outsource. The factors of outsourcing are essential in deciding to outsource import logistics. The range of challenges the importers come across when importing services also determined the verdict to outsource in the firms. However, the research findings are limited to one County in Kenya and thus, limiting generalization. Also descriptive analysis of data was used to draw conclusions in the study hence not able to compare the relationship of the logistics outsourcing challenges and performance of these firms.

2.7 Research Gaps

From the above literature reviewed, studies such as Wanjiru and Nyamwange (2017); Lazzarotto *et al*. (2014) and Tsai *et al.* (2012) were not supported by supply chain theories. The lack of theory application could have limited our ability to understand contribution of Logistics outsourcing risks in company's performance. It also made the generalization of research findings from one context to another difficult. It is therefore important that the logistics outsourcing risks research literature makes greater use of supply chain theories to improve our understanding of the phenomenon. The study findings of the two researches were not quantitatively validated

and therefore they limited the generalization of logistics outsourcing risks impact on manufacturing firms.

In the Kenyan context, influence of logistics outsourcing risks on the performance of manufacturing firms was not fully explored and there was lack of a guiding framework on how manufacturing firms are affected by these risks (Ojwaka & Osoro, 2023). The majority of the studies on logistics outsourcing risks had been carried out in developed countries. A study by Mulama *et al.* (2012) on effect of Logistics Outsourcing Practices on the Performance of Large Manufacturing Firms in Nairobi found that the companies were involved in transportation services, warehouse management and material handling controlling. However, the study did not identify the risks involved in these practices and how they affect performance of manufacturing firms.

According to Kamanga and Ismail (2016) more research is needed to evaluate and analyze the risks associated with outsourcing arrangements as most outsourcing contracts are full of conflicts and some of them end prematurely. These should be extended to several manufacturing firms in Kenya. Njumbi and Katuse (2013); Kilasi, *et al*. (2013); Kyusya, (2015); Magutu, *et al.* (2012) and Bosire, (2011) have all carried out studies on 3PL outsourcing however, diminutive has been written about the logistics outsourcing risks in Africa and more precisely there is very little research done on logistic outsourcing risks in Kenya. Therefore, this study sought to fulfill these gaps by investigating on influence of Logistics outsourcing risks on the performance manufacturing firms in Kenya.

2.8 Summary of Literature Review

In the present day, there are accumulating number of companies focusing their efforts on their core competencies and outsourcing their logistics functions to one or more service providers. The coverage to which a business may commendably interact with a 3PL provider will greatly be a dependent of the facts known and the early revealing of

challenges. The desire to attain advantageous skills and knowledge from external companies may be the ultimate aim for an organization.

Logistics outsourcing has promptly become a kind of new firm's operation tactic with its returns including; optimizing operating costs and firming up the core competitiveness, accelerating organization reconstruction, and enlightening entities' reaction speed. However, companies' logistics outsourcing is undergoing a diversity of risks resulting from the influences of several factors such as the uncertainty of the external environment, changes in the market, enterprise risks resolution ability and risks management ability.

Consequently, how to implement the decision of effective logistics outsourcing for enterprises becomes a research substance which need be immediately explained. To ensure the successful completion of logistics enterprises' outsourcing, risks due to relying on logistics service providers must be appropriately evaluated. Although the literature has several theoretical models and empirical studies discussing the; outsourcing decisions, its contributing factors, advantages and disadvantages. It remained eminent that the studies based on the risks of logistics outsourcing and adopting a management approach are pretty uncommon.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

According to Ragab and Arisha (2017) research is outlined as the methodical application of scientific technique to the problem under consideration. Research methodology therefore presents the overall framework on how research results may be achieved through data collection and analysis. This chapter presented the various methodologies that were employed in the study. It described the research philosophy and design, the population, sampling frame, sampling technique, data collection instrument, data collection procedures, pilot test and data processing and analysis.

3.2 Research Philosophy

Research philosophy can be defined as the belief about the way in which data concerning a phenomenon should be gathered, analysed and applied (Saunders et al., 2016). Research paradigm can be explained as the general structure which encompasses; observations, beliefs, understanding of several theories and practices that are used to conduct a research. It can also be characterized as a clear-cut technique, which contains numerous phases through which a researcher creates a liaison between the research targets and queries (Bryman, 2012). Social research is characterized by a number of different perspectives or philosophies. The most commonly referred to are the positivism and phenomenology. The philosophy can influence the research design and interpretation of the enquiry at hand. These two have provided useful insights into most research investigations (Saunders et al., 2018).

This study relied on positivism philosophical approach which is directly connected with the idea of objectivism. Study was founded on generating universal information and data from a huge social sample instead of focusing on details of research. In this position, researcher’s own opinions and beliefs lack consequence to influence the study. The

positivism philosophical approach is essentially interconnected with the explanations and experiments to collect numeric data (Smith et al., 2006).

The difference between the positivism and phenomenology philosophical extremes is in the fundamental views and the application to the research state. The epistemological foundation for the phenomenological view is that knowledge emanates from human experience in a none consistent and continuous manner where no pre-set categories within which the researcher can operate in favor of observations and in-depth interviews as opposed to questionnaires. Phenomenology usually generates connotation from the point of view of the researchers preferring a more qualitative approach to data collection and interpretation (Bryman, 2012). The faults of this approach compared to the positivist approach is that it results to imprecise deductions characterized with less exactness, accuracy and credibility prone to falsifications imposed by the researcher's purposes and values (Saunders et al., 2018).

The study adopted positivism research philosophy whose literature is characterized by testing of hypotheses from existing theories through measurement of observable social realities, using data formerly collected from the field (Saunders et al., 2016; Ericksson & Kovalaineen, 2008). This philosophy is upon values of reason, truths and validity, and there is a focus purely on facts measured empirically on variables using quantitative methods examination, and statistical scrutiny of the data (Thorpe & Jackson, 2008). Thus, through the positivistic approach the scholar was in a position to establish the nature of relationships that underlie them, test the formulated hypotheses and make interpretations from the research results. This is because the reality surrounding the occurrence of logistics outsourcing risks and the performance of manufacturing companies in Kenya can be studied impartially.

3.3 Research Design

The study assumed jointly descriptive and explanatory research designs which allow for both observational data and formulation of a problem for more accurate investigations

(Bordens & Abbott, 2014). According to Kothari (2004) the two research designs may facilitate research to be as resourceful as possible yielding maximum information. Both provide the collection of relevant evidence with minimal expenditure of effort, time and funds; the resolve of the research transpires to be an accurate descriptive of condition and investigation of the affiliation between variables.

Explanatory study design was applied to establish the magnitude, direction and significance of the logistics outsourced risks on performance of manufacturing enterprises in Kenya. It is restricted to evidential findings and may assist in the construction of important ideologies of knowledge and explanations to significant problems (Mugenda & Mugenda, 2003). Regression techniques was applied to discover the relationships between variables. The study investigated the relationship between logistics outsourced risks and performance of manufacturing entities' hence explanatory research design was relevant.

3.4 Target Population

A population is defined as total collection of elements about which we wish to make some inferences (Kungu, 2015). Kothari (2004) argues that a population is all items in any field of inquiry which is also known as the universe. Target population is defined as the entire aggregation of respondents that meet the designated set of criteria (Kothari, 2004). It is the group of individuals to whom the survey applies. The target population was all the manufacturing firms in Kenya that outsource logistics services and listed by Kenya Association of Manufacturers (KAM). According to (KAM, 2019) there are 1,123 manufacturing firms registered in KAM directory 2019 which formed the target population for this study.

The study focused exclusively on the manufacturing firms that deal with transformation of raw materials and semi-finished products into more complex form or for the final consumers. Those in services, consultancy and fresh produce were excluded. These firms are classified into twelve segments and located across the country. The

respondents were the administrators charged with the organization of supply chains within the sampled entities. The resolution to settle on supply chain executives in this study is founded on the notion that these are the employees with past and present knowledge of the weight of logistics outsourcing risks on effective performance in their respective firms and would be best positioned to share valuable acumen to the study. The number of companies under each division is accessible in Table 3.1.

Table 3.1: Target population

Category of Manufacturer	Target Population
Building, Mining & Construction	61
Chemical & Allied Sector	113
Energy, Electrical & Electronics	69
Foods & Beverages Sector	285
Leather & Footwear Sector	19
Metal & Allied Sector	118
Motor Veh. Assembly & Accessories	81
Paper & Board Sector	96
Pharmaceutical & Med. Equip. Sector	37
Plastics & Rubber Sector	115
Textile & Apparels Sector	86
Timber, Wood & Furniture Sector	43
Total	**1,123**

3.5 Sampling Frame

The sampling frame for this study consisted of all firms in Kenya registered with Kenya Association of Manufacturers (KAM) 2019 as they appeared in the KAM listing manual (KAM, 2019). Kothari (2004), define the term sampling frame as a list that contains the names of all the elements in a universe. The study was restricted to manufacturing firms within Kenya. The manufacturing firms are stratified into: Building, Mining and Construction; Chemical and Allied Sector; Energy, Electrical and Electronics Sector; Foods and Beverages Sector; Leather and Footwear Sector; Metal and Allied Sector; Motor Vehicles Assemblers and Accessories Sector; Paper and Board Sector;

Pharmaceutical and Metal Equipment Sector; Plastic and Rubber Sector; Textile, Apparels Sector and Timber, Wood and Furniture Sector.

3.6 Sample Size and Sampling Technique

3.6.1 Sample Size

Singh and Masuku (2014) denotes sample as a subset of the target population. A sample can be used to derive inferences about the population if appropriate sample size and sampling techniques are used. A sample size is the quantity of units of observation from which the researcher acquired information. In the study, it was the number of entities that the researcher intended to collect data on logistics outsourcing risks and firms performance. According to Kothari (2004) the size of the sample, how large or small the sample should serve to achieve the objective because if the sample size is too small, it may not be representative of the population and if it is too large, one may incur huge cost and waste resources.

As a general rule, one can say the sample must be of an optimum size that is; it should neither be excessively large nor too small. To achieve optimum sample, this study followed the formula proposed by Saunder *et al.* (2009) since it is simple to use, scientific and can be used in cases of large populations. Thus, to calculate the sample size from 1,123 companies in Kenya, the study specified a 5% margin of error as shown in equation 3.1.

Equation 3.1: Sample size formula

$$p\% * q\% * \left(\frac{z}{e\%}\right)^2 = n \quad \text{..... (3.1)}$$

Where;

n – Minimum sample size required

p - No. of target population that conforms to the characteristic of the sample required

q - No. of target population that don't conform to the characteristic of the sample required

e – Margin of error (5%)

Z = the value corresponding to the confidence level required (1.96 for 95% level of confidence)

Using the above formula, a study sample of 295 companies was derived as laid on appendix III.

3.6.2 Sampling Technique

The study used stratified random sampling in order to account for the uneven distribution of firms in various divisions and solve the problem of heterogeneity which if not suitably accounted would lead to biased parameter estimates (Wang, 2015). Based on distribution of firms in the 12 segments, the researcher used proportions calculated in the population distribution to come up with a representative sample distribution as shown in table 3.2. The proportions calculated showed the amount of companies to be included in the sample for each divisions. Thereafter simple random sampling was used to select the particular manufacturing firms in which data was collected.

Table 3.2: Representative sample representation

Category of Manufacturer	Target Population	Sample size	Percent
Building, Mining & Construction	61	16	26.2
Chemical & Allied Sector	113	30	26.2
Energy, Electrical & Electronics	69	18	26.2
Foods & Beverages Sector	285	75	26.2
Leather & Footwear Sector	19	5	26.2
Metal & Allied Sector	118	31	26.2
Motor Veh. Assembly & Accessories	81	21	26.2
Paper & Board Sector	96	25	26.2
Pharmaceutical & Med. Equip. Sector	37	10	26.2
Plastics & Rubber Sector	115	30	26.2
Textile & Apparels Sector	86	23	26.2
Timber, Wood & Furniture Sector	43	12	26.2
Total	**1123**	**295**	26.2

3.7 Data Collection Instruments

The study used both primary and secondary data. The primary data was collected using a questionnaire with closed and open questions. This is because in closed questions responses are restricted to small set of responses that generate precise answers to develop the empirical study (Kothari, 2004). The questionnaire is common instrument for observing data beyond the physical reach of the observer (Davies & Dodd, 2002). In designing the questionnaire, a five point likert - type scale was utilized in providing the range of the respondents' views on the impression of the various logistics outsourced risks variables under contemplation on firm's performance. Secondary data was collected using a data collection matrix and it was obtained from existing manufacturing firms performance reports.

3.8 Pilot Test

Pilot test as explained by Cooper and Schindler (2011) is conducted to discover weaknesses in design, instrumentation and to afford substitute data for selection of probability sample. Prior to the actual study, pilot test of the questionnaire was conducted against prospective sample population. A pilot test was carried out to ensure

that the questions are relevant, clearly understandable and make sense. The questionnaire was pilot tested on 30 respondents, 10% drawn from the firms to enable the researcher make amendments on the questionnaire where necessary as recommended by (Saunders, 2018). The respondents for the pilot study were obtained through convenience sampling. The results from the pilot test were analyzed to test for consistency and legitimacy of the instrument.

3.8.1 Reliability of Research Instruments

Sileyew (2019) defines reliability as the perfect representation of the total population under study in which results are steady in a given period. If the outcomes of a research can be reproduced under a similar methodology, then the research apparatus is taken to be reliable. The researcher conducted preliminary analysis to test for reliability using Cronbach's alpha. Alpha scores range between 0 to 1.00, values between 0.8 and 1.00 indicate a considerable reliability, values between 0.70 and 0.80 indicate acceptable reliability while values below 0.70 are considered less reliable and unacceptable (Tavakol & Dennick, 2011). Alpha value of 0.70 was adopted as the threshold.

Cronbach's alpha (α) was computed as per equation 3.2:

Equation 3.2: Cronbach's alpha formula

$$\alpha = K / (K - 1) [1- (\Sigma\sigma k^2 / \sigma total^2)] \quad (3.2)$$

Where K is the number of items, $\Sigma\sigma k^2$ is the sum of the k item score variances, and σ $total^2$ is the variance of scores on the total measurement (Cronbach & Shavelson, 2004). The results from reliability analysis assisted in deciding whether questionnaire should be reformulated or used as it is.

3.8.2 Validity of Research Instruments

According to Bashir (2008) validity is the level to which a test measures what it is anticipated to measure and the level to its truthfulness, correctness, legitimacy, candidness, or soundness, whether the modes of measurement are accurate and if they are fundamentally measuring what they are intended to quantity. Mugenda and Mugenda (2012) outline validity as the point to where outcomes gained from the scrutiny of the facts actually represent the phenomenon under study. This study assessed the types of validity which are content validity, face validity and construct validity.

The face validity was tested using experts' opinion where two experts and the supervisors were given the questionnaire to give their opinions and rate the questionnaire. Content validity is a qualitative type of validity wherever the territory of the concept is made clear and the analyst judges whether the measures fully represent the domain (Bordens & Abbott, 2014). Content validity was tested using thorough literature review and assessing the questions to ensure they align with the main theme of the study. On the other hand, construct validity was tested using Principal Component Analysis (PCA) which was used to validate hypothetical constructs by clustering those indicators or characteristics that appear to correlate highly with each other.

3.9 Data Collection Procedure

The researcher engaged four trained research assistants to support in collecting, coding and entering data. Pre-testing and reformulation of the questionnaire through pilot test to confirm their reliability and validity followed. Thereafter, the blank questionnaires were distributed to the respondents through the research assistants. Follow up phone calls and weekly meetings with the research assistants were made to ensure effectiveness in filling the questionnaires. This is because the manufacturing firms are widely spread in the country and this was convenient way of reaching the respondents with a high response rate.

3.10 Data Analysis and Presentation

The positivistic approach to research guided data analysis. Positivism advocates for hypotheses analysis using quantitative procedures (Creswell, 2014). Thus, information required for testing the study hypotheses was produced through quantitative data analytical techniques. Consequently, data analysis followed Sileyew (2019) four stage process for data analysis: preparing data for analysis; getting a feel for the data; testing the goodness for the data; and testing the hypotheses.

The completed questionnaires were edited for wholeness and dependability. To have the responses congregated into several sets, data was coded. Data collected was cross sectional data since it is collected at a point in time and was analyzed by descriptive and inferential analysis through the assistance of SPSS version 24. This version of SPSS is one of the most widely available and powerful statistical software packages that cover a broad range of statistical procedures, which allowed the researcher to summarize data (Gouda, 2015).

3.10.1 Descriptive Analysis

Descriptive statistics simply describes what is, what the data shows and include measures of central tendency especially the mean for Likert scale variables in the questionnaire (Pandey et al., 2015). The measures of dispersion especially standard deviation was used in order to explore the underlying features in the data on manufacturing companies. Percentages was used to determine sample distribution across various demographic variables while mean scores of the variables was used to establish the scope to which definite logistics outsourcing uncertainties are affecting performance of manufacturing entities.

Standard deviation represented the degree of variability in the responses. Frequency distribution tables were used to present data. This is because they use percentages which simplify data by reducing all the numbers to range from 0 to 100 and they translate the

data into standard form with a base of 100 for relative comparisons (Bordens & Abbott, 2014). Descriptive statistics provides the basic characteristics of the data collected on the variables and afford the incentive for conducting advance analyses on the data (Mugenda & Mugenda, 2009).

3.10.2 Diagnostic Tests

The test of assumptions was carried out in the study to establish whether the dataset met the general assumptions of the regression model. For the researcher to check if the assumption that independent variables are normally distributed and the selected variables were adequate, the following main diagnostic tests were applied: normality test, test for autocorrelation, test for heteroscedasticity, multicollinearity test and linearity test.

3.10.2.1 Normality Test

Normality is important in knowing the shape of the distribution and helps to predict dependent variables scores (Paul & Zhang, 2009). Two normality tests were carried out to assess whether the data was normally distributed. These were Kolmogorov-Smirnov and Shapiro-Wilk and the Q-Q plot. In Kolmogorov-Smirnov and Shapiro-Wilk, the significance levels should be more than the 0.05 standard P-value while for the Q-Q plot, the plot should not take a given trend but have a zigzag shape implying that the data is normally distributed.

3.10.2.2 Autocorrelation Test

Autocorrelation refers to the correlation of a time series with its own past and future values (Ragab & Arisha, 2017). Autocorrelation is essentially a correlation coefficient, but instead of correlation existing between two different variables, the correlation is between two values of the same variable at times X_i and X_{i+k}. However, autocorrelation can also occur in cross-sectional data when the observations are related in some other way e.g. similarities among manufacturing firms in Kenya (Pandey et al., 2015).

The Durbin Watson (DW) statistics was used to test autocorrelation among the independent variables. The Durbin-Watson statistic ranges from zero to four. The residuals are uncorrelated if the Durbin Watson statistic is approximately 2. A value close to zero indicates a strong positive correlation. A value of 4 indicates strong negative correlation. Null hypothesis is where there is no autocorrelation which can only be accepted when DW test shows a value between the range of 1.2 to 2.5 (Garson, 2012).

3.10.2.3 Heteroscedasticity Test

Heteroscedasticity means a situation in which the variance of the dependent variable varies across the data, as opposed to a situation where Ordinary Least Squares makes the assumption that $V(\varepsilon_j) = \sigma^2$ for all j, meaning that the variance of the error term is constant (homoscedasticity). Heteroscedasticity obscures analysis because many methods in regression analysis are based on an assumption of equivalent variance (Park, 2008). Breush-pagan/Cook-Weisberg test was used to examine the null hypothesis that the error variances are all equal versus the alternative that the error variances are a multiplicative function of one or more variables. Breush-pagan/Cook-Weisberg test examine the zero hypothesis that heteroscedasticity is not present implying homoscedasticity; if p value is less than 0.05, reject the null hypothesis. A large chi-square value greater than 9.22 would indicate the presence of heteroscedasticity (Sazali et al., 2009).

3.10.2.4 Multicollinearity Test

Multicollinearity occurs when two or more predictors in the model are correlated and provide redundant information about the response (Pandey et al., 2015). Variance inflation factor (VIF) described in equation 3.2 was computed to test multicollinearity.

Equation 3.3: Variance Inflation formula

$$\text{VIF} = \frac{1}{1-R^2} \qquad \text{(3.3)}$$

Where, R^2 is the coefficient of determination of the model. If VIF ≥10 then there exists multicollinearity among the predictors.

3.10.2.5 Linearity Test

Linearity simply implies that the dependent variable can be expressed as a linear function of the explanatory variables as the researcher choose to explain the variation in the dependent variable (Sileyew, 2019). If this assumption is violated, the multiple regressions tries to fit a straight line in a dataset whereas in reality the data could not follow a straight line. To assess linearity, scatterplot of the standardized residuals with the standardized predicted values was applied. If results show a relationship of standardized predicted to residuals is roughly linear around zero, then the relationship between the response variable and predictors is linear.

3.10.3 Factor Analysis

Factor analysis is a method for investigating whether a number of variables of interest are linearly related to a smaller number of unobservable factors (Rajendra, 2007). Factor analysis functions on the concept that measurable and observable variables can be condensed to fewer latent variables that share a collective variance and are unobservable, which is known as decreasing dimensionality (Bartholomew et al., 2011). These unobservable factors are not directly measured but are fundamentally hypothetical constructs that are used to exemplify variables.

To investigate the relationships that presuppose a relationship between criterion and response variables, data coded was extracted using factor analysis methods. The Principal Components Analysis (PCA) was performed for multiple linear regression

purposes. (PCA) is the standard extraction method, it extracts uncorrelated linear groupings of the variables. Kaiser Meyer Olkin (KMO) the measure of sampling suitability and Bartlett's test of normality (sphericity or equal variances across samples) were generated prior to factor analysis. KMO is an indicator which tells whether there are adequate items for each factor and should be greater than 0.7. Bartlett's test is used to confirm if the original variables are appropriately correlated. This test should come out significant ($p < 0.05$) if not, factor analysis was not appropriate (Ferrando & Lorenzo-Seva, 2018).

3.10.4 Inferential analysis

According to Kothari (2004), inferential analysis makes inferences and predictions about extensive data by considering a sample data from the original data. It uses probability to test hypotheses and make estimation using sample data. The study relied on correlation analysis and regression analysis.

3.10.4.1 Correlation Analysis

It is a statistical method used to measure the strength of the linear relationship between dependent and independent variables and compute their association. It calculates the level of change in the dependent variable due to the change in the independent variable (Saunder et al., 2016). The study estimated a sample correlation coefficient (Pearson Product Moment correlation coefficient). The sample correlation coefficient, denoted **r**, ranges between -1 and +1 and quantifies the direction and strength of the linear association between the dependent and independent variables. The sign of the correlation coefficient indicates the direction of the association. The magnitude of the correlation coefficient indicates the strength of the association.

3.10.4.2 Regression Analysis

It is a statistical method to deal with the formulation of mathematical model portraying relationship amongst variables which can be used for the purpose of estimation of the

value of predicted variable, based on the value of the predictor variable (Kothari 2004). Multiple linear regressions of the variables was carried out and the linearity model tested using F-test at 5% significance level. This is because F-test is convenient on testing significance relationship on the combined independent variables against dependent variable (Kothari, 2004).

A multiple linear regression analysis is a multivariate statistical procedure used to estimate the model parameters and regulate the effect of individual independent variables on the dependent variable. In multiple regression analysis, the model takes the form of an equation that encompasses a coefficient β_i for each predictor; which specifies the individual involvement of each predictor to the model (Creswell, 2014). In summation, the coefficient βi indicates the affiliation between the dependent variable and each predictor. If the value is positive integer, it should be drawn that there is a positive association between the predictor and the outcome variable whereas a negative coefficient represents a negative relationship.

A multivariate analytical approach was appropriate for this study because the conceptual model used several indicators/measures for logistics outsourcing uncertainties to project performance of manufacturing companies which is the dependent variable. To determine the comparative influence of each of the predictor variables on the dependent variable beta coefficients was constructed and verified for impact at 5% significance level.

The multiple linear regression models were designed in the form of an algebraic expression in equation 3.4.

Equation 3.4: Multiple Linear Regression Models

$Y = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$ ………………………………………….. (i)

$Y = \beta 0 + \beta_1 X_1 Z + \beta_2 X_2 Z + \beta_3 X_3 Z + \beta_4 X_4 Z + \varepsilon$ …………………………………… (ii)

Where:

Y = Performance of manufacturing firms

X_1 = Contractual Risk

X_2 = Cost Risk

X_3 = Supplier Relationship Risk

X_4 = Management Risk

Z = Moderator

ε = Error Term

β_0 = Constant

$\beta_1 - \beta_4$ = the regression coefficients (slope)

Model (i) tests the relationship between the dependents variable and the four independent variable while model (ii) test the influence of the moderating variable on the relationship of the dependent variable and independent variables.

3.10.5 Hypotheses Testing

Analysis of Variance test (ANOVA) was conducted to test the significance of the relationships between the variables based on which the set hypotheses were accepted or rejected. The decision to support the research hypothesis was based on the ρ-values. The ANOVA test was chosen as the study presumed that the population being tested was normally distributed, had equal variances and the samples were independent of each other.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents the findings of the study on the influence of logistics outsourcing risks on the performance of manufacturing firms in Kenya. The chapter covers the response rate of the study, the results of the pilot study and the demographic results. The chapter also highlights the descriptive analysis of the findings, as well as the inferential analysis which tested the hypotheses of the study. These have been captured systematically based on the objectives of the study.

4.2 Response Rate of the Study

The study was carried out using 295 respondents who were surveyed using a structured questionnaire. The respondents were given the questionnaires to fill and return them upon completion. As portrayed on Table 4.1, out of the 295 surveyed respondents, 233 returned dully filled questionnaires for analysis. This represented a response rate of 78.9%. This was considered adequate for the study. Creswell (2016) argues that a response rate of more than 60% in sample sizes of over 150 respondents is adequate for analysis and can reliably represent the views of the entire sample population.

Table 4.1: Response Rate for the Study

	Count	Percentage
Response	233	78.9%
Non-Response	62	21.1%
Total	295	100%

4.3 Results of the Pilot Study

The pilot study was conducted using 10% of the sample size (295) which implies that 30 respondents were chosen for the pilot study. These respondents were surveyed using the

structured questionnaire just like it could be done for the main study. This was so as to test for the validity and reliability of the research instrument.

4.3.1 Reliability of Research Instrument

Reliability is the perfect representation of the total population under study in which results are steady in a given period (Sileyew, 2019). If the outcomes of a research can be reproduced under a similar methodology, then the research apparatus is taken to be reliable. In this study, reliability was tested using the Cronbach‘s alpha. These are Alpha scores ranging between 0 - 1.00. Values between 0.8 and 1.00 indicate a considerable reliability, values between 0.70 and 0.80 indicate acceptable reliability while values below 0.70 are considered less reliable and unacceptable (Tavakol & Dennick, 2011). The 0.70 threshold was used in this study where any variable that had a Cronbach‘s alpha coefficient less than 0.70 had its items removed or edited until a higher coefficient was attained.

4.3.1.1 Contractual Risk

The results as shown in Table 4.2 revealed that the Cronbach's alpha coefficient for the first variable – contractual risk was 0.859. The variable had 17 items/number of questions. The variable had an alpha higher than the standard value of 0.70. To this end, all the 17 questions were retained on the final questionnaire since they met the reliability threshold.

Table 4.2: Reliability Statistics for Contractual Risk

Cronbach's Alpha	Number of Items	Comment
0.859	17	Acceptable

4.3.1.2 Cost Risk

The second objective of the study was to assess the influence of cost risk on performance of manufacturing firms. The reliability results are as shown in Table 4.3.

As the results portray, the Cronbach's alpha coefficient for the items under the cost risk was 0.850. The variable had 12 questions. The findings imply that since the Cronbach's alpha coefficient is higher than the standard coefficient of 0.70, all the 12 questions are retained on the final questionnaire for the main study.

Table 4.3: Reliability Statistics for Cost Risk

Cronbach's Alpha	Number of Items	Comment
0.850	12	Acceptable

4.3.1.3 Supplier Relationship Risk

The reliability results for the third variable (supplier relationship risk) are as shown in Table 4.4. As the results portray, the Cronbach's alpha coefficient for the items under the variable was 0.743. This is for all the 12 questions/items under the variable. The results imply that the 12 questions are retained on the final questionnaire ($\alpha = 0.743 > 0.70$).

Table 4.4: Reliability Statistics for Supplier Relationship Management

Cronbach's Alpha	Number of Items	Comment
0.743	12	Acceptable

4.3.1.4 Management Risk

The study sought to establish the reliability for the items under the fourth objective of the study which was to assess the influence of management risk on the performance of manufacturing firms in Kenya. The reliability results are as shown in Table 4.5. As the results reveal, the Cronbach's alpha coefficient for the variable was 0.902. The objective had 13 questions on the questionnaire. The results imply that the questions met the Cronbach's alpha threshold of 0.70 hence they were all retained on the final questionnaire for the main data collection for the study.

Table 4.5: Reliability Statistics for Management Risk

Cronbach's Alpha	Number of Items	Comment
0.902	13	Acceptable

4.3.1.5 Information Flow

The study sought to establish the moderating effect of information flow on the relationship between supply chain risks and firm performance. The variable had 13 questions on the questionnaire. The reliability results as shown in Table 4.6 revealed that the Cronbach's alpha coefficient for the variable was 0.890. This is higher than the standard alpha value of 0.70. This implied that all the 13 questions were retained on the final questionnaire for the main data collection.

Table 4.6: Reliability Statistics for Information Flow

Cronbach's Alpha	Number of Items	Comment
0.890	13	Acceptable

4.3.1.6 Firm Performance

The study sought to assess the reliability for the questions under the dependent variable of the study (performance of manufacturing firms). The results are as shown in Table 4.7. As the results portray, the variable had 10 questions/items. The overall Cronbach's alpha coefficient for these items was 0.812. This is higher than the standard Cronbach's alpha of 0.70 thus implying that all the items were retained on the questionnaire for the main data collection.

Table 4.7: Reliability Statistics for Firm Performance

Cronbach's Alpha	Number of Items	Comment
0.812	10	Acceptable

The reliability results for the variables were summarized as shown on table 4.8 below.

Table 4.8: Reliability Statistics Summary

Variable	Cronbach's Alpha	Number of Items	Comment
Contractual Risk	0.859	17	Acceptable
Cost Risk	0.850	12	Acceptable
Supplier Relationship Risk	0.743	12	Acceptable
Management Risk	0.902	13	Acceptable
Information flow	0.890	13	Acceptable
Firm Performance	0.812	10	Acceptable

4.3.2 Validity of the Research Instrument

Validity is the level to which a test measures what it is anticipated to measure and the level to its truthfulness, correctness, legitimacy, candidness, or soundness, whether the modes of measurement are accurate and if they are fundamentally measuring what they are intended to quantify. It is the point to where outcomes gained from the scrutiny of the facts actually represent the phenomenon under study. In this study, three major types of validity were tested. These are face validity, content validity and construct validity.

Face validity is a type of validity that seeks to establish whether the questions used in a questionnaire are aligned to the main theme of the study and that the respondents are most likely to understand them as intended by the researcher. In this study, face validity was assessed through use of experts in the field of supply chain management and the supervisors. They were asked to give their opinion on the questionnaire and how to improve the face validity. One of the main comments given was to separate the questions as per the sub-variables to enhance clarity and this was done.

Content Validity, although appears similar to the face validity, it seeks to explain the extent to which the questions meets the intended purpose and this time round, not how much the respondents are able to understand them, but how the data obtained from the

questions is able to answer the main research problem in a study. In this study, content validity was assessed through a thorough and extensive review of the literature during the formulation of the questionnaire. This enabled the research to capture questions that were potentially linked to the specific objectives of the study. Moreover, open-ended questions were included to ensure that the respondents were free to give further explanations on the questions in order to enhance the content captured during data collection. According to Walter (2019), content validity is met through giving the respondents a wider room to explain their views with regard to the questions and this can be done through adoption of Likert's scale questions and inclusion of open-ended questions.

Construct validity tests the strength of individual questions in a research instrument and the extent to which it contributes to the overall strength of the variable. In this study, construct validity was tested using the factor analysis through Principal Component Analysis (PCA). The perquisites of factor analysis are the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and the Bartlett's Tests. These two tests are carried out to assess whether the data is suitable for factor analysis. For the KMO test, there are values between 0 and 1. According to Thanem and Knights (2019) a dataset must have a KMO value of above 0.50 for it to be suitable for factor analysis. On the other hand, the Bartlett's Test value is the normal P-value of 0.05. For the dataset to be suitable for factor analysis, the Bartlett's Test must have a P-value lesser than the significance level of 0.05.

For factor analysis on the other hand, the factor loadings range from 0 to 1. According to Cypress (2018) for a question/factor to be ruled valid, it ought to have a factor loading of 0.40 and above. If an item has a factor loading lesser than 0.40, it is assumed that it cannot contribute to more than 40% of the consistency of the variable hence it is deemed inappropriate to be in a research instrument. This threshold was used in the study where any item with a factor loading of less than 0.40 was excluded from the instrument. The results were analysed under 4.7 factor analysis.

4.4 Analysis of Demographic Information

Demographic information was collected to enable the researcher to gain an understanding of the respondents' background and that of their organizations. The main information sought included the type of products that the companies dealt with, the period of operation for the organizations, the type of market the organizations operated in as well as the size of the organizations based on the assets base.

4.4.1 Type of Products

The study sought to establish the type of products that the companies dealt in. Manufacturing companies deal with diverse products but they can all be classified as either finished goods, semi-assembled components or raw materials. As the findings in Figure 4.1 revealed, 33.9% of the companies dealt with finished goods, 42.9% dealt with semi assembled components while 23.2% of the companies were dealing with raw materials and parts. The findings imply that a diverse response in terms of category of products was achieved an indication that the opinions of the sector would be diverse as well.

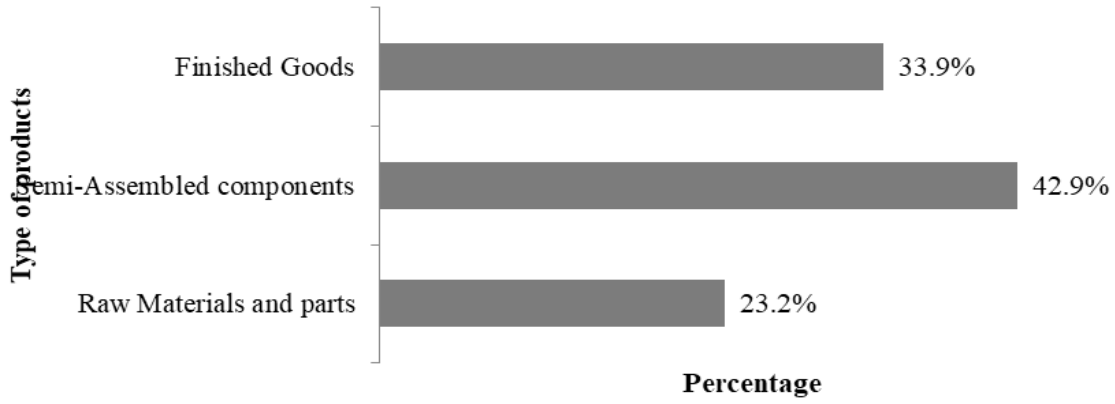

Figure 4.1: Distribution of the companies by the Type of Products

4.4.2 Companies' Period of Operation

The study sought to establish the period in years that the companies surveyed had been in operation. As the findings in Figure 4.2 revealed, 5.2% of the organizations had been in operation for a period of less than 1 year, 13.3% had operated for a period of between 1 and 5 years, 37.3% had been in operation for a period of between 6 and 10 years while 44.2% had operated for more than 10 years. The findings imply that most of the companies had been in the market for a reasonable period of time, an implication that they have already experienced the prospects of logistics outsourcing and the associated risks.

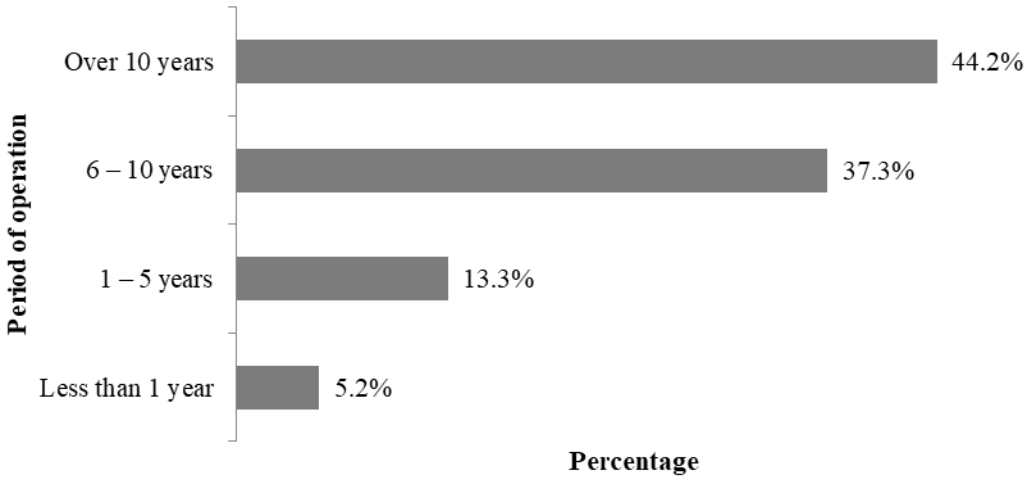

Figure 4.2: Distribution of the Companies by the Period of Operation

4.4.3 Companies' Type Market

The study set to establish the type of the market that the companies concentrated on for their products. Manufacturing companies in most cases specify to a given category of market so as to enhance the efficiency of operations and better customer satisfaction, particularly based on their expertise. As the findings on Figure 4.3 portray, 46.4% of the companies focused on small and medium enterprises market which is mainly referred to as business to small and medium enterprises (B2SME), 34.3% of the companies focused

on corporate markets which is mainly the business to business (B2B) market while 19.3% of the manufacturing companies surveyed focused on reseller and consumer markets usually referred to as business to consumer (B2C) markets. The findings imply that the manufacturing firms surveyed have focused on the three key categories of markets an indication that they are likely to understand all the processes and risks involved in logistics outsourcing.

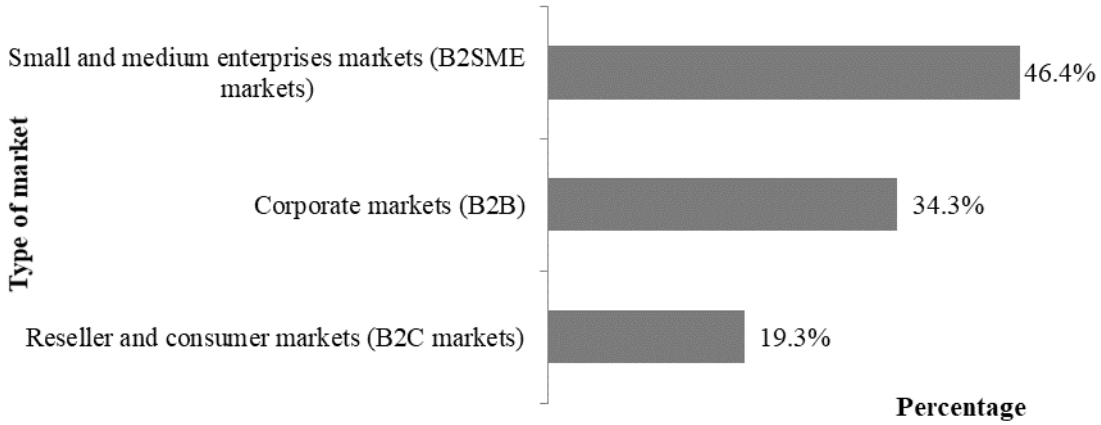

Figure 4.3: Distribution of the Companies by the Type of Market

4.4.4 Size of the Companies

The study set to find out the size of the manufacturing companies surveyed. Their size was assessed in terms of the total net assets. This is the main aspects that can tell the size of an organization. As the findings on Figure 4.4 revealed, 12% of the companies had total net assets of less than Kshs.100million, 15% of the companies had net assets of between 100million and Kshs.400million. 21.5% had a net assets of between Kshs.400million and Kshs.600million, while 12.9% of the companies had total net assets of over Kshs.800million. This is an indication that the companies were large enough to have extensive supply chain networks, and the larger the supply chain networks, the more prone to logistics outsourcing risks the company gets into.

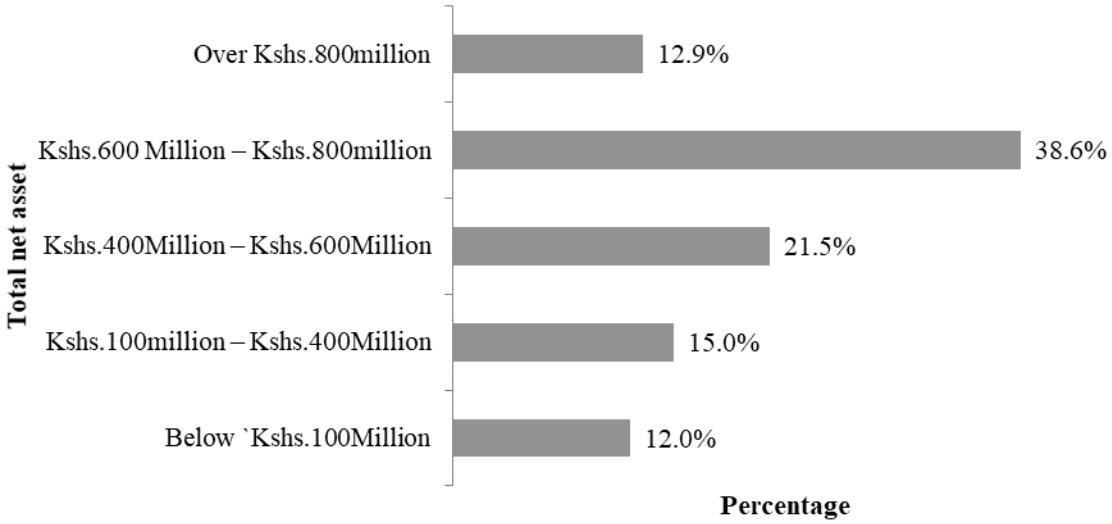

Figure 4.4: Distribution of the Companies by their Size

4.4.5 Number of Branches

The study sought to find out the distribution of the companies by the number of branches, which is another critical aspects of establishing the size of the companies. As the findings on Figure 4.5 revealed, 29.6% of the companies had only 1 branch, 32.2% of the firms had between 2 and 4 branches, 13.7% had between 5 and 7 branches while 11.2% of the companies had more than 10 branches. This is an implication that most of the firms have less than 5 branches, an indication that their expansion in terms of having new branches has been minimal. This implies that they mainly rely on distributions and supply chain networks in order to reach to extensive customers across the country and other regions.

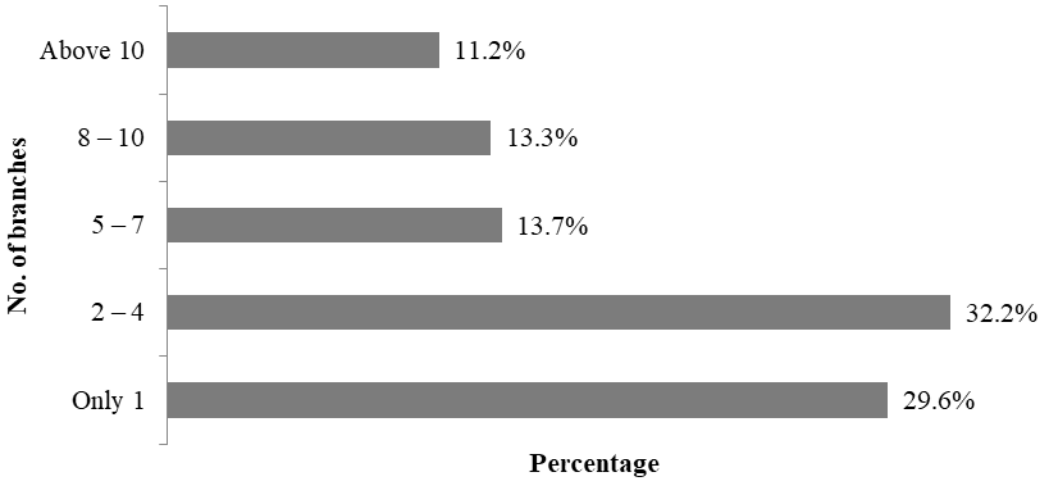

Figure 4.5: Distribution of the Companies by the Number of Branches

4.4.6 Number of Products

The study set to find out the number of products that the surveyed manufacturing companies dealt with. The findings as shown in Figure 4.6 revealed that 27.9% of the companies dealt with only one product, 15.5% of the companies were dealing with between 2 and 4 products, 10.3% were dealing with between 5 and 7 products while 26.6% were dealing with between 8 and 10 products. This shows that most companies were large enough to produce more than one product, an implication of large manufacturing industry and its ability to meet the market demand.

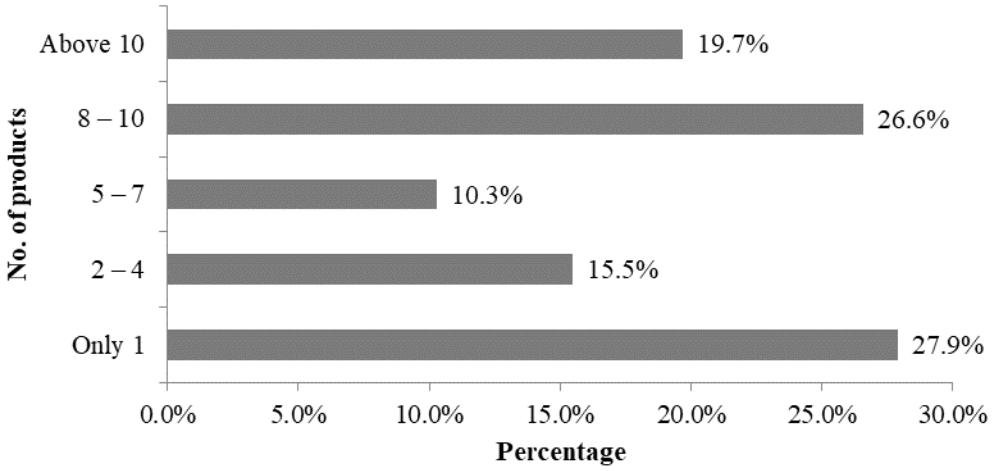

Figure 4.6: Distribution of the Companies by the Number of Products

4.5 Descriptive Analysis of the Study Variables

This sub-section covers the main findings of study based on the descriptive statistics. The main descriptive statistics covered in the findings included the mean, the standard deviation and the percentages. The findings have been captured systematically based on the study's main variables which were: contractual risk, Cost risk, supplier relationship risk, management risk, information flow and performance of the manufacturing firms.

4.5.1 Contractual Risk

The first objective of the study was to assess the influence of contractual risks on the performance of manufacturing firms in Kenya. A Likert's scale was used whereby the respondents were asked to indicate their levels of agreement or disagreement with specific statements on contractual risks. The SD stood for strongly disagree, D= Disagree, N= Neutral, A= Agree and SA= Strongly Agree. The findings are as shown in Table 4.9. As the findings portray, the respondents agreed that their respective companies had incidences of confidential information leak as evidenced by a mean of 3.25 and a standard deviation of 1.33. The respondents however were neutral that the service providers are clearly guided on the information that should not be shared before

the contract is signed as shown by a mean of 2.90 and a standard deviation of 1.58. Most of the companies had policies against the contractor or any other individual from breaching the confidential information and that the parties found to have breached the confidentiality were individually held accountable. The respondents indicated that their respective companies had been in some instances victims of confidentiality breach (47.3%) and through outsourcing the companies lacked confidentiality in shared business strategies (43.9%). The respondents further agreed that there were incidences where the lengthy hierarchy of decision-making have affected the process flow in the firm as shown by a mean of 3.12 and a standard deviation of 1.43. The findings compare with those by Huo *et al.* (2015) who established that through sharing ideas and decision making platforms, a company risks losing confidential information to competitors.

The findings further revealed that some companies had reported cases of inferior services from the outsourced companies thus not meeting the customer expectations (Mean = 3.00; standard deviation = 1.38). Cases of poor relationships with the outsourced companies were also rampant in some of the surveyed companies as shown by a mean of 3.61 and a standard deviation of 1.14. The respondents agreed that they had received complaints from customers in regard to the outsourced firms but companies failed to solve emerging problems timely (Mean = 3.24; standard deviation = 1.08).

Inflexibility of the outsourced firms was also observed in some companies (33.1%) as well as instances of contractors delaying the implementation of the contracts (38.6%). The findings are in concurrence with those by Mbachu, and Taylor (2014) who established that the contractual risks arising due to poor implementation of contracts by the contractors and disclosure of confidential information would affect the success and performance of organization by making them lose to the competitors.

Table 4.9: Descriptive Results on Contractual Risk

Statements	SD	D	N	A	SA	Mean	Std. Dev.
Our company has had incidences of confidential information leak	13.3%	18.5%	17.6%	30.9%	19.7%	3.25	1.33
The service providers are clearly guided on the information that should not be shared before the contract is signed	31.3%	14.2%	9.0%	24.5%	21.0%	2.90	1.58
Our company has policies against a contractor or any other individual breaching the confidential information	23.2%	15.5%	17.6%	24.9%	18.9%	3.01	1.45
The parties found to breach any confidentiality are held individually responsible	20.6%	20.6%	13.7%	26.2%	18.9%	3.02	1.43
The company has previously suffered a loss due to breach of confidentiality	27.9%	17.2%	7.7%	25.8%	21.5%	2.96	1.55
Outsourcing has led to lack of Confidentiality on shared business strategy	24.0%	20.2%	12.9%	24.9%	18.0%	2.93	1.46
There are incidences where the lengthy hierarchy of decision-making have affected the process flow in the firm	19.3%	18.9%	12.0%	30.5%	19.3%	3.12	1.43
There have been cases of quality of service inferior to expectations	21.5%	18.0%	12.0%	35.6%	12.9%	3.00	1.38
There have been cases of poor relationship with the outsourced firms	6.4%	11.6%	18.5%	42.1%	21.5%	3.61	1.14
There have been complains from the customers concerning outsourced firms	26.2%	17.6%	18.5%	29.6%	8.2%	2.76	1.34
There are a times when our company has failed to solve emergency problems in time	6.4%	16.7%	34.8%	30.5%	11.2%	3.24	1.08
There are incidences where the contracted firm has failed to deliver the projected results	24.0%	19.3%	17.6%	28.3%	10.7%	2.82	1.36
We have previously selected service providers inappropriately leading to poor results	26.2%	13.7%	13.7%	35.2%	11.2%	2.91	1.41
Some of the outsourced firms have been inflexible leading to ineffectiveness	26.6%	21.5%	18.9%	24.9%	8.2%	2.67	1.32
There have been some contractors who have recorded delay in contract implementation	30.9%	13.3%	17.2%	30.9%	7.7%	2.71	1.38
There have been incidences of unclear dispute settlement procedures in our company	31.8%	14.2%	15.9%	26.6%	11.6%	2.72	1.44

Key, scale: 1-1.8 strongly disagree, 1.8-2.6 disagree, 2.6 -3.4 neutral, 3.4 -4.2 agree, 4.2-5 strongly agree

The respondents were further asked to indicate their opinion as far as contractual risks and performance of their respective firms were concerned. One of the main aspects noted from the qualitative data was that the respondents considered contractual risk to be

among the risks that their companies were going through regularly as a result of outsourcing the logistics. One respondent indicated:

> "Yes, contractual risk has been a norm in our company when outsourcing. There are instances when the outsourced companies leak our confidential information to the competitors or media, and you know this is damaging to the company. I feel we have so far done a lot as a way of controlling the risk, and soon we will be there"

This is a clear indication that contractual risk has been one of the risks that the manufacturing companies go through as a result of logistics outsourcing. This compares with what Sauvage and Haouari (2011) consider to be damaging to the company and its reputation, an aspect that could affect their performance negatively.

4.5.2 Cost Risk

The second objective of the study was to assess the effect of cost risk on the performance of manufacturing firms in Kenya. A Likert's scale was used whereby the respondents were asked to indicate their levels of agreement or disagreement with specific statements on contractual risks. The SD stood for strongly disagree, D= Disagree, N= Neutral, A= Agree and SA= Strongly Agree. In this study, cost risk was assessed in terms of the hidden costs, the costs of losing a customer as well as the switching costs. The findings are as shown in Table 4.10. As the results portray, majority of the respondents agreed that there had been incidences of undisclosed charges by some of the suppliers as shown by a mean of 3.76 and a standard deviation of 1.06.

The respondents however disagreed there were agreements between the company and their suppliers on an approach to cater for hidden costs as shown by a mean of 2.70 and a standard deviation of 1.28. Most of the surveyed companies had a framework for ensuring full disclosure of all the costs before engaging the suppliers (Mean = 3.24; standard deviation = 1.12) and that there had been increased costs of operations as a results of outsourcing leading to loss of customers (Mean = 3.06; standard deviation = 1.15). Most of the companies had in some instances lost a loyal customer to the

competitors due to poor services resulting from outsourcing (mean = 3.20; standard deviation = 1.25). Majority of the respondents agreed that some of their customers had abandoned their respective companies' products after realizing they were outsourced as evidenced by a mean of 3.15 and a standard deviation of 1.29. According to Mokrini *et al.* (2016) while outsourcing is essential for enhancing performance through efficiency and cost optimization, some customers may not prefer a company that outsources most of their products and services, and this may lead to loss of customers.

The findings further revealed that some of the surveyed companies (37.7%) had incurred expenses results from getting another supplier after their previous ones did not turn-up while majority had recorded incidences of high switching costs from in-house to outsourcing (Mean = 3.33; standard deviation = 1.19). Most of the respondents agreed that their respective companies had in some instances lost customers as a result of changes in the outsourced service provider (Mean = 3.40; standard deviation = 1.07) and that some of the outsourcing partners did not have statutory compliance making them ineligible to deal with (mean = 3.36; standard deviation = 1.11).

The findings concur with those by Gonzalez and Rogerson (2019) who established that for outsourcing to give the best results in terms of cost-saving and promoting efficiency, there should be a framework to contain and mitigate the risks associated with costs as a results of outsourcing. Panfilova *et al.* (2020) on the other hand indicates that companies in the modern era ought to manage cost risk associated with logistics and supply chain such as the risks of outsourced suppliers not meeting their expectations.

Table 4.10: Descriptive Results on Cost Risk

Statements	SD	D	N	A	SA	Mean	Std. Dev.
There have been incidences of undisclosed charges by some of our suppliers	20.2%	25.8%	8.2%	25.8%	28.2%	3.76	1.06
There are agreements between the company and our suppliers on an approach to cater for hidden costs	24.9%	19.7%	22.3%	26.2%	6.9%	2.70	1.28
Our company has a framework of ensuring full disclosure of all costs before engaging a supplier	8.2%	17.2%	29.2%	33.5%	12.0%	3.24	1.12
There have been increased costs of operation due to outsourcing leading to loss of customers	11.6%	20.6%	26.6%	33.0%	8.2%	3.06	1.15
Our company has previously lost loyal customers to the competitors	10.7%	21.9%	19.7%	31.8%	15.9%	3.20	1.25
Some customers have abandoned our products/services after realizing the company was outsourcing some of its supplies	14.2%	20.2%	17.2%	33.9%	14.6%	3.15	1.29
A number of key outsourced partners have gone out of business.	19.7%	24.9%	21.9%	29.2%	4.3%	2.73	1.20
Our company has previously incurred expenses of getting another supplies after abandoning some	19.7%	24.0%	18.5%	31.3%	6.4%	2.81	1.25
There are incidences of high switching costs from in house to outsourcing	10.7%	13.7%	21.9%	39.5%	14.2%	3.33	1.19
In the past, we have lost customers due to change of service provider	6.0%	15.5%	22.3%	45.1%	11.2%	3.40	1.07
Some of our outsourcing partners lack statutory compliance	7.3%	14.6%	25.8%	39.1%	13.3%	3.36	1.11

Key, scale: 1-1.8 strongly disagree, 1.8-2.6 disagree, 2.6 -3.4 neutral, 3.4 -4.2 agree, 4.2-5 strongly agree.

The respondents were further asked to indicate their opinion with regard to the role played by cost risk in the performance of their respective firms. The respondents expounded that indeed there companies a time felt exposed as a result of logistics outsourcing, where they had to share so much with the outsourced logistics service provider. One of the respondents noted:

> "Basically we have to outsource anyway. But there are cost risk associated with the entire process. The outsourced companies give some prices that are quite high or give low prices for competitiveness but once you get them into contract they deviate from the original costs. These are some of the risks that I feel could be affecting the performance of our company"

This is an implication that cost risk is a logistics outsourcing risks that the manufacturing companies come across when outsourcing logistics services. Tsai (2012) feels that while the main aim of outsourcing logistics is to save on costs, the cost risk could make it even higher, especially where the relationship with the outsourced companies is not enhanced.

4.5.3 Supplier Relationship Risk

The third objective of the study was to determine the effect of supplier relationship risk on the performance of manufacturing firms in Kenya. Supplier relationship risk was assessed through reputational damage, lack of innovation and lack of cooperation. Specific statements were drawn from these sub-constructs and the respondents asked to indicate their level of agreement or disagreement based on a 5-point Likert's scale. The SD stood for strongly disagree, D= Disagree, N= Neutral, A= Agree and SA= Strongly Agree. The findings are as shown in Table 4.11.

As the results portray, majority of the respondents agreed that there had been cases of poor expertise among the outsourced suppliers as shown by a mean of 3.33 and a standard deviation of 1.17. It was further established that there were low levels of shared expertise with outsourced parties and that mutual trust between the outsourced parties and the manufacturing companies was at times low (Mean = 3.09; standard deviation = 1.12). The respondents further agreed that there were incidences of the outsourced parties damaging the reputation of the companies as shown by a mean of 3.31 and a standard deviation of 1.17. The innovative capacity of the surveyed firms were in some instances threatened as a result of outsourcing and the outsourced parties failed to get committed enough in doing things differently (Mean = 3.18; standard deviation = 1.19).

According to Sauvage and Haouari (2011) failure to effectively manage the supplier relationship risk could see a decline in the success of innovativeness especially in supply chain thus affecting the effectiveness of organizations in meeting customer needs.

The findings further revealed that improvement of services in most of the surveyed firms was minimal due to low commitment of the outsourced parties in embracing innovation (Mean = 3.39; standard deviation = 1.12). The respondents agreed that promptness to product delivery was in given times low due to the ineffectiveness of the outsourced suppliers as evidenced by a mean of 3.38 and a standard deviation of 1.12. The respondents however disagreed that they lacked general commitment of purpose between their respective companies and the outsourced parties and that their respective firms had lost market share as a results of inefficiencies of the outsourced parties.

The findings imply that supplier relationship risk had an impact in the performance of the manufacturing firms and their effectiveness management would enhance performance. The findings compare with those by Schwieterman *et al.* (2018) who found out that the suppliers are core to the business success but they come with a bundled risks which if not mitigated, they could affect the performance of the firm. Amoako-Gyampah *et al*. (2019) considered supplier relationship management as a process that should encompass analysis and mitigation of associated risks so as to enhance the benefit of having long-term supplier relationships.

Table 4.11: Descriptive Results on Supplier Relationship Risk

Statements	SD	D	N	A	SA	Mean	Std. Dev.
There have been cases of poor expertise by our outsourced parties	9.9%	15.0%	20.2%	42.1%	12.9%	3.33	1.17
We often have to contend with low level of shared expertise among our outsourcing partners	8.2%	25.3%	27.9%	30.5%	8.2%	3.05	1.10
There have been cases of little mutual trust between our firm and partners	9.0%	23.6%	23.6%	36.5%	7.3%	3.09	1.12
Our outsourcing partners have caused damage to our company's reputation in the past	9.0%	16.7%	22.3%	38.2%	13.7%	3.31	1.17
The innovative capacity of our firm has in some instances declined due to outsourcing	10.7%	11.2%	25.3%	42.1%	10.7%	3.31	1.14
There are cases where the outsourced party do not show commitment in doing things differently	10.3%	19.3%	25.8%	31.8%	12.9%	3.18	1.19
The suppliers have been reluctant in bringing-in new products/services	12.9%	18.5%	26.2%	31.8%	10.7%	3.09	1.20
Product/service improvement has been minimal among the outsourced cadres	9.0%	11.6%	22.7%	44.6%	12.0%	3.39	1.12
Outsourcing has led to low Level of promptness in product delivery	6.9%	16.3%	23.2%	39.5%	14.2%	3.38	1.12
There's a general lack of commitment to a common purpose	20.6%	21.9%	26.6%	24.0%	6.9%	2.75	1.22
Our firm has lost market share due to inefficiencies of outsourcing	17.2%	24.0%	24.9%	26.6%	7.3%	2.83	1.21

Key, scale: 1-1.8 strongly disagree, 1.8-2.6 disagree, 2.6 -3.4 neutral, 3.4 -4.2 agree, 4.2-5 strongly agree.

Under the open-ended question, the respondents were asked to expound on their views in regard to the impact of supplier relationship risk on the performance of their respective firms. A thorough review at the responses revealed that one of the repetitive comments was the lack of innovation and reputational damage as a result of the behavior of the contracted firm. The respondents noted that they faced challenges on monitoring how the outsourced logistics service provider carried themselves, thus their behavior could mistakenly be put on the companies' blame. A respondent noted;

> "The outsourced logistics service providers in some instances misbehave while carrying our company's products. Once the members of the public see this they put the blame on us, and this really affects our reputation. Also, there are instances when we want to make improvements but the outsourced companies are not ready to support. This makes the change unachievable, hence derailing back our innovation plans"

The findings revealed that the manufacturing firms could be facing slower innovation rates and low reputation which affects their performance, all as a result of logistics outsourcing. Bang-Ning *et al.* (2016) concluded that the relationship between the suppliers and the companies might be at risk especially when any of the parties is not collaborative, and not effectively contributing towards having a substantive relationship.

4.5.4 Management Risk

The fourth objective of the study was to establish the effect of management risk on the performance of manufacturing firms in Kenya. The main aspects used to assess management risk included cultural conflicts, loss of control and over reliance on a single supplier. A Likert's scale was used whereby the respondents were asked to indicate their levels of agreement or disagreement with specific statements on contractual risks. The SD stood for strongly disagree, D= Disagree, N= Neutral, A= Agree and SA= Strongly Agree. The findings are as shown in Table 4.12. As the findings revealed, majority of respondents agreed that there had been cases of conflicts between the employees and the outsourced parties as shown by a mean of 3.73 and a standard deviation of 0.96.

The respondents further agreed that there were conflicting cultures between their respective organizations and some of the contracted suppliers as indicated by a mean of 3.24 and a standard deviation of 1.13. It was also revealed that the hierarchy of decision-making between the surveyed companies and the contracted suppliers had affected the flow of business (Mean = 3.28; standard deviation = 1.15). The respondents further agreed that the alignment of strategies, goals, objectives and aims had been poor between their respective companies and the outsourced parties as shown by a mean of 3.88 and a standard deviation of 0.91.The findings concur with those by Mukaddes *et al.*

(2010) who established that one of the main bottlenecks that affect the effectiveness of outsourcing is the risks of managing the internal values of both the outsourced party and the outsourcing entity. This in turn affects the ability of the organizations to gain full benefits of outsourcing thus not getting value for the investment in outsourcing.

The findings further revealed that most of the firms surveyed had seen instances of employees being reluctant in accepting changes in the logistics processes as shown by a mean of 3.15 and a standard deviation of 1.10. The instances of poor power and responsibilities sharing between the manufacturing firms and the outsourced parties were however minimal (Mean = 2.82; standard deviation = 1.14). This was also the case for the lack of organizational boundaries with the outsourced parties as many respondents disagreed. The respondents agreed that monitoring and evaluation of the outsourced parties was not adequately done in some instances and in others the suppliers failed to deliver on time as shown by (Mean = 3.97; standard deviation = 0.89). The respondents however disagreed that they had instances where the outsourced partners withdrew their services thus paralyzing the operations of the company.

The findings imply that the management risk which mainly arise from internal environment of both the supplier and the manufacturing companies affect the success of the operations thus leading to declined performance. The results are in line with those by Sodhi *et al.* (2015) who established that through continued focus on management risk in the supply chain, there is high likelihood of solving any managerial differences between the outsourced suppliers and the organization thus promoting a smooth flow of activities for better performance.

Table 4.12: Descriptive Results on Management Risk

Statements	SD	D	N	A	SA	Mean	Std. Dev.
There have been cases of conflicts between employees and outsourced parties	8.2%	21.5%	8.3%	33.5%	28.6%	3.73	0.96
There are conflicting cultures between our organization and some of the contracted suppliers	9.0%	16.7%	26.6%	36.9%	10.7%	3.24	1.13
The hierarchy of decision-making between our company and the contracted suppliers has affected the flow of business	8.2%	18.0%	24.9%	35.6%	13.3%	3.28	1.15
Alignment of strategies, goals, objectives and aims has been poor between our company and the outsourced parties	18.1%	8.1%	6.7%	31.9%	35.2%	3.88	0.91
There have been instances of employees being reluctant in accepting changes in the logistics processes	9.9%	17.2%	28.8%	36.9%	7.3%	3.15	1.10
There have been instances of poor power and responsibilities sharing between our company and the outsourced parties	16.7%	19.7%	33.5%	24.9%	5.2%	2.82	1.14
Our company has experienced lack of organizational boundaries with the outsourced parties	20.6%	18.9%	34.8%	20.6%	5.2%	2.71	1.16
There are policies and procedures that are not clear to the outsourced parties	14.6%	20.6%	26.2%	33.0%	5.6%	2.94	1.16
There have been incidences of lack of evaluation and monitoring of outsourced parties	8.2%	23.3%	30.2%	28.9%	9.5%	3.08	1.11
We have had instances where a supplier did not deliver and we ran out of options	12.5%	6.0%	9.7%	48.0%	27.8%	3.97	0.89
There have been failures in delivery schedules due to suppliers being unable to deliver	17.2%	22.7%	23.6%	29.2%	7.3%	2.87	1.22
The outsourced partners have previously withdrawn their services hence paralyzing the operations of the company	27.9%	20.6%	16.3%	25.8%	9.4%	2.68	1.37

Key, scale: 1-1.8 strongly disagree, 1.8-2.6 disagree, 2.6 -3.4 neutral, 3.4 -4.2 agree, 4.2-5 strongly agree.

On the qualitative data, it was established that the respondents felt the urge for mitigating the management risk as a way of ensuring that their respective firms

benefitted fully from logistics outsourcing. Some respondents noted that there was too much exposure of their internal matters as a result of intrusion from the outsourced entities. They also indicate that there were instances when their suppliers of logistics services did not come through, thus affecting their ability to meet their customers' needs. A respondent noted:

> "We also have our own internal management issues which could as well affect the effectiveness of the outsourcing of logistics. Our culture and the way things are done here could be different from how the outsourced company does theirs. This has been noted where the communication hierarchy, the openness with the management, is totally different in both parties"

The findings imply that the internal affairs of each of the parties could affect the effectiveness of the logistics process thus affecting the performance of the manufacturing companies. According to Selvam (2016) the effectiveness of logistics outsourcing highly relies on the extent to which each of the parties is ready to align their internal management aspects to cope with the other side. This implies that aligning the culture and having minimal interference are essential for minimization of management risk.

4.5.5 Information Flow

The fourth objective of the study was to assess the moderating effect of information flow on the relationship between logistics outsourcing risks and performance of manufacturing firms in Kenya. Information flow determines the ability of an organization to effectively communicate both internally and externally, thus affecting the effectiveness of the process and relationships within and outside the organization (Wardaya *et al.* 2013). In this study, information flow was assessed through three key aspects which were; poor communication, latent information symmetry and incompatibility of the information.

A Likert's scale was used whereby the respondents were asked to indicate their levels of agreement or disagreement with specific statements on information flow. The SD stood

for strongly disagree, D= Disagree, N= Neutral, A= Agree and SA= Strongly Agree. The findings are as shown in Table 4.13. As the results portray, majority of the respondents agreed that their respective companies had not adopted the latest information technology to aid communication in and out of the company as shown by a mean of 3.23 and a standard deviation of 1.07. It was further established that hierarchy of communication in the surveyed organizations was only based on top-bottom approach (Mean = 3.79; standard deviation = 1.01).

The respondents however disagreed with the statement that giving feedback to customers was not upheld in their respective organizations as shown by a mean of 2.56 and a standard deviation of 1.32. It was established that the employees were given feedback and also gave feedback to the management and that there were effective approaches and strategies to ensure the internal information of the organization is not leaked (Mean = 2.11; standard deviation = 1.56). The findings compare with those by Yousefi and Alibabaei (2015) who found out that through effective communication and information sharing, the operations flow more efficiently thus leading to better organizational performance.

The respondents further agreed that there was unequal sharing of information among the employees in our organization as shown by a mean of 3.36 and a standard deviation of 1.34. This is an indication that the respondents felt the urge for the organizations to have a unified information sharing where every employee can access same and equal information with the rest. The results further showed that the staff members in most of the surveyed organizations were held responsible in cases of leakage or misuse of internal organizational information (Mean = 3.45; standard deviation = 1.32) and that for any information shared, the recipients were informed on the level of confidentiality on such information (Mean = 3.42; standard deviation = 1.36). The respondents also indicated that in some instances there lacked clarity in the shared information among their respective firms and that the management was not effectively ensuring consistency in information sharing in and out of the firm. The respondents further agreed that there

had been cases of inaccurate information being shared in their respective organizations as shown by a mean of 3.81 and a standard deviation of 0.98.

The findings compare with those by Mukaddes *et al.* (2010) who established that as a result of poor information flow between the outsourced firms and the outsourcing entities, it became difficult to coordinate activities effectively for mutual benefit. Liu *et al.* (2015) also indicated that the information sharing within and out of the organization was essential in steering the effectiveness of operations thus enhancing customer satisfaction and continued performance.

Table 4.13: Descriptive Results on Information Flow

Statements	SD	D	N	A	SA	Mean	Std. Dev.
Our company has not adopted the latest information technology to aid communication in and out of the company	8.2%	13.7%	35.6%	32.2%	10.3%	3.23	1.07
The hierarchy of communication in our organization is only based on top-bottom approach	18.0%	11.5%	4.3%	26.3%	39.9%	3.79	1.01
Giving feedback to the customers has not been effectively upheld in our company	25.8%	30.9%	14.6%	18.9%	9.9%	2.56	1.32
The employees do not give and receive feedback to the management timely and efficiently	27.5%	25.3%	18.9%	18.0%	10.3%	2.58	1.33
There are no effective approaches and strategies to ensure the internal information of the organization is not leaked	36.7%	21.9%	23.6%	8.9%	8.9%	2.11	1.56
There are is unequal sharing of information among the employees in our organization	13.3%	14.2%	20.2%	28.3%	24.0%	3.36	1.34
Staff members are held responsible in cases of leakage or misuse of internal organizational information	12.0%	14.6%	13.7%	35.6%	24.0%	3.45	1.32
For any information shared the recipients are informed on the level of confidentiality on such information	12.4%	15.9%	15.0%	30.5%	26.2%	3.42	1.36
There is no clarity in the information shared in our organization	6.4%	15.9%	20.6%	31.8%	25.3%	3.54	1.21
The management has not been committed towards ensuring consistency in information sharing in and out of the firm	12.4%	16.3%	19.3%	28.3%	23.6%	3.34	1.33
The communication procedures in our company are not flexible	13.3%	17.6%	12.9%	27.5%	28.8%	3.41	1.41
There have been cases of inaccurate information being shared in our organization	12.9%	16.7%	7.2%	26.6%	36.6%	3.81	0.98

Key, scale: 1-1.8 strongly disagree, 1.8-2.6 disagree, 2.6 -3.4 neutral, 3.4 -4.2 agree, 4.2-5 strongly agree.

4.5.6 Performance of Manufacturing Firms

The study sought to unveil the performance of manufacturing firms in Kenya. A Likert's scale was used whereby the respondents were asked to indicate their levels of agreement or disagreement with specific statements on performance of their respective firms. The SD stood for strongly disagree, D= Disagree, N= Neutral, A= Agree and SA= Strongly Agree. The findings are as shown in Table 4.14. As the findings portray, the respondents disagreed that their respective companies had recorded an increase in the quality of services as shown by a mean of 2.31 and a standard deviation of 1.48.

The respondents also disagreed that there had been a decrease in number of customer complaints in their respective organizations over the recent past as shown by a mean of 2.33 and standard deviation 1.52. They further disagreed that that their market share had been on the increase in the past two years as shown by a mean of 2.44 and a standard deviation of 1.53. The respondents disagreed that the sales revenues had increased in their respective organizations and that the profit margin of the firms had been growing annually over the years as shown by a mean do 2.71 and a standard deviation of 1.73. The findings imply that the performance of the manufacturing firms has not been as impressive which is an indication of a distressed industry.

Table 4.14: Descriptive Results on Performance

Statements	SD	D	N	A	SA	Mean	Std. Dev.
The company has recorded an increase in quality of services in the recent past	31.6%	25.0%	24.5%	8.3%	10.6%	2.31	1.48
There has been a decrease in number of customer complaints in our organization over the recent past	22.4%	35.9%	20.2%	9.2%	12.3%	2.33	1.52
Our company has seen a surge in the customers loyalty over the recent past	35.5%	28.5%	7.6%	11.8%	16.7%	2.56	1.43
The market share for the company has been on the increase in the past two years	38.2%	27.6%	6.7%	16.9%	10.6%	2.44	1.53
The sales revenues have been on increase in the recent past	30.7%	32.9%	14.9%	5.8%	5.8%	2.53	1.61
The profit margin of the firm has been growing annually over the past five years	34.6%	27.2%	9.3%	20.5%	8.5%	2.71	1.73

Key, scale: 1-1.8 strongly disagree, 1.8-2.6 disagree, 2.6 -3.4 neutral, 3.4 -4.2 agree, 4.2-5 strongly agree.

The study used secondary data sources drawn from the Kenya Association of Manufacturing, the ministry of trade and industrialization and from the Kenya National Bureau of Statistics to establish the trends in the performance of the manufacturing sector. The findings as shown in Figure 4.7 revealed that the performance trend of the manufacturing industry has been unstable with declines in revenues recorded in the year 2016 and 2017 (from Kshs3,490 million to Kshs2,932 million) and from Kshs.4,085 million in the year 2019 to Kshs.2,716 million in the year 2020.

The same trend was observed in the average profit margins where decline in the average profits was seen in 2016 and 2017 and between 2019 and 2020. While this trend could be attributed to other aspects outside the logistics outsourcing risks, there could also be a high likelihood of lack of effective logistic outsourcing processes to have affected the performance (Li-jun, 2012; Shanker, Sharma, & Barve, 2021; Elock, Müller, & Djuatio, 2019).

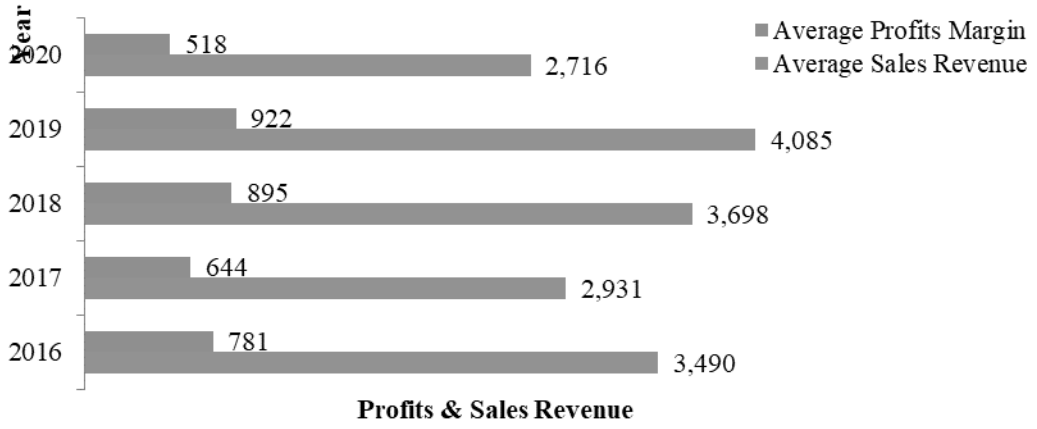

Figure 4.7: Performance of Manufacturing Firms

Source: KAM (2021), Ministry of Trade and Industrialization

4.5.6.1 Market Share

The study sought to establish the market share of the manufacturing firms in Kenya. From the findings as shown in Table 4.15, the overall market share for the companies in 2015 was 20.11%, where the growth in market share was at 32.32%, while sales grew by 19.71%, and overall performance grew by 8.31%. In 2016, the overall market share declined to 18.27%, with the growth in the market share also declined to 29.53% and the growth in sales increased to 20.06%. In 2017, the overall market share declined to 13.99%, and in 2018, it increased by less than 3% to 15.35%. However, the market share of the sector declined to 11.69% in 2019, signifying an unstable market share for the manufacturing sector in the country. According to Steria *et al.* (2020), continued decline in market share signifies a declining performance rate of the firms, which in turn affects the competitiveness of the company in market.

Table 4.15: Market Share

Measurement Aspects	2015	2016	2017	2018	2019
Firm's growth in market share	32.32%	29.53%	21.47%	26.18%	20.55%
Firm's growth in sales	19.71%	20.06%	16.58%	15.71%	11.83%
Firm's overall performance growth	8.31%	5.23%	3.92%	4.16%	2.70%
Overall Market Share	20.11%	18.27%	13.99%	15.35%	11.69%

4.5.2 Profitability of the Manufacturing Firms

The study sought to establish the profitability of the manufacturing firms in Kenya. The respondents were asked to indicate the average percentages in key aspects of profitability as shown in Table 4.16. The findings revealed that the Return on Investment (ROI) in 2015 was at 21.72%, which decline to 18.22% in 2016 and 12.61% in 2017. While the ROI increased to 20.93% in 2018, it again decline drastically declined to 13.74% in 2019. The findings further revealed that the firms' overall profitability was at 20.65% in 2015, and declined to 16.72% in 2016, and 9.85% in 2017. While it slightly increased to 14.78% in 2018, the profitability declined to 8.82% in 2019, indicating an unstable performance of the sector.

Table 4.16: Firm Profitability

Measurement Aspects	2015	2016	2017	2018	2019
Firm's Return on Investment	21.72%	18.22%	12.61%	20.93%	13.74%
Firm's profit margin on sales	36.33%	29.18%	14.91%	21.43%	11.78%
Firm's profitability growth	3.91%	2.76%	2.03%	1.98%	0.95%
Overall Profitability	20.65%	16.72%	9.85%	14.78%	8.82%

4.5.6.3 Customer Satisfaction

The respondents were further asked to indicate the extent to which their respective firms had met key aspects of customer satisfaction. From the findings on Table 4.17, it was revealed that most respondents were of the opinion that the quality of services offered by their respective firms was not effective and there were increased customer complaints. Moreover, most of the respondents indicated that there was minimal increase in customers' loyalty to the firm. The findings conform to those by Elock *et al.* (2018) who found out that a decline in customer satisfaction is a sign of continued underperformance whereby the firm is unable to meet the expectations of the customers.

Table 4.17: Customer Satisfaction

	Not at all	Small Extent	Moderate Extent	Great Extent	Very great Extent
Increased quality of service	30.5%	22.3%	18.9%	20.6%	7.7%
Decrease in customer complaints	20.6%	33.5%	22.3%	15.9%	7.7%
Increased customers loyalty to the firm	21.5%	17.6%	21.9%	25.3%	13.7%
Overall	**72.6%**	**73.4%**	**63.1%**	**61.8%**	**29.1%**

4.6 Diagnostic Tests

The test of assumptions was carried out in the study to establish whether the dataset met the general assumptions of the regression model. The main diagnostic tests normality test, test for autocorrelation, test for heteroscedasticity, multicollinearity test and

linearity test. According to Saunders *et al*., (2018) for the results of the regression model to be viable, the dataset ought to have met all these assumptions.

4.6.1 Normality Test

Normality test was carried out to determine whether the dataset was normally distributed. The regression model assumes that the data is normally distributed such that the data was obtained from a normal population. In this study, two tests were carried out to assess whether the data was normally distributed. These were Kolmogorov-Smirnov and Shapiro-Wilk and the Q-Q plot. In Kolmogorov-Smirnov and Shapiro-Wilk, the significance levels should be more than the 0.05 standard P-value while for the Q-Q plot, the plot should not take a given trend but have a zigzag shape implying that the data is normally distributed. Table 4.18 shows the Kolmogorov-Smirnov and Shapiro-Wilk tests results. As the results portray, all the variables had significance levels of more than 0.05 for both the Kolmogorov-Smirnov and Shapiro-Wilk, an indication that the data was normally distributed.

Table 4.18: Tests of Normality

Variables	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Contractual Risk	.136	233	.073	.934	233	.060
Cost Risk	.080	233	.051	.984	233	.092
Supplier Relationship Risk	.059	233	.051	.991	233	.161
Management Risk	.077	233	.192	.987	233	.059
Information Flow	.073	233	.074	.981	233	.093
Performance of Manufacturing Firms	.061	233	.067	.995	233	.647

a. Lilliefors Significance Correction

The normality test was further carried out using Q-Q plot. As the results on Figure 4.9 portray, all the variables had normally distributed data as evidenced by the shape of the plots which do not follow any regular pattern. This is an indication that the data was normally distributed, hence fit for the regression model analysis, subject to the other

assumptions.

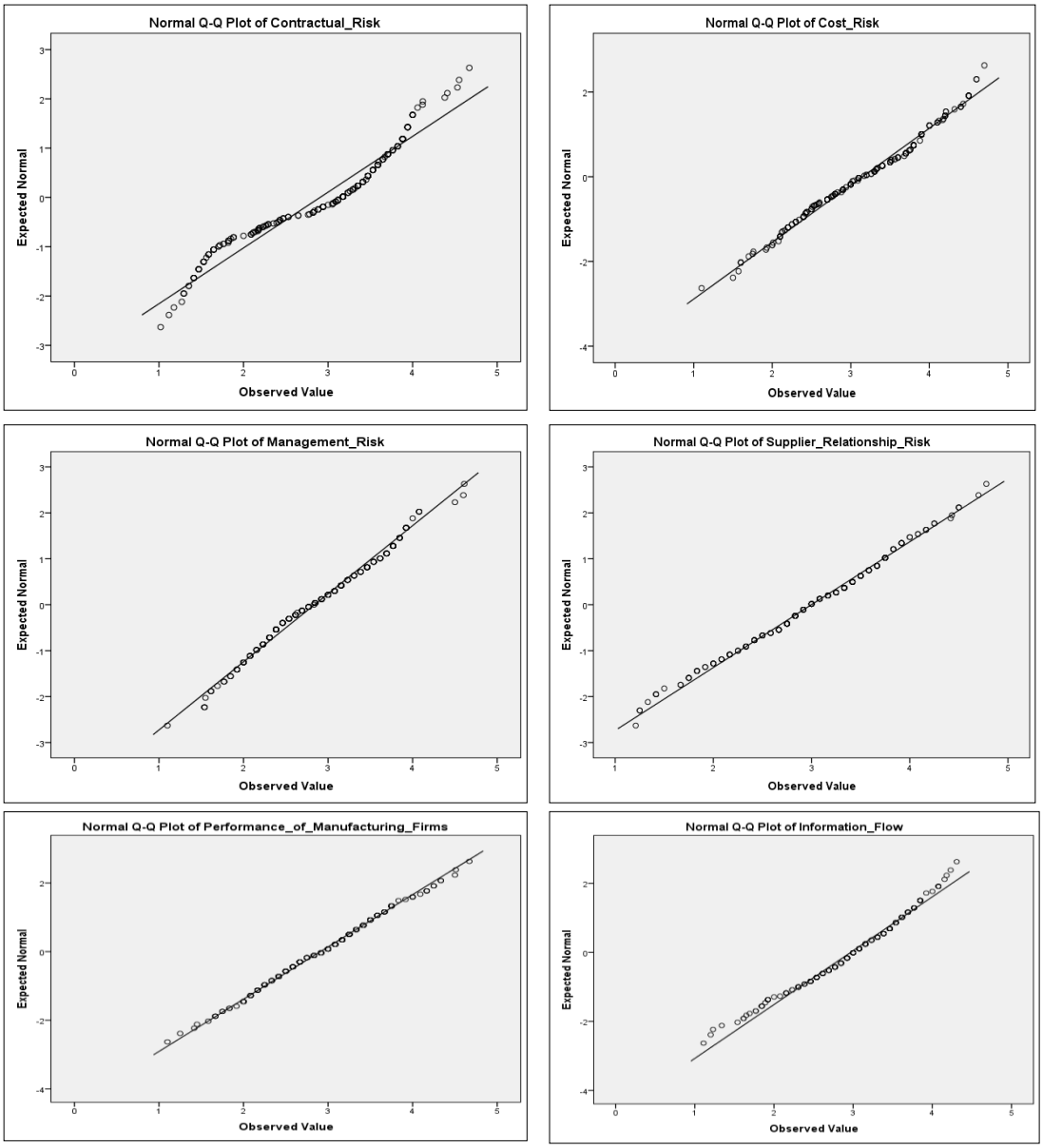

Figure 4.8: Q-Q Plot for Normality Test

4.6.2 Auto Correlation Test

Durbin-Watson (DW) statistic was used to test for autocorrelation in line with Field (2009). Based on the recommendation by Field (2009) null hypothesis is where there is no autocorrelation which can only be accepted when DW test shows a value between the ranges of 1.2 to 2.5. Findings in this study showed DW coefficient ranging from 1.278 to 1.897 which indicated that autocorrelation was not a problem as shown in Table 4.19.

Table 4.19: Test for Auto Correlation

Independent Variable	DW Coefficient
Contractual Risks	1.278
Cost risk	1.835
Supplier relationship risk	1.346
Management risk	1.435
Information Flow	1.897

4.6.3 Test for Heteroscedasticity

Test for heteroscedasticity was done using Breush-pagan/Cook-Weisberg Test. The null hypothesis in the test is when error terms have a constant variance (i.e. should be homoscedastic). The error terms are said to be Homoscedastic, if the p value is greater than the conventional p value 0.05, otherwise the errors terms are said to be heteroskedastic. In regression analysis for instance, heteroscedasticity can void statistical tests of significance that assume that data set errors are normally distributed and uncorrelated and whose variance do not vary after being modelled.

Hamsici and Martinez (2007) reiterated the fact that any residual table and correlation results generated through SPSS that are to be used for testing for collinearity can also be used to check the existence or absence of heteroscedasticity. In this study, the assumption of heteroscedasticity was apparent that there was no violation. The findings as shown in Table 4.20 have small chi-square value (less than 9.22) and p-values > 0.05 meaning that heteroscedasticity did not pose a problem.

Table 4.20: Heteroscedasticity Test

Variable	Chi Square	P value
Contractual Risk	1.23	0.762
Cost risk	0.67	0.567
Supplier relationship risk	2.34	0.089
Management risk	1.56	0.093
Information Flow	0.53	0.123
Over all model	0.98	0.224

4.6.4 Multi-Collinearity Test

According to William (2013) multi-collinearity refers to the presence of correlations between the predictor variables. In severe cases of perfect correlations between predictor variables, multi-collinearity can imply that a unique least squares solution to a regression analysis cannot be computed (Field, 2009). Multi-collinearity inflates the standard errors and confidence intervals leading to unstable estimates of the coefficients for individual predictors (Belsley, 2008).

Collinearity tests was used to conduct the multi-collinearity test. The rule of the thumb is that if the VIF value lies between 1 and10 then there is no multi-collinearity and if the VIF value is less than 1 or greater than 10, there is multi-collinearity. As the findings on Table 4.21 show, the Preliminary results indicated that there was no multi-collinearity between the independent variables and the dependent variable as the VIF values lies between 1 and 10. This was supported by the fact that the VIF for all the variables ranged between 1.353 and 2.703. Tolerance is a measure of how much the variance of an independent variable could be explained by other independent variables in a regression model. Tolerance value less than 0.1 indicate that there may be a problem with multicollinearity.

Table 4.21: Multi-Collinearity Test

Mode	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
Contractual Risk	.502	1.994
Cost Risk	.740	1.352
Supplier Relationship Risk	.370	2.703
Management Risk	.407	2.457
Information Flow	.717	1.394

a. Dependent Variable: Performance of Manufacturing Firms

4.6.5 Linearity Test

The multiple regression model assumes that the relationship between the response variable and the predictors is linear. If this assumption is violated, the multiple regressions tries to fit a straight line in a dataset whereas in reality the data could not follow a straight line. To assess linearity, the primary concern is to observe the scatterplot of the standardized residuals with the standardized predicted values. From the Figure 4.10, it appears that the relationship of standardized predicted to residuals is roughly linear around zero. We can conclude that the relationship between the response variable and predictors is zero since the residuals seem to be randomly scattered around zero.

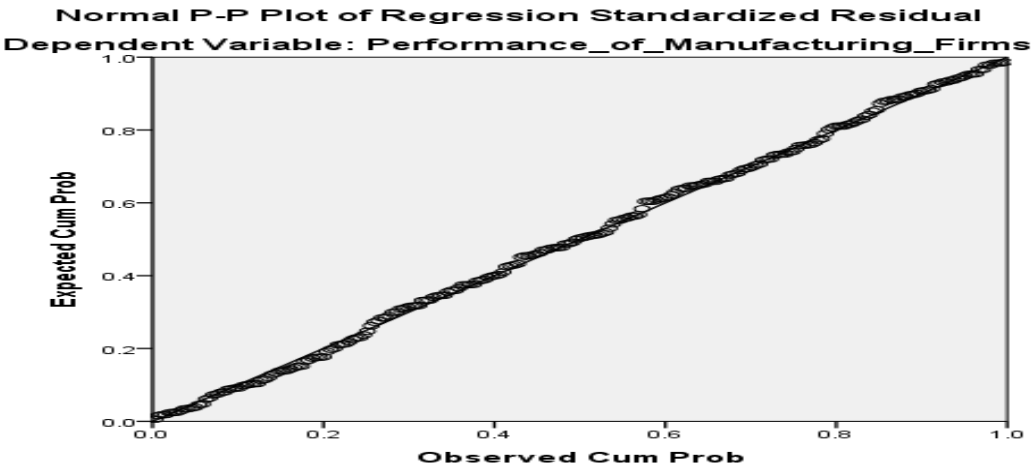

Figure 4.9: Linearity Scatterplot

Figure 4.11 shows the residual scatter plot. From the results, the trend is centered on zero while the variance around zero is scattered uniformly and randomly. It can therefore be concluded that the linearity assumption is satisfied.

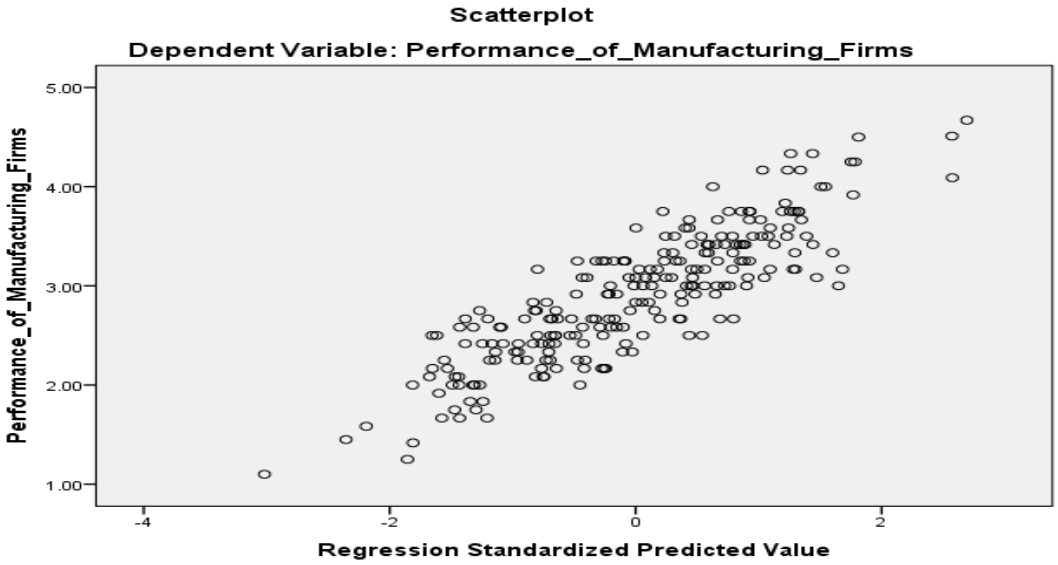

Figure 4.10: Residual Scatterplot

4.7 Factor Analysis

Factor analysis was carried out to ensure that the number of items used in the preliminary analysis of the study model included only those with high variance and positively contributing to the overall weight of the variable. This was done using Principal Component Analysis but preceded by KMO and Bartlett's test to establish the viability of the data to undergo factor analysis.

4.7.1 Contractual Risk

The KMO and Bartlett's test for the contractual risk is as shown in Table 4.22. As the results portray, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy for the variable was 0.584. On the other hand, the Bartlett's Test of Sphericity had a P–value of 0.000<0.05. The results imply that the KMO value met the 0.50 threshold while the Bartlett's Test of Sphericity also met the 0.05 threshold. This implies that the data under the contractual risk can be processed for factor analysis to determine the construct validity.

Table 4.22: KMO and Bartlett's Test for Contractual Risk

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.584
Bartlett's Test of Sphericity	Approx. Chi-Square	198.632
	Df	120
	Sig.	.000

The factor analysis results for the contractual risk are as shown in Table 4.23. As the results portray, the factor loadings for the variable ranged from 0.358 to 0.806. This revealed that one item "The Company has previously suffered a loss due to breach of confidentiality" which had a factor loading of 0.358 did not meet the 0.40 threshold hence it was removed from the questionnaire. The others were retained since they had factor loadings higher than the 0.40 threshold.

Table 4.23: Factor Loadings for Contractual Risk

Items	Factor Loadings
The company has had incidences of confidential information leak	.806
The service providers are clearly guided on the information that should not be shared before the contract is signed	.726
Our company has policies against a contractor or any other individual breaching the confidential information	.674
The parties found to breach any confidentiality are held individually responsible	.722
The company has previously suffered a loss due to breach of confidentiality	.358
Outsourcing has led to lack of Confidentiality on shared business strategy	.754
There are incidences where the lengthy hierarchy of decision-making have affected the process flow in the firm	.459
There have been cases of quality of service inferior to expectations	.689
There have been cases of poor relationship with the outsourced firms	.631
There have been complains from the customers concerning outsourced firms	.669
There are a times when our company has failed to solve emergency problems in time	.728
There are incidences where the contracted firm has failed to deliver the projected results	.737
We have previously selected service providers inappropriately leading to poor results	.594
Some of the outsourced firms have been inflexible leading to ineffectiveness	.669
There have been some contractors who have recorded delay in contract implementation	.710
There have been incidences of unclear dispute settlement procedures in our company	.702

Further the factor analysis results showed the total variance explained by each of the items under the contractual risks. The findings as shown in Table 4.24 revealed that three (3) components had Eigenvalues of greater than 1 where the first component had Eigenvalue of 8.025, the second component had Eigenvalue of 1.796, and the third component had an Eigenvalue of 1.287. The three components had a cumulative variance of 65.341%, thus implying that they will be computed to represent demographic attributes. According to Flora and Flake (2017), items with Eigenvalues above 1.0 have the strongest variance on the given study variable (contractual risks), thus they can be computed to represent the variable. Li (2016) further alludes that with

three or more components having Eigenvalues of above 1.0 and explaining a total variance of over 60% for the said variable, the components can adequately represent the variable. In this study, the four components with Eigenvalue of above 1.0 explained a total variance of 65.341%, thus they were utilized to compute the contractual risks variable.

Table 4.24: Total Variance Explained for Contractual Risk

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.025	47.205	47.205	8.025	47.205	47.205	6.142	36.128	36.128
2	1.796	10.564	57.769	1.796	10.564	57.769	3.341	19.652	55.779
3	1.287	7.572	65.341	1.287	7.572	65.341	1.625	9.561	65.341
4	.863	5.079	70.419						
5	.740	4.356	74.775						
6	.626	3.680	78.455						
7	.533	3.136	81.591						
8	.496	2.916	84.506						
9	.425	2.500	87.006						
10	.381	2.240	89.247						
11	.345	2.030	91.276						
12	.305	1.795	93.071						
13	.291	1.712	94.783						
14	.257	1.514	96.297						
15	.244	1.437	97.734						
16	.207	1.217	98.951						
17	.178	1.049	100.000						

Extraction Method: Principal Component Analysis.

The rotated component matrix shown in Table 4.25 explains the factor loadings for each of the components that had Eigenvalues of 1.0 and above. From the results, component one had 9 items with factor loadings above 0.60. Component 2 had five items with factor loadings above 0.60 threshold, while, component three had three items with factor loadings higher than 0.60. According to Clark and Bowles (2018), the rotated component matrix should represent the face of the conceptual framework, where the items retained should align to the sub-variables on the conceptual framework. In this study, contractual risk variable was assessed using breaches of confidentiality, business

continuity and contract failure. The items with the strongest factor loadings for each component were retained and computed to represent the variable (contractual risk).

Table 4.25: Rotated Component Matrix for Contractual Risks

Items	Component		
	1	2	3
Our company has had incidences of confidential information leak		.833	
The service providers are clearly guided on the information that should not be shared before the contract is signed		.761	
Our company has policies against a contractor or any other individual breaching the confidential information		.600	
The parties found to breach any confidentiality are held individually responsible		.730	
The company has previously suffered a low due to breach of confidentiality		.770	
Outsourcing has led to lack of Confidentiality on shared business strategy	.635		
There are incidences where the lengthy hierarchy of decision-making have affected the process flow in the firm	.709		
There have been cases of quality of service inferior to expectations	.754		
There have been cases of poor relationship with the outsourced firms			.667
There have been complains from the customers concerning outsourced firms	.798		
There are a times when our company has failed to solve emergency problems in time			.591
There are incidences where the contracted firm has failed to deliver the projected results	.763		
We have previously selected service providers inappropriately leading to poor results	.817		
Some of the outsourced firms have been inflexible leading to ineffectiveness	.744		
There have been some contractors who have recorded delay in contract implementation	.801		
There have been incidences of unclear dispute settlement procedures in our company	.785		
In your opinion, do you think contractual risks have in any way affected the performance of your company?			.698

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 7 iterations.

4.7.2 Cost Risk

The study tested the construct validity for the cost risk. The KMO results as shown in Table 4.26 revealed that the Kaiser-Meyer-Olkin Measure of Sampling Adequacy value was 0.735. This is higher than the 0.50 threshold an indication that it met threshold. This was further confirmed using the Bartlett's Test of Sphericity. As the results portray, the Bartlett's Test met the threshold since the P-value observed was 0.000 lower than the standard p-value of 0.05. This, therefore implied that the items under the cost risk were suitable for factor analysis.

Table 4.26: KMO and Bartlett's Test for Cost Risk

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.735
Bartlett's Test of Sphericity	Approx. Chi-Square	110.269
	Df	55
	Sig.	.000

Factor analysis was carried out for the cost risk items. The results are as shown in Table 4.27. As the results portray, the factor loadings ranged from 0.456 as the lowest to 0.780 as the highest. The findings imply that all the items under this variable met the 0.40 threshold hence they were all retained for the main data collection.

Table 4.27: Factor Loadings for Cost Risk

Items	Factor Loadings
There have been incidences of undisclosed charges by some of our suppliers	.618
There are agreements between the company and our suppliers on an approach to cater for hidden costs	.670
Our company has a framework of ensuring full disclosure of all costs before engaging a supplier	.556
There have been increased costs of operation due to outsourcing leading to loss of customers	.780
Our company has previously lost loyal customers to the competitors	.744
Some customers have abandoned our products/services after realizing the company was outsourcing some of its supplies	.764
A number of key outsourced partners have gone out of business.	.754
Our company has previously incurred expenses of getting another supplier after abandoning some suppliers	.456
There are incidences of high switching costs from in house to outsourcing	.680
In the past, we have lost customers due to change of service provider	.733
Some of our outsourcing partners lack statutory compliance	.519

To further establish the factors that had the highest variance on the cost risk variable, the analysis for total variance explained was carried out. The results as shown in Table 4.28 revealed that four (4) components drawn from cost risk had Eigenvalues of at least 1.0. These components explained a total variance of 63.209%, implying that the rest only account for a variance of 36.8%. According to Saeed, Tasmin, Mahmood and Hafeez (2022), when components explain above 60% of the variance in a given variable, it means they can adequately represent the variable, thus the rest can be excluded.

Table 4.28: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.705	30.878	30.878	3.705	30.878	30.878	2.467	20.559	20.559
2	1.660	13.834	44.712	1.660	13.834	44.712	1.903	15.857	36.415
3	1.184	9.870	54.582	1.184	9.870	54.582	1.706	14.220	50.636
4	1.035	8.627	63.209	1.035	8.627	63.209	1.509	12.573	63.209
5	.893	7.438	70.647						
6	.690	5.752	76.399						
7	.623	5.192	81.591						
8	.586	4.881	86.472						
9	.467	3.895	90.367						
10	.428	3.567	93.934						
11	.387	3.226	97.161						
12	.341	2.839	100.000						

Extraction Method: Principal Component Analysis.

The rotated component matrix was used to establish the specific items from the 4 components that had Eigenvalues above 1.0. As the results on Table 4.29 portray, on component 1, four (4) items had factor loadings above the 0.60 threshold, while in component 2, had another four (4) items with factor loadings above 060, while component three had two items with factor loadings above 0.60. These components were computed to represent the cost risks variable.

Table 4.29: Rotated Component Matrix Cost Risk

Items	Component			
	1	2	3	4
There have been incidences of undisclosed charges by some of our suppliers			**.865**	
There are agreements between the company and our suppliers on an approach to cater for hidden costs			**.864**	
Our company has a framework of ensuring full disclosure of all costs before engaging a supplier				**.857**
There have been increased costs of operation due to outsourcing leading to loss of customers				**.655**
Our company has previously lost loyal customers to the competitors	**.727**			
Some customers have abandoned our products/services after realizing the company was outsourcing some of its supplies	**.811**			
A number of key outsourced partners have gone out of business.	**.722**			
Our company has previously incurred expenses of getting another supplies after abandoning some	**.751**			
There are incidences of high switching costs from in house to outsourcing		**.682**		
In the past, we have lost customers due to change of service provider		**.724**		
Some of our outsourcing partners lack statutory compliance		**.640**		
In your opinion, do you think cost risks have in any way affected the performance of your company?		**-.592**		

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

4.7.3 Supplier Relationship Risk

The KMO and Bartlett's test for the supplier relationship risk is as shown in Table 4.30. As the results portray, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy for the variable was 0.540. On the other hand, the Bartlett's Test of Sphericity had a p–value of 0.000. The results imply that the KMO value met the 0.50 threshold while the Bartlett's Test of Sphericity also met the 0.05 threshold. This implies that the data under the supplier relationship risk can be processed for factor analysis to determine the construct validity.

Table 4.30: KMO and Bartlett's Test for Supplier Relationship Risk

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.540
Bartlett's Test of Sphericity	Approx. Chi-Square	104.119
	Df	55
	Sig.	.000

The factor analysis results for the contractual risk are as shown in Table 4.31. As the results portray, the factor loadings for the variable ranged from 0.569 ("We often have to contend with low level of shared expertise among our outsourcing partners") to 0.864 ("Product/service improvement has been minimal among the outsourced cadres"). This revealed that all the items under the variable supplier relationship risk met the 0.40 threshold hence they were all retained on the final questionnaire for the main data collection.

Table 4.31: Factor Loadings for Supplier Relationship Risk

Items	Factor Loadings
There have been cases of poor expertise by our outsourced parties	.683
We often have to contend with low level of shared expertise among our outsourcing partners	.569
There have been cases of little mutual trust between our firm and partners	.679
Our outsourcing partners have caused damage to our company's reputation in the past	.690
The innovative capacity of our firm has in some instances declined due to outsourcing	.693
There are cases where the outsourced party do not show commitment in doing things differently	.752
The suppliers have been reluctant in bringing-in new products/services	.780
Product/service improvement has been minimal among the outsourced cadres	.864
Outsourcing has led to low Level of promptness in product delivery	.822
There's a general lack of commitment to a common purpose	.613
Our firm has lost market share due to inefficiencies of outsourcing	.790

Total variance explained results shown in Table 4.32 revealed that three (3) components under supplier relationship risk had Eigenvalues higher than 1.0. These components explained a total variance of 57.801%. According to Sureshchandar (2023), when a

collection of components explain more than 50% - 60% of the variance in the given variable, it implies that they can be retained and represent the variable. This implies that the variable (supplier relationship risk) could be represented by the item from the three (3) components.

Table 4.32: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.708	39.230	39.230	4.708	39.230	39.230	3.630	30.246	30.246
2	1.166	9.714	48.943	1.166	9.714	48.943	2.119	17.657	47.903
3	1.063	8.858	57.801	1.063	8.858	57.801	1.188	9.898	57.801
4	.940	7.835	65.636						
5	.864	7.201	72.837						
6	.692	5.770	78.607						
7	.524	4.366	82.974						
8	.472	3.931	86.904						
9	.444	3.704	90.608						
10	.413	3.443	94.051						
11	.403	3.361	97.412						
12	.311	2.588	100.000						

Extraction Method: Principal Component Analysis.

To determine the items that should be retained to represent supplier relationship risk and those that should be excluded, the rotated component matrix was used as shown in Table 4.33. From the results, it can be depicted that component 1 had seven (7) items with factor loadings above 0.60, component two had four (4) factors with factor loadings above 0.60, while component three had one factor with a factor loading above 0.60. These components were computed to represent the supplier relationship risk variable. According to Shi, Maydeu-Olivares, and Rosseel (2020), the items with factor loadings 0.60 can best represent the variable under the study.

Table 4.33: Rotated Component Matrix for Supplier Relationship Risk

Statements	Component		
	1	2	3
There have been cases of poor expertise by our outsourced parties	.588		
We often have to contend with low level of shared expertise among our outsourcing partners		.855	
There have been cases of little mutual trust between our firm and partners		.643	
Our outsourcing partners have caused damage to our company's reputation in the past	.672		
The innovative capacity of our firm has in some instances declined due to outsourcing	.696		
There are cases where the outsourced party do not show commitment in doing things differently	.732		
The suppliers have been reluctant in bringing-in new products/services	.653		
Product/service improvement has been minimal among the outsourced cadres	.715		
Outsourcing has led to low Level of promptness in product delivery	.774		
There's a general lack of commitment to a common purpose		.511	
Our firm has lost market share due to inefficiencies of outsourcing		.588	
In your opinion, do you think supplier relationship risks have in any way affected the performance of your company?			.916

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

4.7.4 Management Risk

The study tested the construct validity for the management risk. The KMO results as shown in Table 4.34 revealed that the Kaiser-Meyer-Olkin Measure of Sampling Adequacy value was 0.773. This is higher than the 0.50 threshold an indication that it met threshold. This was further confirmed using the Bartlett's Test of Sphericity. As the results portray, the Bartlett's Test met the threshold since the p-value observed was 0.000 lower than the standard p-value of 0.05. This, therefore implied that the items under the management risk were suitable for factor analysis.

Table 4.34: KMO and Bartlett's Test for Management Risk

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.773
Bartlett's Test of Sphericity	Approx. Chi-Square	181.244
	Df	66
	Sig.	.000

Factor analysis was carried out for the management risk items. The results are as shown in Table 4.35. As the results portray, the factor loadings ranged from 0.489 ("We have had instances where a supplier did not deliver and we ran out of options") as the lowest to 0.762 ("There have been instances of poor power and responsibilities sharing between our company and the outsourced parties") as the highest. The findings imply that all the items under this variable met the 0.40 threshold hence they were all retained for the main data collection.

Table 4.35: Factor Loadings for Management Risk

Items	Factor Loadings
There have been cases of conflicts between employees and outsourced parties	.653
There are conflicting cultures between our organization and some of the contracted suppliers	.678
The hierarchy of decision-making between our company and the contracted suppliers has affected the flow of business	.716
Alignment of strategies, goals, objectives and aims has been poor between our company and the outsourced parties	.633
There have been instances of employees being reluctant in accepting changes in the logistics processes	.739
There have been instances of poor power ad responsibilities sharing between our company and the outsourced parties	.762
Our company has experienced lack of organizational boundaries with the outsourced parties	.637
There are policies and procedures that are not clear to the outsourced parties	.582
There have been incidences of lack of evaluation and monitoring of outsourced parties	.591
We have had instances where a supplier did not deliver and we ran out of options	.489
There have been failures in delivery schedules due to suppliers being unable to deliver	.674
The outsourced partners have previously withdrawn their services hence paralyzing the operations of the company	.522

The analysis for total variance explained was carried out to establish the components that were within the threshold so as to be retained and computed to represent the management risk variable. The findings as shown in Table 4.36 revealed that four (4) components had eigenvalues of greater than 1 where the first component had Eigenvalue of 4.457, the second component had Eigenvalue of 1.423, the third component had an Eigenvalue of 1.218, while the fourth one had an Eigenvalue of 1.115. The four components had a cumulative variance of 63.181%, thus implying that they will be computed to represent management risk. According to Shrestha (2021), items with Eigenvalues above 1.0 have the strongest variance on the given study variable, thus they can be computed to represent the variable.

Table 4.36: Total Variance Explained and Management Risk

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.457	34.288	34.288	4.457	34.288	34.288	2.583	19.871	19.871
2	1.423	10.947	45.236	1.423	10.947	45.236	2.336	17.969	37.840
3	1.218	9.367	54.603	1.218	9.367	54.603	1.852	14.248	52.087
4	1.115	8.578	63.181	1.115	8.578	63.181	1.442	11.094	63.181
5	.810	6.234	69.416						
6	.678	5.219	74.635						
7	.588	4.525	79.160						
8	.567	4.358	83.518						
9	.518	3.983	87.501						
10	.493	3.789	91.290						
11	.441	3.394	94.684						
12	.384	2.956	97.641						
13	.307	2.359	100.000						

Extraction Method: Principal Component Analysis.

The rotated component matrix as shown in Table 4.37 revealed that the first component had four items with factor loadings above the threshold of 0.60, while the second component had three items with factor loadings above the 0.60 threshold. The third component had four (4) items with factor loadings above 0.60 threshold while the fourth component had two (2) items with factor loadings above 0.60. These components were computed to represent the variable management risk.

Table 4.37: Rotated Component Matrix

Items	Component			
	1	2	3	4
There have been cases of conflicts between employees and outsourced parties		.602		
There are conflicting cultures between our organization and some of the contracted suppliers		.806		
The hierarchy of decision-making between our company and the contracted suppliers has affected the flow of business		.806		
Alignment of strategies, goals, objectives and aims has been poor between our company and the outsourced parties			.667	
There have been instances of employees being reluctant in accepting changes in the logistics processes			.606	
There have been instances of poor power ad responsibilities sharing between our company and the outsourced parties			.748	
Our company has experienced lack of organizational boundaries with the outsourced parties			.745	
There are policies and procedures that are not clear to the outsourced parties	.627			
There have been incidences of lack of evaluation and monitoring of outsourced parties	.759			
We have had instances where a supplier did not deliver and we ran out of options	.842			
There have been failures in delivery schedules due to suppliers being unable to deliver failures	.696			
The outsourced partners have previously withdrawn of services hence paralysing the operations of the company				.629
In your opinion, do you think management risks have in any way affected the performance of your company?				.773

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

4.7.5 Information Flow

The study tested the construct validity for the information flow. The KMO results as shown in Table 4.38 revealed that the Kaiser-Meyer-Olkin Measure of Sampling Adequacy value was 0.700. This is higher than the 0.50 threshold an indication that it met threshold. This was further confirmed using the Bartlett's Test of Sphericity. As the results portray, the Bartlett's Test met the threshold since the P-value observed was

0.000 lower than the standard p-value of 0.05. This, therefore implied that the items under the information flow were suitable for factor analysis.

Table 4.38: KMO and Bartlett's Test for Information Flow

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.700
Bartlett's Test of Sphericity	Approx. Chi-Square	207.139
	Df	66
	Sig.	.000

Further, factor analysis was carried out for the information flow items. The results are as shown in Table 4.39. As the results portray, the factor loadings ranged from 0.505 ("For any information shared the recipients are informed on the level of confidentiality on such information") as the lowest to 0.834 ("Staff members are held responsible in cases of leakage or misuse of internal organizational information") as the highest. The findings imply that all the items under this variable met the 0.40 threshold hence they were all retained for the main data collection.

Table 4.39: Factor Loadings for Information Flow

Items	Factor Loadings
Our company has not adopted the latest information technology to aid communication in an out of the company	.796
The hierarchy of communication in our organization is only based on top-bottom approach	.802
Giving feedback to the customers has not been effectively upheld in our company	.780
The employees do not give and receive feedback to the management timely and efficiently	.702
There are no effective approaches and strategies to ensure the internal information of the organization is not leaked	.741
There are is unequal sharing of information among the employees in our organization	.739
Staff members are held responsible in cases of leakage or misuse of internal organizational information	.834
For any information shared the recipients are informed on the level of confidentiality on such information	.505
There is no clarity in the information shared in our organization	.820
The management has not been committed towards ensuring consistency in information sharing in an out of the firm	.816
The communication procedures in our company are not flexible	.599
There have been cases of inaccurate information being shared in our organization	.653

Total variance explained results shown in Table 4.40 revealed that four components under information flow had Eigenvalues higher than 1.0. These components explained a total variance of 59.23%. According to Taherdoost *et al.* (2022), when a collection of components explain 50% to 60% of the variance in the given variable, it implies that they can be retained and represent the variable. This implies that the variable (information flow) could be represented by the item from the 4 components.

Table 4.40: Total Variance Explained for Information Flow

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.245	24.965	24.965	3.245	24.965	24.965	3.089	23.759	23.759
2	2.087	16.057	41.022	2.087	16.057	41.022	2.135	16.421	40.180
3	1.277	9.827	50.849	1.277	9.827	50.849	1.272	9.786	49.965
4	1.089	8.377	59.226	1.089	8.377	59.226	1.204	9.260	59.226
5	.985	7.578	66.804						
6	.838	6.446	73.250						
7	.762	5.864	79.114						
8	.593	4.563	83.677						
9	.546	4.199	87.877						
10	.515	3.959	91.835						
11	.466	3.584	95.419						
12	.310	2.387	97.807						
13	.285	2.193	100.000						

Extraction Method: Principal Component Analysis.

To determine the items that should be retained to represent information flow and those that should be excluded, the rotated component matrix was used as shown in Table 4.41. From the results, it can be depicted that the items with factor loadings higher than the 0.60 threshold (Watkins, 2018) included seven (7) items while those under component two with factor loadings above 0.60 were four (4) items. The findings further revealed that component three one item with factor loadings above 0.60 the same case with component four. These items were computed to represent the information flow variable.

Table 4.41: Rotated Component Matrix

Items	Component			
	1	2	3	4
Our company has not adopted the latest information technology to aid communication in an out of the company		.768		
The hierarchy of communication in our organization is only based on top-bottom approach		.743		
Giving feedback to the customers has not been effectively upheld in our company		.834		
The employees do not give and receive feedback to the management timely and efficiently		.777		
There are no effective approaches and strategies to ensure the internal information of the organization is not leaked	.611			
There are is unequal sharing of information among the employees in our organization	.698			
Staff members are held responsible in cases of leakage or misuse of internal organizational information	.697			
For any information shared the recipients are informed on the level of confidentiality on such information	.625			
There is no clarity in the information shared in our organization	.679			
The management has not been committed towards ensuring consistency in information sharing in an out of the firm	.682			
The communication procedures in our company are not flexible	.714			
There have been cases of inaccurate information being shared in our organization				.773
In your opinion, do you think information flow has in any way affected the performance of your company?			.862	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

4.7.6 Firm Performance

The KMO and Bartlett's test for the firm performance is as shown in Table 4.42. As the results portray, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy for the variable was 0.568. On the other hand, the Bartlett's Test of Sphericity had a P–value of 0.000. The results imply that the KMO value met the 0.50 threshold while the Bartlett's Test of Sphericity also met the 0.05 threshold. This implies that the data under the firm performance can be processed for factor analysis to determine the construct validity.

Table 4.42: KMO and Bartlett's Test for Firm Performance

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.568
Bartlett's Test of Sphericity	Approx. Chi-Square	127.558
	Df	45
	Sig.	.000

Factor analysis was carried out to establish the factor loadings for the items under firm performance. The results are as shown in Table 4.43. As the finding portray, the factor loadings for the items under the variable ranged from 0.533 (lowest) to 0.871 (the highest). Since all the items had factor loadings higher than the standard value of 0.40, they were all retained on the questionnaire for the main data collection.

Table 4.43: Factor Loadings for Firm Performance

Items	Factor Loadings
Increased quality of service	.829
Decrease in customer complaints	.715
Increased customers loyalty to the firm	.712
In your opinion, do you think there has been an increase in the performance of your company in the recent past?	.685
Firm’s growth in market share	.871
Firm’s growth in sales	.533
Firm’s overall performance growth	.716
Firm's Return on Investment	.804
Firm’s profit margin on sales	.764
Firm’s profitability growth	.734

To further establish the factors that had the highest variance on the firm performance variable, the analysis for total variance explained was carried out. The results as shown in Table 4.44 revealed that two (2) components drawn from firm performance had Eigenvalues of at least 1.0. These components explained a total variance of 60.140%, implying that the rest only account for a variance of 39.8%. According to Hadi, Abdullah, and Sentosa (2016), when components explain above 60% of the variance in a given variable, it means they can adequately represent the variable, thus the rest can be excluded.

Table 4.44: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.908	39.084	39.084	3.908	39.084	39.084	3.460	34.596	34.596
2	2.106	21.056	60.140	2.106	21.056	60.140	2.554	25.544	60.140
3	.742	7.424	67.564						
4	.641	6.407	73.971						
5	.591	5.908	79.879						
6	.528	5.275	85.154						
7	.457	4.573	89.727						
8	.423	4.227	93.953						
9	.333	3.335	97.288						
10	.271	2.712	100.000						

Extraction Method: Principal Component Analysis.

The rotated component matrix was used to establish the specific items from the two (2) components that had Eigenvalues above 1.0. As the results on Table 4.45 portray, on component 1, six (6) items had factor loadings exceeding the 0.60 threshold. Component 2 had had four (4) items with factor loadings exceeding the 0.60 threshold. These were computed to represent the dependent variable which was performance of manufacturing firms in Kenya.

Table 4.45: Rotated Component Matrix

Items	Component	
	1	2
Increased quality of service	.717	
Decrease in customer complaints	.729	
Increased customers loyalty to the firm	.767	
In your opinion, do you think there has been an increase in the performance of your company in the recent past?	.819	
Firm's growth in market share	.775	
Firm's growth in sales	.711	
Firm's overall performance growth		.796
Firm's Return on Investment		.784
Firm's profit margin on sales		.785
Firm's profitability growth		.740

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

4.8 Inferential Analysis

Osborne and Waters (2002) stated that inferential statistics are used to make inferences from data to conditions that are more general. Thus, they are used to test hypotheses and make estimation using sample data. In this study, inferential analysis was conducted with correlation and regression analysis to determine the relationships between dependent and independent variables.

4.8.1 Correlation Analysis

Pearson's correlation was carried out to establish the relationship between the logistics outsourcing risks and performance of manufacturing firms in Kenya. Pearson's correlation coefficients indicate the extent of interdependence between two variables. The Pearson correlation coefficient, ***r***, can take a range of values from +1 to -1. A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association; that is, as the value of one variable increases, so does the value of the other variable (Stevens, 2009). A value less than 0 indicates a negative association; that is, as the value of one variable increases, the value of the other variable

decreases. In this study the Pearson correlation coefficient, ***r***, was used to show the degree and significance of the relationship between variables.

4.8.1.1 Contractual Risks and Firm Performance

As the results on Table 4.46 revealed, contractual risks had a Pearson correlation coefficient of -0.645 with performance at a significance level of 0.000<0.05. As indicated above, a Pearson correlation value of less than 0 indicates a negative association; in that as the value of one variable increases, the value of the other variable decreases. This therefore implies that with increase in contractual risk, performance of the manufacturing firms decreased. In conclusion, there is a strong, significant and negative correlation between contractual risk and performance of the manufacturing firms in Kenya.

Table 4.46: Correlation Results for Contractual Risks

		Performance of Manufacturing Firms	Contractual Risk
Performance of Manufacturing Firms	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	233	
Contractual Risk	Pearson Correlation	-.645**	1
	Sig. (2-tailed)	.000	
	N	233	233

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

4.8.1.2 Cost Risks and Firm Performance

The Pearson correlation coefficient for the cost risks and performance of manufacturing firms was -0.671. The significance level (P-values) was 0.000<0.05. This is an indication that there is a strong and significant negative correlation between cost risks

and performance of manufacturing firms in Kenya. Thus, with increase in cost risk, the performance of manufacturing firms in Kenya decreased.

Table 4.47: Correlation Results for Cost Risks

		Performance of Manufacturing Firms	Cost Risk
Performance of Manufacturing Firms	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	233	
Cost Risk	Pearson Correlation	-.671**	1
	Sig. (2-tailed)	.000	
	N	233	233

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

4.8.1.3 Supplier Relationship Risks and Firm Performance

Supplier relationship risks had a Pearson correlation coefficient of -0.671 when correlated with performance of manufacturing firms. The correlation was significant at 0.000<0.05. This implies that there is a significant and strong negative correlation between supplier relationship risks and performance of manufacturing firms in Kenya. It also implies that with increase in supplier relationship risks, the performance of manufacturing firms in Kenya decreased.

Table 4.48: Correlation Results for Supplier Relationship Risks

		Performance of Manufacturing Firms	Supplier Relationship Risk
Performance of Manufacturing Firms	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	233	
Supplier Relationship Risk	Pearson Correlation	-.671**	1
	Sig. (2-tailed)	.000	
	N	233	233

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

4.8.1.4 Management Risks and Firm Performance

The correlation between management risks and performance of manufacturing firms had a Pearson correlation coefficient of -0.665 at significance level of 0.000<0.05. This implies that the correlation between management risk and performance of manufacturing firms is strong and negatively significant.

Table 4.49: Correlation Results for Management Risks

		Performance of Manufacturing Firms	Management Risk
Performance of Manufacturing Firms	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	233	
Management Risk	Pearson Correlation	-.665**	1
	Sig. (2-tailed)	.000	
	N	233	233

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

4.8.1.5 Information Flow and Firm Performance

The correlation results on the information flow revealed that the Pearson correlation coefficient was 0.067 at a significance level of 0.031. This is an indication that information flow has a positive and significant correlation with performance of manufacturing firms.

Table 4.50: Correlation Results for Information Flow

		Performance of Manufacturing Firms	Information Flow
Performance of Manufacturing Firms	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	233	
Information Flow	Pearson Correlation	.067**	1
	Sig. (2-tailed)	.031	
	N	233	233

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

4.8.2 Regression Analysis

A regression model was used to test for the hypotheses of the study. This was done using both univariate and multiple regression model. The main aspects captured in the regression model included the model summary, the ANOVA test and the regression coefficients.

4.8.2.1 Contractual Risks and Performance of Manufacturing Firms

H_{A1}: There is a significant influence of contractual risk on performance of manufacturing firms in Kenya

The study set to test the hypothesis on whether there was a statistically significant relationship between contractual risk and performance of manufacturing firms in Kenya. The regression model summary as shown in Table 4.51 revealed that the R-square (R^2) was 0.417. This is an indication that 41.7% of the variation in performance of the manufacturing firms is as a result of the contractual risks.

Table 4.51: Model Summary on Contractual Risk

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.645[a]	.417	.414	.60594

a. Predictors: (Constant), Contractual Risk

The Analysis of Variance (ANOVA) results are as shown in Table 4.52. As the results revealed, the F-statistic for the model was 164.892 at a significance level of 0.000<0.05. This is an indication that the model is statistically significant to test the relationship between contractual risk and performance of manufacturing firms. It also implies that there is a likelihood of having a significant relationship between the two variables.

Table 4.52: ANOVA Results for Contractual Risk

Model		Sum Squares	ofDf	Mean Square	F	Sig.
1	Regression	60.541	1	60.541	164.892	.000[b]
	Residual	84.814	231	.367		
	Total	145.355	232			

a. Dependent Variable: Performance of Manufacturing Firms
b. Predictors: (Constant), Contractual Risk

The regression coefficients for the model are as shown in Table 4.53. As the results portray, the Beta coefficient for the model was -0.521. This implies that a unit change in contractual risk would lead to a decline in performance of the manufacturing firms in Kenya by 0.521 units. The P-value for the model is 0.000<0.05. This implies that the relationship between contractual risk and performance of manufacturing firms is statistically significant. Therefore, the alternative hypothesis that *there is a significant influence of contractual risk on performance of manufacturing firms in Kenya* is supported, and a conclusion drawn that contractual risk negatively affects the performance of manufacturing firms in Kenya.

Table 4.53: Regression Coefficients for Contractual Risk

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.755	.126		37.751	.000
	Contractual Risk	-.521	.041	-.645	-12.841	.000

a. Dependent Variable: Performance of Manufacturing Firms

4.8.2.2 Cost Risk and Performance of Manufacturing Firms

H_{A2}: There is a significant influence of cost risk on performance of manufacturing firms in Kenya

The second hypothesis that the study sought to test was that there is a significant relationship between cost risk and performance of manufacturing firms in Kenya. The model summary results are as shown in Table 4.54. As the results portray, the R-square (R^2) for the variable is 0.450. This is an indication that 45.0% of the variation in performance of the manufacturing firms is as a result of the cost risk.

Table 4.54: Model Summary for Cost Risk

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.671[a]	.450	.448	.58818

a. Predictors: (Constant), Cost Risk

The Analysis of Variance (ANOVA) was also carried out to establish the significance of the model in testing the relationship between cost risks and performance of the manufacturing firms. As the results on Table 4.55 revealed, the F-statistic for the model was 189.152 at a significance level of 0.000. This implies that the model is statistically significant in predicting the relationship between the variables, and that there is a high likelihood of the relationship being significant.

Table 4.55: ANOVA Results for Cost Risk

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	65.439	1	65.439	189.152	.000[b]
	Residual	79.916	231	.346		
	Total	145.355	232			

a. Dependent Variable: Performance of Manufacturing Firms
b. Predictors: (Constant), Cost Risk

The regression coefficients for the model are as summarized in Table 4.56. As the results portray, the Beta coefficient for cost risk is -0.678. This implies that cost risk could influence the decline in performance of manufacturing firms by up to 0.678 units. This relationship is significant at 0.000<0.05. Therefore, the second research hypothesis that *there is a significant influence of cost risk on performance of manufacturing firms in Kenya* is supported and a conclusion drawn that cost risk negatively influences the performance of manufacturing firms in Kenya.

Table 4.56: Regression Coefficients for Cost Risk

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.203	.149		34.862	.000
	Cost Risk	-.678	.049	-.671	-13.753	.000

a. Dependent Variable: Performance of Manufacturing Firms

4.8.2.3 Supplier Relationship Risk and Performance of Manufacturing Firms

H_{A3}: There is a significant influence of supplier relationship risk on performance of manufacturing firms in Kenya

The study set to test the third hypothesis of the study which was that there is a significant relationship between supplier relationship risk and performance of manufacturing firms in Kenya. The model summary results are as shown in Table 4.57. As the results showed, the R^2 for the model was 0.451 which is an implication that

supplier relationship risk influences up to 45.1% of the variation in the performance of manufacturing firms in Kenya.

Table 4.57: Model Summary for Supplier Relationship Risk

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.671[a]	.451	.448	.58789

a. Predictors: (Constant), Supplier Relationship Risk

As the ANOVA results on Table 4.58 revealed, the model had F-statistic of 189.565 at a significance level of 0.000. This implies that the model is statistically significant and could test the relationship between the supplier relationship risk and performance of manufacturing firms in Kenya. The results further imply that there is a high likelihood of the relationship between the variables being significant.

Table 4.58: ANOVA Test Results for Supplier Relationship Risk

Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
1	Regression	65.517	1	65.517	189.565	.000[b]
	Residual	79.838	231	.346		
	Total	145.355	232			

a. Dependent Variable: Performance of Manufacturing Firms
b. Predictors: (Constant), Supplier Relationship Risk

The regression coefficients for the model are as shown in Table 4.59. As the results portray, the Beta coefficient for the variable is -0.644 which is an implication that supplier relationship risk negatively influences the performance of the manufacturing firms by up to 0.644 units. The P-value for the variable is 0.000 which is less than the standard p-value of 0.05 implying that the relationship between supplier relationship risk and performance of the manufacturing firms is significant. Therefore, the third alternative hypothesis that *there is a significant influence of supplier relationship risk on performance of manufacturing firms in Kenya* is supported, thus a conclusion drawn that

supplier relationship risk negatively influences the performance of manufacturing firms in Kenya.

Table 4.59: Regression Coefficients for Supplier Relationship Risk

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.150	.145		35.432	.000
	Supplier Relationship Risk	-.644	.047	-.671	-13.768	.000

a. Dependent Variable: Performance of Manufacturing Firms

4.8.2.4 Management Risk and Performance of Manufacturing Firms

H_{A4}: There is a significant influence of management risk on performance of manufacturing firms in Kenya

The study sought to test the fourth alternative hypothesis which was that there is a significant relationship between management risk and performance of manufacturing firms in Kenya. The model summary results are as shown in Table 4.60. As the results portray, the R^2 for the model was 0.443. This implies that management risks influences up to 44.3% of the variation in performance of manufacturing firms in Kenya.

Table 4.60: Model Summary for Management Risk

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.665[a]	.443	.440	.59209

a. Predictors: (Constant), Management Risk

The ANOVA results for the model are as shown in Table 4.61. As the results portray, the F-statistic for the model was 183.620 at a significance level of 0.000<0.05. This implies that the model is statistically significant and can predict the relationship between management risk and performance of manufacturing firms in Kenya.

Table 4.61: ANOVA Results for Management Risk

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	64.373	1	64.373	183.620	.000[b]
	Residual	80.983	231	.351		
	Total	145.355	232			

a. Dependent Variable: Performance of Manufacturing Firms
b. Predictors: (Constant), Management Risk

The regression coefficients for the model are as shown in Table 4.62. As the results portray, the Beta coefficient for management risk is -0.621 which implies that a unit change in management risk influences the decline in the performance of the manufacturing firms in Kenya by 0.621 units. The P-value for the variable was 0.000<0.05, an indication that the relationship between management risk and performance of manufacturing firms in Kenya is significant. The fourth alternative hypothesis that *there is a significant influence of management risk on performance of manufacturing firms in Kenya* is therefore supported, and a conclusion drawn that with increase in management risk, there was a significant decline in the performance of manufacturing firms in Kenya.

Table 4.62: Regression Coefficients for Management Risk

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
		B	**Std. Error**	**Beta**		
1	(Constant)	5.008	.138		36.416	.000
	Management Risk	-.621	.046	-.665	-13.551	.000

a. Dependent Variable: Performance of Manufacturing Firms

4.8.2.5 Overall Model

A multiple regression model was carried out to establish the combined effect of the logistics outsourcing risks (contractual risk, cost risk, supplier relationship risk, and management risk) on the performance of the manufacturing companies in Kenya. The

model summary results shown in Table 4.63 revealed that the R^2 for model was 0.547. This is an indication that when combined contractual risk, cost risk, supplier relationship risk, and management risk influence up to 54.7% of the variation in performance of the manufacturing firms in Kenya.

Table 4.63: Model Summary for the Overall Regression Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.739[a]	.547	.539	.53752

a. Predictors: (Constant), Management Risk, Cost Risk, Contractual Risk, Supplier Relationship Risk

Table 4.64 provides the results on the analysis of the variance (ANOVA). The results indicate that the overall model was statistically significant as supported by the F-statistic of 68.770 and a p value of 0.000 which is lesser than the critical p-value of 0.05 implying that logistics outsourcing risks (contractual risk, cost risk, supplier relationship risk, and management risk) are good predictors of the performance of manufacturing firms in Kenya.

Table 4.64: ANOVA Test Results for the Overall Model

Model		**Sum Squares**	**ofDf**	**Mean Square**	**F**	**Sig.**
1	Regression	79.479	4	19.870	68.770	.000[b]
	Residual	65.876	228	.289		
	Total	145.355	232			

a. Dependent Variable: Performance of Manufacturing Firms
b. Predictors: (Constant), Management, Cost, Contractual and Supplier Relationship Risk.

Regression coefficients results for the overall unmoderated model are as shown in Table 4.65. The results showed that there is a negative and significant relationship between logistics outsourcing risks (contractual risk, cost risk, supplier relationship risk, and management risk) and the performance of manufacturing firms in Kenya as supported by

Beta coefficients of -0.177, -0.212, -0.210 and -0.164 respectively. This was also supported by the t values whereby t-calculated of -3.156, -2.627, -2.659, and -2.144 < t critical =-1.96 at a 95% confidence level which depicts that logistics outsourcing risks have a significant and negative influence on the performance of manufacturing firms in Kenya. Therefore, when combined, logistics outsourcing risks (contractual risk, cost risk, supplier relationship risk, and management risk negatively influenced the performance of manufacturing firms in Kenya.

Table 4.65: Regression Coefficients for the Overall Model

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.465	.143		38.227	.000
	Contractual Risk	-.177	.056	-.220	-3.156	.002
	Cost Risk	-.212	.081	-.210	-2.627	.009
	Supplier Relationship Risk	-.210	.079	-.219	-2.659	.008
	Management Risk	-.164	.077	-.176	-2.144	.033

a. Dependent Variable: Performance of Manufacturing Firms

4.8.2.6 Moderated Overall Model

H_{A5}: There is a significant moderating effect of information flow on influence of logistics outsourcing risks and performance of manufacturing firms in Kenya

The study set to test the fifth hypothesis which was that information flow has a significant moderating effect on the relationship between logistics outsourcing risks and performance of manufacturing firms in Kenya. The model summary results as shown in Table 4.66 revealed that the R-square for the model was 0.262. This is a decrease from the 0.547 when the model is not moderated.

Table 4.66: Model Summary for the Overall Moderated Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.512[a]	.262	.249	.68600

a. Predictors: (Constant), Management Risk*Information Flow, Cost Risk*Information flow, Contractual Risk*Information Flow, Supplier Relationship Risk*Information Flow

The ANOVA results for the moderated model are as shown on Table 4.67. As the results portray, the F-statistic for the model was 20.218 at a significant level of 0.000. This implies that the model is statistically significant and could predict the relationship between the moderated variables and the performance of manufacturing firms.

Table 4.67: ANOVA Results for the Overall Moderated Model

Model		**Sum Squares**	**ofDf**	**Mean Square**	**F**	**Sig.**
1	Regression	38.058	4	9.515	20.218	.000[b]
	Residual	107.297	228	.471		
	Total	145.355	232			

a. Dependent Variable: Performance of Manufacturing Firms
b. Predictors: (Constant), Management Risk*Information Flow, Cost Risk*Information Flow, Contractual Risk*Information Flow, Supplier Relationship Risk*Information Flow

The regression coefficients for the overall moderated model are as shown in Table 4.68. As the results portray, the interaction effect between contractual risk and information flow had a Beta coefficient of 0.078 at a significant level of 0.001<0.05 an indication that there is a significant moderating effect of information flow on the relationship between contractual risk and performance of the manufacturing firms. Moreover, it implies that with introduction of information flow, the influence of contractual risk on the performance of manufacturing firms in Kenya increases from negative to positive.

The interaction effect between cost risk and information flow had a Beta coefficient of 0.041 at a significance level of 0.038<0.05. This implies that information flow significantly and positively moderates the relationship between cost risk and

performance of manufacturing firms in Kenya. When information flow is introduced, the relationship between cost risk and performance of manufacturing firms in Kenya becomes positive, an indication that with increased flow of information, the negative impact of logistics outsourcing risks on performance of manufacturing firms declines.

The interaction between supplier relationship risk and the information flow had a Beta coefficient of 0.050 and a P-value of 0.001<0.05. This is an indication that information flow has a significant and positive moderating effect on the relationship between supplier relationship risk and performance of manufacturing firms in Kenya. With increased information flow, the negative impact of supplier relationship risk on the performance of manufacturing firms in Kenya as one of the logistics outsourcing risks is reduced, and the manufacturing firms record an increase in performance, though marginal.

The moderated model on the interaction between management risk and information flow had a Beta coefficient of 0.042 at a significant level of 0.032<0.05. This is an indication that while information flow has a positive and significant moderating effect on the relationship between management risk and performance of the manufacturing firms. It implies that as a result of information flow, the negative impact of management risk on performance of the manufacturing firms in Kenya is reduced, and the firms record a marginal increase in performance.

Table 4.68: Regression Coefficients for the Overall Moderated Model

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.888	.249		7.570	.000
	Contractual Risk*Information Flow	.078	.016	.327	4.998	.000
	Cost Risk*Information Flow	.041	.016	.065	2.077	.038
	Supplier Relationship Risk*Information Flow	.050	.015	.208	3.471	.001
	Management Risk*Information Flow	.042	.019	.142	2.163	.032

a. Dependent Variable: Performance of Manufacturing Firms

Multiple linear regression equation that can be used to estimate the moderating effect of information flow on the relationship between logistics outsourcing risks and performance of manufacturing firms in Kenya:

$$Y = 1.888 + 0.078X_1 Z + 0.041X_2 Z + 0.050X_3 Z + 0.042X_4 Z$$

Where:

Y = Performance of manufacturing firms

X_1 = Contractual Risk

X_2 = Cost Risk

X_3 = Supplier Relationship Risk

X_4 = Management Risk

Z = Moderator (Information flow)

The moderated regression results showed that a unit change in information flow, resulted in 7.8 percent (β=0.078) change in the relationship between contractual risk and manufacturing firm performance. Additionally, a unit change in information flow resulted in a 4.1percent (β=0.041) influence on cost risk and firm performance while a unit increase on the moderator affected supplier relationship risk and manufacturing firms performance by 5.0 percent (β=0.050). Unit change in information flow impacted management risk and performance of manufacturing firm by 4.2 percent (β=0.024).

Table 4.69: Summary of Hypotheses Testing

Hypotheses	Model	Results	Verdict	Interpretation
H_{A1}: There is a significant relationship between contractual risk and performance of manufacturing firms in Kenya	$Y = \beta_0 + \beta_1 X_1 + \varepsilon$	$Y = 4.755 - 0.521X_1$	Alternative hypothesis supported	Contractual risk significantly (P-value= 0.000<0.05) and negatively (β= –0.5521) influences the performance of manufacturing firms
H_{A2}: There is a significant relationship between cost risk and performance of manufacturing firms in Kenya	$Y = \beta_0 + \beta_2 X_2 + \varepsilon$	$Y = 5.203 - 0.678X_2$	Alternative hypothesis supported	Cost risk significantly (P-value=0.000<0.05) and negatively (β=–0.678) influences the performance of manufacturing firms
H_{A3}: There is a significant relationship between supplier relationship risk and performance of manufacturing firms in Kenya	$Y = \beta_0 + \beta_3 X_3 + \varepsilon$	$Y = 5.150 - 0.644X_3$	Alternative hypothesis supported	Supplier Relationship risk significantly (P-value=0.000<0.05) and negatively (β = –0.644) influences the performance of manufacturing firms
H_{A4}: There is a significant relationship between management risk and performance of manufacturing firms in Kenya	$Y = \beta_0 + \beta_4 X_4 + \varepsilon$	$Y = 5.008 - 0.621X_4$	Alternative hypothesis supported	Management risk significantly (P-value=0.000<0.05) and negatively (β=–0.621) influences the performance of manufacturing firms
H_{A5}: There is a significant moderating effect of information flow on the relationship between logistics outsourcing risks and performance of manufacturing firms in Kenya	$Y = \beta_0 + \beta_1 X_1 Z + \beta_2 X_2 Z + \beta_3 X_3 Z + \beta_4 X_4 Z + \varepsilon$	$Y = 1.888 + 0.078X_1 Z + 0.041X_2 Z + 0.050X_3 Z + 0.042X_4 Z$	Accept the alternative hypothesis	Information flow has a significant moderating effect on the relationship between logistics outsourcing risks and performance of manufacturing firms in Kenya

4.9 Revised Conceptual Framework

From the overall model, a revised conceptual framework was obtained as follows:

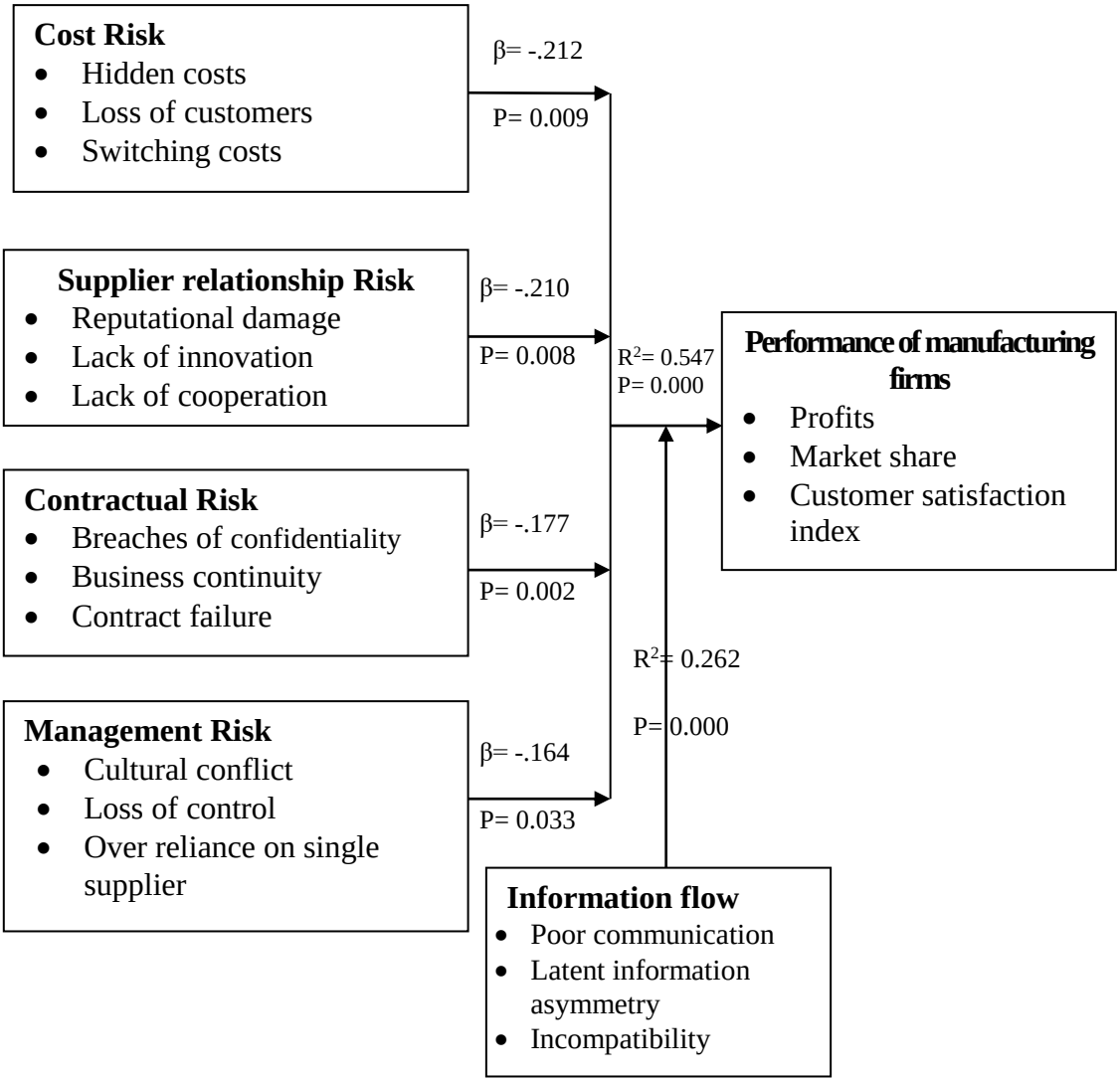

Figure 4.11: Revised Conceptual Framework

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter covers the summary of findings on the influence of logistics outsourcing risks on the performance of manufacturing firms in Kenya. The chapter also highlights the conclusions of the study based on the findings and recommendations as per the conclusions. To be captured in the chapter are also the suggestions for further studies as well as the implications of the study findings to the existing knowledge.

5.2 Summary of Findings

The study aimed at assessing the influence of logistics outsourcing risks on the performance of manufacturing firms in Kenya. The study specifically sought to establish the influence of contractual risk, cost risk, supplier relationship risk, management risk and moderating effect of information flow on the relationship between logistics outsourcing risks and the performance of manufacturing firms in Kenya. The study used a structured questionnaire to collect the primary data from 295 sampled respondents and secondary data from KAM journal. A pre-test done on the questionnaire revealed that the instrument was reliable and valid to give appropriate data for the study.

A response rate of 78.9% was obtained, after 233 respondents returned the filled questionnaires for analysis. The demographic results revealed that most of the surveyed manufacturing companies majored in semi-assembled goods followed by those that dealt with finished goods and last were those trading with raw materials and parts. This has been the main structure of most of the manufacturing companies in Kenya as far as the goods they produce are concerned. Most of the companies had been in operation for more than 10 years, followed by those that had operated for a period of between six and ten years. The least were those that had been in operation for less than a year. Most of the companies were dealing under small and medium enterprise markets, followed by

those dealing under corporate markets. Majority of the companies were large sized and with a branch network of between one and seven branches. The results implied that most of the manufacturing companies surveyed would be classified as diverse and large companies, whose market base portrays a company that has to outsource logistics services for effectiveness and efficiency.

5.2.1 Contractual Risk

The first objective of the study was to assess the influence of contractual risk on the performance of manufacturing firms in Kenya. The descriptive results of the study revealed that incidences of information leakages, lack of clear guidance of the service providers in regard to confidential information as well as unavailability of clear and well formulated policies on how to guide confidential information were some of the risk that the companies encountered. Zailani *et al.* (2017) consider information to be an integral aspect in the contracts where each of the parties should jealously guide the confidential information of the other side.

In this regard, the manufacturing firms losing information that is confidential through the contractors implies that they could be at risk of facing steep competition by having their strategies copied. The findings further revealed that instances of lengthy hierarchy of decision making were also experienced, thus affected the process and operational flow, the same as lack of confidentiality on the shared business strategies with the contractors. It was also established that there were some instances of poor relationship with the outsourced firms and inferior services due to unmet promises from the contracted firms. These are some of the risks that El Mokrini *et al*. (2016) describe to be detrimental to the organization by having the internal matters exposed to the competitors. The findings further had it that lack of inflexibility among the contracted firms was encountered in some of the manufacturing firms as well as incidences of some contractors delaying in implementing the contracts and unable to come up with speedy measures of settling disputes. The inferential results confirmed that indeed contractual risk was significant in determining the performance of the manufacturing firms, whereby

as the contractual risk increased, the performance of the manufacturing firms declined. This compares with what was found by Gitahi and Tumuti (2019) who concluded that contractual risk once managed effectively, could be a source of firm performance.

5.2.2 Cost Risk

The second objective of the study was to establish the influence of cost risk on the performance of manufacturing firms in Kenya. The descriptive analysis of the study findings revealed that the major common costs risk recorded by most of the manufacturing firms were incidences of undisclosed charges by some of the suppliers, lack of clearly defined agreements between the companies and the suppliers on which side should cater for any hidden costs and lack of effective framework for ensuring full disclosure of all the costs by both parties. These risks implied that the firms could have to incur some costs that they had not budgeted for, thus affecting their financial flows.

Yang (2016) avers that the risks of having poorly structured pricing aspects and how costs will be catered for between the company and the contractors would affect the ability of the company to meet some costs, thus affecting its performance negatively. The findings further revealed that there were some companies that had lost their customers to the competitors as a results of cost issues, while some of the companies had their customers shift to other products and services due to the outsourcing prospects. Some of the companies had outsourced some suppliers who with time went out of business and they had to incur additional costs of recruiting other suppliers as well as losing the consistency that had been established by the previous suppliers. This compares with arguments by Langley *et al*. (2015) who indicate that the costs risk is mainly surrounded by the failure of the outsourced suppliers to meet the expectations, thus forcing the companies to incur the costs of looking for alternative suppliers, who may not be in a position to retain the quality of the previous suppliers.

Change of service providers was also found to have caused loss of customers to the competitors among the surveyed companies. The inferential analysis results revealed

that cost risk had a significant influence on the performance of the manufacturing companies in Kenya. It is an implication that with increased costs risk, the performance of manufacturing firms declined. This goes in hand with the findings by Cheong (2015) who established that the process of outsourcing for logistics, there are risks of hidden costs and failure by the outsourced companies to fully declare their interests thus making the outsourcing entities incur additional costs, a situation that deteriorates performance.

5.2.3 Supplier Relationship Risk

The third objective of the study was to establish the influence of supplier relationship risk on the performance of manufacturing firms in Kenya. The findings from the study revealed that cases of inadequate expertise among the outsourced parties and the companies' contention to work with less qualified suppliers from the outsourced companies were some of the risks that they encountered. The cases of lack of mutual trust between the suppliers and the companies were also rampant among the manufacturing firms surveyed as well as cases of damaged reputation due to the conduct of the outsourced suppliers. These risks as described by Zailani *et al*. (2017) are risks that companies encountered when dealing with outsourced service providers, and if not effectively controlled, they could affect the effectiveness and efficiency of the firms, thus minimizing their performance. The findings further revealed that through some of the outsourced service providers, the innovative capacity of the manufacturing firms was reduced, as well as inability by the outsourced companies to show commitment on embracing innovation and doing things differently. The respondents were of the opinion that the improvement of the services and products was in some instances affected by the outsourced parties where some suppliers were reluctant in bringing new products and services. Amoako-Gyampah *et al*. (2019) noted that one of the main aspects that has been emphasized when it comes to outsourcing and maintaining a long-term relationship with suppliers is continued improvement and innovation.

According to Schwieterman *et al.* (2018) if the supplier relationship is unable to steer innovation and creativity, it may affect the performance of the company negatively. The

findings revealed that there were instances of low promptness levels as a result of outsourcing and poor commitment on ensuring a common purpose between the suppliers and the manufacturing companies. These are aspects that revealed the risk of supplier relationship, which according to Lazzarotto *et al*. (2014) could affect the organization negatively. The inferential results confirmed this by revealing that supplier relationship risk had a significant and negative effect on the performance of manufacturing firms in Kenya. It is an indication that with increased supplier relationship risk, the performance of the manufacturing firms would weaken.

5.2.4 Management Risk

The fourth objective of the study was to establish the influence of management risk on the performance of manufacturing firms in Kenya. The findings from the study revealed that there were conflicts between the employees of the manufacturing firms and the outsourced companies in most of the surveyed firms as well as conflicting cultures between the two parties. The decision making between the two parties was also a major issue that affected the flow of operations as well as poor alignment of strategic goals and objectives between the outsourced companies and the manufacturing firms. These risks as described by Ansari *et al.* (2010) compromise the ability of an organization to fully focus on the main goals and objectives, thus losing the competitive edge to the competitors.

The findings further revealed that instances of employees not accepting changes associated with logistics processes as a result of outsourcing were rampant as well as instances of poor sharing of responsibilities between the surveyed manufacturing entities and the outsourced companies. In some instances, the companies had lost management control to the contracted firms as well as some of the policies in either side not being clear, thus causing management wrangles and decision making gaps. The findings further showed that most of the firms failed to monitor and evaluate the outsourced firms, as well as some of the suppliers not delivering hence making the companies run out of options.

According to Onyebueke *et al*. (2019) management risk are likely to occur in cases whereby the management is not keen enough to effectively carry out monitoring and evaluation to its suppliers, and this leads to some suppliers not delivering to expectations. This can lead to declined performance and competitiveness, due to failure to meet the customers' needs and promises. The inferential results from the regression model revealed that indeed, management risk had a significant and negative influence on the performance of manufacturing firms in Kenya, implying that with increased management risks, there would be a decline in the performance of manufacturing firms in Kenya.

5.2.5 Information Flow

The study sought to establish the moderating effect of information flow on the relationship between logistics outsourcing risks and the performance of manufacturing firms in Kenya. The descriptive results from the study revealed that the companies recognized the flow of information through adoption of the latest technological based communication channels as well as having a well-framed hierarchy of communication to be critical in enhancing the relationship between the outsourced parties and the manufacturing companies. It was further established that giving customer's feedback was moderately upheld to most of the firms, as well as giving feedback to the employees from the management. These are some of the aspects that Hartmann (2012) ties to the effectiveness of communication and information sharing in an organization.

Further, the findings had it that there was equal sharing of information among the employees to a moderate extent while staff members were held accountable to any information that they leaked without the consent of the management. Most of the firms surveyed ensured that for any information shared, the level of confidentiality was emphasized to the recipient. However, the clarity of the shared information was said to be below average by most of the employees and so was the flexibility of the communication procedures. Liu *et al.* (2018) describe an effective communication

within the organization as the one that allows the flexibility and fully involvement of all the stakeholders, particularly the employees, the customers and the management.

The regression analysis results on the other hand revealed that the interaction effect between contractual risk and information flow had a significant effect on the performance of the manufacturing firms, the same case to the interaction effect between cost risk and information flow and the interaction effect between supplier relationship risk and the information flow. Moreover, the interaction effect between management risk and information flow had a significant and positive effect on the performance of the manufacturing firms. Generally, it was concluded that information flow had a significant moderating influence on the relationship between logistics outsourcing risks and performance of the manufacturing firms in Kenya. This indicates that with increased information flow, the mitigation of the risks is enhanced thus contributing to positive performance of the manufacturing firms.

5.3 Conclusions of the Study

5.3.1 Contractual Risk and Performance of Manufacturing firms

The study concluded that contractual risk was one of the logistics outsourcing risks that significantly influenced the performance of the manufacturing firms in Kenya. The breaches of confidentiality such as leakage of internal information to the competitors as well as failure of the outsourced suppliers to retain confidentiality of the shared information were among the contractual risk affecting the performance of the manufacturing companies. It was concluded that the business continuity risk through establishment of continued collaboration between the suppliers and the manufacturing companies as well as failures to perform as expected were key contractual risks whose impact could be detrimental to the manufacturing firms.

5.3.2 Cost Risk and Performance of Manufacturing firm

The cost risk was found to be significant in influencing the performance of the manufacturing companies. The study concluded that the hidden costs as a results of failure to disclose some of the costs by the outsourced companies and lack of policies to ensure that the outsourced companies disclosed all the accompanying costs affected the performance of the manufacturing firms. Further, it was concluded that the manufacturing companies were at the verge of losing their customers to the competitors as a results of poorly managed costs and failure to hold the outsourced parties responsible in matters of managing operational costs. The costs of switching to other suppliers as a result of the existing outsourced suppliers not meeting the expectations were also concluded to be among the costs risk that affected the manufacturing firms through logistics outsourcing. Through these costs, the study established that the manufacturing firms lost their market share thus affecting their performance negatively.

5.3.3 Supplier Relationship Risk and Performance of Manufacturing firms

The study concluded that the supplier relationship risk was significant in determining the performance of the manufacturing firms. As a result of the companies pushing for enhanced relationship with the outsourced logistics service providers, the companies lost their reputation to the public, which is detrimental to the continued performance of the companies. Further, through the outsourced logistics service providers, it was concluded that innovation among the manufacturing firms was affected due to failure by the outsourced parties to fully and effectively embrace innovation and continued improvement. The study concluded that the cooperation between the outsourced parties and the company was sometimes low, an indication of poor collaboration and continued commitment to common purpose. These aspects were concluded to negatively affect the performance of the manufacturing firms in Kenya.

5.3.4 Management Risk and Performance of Manufacturing firms

The study further concluded that the management risk was among the integral risks associated with logistics outsourcing that significantly influenced the performance of the manufacturing companies. Through the cultural conflicts whereby the outsourced companies had internal cultures that conflicted with those of the manufacturing companies, the ability to mutually work together was affected, thus undermining the goals and objectives of the manufacturing firms. It was further concluded that the loss of control was major management risk that faced the manufacturing firms as a result of failure to guide their boundaries against the interference of the outsourced logistics service providers. Further, through over reliance on a single supplier, the outsourced parties failed to deliver the expectations of the customers, thus affecting the performance of the manufacturing entities negatively.

5.4 Recommendations of the Study

As the findings and conclusions of the study have revealed, the logistics outsourcing risks are key determinants of organizational performance among the manufacturing firms in Kenya. Therefore, based on the findings and conclusions from the study, the following recommendations have been drawn:

The management of the manufacturing firms through the supply chain and logistics departments should embrace key strategies of managing contractual risks as a way of enhancing the continued performance of the manufacturing firms. There are incidences of the contractor breaching confidentiality as well as the exposure of confidential information being exposed to the competitors. Such situations could have dire consequences on the organization, hence the need for the organization to uphold effective control measures for the contractors to adhere to the confidential policies. The business continuity with the suppliers as well as contract failures should be monitored to ensure such risks are managed on time, for enhanced performance.

The logistics managers and procurement personnel of the manufacturing firms have the main duty of ensuring that the costs of contracts are competitive and based on should cost models, without letting the contracted firms to overcharge. Therefore, it essential for the manufacturing firms to ensure that all the costs to be incurred during the logistics outsourcing processes are disclosed and that the contracted firms are open for any other indirect cost that could arise. There should be policies of ensuring that the costs once agreed upon, there are no further adjustments and that all the parties are committed towards having optimal costs.

Having a prolonged and smooth relationship with the suppliers is an integral aspect of ensuring continued performance and effectiveness of the logistics, supply chain and procurement processes. Therefore, the management of the manufacturing firms, in their effort to enhance the supplier relationship are likely to come across related risks. Managing these risks is one way through which the firms can extensively enhance their performance. The supply chain department ought to ensure that the outsourced logistics service providers do not do the unwanted in the name of the organization so as to protect the reputation and public image of the company. There should also be a policy and a set framework in which the innovativeness and continued cooperation between the suppliers and the organization ought to be achieved going forward.

The management risk is prone to a logistics outsourcing company. The culture of the outsourced company in most cases is different from the outsourcing entity and so is to the interest and prospects of the employees. Therefore, the management risk should be assessed and managed effectively by the manufacturing companies for a better flow of operations with the outsourced company. There should be a framework for ensuring the cultures of the manufacturing companies and the outsourced logistics service providers integrate. The conflicts between the employees from the two companies are also a subject of concern in the entire process of logistics outsourcing. It is essential for the conflicts to be managed and solved with full commitment of the management of the two organizations for a continued cooperation.

5.5 Areas for Further Studies

The study focused on logistics outsourcing risks among the manufacturing companies in Kenya. There are other companies in other sectors that outsource their logistics services. It is also critical for a similar study to focus on how logistics outsourcing risks could affect the performance of companies in other industries such as the service and retail industry.

The study focused on the logistics outsourcing risks among the manufacturing companies. However, the logistics companies that are outsourced by the manufacturing companies also face their share of risks. It is suggested that a study focuses on the risks that the logistics companies face once outsourced and how this could affect their performance. Future areas of study should also focus on other logistics outsourcing risks since the four that were identified did not account for the full variation in firm's performance.

The manufacturing industry is one of the critical industries in the country. The study only focused on how their performance is affected by logistics outsourcing risks. There could be other challenges affecting the performance of these companies, thus it is suggested that a study is carried out to establish other aspects that could affect the performance of the firms in this crucial industry.

Given the negative impact of these logistics outsourcing risks on the performance of manufacturing firms and the significant moderation of the influence by information flow, studies should be carried out to determine other mitigating factors that could safe guard the logistics outsourcing strategy which has been embraced by the manufacturing firms in Kenya.

5.6 Contributions of the Study to the Existing Knowledge

Logistics outsourcing has been argued to be a critical aspects that determines the performance of the manufacturing companies. However, despite the efficiency, cost

optimization, lead-time reduction and effectiveness that is achieved through logistics outsourcing, there are risks that surround logistics outsourcing. This study has shown how these risks affect the success of the logistics outsourcing, and so is the performance of the manufacturing companies. The study has also contributed to the existing knowledge by highlighting how the contractual risk, cost risk, supplier relationship risk and management risk are the main logistics outsourcing risks that a manufacturing company seeking to outsource logistics services is likely to face.

Contractual theory has been mainly upheld for showing the need for the continued relationship between contracted entity and the contracting entity and how it could be enhanced, to the mutual benefit for the two organizations. Through the findings from this study, it has been revealed that the theory also strongly supports the logistics outsourcing risks that companies ought to manage to achieve the benefits of outsourcing logistics services. The disclosure of all the costs, avoidance of misrepresentation and full compliance with the set regulations and policies at the time of contracting are all strategies that contractual theory puts across, and also align with the logistics outsourcing risks.

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APPENDICES

Appendix I: Introduction Letter

Date……

To…….....

Dear Respondent,

RE: COLLECTION OF RESEARCH DATA

I am a doctoral candidate at the Jomo Kenyatta University of Agriculture and Technology, School of Human Resource Development. As part of my academic program, I am conducting a research on **logistics outsourcing risks and firms performance**. The drive of the research is to examine these risks on performance of manufacturing businesses in Kenya.

The data collected will provide beneficial information concerning performance of manufacturing firms. I therefore appeal to you to fill in this questionnaire, with an assurance that all information collected will be treated confidential. If you have any questions or comments about this survey, you may contact James Mutinda of P.O. Box 5079 - 00200, Nairobi; Tel: 0724281866; email: jmutindak@gmail.com.

Thanking you in advance.

Sincerely,

JAMES MUTINDA KITHUKA

Student - JKUAT

Appendix II: Questionnaire for Supply Chain Administrators

SECTION A: GENERAL INFORMATION ABOUT THE COMPANY

1. What type of products does your company deal with? (Please tick one)
   Raw Materials and parts [ ]

   Semi-Assembled components [ ]

   Finished Goods [ ]

2. For how long has been your firm operating in the Kenyan Market?
   Less than 1 year [ ] 1 – 5 years ago [ ]

   6 – 10 years ago [ ] Over 10 years [ ]

3. Which type of markets is served by your organization?
   Reseller and consumer markets (B2C markets) [ ]

   Corporate markets (B2B) [ ]

   Small and medium enterprises markets (B2SME markets) [ ]

   Government institution markets [ ]

   Others (please specify)

4. Please indicate the size of your organization in terms of total net assets.
   Below `Kshs.100Million [ ] Kshs.100million – Kshs.400Million [ ]

   Kshs.400Million – Kshs.600Million [ ] Kshs.600 Million – Kshs.800million [ ]

   Over Kshs.800million [ ]

5. How many branches/outlets does your firm have?
   Only 1 [ ] 2 – 4 [ ] 5 – 7 [ ] 8 – 10 [ ] Above 10 [ ]

6. How many products does your organization major in?
   Only 1 [ ] 2 – 4 [ ] 5 – 7 [ ] 8 – 10 [ ] Above 10 [ ]

SECTION B: CONTRACTUAL RISK

Contractual risk refers to the likelihood that a third party logistic provider may not accomplish all requirements in expected quality or required time. Kindly indicate your level of agreement or disagreement with the following statements regarding the contractual risk as could be experienced in your firm. Use the scale 1 – 5 where 1 is the strongly disagree and 5 is strongly agree.

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Breaches of Confidentiality					
a) Our company has had incidences of confidential information leak					
b) The service providers are clearly guided on the information that should not be shared before the contract is signed					
c) Our company has policies against a contractor or any other individual breaching the confidential information					
d) The parties found to breach any confidentiality are held individually responsible					
e) The company has previously suffered a loss due to breach of confidentiality					
f) Outsourcing has led to lack of Confidentiality on shared business strategy					
Business Continuity					

g) There are incidences where the lengthy hierarchy of decision-making have affected the process flow in the firm					
h) There have been cases of quality of service inferior to expectations					
i) There have been cases of poor relationship with the outsourced firms					
j) There have been complains from the customers concerning outsourced firms					
k) There are a times when our company has failed to solve emergency problems in time					
Performance failure					
l) There are incidences where the contracted firm has failed to deliver the projected results					
m) We have previously selected service providers inappropriately leading to poor results					
n) Some of the outsourced firms have been inflexible leading to ineffectiveness					
o) There have been some contractors who have recorded delay in contract implementation					
p) There have been incidences of unclear dispute settlement procedures in our company					

In your opinion, do you think contractual risk has in any way affected the performance of your company? Yes [ ] No [ ]

Please explain your answer above

……

……

……

……

SECTION C: COST RISK

Cost risk indicates the enterprise's return on investment is lower than the expected after logistics outsourcing due to many factors. Below are statements relating to cost risk. Kindly indicate the level to which you agree with each of the statements with respect to your firm. Use the scale 1 – 5 where 1 = Strongly Disagree and 5 = Strongly Agree.

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Hidden Costs					
a) There have been incidences of undisclosed charges by some of our suppliers					
b) There are agreements between the company and our suppliers on an approach to cater for hidden costs					
c) Our company has a framework of ensuring full disclosure of all costs before engaging a supplier					
Loss of Customers					
d) There have been increased costs of operation due to outsourcing leading to loss of customers					
e) Our company has previously lost loyal customers to the competitors					
f) Some customers have abandoned our					

products/services after realizing the company was outsourcing some of its supplies					
Switching Costs					
g) A number of key outsourced partners have gone out of business.					
h) Our company has previously incurred expenses of getting another supplies after abandoning previous supplier					
i) There are incidences of high switching costs from in house to outsourcing					
j) In the past, we have lost customers due to change of service provider					
k) Some of our outsourcing partners lack statutory compliance					

In your opinion, do you think cost risk has in any way affected the performance of your company? Yes [ ] No [ ]

Please explain your answer above

……

……

1.3 SUPPLIER RELATIONSHIP RISK

Supplier relationship risk refers to the risk arising from the type of interaction between service provider and customer. The table below lists various attributes relating to supplier relationship risk with specific focus on logistics outsourcing. Kindly indicate the extent to which you agree with the statements as applies to your firm. Use a scale of 1 – 5, where 1 = Strongly Disagree and 5 = Strongly Agree.

Statements	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
Reputational Damage					
a) There have been cases of poor expertise by our outsourced parties					
b) We often have to contend with low level of shared expertise among our outsourcing partners					
c) There have been cases of little mutual trust between our firm and partners					
d) Our outsourcing partners have caused damage to our company's reputation in the past					
Lack of Innovation					
e) The innovative capacity of our firm has in some instances declined due to outsourcing					
f) There are cases where the outsourced party do not show commitment in doing things differently					
g) The suppliers have been reluctant in bringing-in new products/services					
h) Product/service					

improvement has been minimal among the outsourced cadres					
Lack of Cooperation					
i) Outsourcing has led to low Level of promptness in product delivery					
j) There's a general lack of commitment to a common purpose					
k) Our firm has lost market share due to inefficiencies of outsourcing					

In your opinion, do you think supplier relationship risk has in any way affected the performance of your company? Yes [ ] No [ ]

Please explain your answer above

……

……

SECTION E: MANAGEMENT RISK

To what extent are the following aspects of management risk been experienced in your firm?

	Not at all	**Small extent**	**Moderate**	**Large extent**	**Very large extent**
Cultural Conflicts					
a) There have been cases of conflicts between employees					

and outsourced parties					
b) There are conflicting cultures between our organization and some of the contracted suppliers					
c) The hierarchy of decision-making between our company and the contracted suppliers has affected the flow of business					
d) Alignment of strategies, goals, objectives and aims has been poor between our company and the outsourced parties					
e) There have been instances of employees being reluctant in accepting changes in the logistics processes					
Loss of Control					
f) There have been instances of poor power and responsibilities sharing between our company and the outsourced parties					

g) Our company has experienced lack of organizational boundaries with the outsourced parties					
h) There are policies and procedures that are not clear to the outsourced parties					
i) There have been incidences of lack of evaluation and monitoring of outsourced parties					
Overreliance of one Supplier					
j) We have had instances where a supplier did not deliver and we ran out of options					
k) There have been failures in delivery schedules due to suppliers being unable to deliver on time					
l) The outsourced partners have previously withdrawn of services hence paralysing the operations of the company					

In your opinion, do you think management risk has in any way affected the performance of your company? Yes [ ] No [ ]

Please explain your answer above

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1.5 INFORMATION FLOW

It is the inferior information flow which can result in business challenges and losses. The table below contains a list of various aspects of information flow. Kindly indicate to what extent each of the attributes of information flow has been experienced in your firm?

	Not at all	**Small extent**	**Moderate**	**Large extent**	**Very large extent**
Poor Communication					
a) Our company has not adopted the latest information technology to aid communication in an out of the company					
b) The hierarchy of communication in our organization is only based on top-bottom approach					
c) Giving feedback to the customers has not been effectively upheld in our company					
d) The employees do not give and receive feedback to the management timely and efficiently					
Latent Information Asymmetry					
e) There are no effective approaches and strategies to ensure the					

	internal information of the organization is not leaked					
f)	There are is unequal sharing of information among the employees in our organization					
g)	Staff members are held responsible in cases of leakage or misuse of internal organizational information					
h)	For any information shared the recipients are informed on the level of confidentiality on such information					
Incompatibility						
i)	There is no clarity in the information shared in our organization					
j)	The management has not been committed towards ensuring consistency in information sharing in and out of the firm					
k)	The communication procedures in our company are not flexible					
l)	There have been cases of inaccurate information being shared in our organization					

In your opinion, do you think information flow has in any way affected the performance of your company? Yes [ ] No [ ]

Please explain your answer above

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SECTION B: INFORMATION ON FIRM'S PERFORMANCE

1.6 What was the previous annual revenue for your company?

1. 7 On average of past five years, at what % growth rate would you rank your firm

Please indicate your level of agreement with the flowing statements regarding the performance of your firm. Use a Likert's scale of 1-5 where 1 is strongly disagree and 5 is strongly agree

Statements	**1**	**2**	**3**	**4**	**5**
The company has recorded an increase in quality of services in the recent past					
There has been a decrease in number of customer complaints in our organization over the recent past					
Our company has seen a surge in the customers loyalty over the recent past					
The market share for the company has been on the increase in the past two years					
The sales revenues have been on increase in the recent past					
The profit margin of the firm has been growing annually over the past five years					

1.8 The following table presents a number of attributes regarding performance in your organization. Indicate/tick in the appropriate box the correct number from 2015 to 2019.

	2015	**2016**	**2017**	**2018**	**2019**
Market Share (%)					

a) Firm's growth in market share					
b) Firm's growth in sales					
c) Firm's overall performance growth					
Profit (%)					
a) Firm's Return on Investment					
b) Firm's profit margin on sales					
c) Firm's profitability growth					
	Not at all	**Small Extent**	**Moderate Extent**	**Great Extent**	**Very great Extent**
Customer Satisfaction					
a) Increased quality of service					
b) Decrease in customer complaints					
c) Increased customers loyalty to the firm					

In your opinion, do you think there has been an increase in the performance of your company in the recent past? Yes [ ] No [ ]

Please explain your answer above

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Thank you for your Responses

Appendix III: Sample Size Determination Using Saunders' Formula

$$p\% * q\% * \left(\frac{z}{e\%}\right)^2 = n$$

Where;

n – Minimum sample size required

p% - the proportion belonging to a specific category (50%).

q% - the proportion not belonging to the specific category (50%)

Z - The value corresponding to the confidence level required (1.96 for 95% level of confidence)

e% – Margin of error (5%)

n^1 - adjusted sample size

P - Study population (1123 classified manufacturing firms)

Therefore:

n = 50% x 50% x $(1.96/5\%)^2$

= 0.25 x 1536.64

Minimum sample size required for the population = 384

However, the actual sample size (adjusted) for this study will therefore be;-

n^1 = n/(1+ n/p)

= 384/(1 + 385/1123)

= 384/(1 + 0.34)

= 384/1.3

= 295

Appendix IV: List of Manufacturing Firms

Name of Company	Sector
1. African Diatomite Industries	Building, Mining & Construction
2. Afrikstones Limited	Building, Mining & Construction
3. Athi River Mining Ltd	Building, Mining & Construction
4. Bamburi Cement Limited	Building, Mining & Construction
5. Bamburi Special Products Ltd	Building, Mining & Construction
6. Blue Stone Limited	Building, Mining & Construction
7. Boyama Building Materials	Building, Mining & Construction
8. Building Construction Concepts Ltd	Building, Mining & Construction
9. Cemex Holding Ltd	Building, Mining & Construction
10. Coast Calcium Limited	Building, Mining & Construction
11. Dittman Construction Co. Ltd	Building, Mining & Construction
12. East African Portland Cement Company	Building, Mining & Construction
13. Erdemann Gypsum Limited	Building, Mining & Construction
14. Flamingo Tiles (Kenya)Limited	Building, Mining & Construction
15. Gjenge Makers Limited	Building, Mining & Construction
16. Glenn Investments Ltd. Mehta Group Ltd	Building, Mining & Construction
17. Greystone Industries Limited	Building, Mining & Construction
18. Halai Concrete Quarries	Building, Mining & Construction
19. Homa Lime Co. Ltd	Building, Mining & Construction
20. International Green Structures Manufact.	Building, Mining & Construction
21. Kay Construction Company Ltd	Building, Mining & Construction
22. Kay Salt Ltd (Formerly Krystalline Salt Ltd)	Building, Mining & Construction
23. KEDA (Kenya) Ceramics Company Ltd	Building, Mining & Construction
24. Kenbro Industries Ltd	Building, Mining & Construction
25. Kensalt Limited	Building, Mining & Construction
26. Kenya Builders & Concrete Ltd	Building, Mining & Construction
27. Kisumu Concrete Products	Building, Mining & Construction
28. Koto Housing Kenya Ltd	Building, Mining & Construction
29. Kurawa Industries Ltd	Building, Mining & Construction
30. Laxmanbhai construction Limited	Building, Mining & Construction
31. Lexcon Enterprises Ltd	Building, Mining & Construction
32. Malindi Saltworks Ltd	Building, Mining & Construction
33. Mayleen (K) Limited	Building, Mining & Construction
34. Mineral Enterprises Ltd	Building, Mining & Construction
35. Mombasa Cement Ltd	Building, Mining & Construction
36. National Cement Limited	Building, Mining & Construction
37. Nevira Company Limited	Building, Mining & Construction
38. North Rift Concrete Works Ltd	Building, Mining & Construction
39. Orbit Enterprises Ltd	Building, Mining & Construction

40. Pride Enterprises Ltd	Building, Mining & Construction
41. Questworks Limited	Building, Mining & Construction
42. Cement Limited	Building, Mining & Construction
43. Reliable Concrete Works Ltd	Building, Mining & Construction
44. Rexe Roofing Products	Building, Mining & Construction
45. Roofings Kenya Limited	Building, Mining & Construction
46. Saj Ceramics Ltd	Building, Mining & Construction
47. Sandblasting & Coating Kenya Limited	Building, Mining & Construction
48. Savannah Cement Ltd	Building, Mining & Construction
49. Shajanand Creative Limitesd	Building, Mining & Construction
50. Shanga Engineering Works Limited	Building, Mining & Construction
51. Silverstone Quarry Limited	Building, Mining & Construction
52. Skylark Construction Ltd	Building, Mining & Construction
53. Space and Style Ltd	Building, Mining & Construction
54. Superstone 2006 Ltd	Building, Mining & Construction
55. Tile & Carpet Centre	Building, Mining & Construction
56. Tiptop Constructions Limited	Building, Mining & Construction
57. Vallem Construction Ltd	Building, Mining & Construction
58. Virji Vishram Patel & Son's Ltd	Building, Mining & Construction
59. Wareng Ndovu Enterprises 2005 Ltd	Building, Mining & Construction
60. Wotech Kenya Limited	Building, Mining & Construction
61. X-Calibur Construction Chemistry	Building, Mining & Construction
62. Aluglass Africa Ltd	Chemical & Allied Sector
63. Anffi Kenya Ltd	Chemical & Allied Sector
64. Basco Products (K) Ltd	Chemical & Allied Sector
65. Basf East Africa Limited	Chemical & Allied Sector
66. Bayer East Africa Ltd	Chemical & Allied Sector
67. Beiersdorf East Africa Ltd	Chemical & Allied Sector
68. Bibika Limited	Chemical & Allied Sector
69. Biocorn Products (EPZ) Ltd	Chemical & Allied Sector
70. Blends of Nature Limited	Chemical & Allied Sector
71. Blue Ring Products Ltd	Chemical & Allied Sector
72. BOC Kenya Limited	Chemical & Allied Sector
73. Buyline Industries Ltd	Chemical & Allied Sector
74. Canon Chemicals Ltd (Chemicals Ltd)	Chemical & Allied Sector
75. Carbacid (CO2) Limited	Chemical & Allied Sector
76. Central Glass Industries Ltd	Chemical & Allied Sector
77. Chemraw EA Limited	Chemical & Allied Sector
78. Chrysal Africa Ltd	Chemical & Allied Sector
79. Chryso Eastern Africa Limited	Chemical & Allied Sector
80. Colgate Palmolive (EA) LTD	Chemical & Allied Sector
81. Coral Paints Ltd	Chemical & Allied Sector
82. Crown Paints Kenya PLC	Chemical & Allied Sector

83.	Darfords Enterprises Ltd	Chemical & Allied Sector
84.	Decase Chemicals (Ltd)	Chemical & Allied Sector
85.	Deluxe Inks Ltd	Chemical & Allied Sector
86.	Desbro Kenya Limited	Chemical & Allied Sector
87.	Diversey Eastern and Central Africa Limited	Chemical & Allied Sector
88.	Dow Chemicals East Africa Limited	Chemical & Allied Sector
89.	Eastern Chemicals Industries Ltd	Chemical & Allied Sector
90.	Ecological Industries Limited	Chemical & Allied Sector
91.	Empire Glass Industries Ltd	Chemical & Allied Sector
92.	Enviro Hub Holdings Ltd	Chemical & Allied Sector
93.	Evonik East Africa	Chemical & Allied Sector
94.	Flame Tree Africa Ltd	Chemical & Allied Sector
95.	Galaxy Paints & Coating Co. Ltd	Chemical & Allied Sector
96.	H.B. Fuller Kenya Limited	Chemical & Allied Sector
97.	Haco Industries	Chemical & Allied Sector
98.	Henkel Kenya Ltd	Chemical & Allied Sector
99.	Henkel Polymer Company Ltd	Chemical & Allied Sector
100.	Highchem East Africa Ltd	Chemical & Allied Sector
101.	Hi-Tech Inks	Chemical & Allied Sector
102.	IMCD Kenya Ltd	Chemical & Allied Sector
103.	Impact Chemicals Ltd	Chemical & Allied Sector
104.	Instant Pest Control Services Ltd	Chemical & Allied Sector
105.	Interconsumer Products Limited	Chemical & Allied Sector
106.	Jumbo Foam Mattress Industries Ltd	Chemical & Allied Sector
107.	Kanasi Plascon Kenya Ltd	Chemical & Allied Sector
108.	Kanku Kenya Limited	Chemical & Allied Sector
109.	Kaolin Crowners Company Limited	Chemical & Allied Sector
110.	Kapi Ltd	Chemical & Allied Sector
111.	Kel Chemicals Limited	Chemical & Allied Sector
112.	Kemia International Ltd	Chemical & Allied Sector
113.	Ken Nat Ink & Chemicals Ltd	Chemical & Allied Sector
114.	Kenafric Matches Limited	Chemical & Allied Sector
115.	Kip Melamine Co. Ltd	Chemical & Allied Sector
116.	L'Oreal East AfricaLtd	Chemical & Allied Sector
117.	Maisha Bora Company Limited	Chemical & Allied Sector
118.	Maroo Polymers Ltd	Chemical & Allied Sector
119.	Mekan (Kenya) Limited	Chemical & Allied Sector
120.	Milly Glass Works Ltd	Chemical & Allied Sector
121.	Mosara Ltd	Chemical & Allied Sector
122.	Murphy Chemicals (E.A)(Ltd	Chemical & Allied Sector
123.	Nature's Touch LLP	Chemical & Allied Sector
124.	Neuce Kenya Paint Industry Limited	Chemical & Allied Sector
125.	Norbrook Kenya Limited	Chemical & Allied Sector

126.	Odex Chemicals Ltd	Chemical & Allied Sector
127.	Orbit Products Africa Limited	Chemical & Allied Sector
128.	Osho Chemicals Industries Ltd	Chemical & Allied Sector
129.	Pan Africa Chemicals Ltd	Chemical & Allied Sector
130.	PolyChem East Africa Ltd	Chemical & Allied Sector
131.	Polymer & Chemicals Limited	Chemical & Allied Sector
132.	Premium Hygiene Products Limited	Chemical & Allied Sector
133.	Procter & Gamble East Africa Ltd	Chemical & Allied Sector
134.	Protea Chemicals Kenya Ltd	Chemical & Allied Sector
135.	PZ Cussons EA Ltd	Chemical & Allied Sector
136.	Reckitt Benckiser (E.A.) Ltd	Chemical & Allied Sector
137.	Revolution Stores Ltd	Chemical & Allied Sector
138.	Rok Industries Ltd	Chemical & Allied Sector
139.	Rumorth EA Ltd	Chemical & Allied Sector
140.	Rutuba Bio Agric&Organic Fertilizer Ltd	Chemical & Allied Sector
141.	Sanergy Ltd	Chemical & Allied Sector
142.	Sanvoks Industries Limited	Chemical & Allied Sector
143.	SC Johnson and Son Kenya	Chemical & Allied Sector
144.	Seweco Paints Ltd	Chemical & Allied Sector
145.	Sheth Online Limited	Chemical & Allied Sector
146.	Shreeji Chemicals Limited	Chemical & Allied Sector
147.	Silentnight Bedding LTD	Chemical & Allied Sector
148.	Silmak Agencies	Chemical & Allied Sector
149.	Slumberland Kenya Ltd	Chemical & Allied Sector
150.	Solpia Kenya Limited	Chemical & Allied Sector
151.	Solvochem East Africa Ltd	Chemical & Allied Sector
152.	Sunda Industrial Company Limited	Chemical & Allied Sector
153.	Super foam ltd	Chemical & Allied Sector
154.	Superfoam ltd	Chemical & Allied Sector
155.	Supersleek Ltd	Chemical & Allied Sector
156.	Suprima Industries Limited	Chemical & Allied Sector
157.	Syngenta East Africa Ltd	Chemical & Allied Sector
158.	Synresins Ltd	Chemical & Allied Sector
159.	TAM TAM Diani Limited	Chemical & Allied Sector
160.	Tata Chemicals Magadi Ltd	Chemical & Allied Sector
161.	The Amazing Nyumba Co Ltd	Chemical & Allied Sector
162.	Tri-Clover Industries (K) Ltd	Chemical & Allied Sector
163.	Tropikal Brand (Afrika) Ltd	Chemical & Allied Sector
164.	Twiga Chemical Industries Limited	Chemical & Allied Sector
165.	Ujasiri Limited	Chemical & Allied Sector
166.	Unilever Kenya Ltd	Chemical & Allied Sector
167.	Uzuri Industries Limited	Chemical & Allied Sector
168.	Valencia Cosmetics Ltd	Chemical & Allied Sector

169.	Vision Industries	Chemical & Allied Sector
170.	Vitafoam Products Limited	Chemical & Allied Sector
171.	Waridi Creations Ltd	Chemical & Allied Sector
172.	Westminister Paints & Resins Ltd	Chemical & Allied Sector
173.	Yilmaz Company Limited	Chemical & Allied Sector
174.	Zene Limited	Chemical & Allied Sector
175.	AEA Limited	Energy, Electrical and Electronics
176.	African Cables Limited	Energy, Electrical and Electronics
177.	Aial Group limited	Energy, Electrical and Electronics
178.	Alternative Energy Systems Ltd	Energy, Electrical and Electronics
179.	Amedo Centre Kenya Ltd	Energy, Electrical and Electronics
180.	Asano International Limited	Energy, Electrical and Electronics
181.	Aucma Digital Technology africa Ltd	Energy, Electrical and Electronics
182.	Azuri Technologies Kenya Limited	Energy, Electrical and Electronics
183.	Baumann Engineering Limited	Energy, Electrical and Electronics
184.	BCS Kenya Limited	Energy, Electrical and Electronics
185.	Biogas International Limited	Energy, Electrical and Electronics
186.	Biogas Power Holdings (EA) Ltd	Energy, Electrical and Electronics
187.	Cockerill E.A Limited (CEAL)(EA)	Energy, Electrical and Electronics
188.	Daima Energy Services	Energy, Electrical and Electronics
189.	East African Cables Ltd	Energy, Electrical and Electronics
190.	Holman Brothers (E.A) Ltd	Energy, Electrical and Electronics
191.	Ibera Africa Power (EA) Ltd	Energy, Electrical and Electronics
192.	International Energy Technik Ltd	Energy, Electrical and Electronics
193.	Kenwest Cables Ltd	Energy, Electrical and Electronics
194.	Kenya Electricity Generating Company	Energy, Electrical and Electronics
195.	Kenya Petroleum Refineries Ltd	Energy, Electrical and Electronics
196.	Kenya Power Co. Ltd	Energy, Electrical and Electronics
197.	Kitale Cinema Shop	Energy, Electrical and Electronics
198.	Koko Networks Limited	Energy, Electrical and Electronics
199.	Lacheka Lubricants Limited	Energy, Electrical and Electronics
200.	Lake Turkana Wind Power Limited	Energy, Electrical and Electronics
201.	Libya Oil Kenya Limited.	Energy, Electrical and Electronics
202.	Lucky Star General Limited	Energy, Electrical and Electronics
203.	Mafi East Africa Limited	Energy, Electrical and Electronics
204.	Manufacturers & Suppliers (K) Ltd	Energy, Electrical and Electronics
205.	Marshall Fowler (Engineers) Ltd	Energy, Electrical and Electronics
206.	Metsec Cables Ltd	Energy, Electrical and Electronics
207.	M-Kopa Kenya Limited	Energy, Electrical and Electronics
208.	Muhoroni Briquette Co. Limited	Energy, Electrical and Electronics
209.	Mustek East Africa	Energy, Electrical and Electronics
210.	Nationwide Electrical Industries Ltd	Energy, Electrical and Electronics
211.	Optimum Lubricants Ltd	Energy, Electrical and Electronics

212.	Pan Africa Transformers & Switchgears	Energy, Electrical and Electronics
213.	Patronics Services Limited	Energy, Electrical and Electronics
214.	PCTL Automation Ltd	Energy, Electrical and Electronics
215.	Pentagon Agencies	Energy, Electrical and Electronics
216.	Philips East Africa Limited	Energy, Electrical and Electronics
217.	Plenser Limited	Energy, Electrical and Electronics
218.	Powerex Lubricants Limited	Energy, Electrical and Electronics
219.	Premier Solar Solutions Ltd	Energy, Electrical and Electronics
220.	Protel Studios	Energy, Electrical and Electronics
221.	Proto Energy Limited	Energy, Electrical and Electronics
222.	Quantum Lubricants (EA) Limited	Energy, Electrical and Electronics
223.	Rabai Power Limited	Energy, Electrical and Electronics
224.	Repelectric (K) Ltd	Energy, Electrical and Electronics
225.	Roka Industries Ltd	Energy, Electrical and Electronics
226.	Saiger Kenya Limited	Energy, Electrical and Electronics
227.	Schneider Electric Ltd (Power Technics)	Energy, Electrical and Electronics
228.	Siera Cables East Africa	Energy, Electrical and Electronics
229.	Sloimppexs Africa Limited	Energy, Electrical and Electronics
230.	Solar Power & Infrastructures Limited	Energy, Electrical and Electronics
231.	Solimpexs Africa Limited	Energy, Electrical and Electronics
232.	Solinc E.A Limited (Ubbink East Africa)	Energy, Electrical and Electronics
233.	Sollatek Electronics (Kenya) Limited	Energy, Electrical and Electronics
234.	Specialised Power Systems Ltd	Energy, Electrical and Electronics
235.	Steam Plant Ltd	Energy, Electrical and Electronics
236.	Synergy Gases (K) Ltd	Energy, Electrical and Electronics
237.	Synergy Lubricant Solutions Ltd	Energy, Electrical and Electronics
238.	Synergy-Pro	Energy, Electrical and Electronics
239.	Tian Long Industry Limited	Energy, Electrical and Electronics
240.	Vivo Energy	Energy, Electrical and Electronics
241.	Welrods ltd	Energy, Electrical and Electronics
242.	Yash Poles Ltd	Energy, Electrical and Electronics
243.	Yocean Group Ltd	Energy, Electrical and Electronics
244.	Aariva Ltd	Food & Beverages Sector
245.	Afribon (K) Limited	Food & Beverages Sector
246.	Africa Spirits Ltd	Food & Beverages Sector
247.	African Coffee	Food & Beverages Sector
248.	Afrimac Nut Company	Food & Beverages Sector
249.	Agri Pro-Pak Limited	Food & Beverages Sector
250.	Agricultural & Veterinary Supplies Ltd	Food & Beverages Sector
251.	Agriner Agricultural Development	Food & Beverages Sector
252.	Agro Chemical & Food Company Ltd	Food & Beverages Sector
253.	Al- Noor Feisal & Co Ltd	Food & Beverages Sector
254.	Alliance One Tobacco Kenya Ltd	Food & Beverages Sector

255.	Al-Mahra Industries Ltd	Food & Beverages Sector
256.	Al-mahra Industries Limited	Food & Beverages Sector
257.	Almasi Beverages Limited	Food & Beverages Sector
258.	Almasi Bottlers Ltd (Mt Kenya Bottlers)	Food & Beverages Sector
259.	Alpha Fine Foods Ltd	Food & Beverages Sector
260.	Alpha Grain Millers Limited	Food & Beverages Sector
261.	Alpine Coolers Ltd	Food & Beverages Sector
262.	APT Commodities Limited	Food & Beverages Sector
263.	Aquamist Ltd	Food & Beverages Sector
264.	Arax Mills Limited	Food & Beverages Sector
265.	Arkay Industries Ltd	Food & Beverages Sector
266.	Aviano East Africa	Food & Beverages Sector
267.	Azaavi Collections	Food & Beverages Sector
268.	Bakemark Limited	Food & Beverages Sector
269.	Bakers Corner Ltd	Food & Beverages Sector
270.	Bakex Millers Ltd	Food & Beverages Sector
271.	Bakhresa Grain Milling (K) Ltd	Food & Beverages Sector
272.	Bdelo Ltd	Food & Beverages Sector
273.	Belat Enterprises	Food & Beverages Sector
274.	Belfast Millers Ltd	Food & Beverages Sector
275.	Bidco Africa Ltd	Food & Beverages Sector
276.	Bio Food Products Limited	Food & Beverages Sector
277.	Bloc Enterprises Limited	Food & Beverages Sector
278.	Blueplastics and Water Co. Limited	Food & Beverages Sector
279.	Brava Food Industries Limited	Food & Beverages Sector
280.	Breakfast Cereal (K) Ltd (Weetabix)	Food & Beverages Sector
281.	Britania Foods Ltd (Jambo Biscuits)	Food & Beverages Sector
282.	British American Tobacco Plc (BAT Ltd)	Food & Beverages Sector
283.	Broadway Bakery Ltd	Food & Beverages Sector
284.	Brookside Dairy Ltd	Food & Beverages Sector
285.	Brown Biashara Limited	Food & Beverages Sector
286.	Buffalo Millers	Food & Beverages Sector
287.	Bulto Foods Ltd	Food & Beverages Sector
288.	Bunda Cakes & Feeds Ltd	Food & Beverages Sector
289.	Burton and Bamber Company Ltd	Food & Beverages Sector
290.	Butali Sugar Mills Ltd	Food & Beverages Sector
291.	Buuri Millers Enterprises	Food & Beverages Sector
292.	C. Dormans Ltd	Food & Beverages Sector
293.	C.Czarnikow Sugar(EA) ltd	Food & Beverages Sector
294.	Cadbury Kenya Ltd	Food & Beverages Sector
295.	Caffe Del Duca Ltd	Food & Beverages Sector
296.	Candy Kenya Ltd	Food & Beverages Sector
297.	Capel Food Ingredients	Food & Beverages Sector

298.	Capwell Industries Ltd	Food & Beverages Sector
299.	Carojim Cookery Enterprise	Food & Beverages Sector
300.	Caterina Bakery Limited	Food & Beverages Sector
301.	Centrofood Industries Ltd	Food & Beverages Sector
302.	Chai Trading Company Limited	Food & Beverages Sector
303.	Chemelil Sugar Company Ltd	Food & Beverages Sector
304.	Chirag Kenya Limited	Food & Beverages Sector
305.	Coastal Bottlers Limited	Food & Beverages Sector
306.	Coca-Cola E. Central and W. Africa Ltd	Food & Beverages Sector
307.	Coca-Cola Juices (K) Ltd	Food & Beverages Sector
308.	Coffee Agriworks Ltd	Food & Beverages Sector
309.	CoffTea Agencies	Food & Beverages Sector
310.	Confini Limited	Food & Beverages Sector
311.	Cornbelt Flour Mill	Food & Beverages Sector
312.	Crofts LTD	Food & Beverages Sector
313.	Crown Beverages LTD	Food & Beverages Sector
314.	Danone Baby Nutrition Africa &Overseas	Food & Beverages Sector
315.	Del Monte Kenya Ltd	Food & Beverages Sector
316.	Deylin Ultimate springs limited	Food & Beverages Sector
317.	Diamond Industries Limited	Food & Beverages Sector
318.	Doinyo Lessos Creameries Ltd	Food & Beverages Sector
319.	DPL Festive Ltd	Food & Beverages Sector
320.	Dutch Waters Limited	Food & Beverages Sector
321.	East African Breweries Ltd	Food & Beverages Sector
322.	East African Sea Food Ltd	Food & Beverages Sector
323.	East African Seed Co. Ltd	Food & Beverages Sector
324.	Eastern Produce Kenya Ltd (Kakuzi)	Food & Beverages Sector
325.	Edible Oil Poducts	Food & Beverages Sector
326.	Eldoret Grains Ltd	Food & Beverages Sector
327.	Elekea Limited	Food & Beverages Sector
328.	Elle Kenya Limited	Food & Beverages Sector
329.	Equator Bottlers Ltd	Food & Beverages Sector
330.	Erdemann Co. (K) Ltd	Food & Beverages Sector
331.	Europack Industries Limited	Food & Beverages Sector
332.	Excel Chemicals Ltd	Food & Beverages Sector
333.	Farmers Choice Ltd	Food & Beverages Sector
334.	Foods by Likii	Food & Beverages Sector
335.	Frigoken Ltd	Food & Beverages Sector
336.	FRM EA Packers Ltd	Food & Beverages Sector
337.	Frutarom Kenya (Ltd)	Food & Beverages Sector
338.	General Mills East Africa Limited	Food & Beverages Sector
339.	Giloil Company Limited	Food & Beverages Sector
340.	Githunguri Dairy Farmers Co-op Soc.	Food & Beverages Sector

341.	Glacier Food Industries Limited	Food & Beverages Sector
342.	Glacier Products Ltd	Food & Beverages Sector
343.	Global Fresh Ltd	Food & Beverages Sector
344.	Global Tea & Commodities (K) Ltd	Food & Beverages Sector
345.	Gold Crown Foods (EPZ) Ltd	Food & Beverages Sector
346.	Golden Africa Kenya Limited	Food & Beverages Sector
347.	Gonas Best Ltd	Food & Beverages Sector
348.	Grains Industries Limited	Food & Beverages Sector
349.	Green Forest Foods Ltd	Food & Beverages Sector
350.	Halisi Maize Mills Limited	Food & Beverages Sector
351.	Happy Cow Ltd	Food & Beverages Sector
352.	Healthy U Two Thousand Limited	Food & Beverages Sector
353.	Heritage Foods Kenya Ltd	Food & Beverages Sector
354.	Highlands Mineral Water Co. Ltd	Food & Beverages Sector
355.	Honey Care Africa	Food & Beverages Sector
356.	Insta Products (EPZ) Ltd	Food & Beverages Sector
357.	Isinya Feeds Ltd (Sigma Supplies Ltd)	Food & Beverages Sector
358.	Italian Gelati & Food Products Ltd	Food & Beverages Sector
359.	Jambo East Africa Ltd	Food & Beverages Sector
360.	James Finlay Kenya Ltd	Food & Beverages Sector
361.	Jetlak Foods Ltd	Food & Beverages Sector
362.	Jjasm Mini-Distillery	Food & Beverages Sector
363.	Juja Coffee Exporters	Food & Beverages Sector
364.	Jungle Group Holdings Ltd	Food & Beverages Sector
365.	Kabaru Holdings Limited	Food & Beverages Sector
366.	Kabianga Dairy Ltd	Food & Beverages Sector
367.	Kambu Distillers Limited	Food & Beverages Sector
368.	Kamili Packers Ltd	Food & Beverages Sector
369.	Kapa Oil Refineries Ltd	Food & Beverages Sector
370.	Karirana Estate Ltd	Food & Beverages Sector
371.	Kedsta Investment Limited	Food & Beverages Sector
372.	Kenafric Bakery	Food & Beverages Sector
373.	Kenafric Industries Limited	Food & Beverages Sector
374.	Kenblest Limited	Food & Beverages Sector
375.	Kenchic Ltd	Food & Beverages Sector
376.	Kentaste Proucts Limited	Food & Beverages Sector
377.	Kenya Co-Operative Coffee Dealers Ltd	Food & Beverages Sector
378.	Kenya Highland Seed Co. Ltd	Food & Beverages Sector
379.	Kenya Nut Company Ltd	Food & Beverages Sector
380.	Kenya Seed Company Ltd	Food & Beverages Sector
381.	Kenya Sweets Ltd	Food & Beverages Sector
382.	Kenya Tea Development Agency	Food & Beverages Sector
383.	Kenya Tea Packers Ltd (KETEPA)	Food & Beverages Sector

384.	Kenya Wine Agencies Limited	Food & Beverages Sector
385.	Kerio Valley Development Authority	Food & Beverages Sector
386.	Keroche Industries Ltd	Food & Beverages Sector
387.	Kevian Kenya Ltd	Food & Beverages Sector
388.	Kibos Dairy & Farm Produce	Food & Beverages Sector
389.	Kibos Sugar and Allied Industries	Food & Beverages Sector
390.	Kigelia Fresh Produce Limited	Food & Beverages Sector
391.	Kilimanjaro Biscuits Limited	Food & Beverages Sector
392.	Kina Loaf Bakery	Food & Beverages Sector
393.	Kinangop Dairy Limited	Food & Beverages Sector
394.	Kirinyaga Flour Mills	Food & Beverages Sector
395.	Kitui Flour Mills	Food & Beverages Sector
396.	Koba Waters, Broomhill Springs Water	Food & Beverages Sector
397.	Krish Commodities Ltd	Food & Beverages Sector
398.	Kuguru Food Complex Ltd	Food & Beverages Sector
399.	Kulamawe Poultry Industries Ltd	Food & Beverages Sector
400.	Kwale International Sugar Company Ltd	Food & Beverages Sector
401.	Kwality Candies & Sweets Ltd	Food & Beverages Sector
402.	L.A.B International Kenya limited	Food & Beverages Sector
403.	Landeco Ltd	Food & Beverages Sector
404.	Luma Stores & Supplies Enter. Ltd	Food & Beverages Sector
405.	Mace Foods Ltd	Food & Beverages Sector
406.	Mafuko Industries Ltd	Food & Beverages Sector
407.	Malachite Limited	Food & Beverages Sector
408.	Malindi Natural Juice Processors Limited	Food & Beverages Sector
409.	Mama Millers Limited	Food & Beverages Sector
410.	Mamboleo Distillers (Kenlab Supplies)	Food & Beverages Sector
411.	Manji Food Industries Ltd	Food & Beverages Sector
412.	Mars Wrigley Confectionery Kenya Ltd	Food & Beverages Sector
413.	Mashwa Breweries Ltd	Food & Beverages Sector
414.	Mayfeeds Kenya Ltd	Food & Beverages Sector
415.	MDI Limited	Food & Beverages Sector
416.	Megatech Limited	Food & Beverages Sector
417.	Melvin Marsh International	Food & Beverages Sector
418.	Menengai Oil Refineries Ltd	Food & Beverages Sector
419.	Meru Water & Sewerage Services	Food & Beverages Sector
420.	Midrow Kenya Limited	Food & Beverages Sector
421.	Milly Fruit Processors Ltd	Food & Beverages Sector
422.	Mini Bakeries (Nbi) Ltd	Food & Beverages Sector
423.	Miritini Kenya	Food & Beverages Sector
424.	Mjengo Limited	Food & Beverages Sector
425.	Mombasa Maize Millers Ltd	Food & Beverages Sector
426.	Monwalk Investment Ltd	Food & Beverages Sector

427.	Morani Limited	Food & Beverages Sector
428.	Mulsons Impex Ltd	Food & Beverages Sector
429.	Mumias Sugar Company Limited	Food & Beverages Sector
430.	Munyiri Special Honey Ltd	Food & Beverages Sector
431.	Mwachaka Group Ltd	Food & Beverages Sector
432.	Mwakawa Investment Limited	Food & Beverages Sector
433.	Mwanga Millers	Food & Beverages Sector
434.	Mzuri Sweets Ltd	Food & Beverages Sector
435.	Nairobi Bottlers Ltd	Food & Beverages Sector
436.	Nairobi Flour Mills Ltd	Food & Beverages Sector
437.	Nairobi Java House Ltd	Food & Beverages Sector
438.	Nal Packaging Holdings Ltd	Food & Beverages Sector
439.	NAS Airport Services Ltd	Food & Beverages Sector
440.	NesFoods Industries Ltd	Food & Beverages Sector
441.	Nestle Kenya Ltd	Food & Beverages Sector
442.	New Kenya Co-Operative Creameries Ltd	Food & Beverages Sector
443.	Nicey Nicey Maize Millers Ltd	Food & Beverages Sector
444.	Nicola Farms Ltd	Food & Beverages Sector
445.	Njoro Canning Factory(Kenya) Ltd	Food & Beverages Sector
446.	Norda Industries Ltd	Food & Beverages Sector
447.	Nzoia Sugar Company Ltd	Food & Beverages Sector
448.	Okerio Nyangau Bakery	Food & Beverages Sector
449.	Olenguruone Natural Water Limited	Food & Beverages Sector
450.	Olivado EPZ Limited	Food & Beverages Sector
451.	Orchard Juice Ltd	Food & Beverages Sector
452.	Palmhouse Diaries Ltd	Food & Beverages Sector
453.	Patco Industries Limited	Food & Beverages Sector
454.	Pearl Industries Ltd	Food & Beverages Sector
455.	Pearly LLP	Food & Beverages Sector
456.	Pembe Flour Mills Ltd	Food & Beverages Sector
457.	Pernod Ricard Kenya Ltd	Food & Beverages Sector
458.	Peshwood Enterprises Ltd	Food & Beverages Sector
459.	Platinum Distillers Limited	Food & Beverages Sector
460.	Pradip Enterprises (E.A) Limited	Food & Beverages Sector
461.	Premier Flour Mills Ltd	Food & Beverages Sector
462.	Premier Food Industries Limited	Food & Beverages Sector
463.	Pride Industries Ltd	Food & Beverages Sector
464.	Proctor & Allan (E.A.) Ltd	Food & Beverages Sector
465.	Promasidor (Kenya) Ltd	Food & Beverages Sector
466.	Propack Kenya Limited	Food & Beverages Sector
467.	Propack Kenya Limited	Food & Beverages Sector
468.	Purple Iris Africa	Food & Beverages Sector
469.	Pwani Oil Products Ltd	Food & Beverages Sector

470.	Rafiki Grains Kericho Ltd	Food & Beverages Sector
471.	Rafiki Millers Ltd	Food & Beverages Sector
472.	Raka Milk Processors	Food & Beverages Sector
473.	RAZCO LIMITED	Food & Beverages Sector
474.	Re-Suns Spices Limited	Food & Beverages Sector
475.	Rift Valley Bottlers Ltd	Food & Beverages Sector
476.	Royal Swiss Bakery Limited	Food & Beverages Sector
477.	Sahara Venture Capital Company Ltd	Food & Beverages Sector
478.	Salim Wazarani Kenya Company	Food & Beverages Sector
479.	Sameer Agriculture & Livestock (Kenya)	Food & Beverages Sector
480.	Savannah Brands Company	Food & Beverages Sector
481.	SBC Kenya Limited	Food & Beverages Sector
482.	Scepter Millers Limited	Food & Beverages Sector
483.	Scrumptios Eats Ltd	Food & Beverages Sector
484.	Selecta Kenya Gmbh & Co.	Food & Beverages Sector
485.	Shree Sai Industries	Food & Beverages Sector
486.	Simply Foods Ltd	Food & Beverages Sector
487.	Sky Foods Limited	Food & Beverages Sector
488.	Slikridge Limited	Food & Beverages Sector
489.	Social Bites Ltd	Food & Beverages Sector
490.	South Nyanza Sugar Company	Food & Beverages Sector
491.	Spice World Ltd	Food & Beverages Sector
492.	Stawi Foods and Fruits Limited	Food & Beverages Sector
493.	Sunbake Enterprises Ltd	Food & Beverages Sector
494.	Sunny Processors Ltd	Food & Beverages Sector
495.	Supa Snacks Ltd	Food & Beverages Sector
496.	Superfine Africa Nuts Ltd	Food & Beverages Sector
497.	Sweet Rus Limited	Food & Beverages Sector
498.	T.S.S. Grain Millers Limited	Food & Beverages Sector
499.	Toggen Milk	Food & Beverages Sector
500.	Top Food (EA) Ltd	Food & Beverages Sector
501.	Transmara Sugar Company Limited	Food & Beverages Sector
502.	Trisquare Products Ltd	Food & Beverages Sector
503.	Tropical Heat Limited (Deepa Industries)	Food & Beverages Sector
504.	Tropical Lush Ltd	Food & Beverages Sector
505.	Trufoods Ltd	Food & Beverages Sector
506.	Trust Feeds Ltd	Food & Beverages Sector
507.	Trust Flour Mills Ltd	Food & Beverages Sector
508.	Umoja Flour Mills Ltd	Food & Beverages Sector
509.	Umoja Maintainance Centre (K) Limited	Food & Beverages Sector
510.	Unga Group Ltd	Food & Beverages Sector
511.	United Millers Ltd	Food & Beverages Sector
512.	Usafi Services Ltd	Food & Beverages Sector

513.	Valley Confectionery Ltd	Food & Beverages Sector
514.	Valuepak foods	Food & Beverages Sector
515.	Vava Coffee Ltd	Food & Beverages Sector
516.	Vert Limited	Food & Beverages Sector
517.	Victoria Juice Company Limited	Food & Beverages Sector
518.	Victory Farms Limited	Food & Beverages Sector
519.	Vinepack Ltd	Food & Beverages Sector
520.	W. E. Tilley (Muthaiga) Ltd	Food & Beverages Sector
521.	Wanji Food Industries Limited	Food & Beverages Sector
522.	West African Seasoning Co. Ltd	Food & Beverages Sector
523.	West Kenya Sugar Company Ltd	Food & Beverages Sector
524.	Winnie's Pure Health	Food & Beverages Sector
525.	Xpressions Flora Ltd	Food & Beverages Sector
526.	Zaytuna Enterprises Limited	Food & Beverages Sector
527.	Zeelandia East Africa Limited	Food & Beverages Sector
528.	Zheng Hong (K) Limited	Food & Beverages Sector
529.	Addison Industries Limited	Leather and Footwear
530.	Alpharama Ltd	Leather and Footwear
531.	Athi River Tanneries Ltd	Leather and Footwear
532.	Azu's Leather Limited	Leather and Footwear
533.	Bata Shoe Co (K) Ltd	Leather and Footwear
534.	Blue Waves Enterprises Limited	Leather and Footwear
535.	Budget Shoes Ltd	Leather and Footwear
536.	C & P Shoes Industries Ltd	Leather and Footwear
537.	Denrit Ltd	Leather and Footwear
538.	Kenya Suitcase Manufacturers Limited	Leather and Footwear
539.	Leather Industries of Kenya Limited	Leather and Footwear
540.	Macquin Shoes Ltd	Leather and Footwear
541.	Maridadi Seasons Handcraft	Leather and Footwear
542.	Nakuru Tanners Limited	Leather and Footwear
543.	Sandstorm Africa Limited	Leather and Footwear
544.	Service Shoes Africa Ltd	Leather and Footwear
545.	Wazawazi Company Limited	Leather and Footwear
546.	Yetu Leather Limited	Leather and Footwear
547.	Zingo Investments Ltd	Leather and Footwear
548.	Abyssinia Iron & Steel Ltd	Metal and Allied Sector
549.	A. Marine & General Engineering Co.	Metal and Allied Sector
550.	Afriken International Limited	Metal and Allied Sector
551.	Allied East Africa Ltd	Metal and Allied Sector
552.	Alloy Steel Castings Ltd	Metal and Allied Sector
553.	Apex Steel Ltd - Rolling Mill Division	Metal and Allied Sector
554.	Arvind Engineering Ltd	Metal and Allied Sector
555.	Ashut Engineers	Metal and Allied Sector

556.	ASL Ltd	Metal and Allied Sector
557.	ASP Company Ltd	Metal and Allied Sector
558.	Athi River Steel Plant Ltd	Metal and Allied Sector
559.	Atlantic Ltd	Metal and Allied Sector
560.	Blue Nile Wire Products Ltd	Metal and Allied Sector
561.	Booth Extrusions Limited	Metal and Allied Sector
562.	Brollo Kenya Limited	Metal and Allied Sector
563.	Buhler Limited	Metal and Allied Sector
564.	Burn Manufacturing USA LLC	Metal and Allied Sector
565.	Canton Alloys Ltd	Metal and Allied Sector
566.	City Engineering Works Ltd	Metal and Allied Sector
567.	Container Technology Ltd	Metal and Allied Sector
568.	Cook 'N Lite Limited	Metal and Allied Sector
569.	Corrugated Sheets Limited	Metal and Allied Sector
570.	Crystal Industries Ltd	Metal and Allied Sector
571.	Davis & Shirtliff Ltd	Metal and Allied Sector
572.	Devki Steel Mills Ltd	Metal and Allied Sector
573.	Doshi & Company Hardware	Metal and Allied Sector
574.	East AFrica Cans & Closures Ltd	Metal and Allied Sector
575.	East Africa Spectre Limited	Metal and Allied Sector
576.	East African Foundry Works (K) Ltd	Metal and Allied Sector
577.	East African Glassware Mart (Nairobi)	Metal and Allied Sector
578.	Easy Clean Africa Limited	Metal and Allied Sector
579.	Eco-Steel Africa	Metal and Allied Sector
580.	Eldoret Farm Machinery	Metal and Allied Sector
581.	Elite Tools	Metal and Allied Sector
582.	Elite Tools Ltd	Metal and Allied Sector
583.	Farm Engineering Industries Ltd	Metal and Allied Sector
584.	Femo Works Engineering Company	Metal and Allied Sector
585.	Fine Engineering Works Limited	Metal and Allied Sector
586.	Fit Tight Fasteners Ltd	Metal and Allied Sector
587.	Friendship Container Manufacturers Ltd	Metal and Allied Sector
588.	Globology Ltd	Metal and Allied Sector
589.	Greif Kenya Limited	Metal and Allied Sector
590.	Guala Closures East Africa Ltd	Metal and Allied Sector
591.	GZI Kenya Ltd	Metal and Allied Sector
592.	Heavy Engineering Ltd	Metal and Allied Sector
593.	Hebatullah Brothers Ltd	Metal and Allied Sector
594.	Herocean Enterprises Kenya Ltd	Metal and Allied Sector
595.	Hi Tech Gravures Limited	Metal and Allied Sector
596.	Hobra Manufacturing Ltd	Metal and Allied Sector
597.	Hydro Aluminium Limited	Metal and Allied Sector
598.	Insteel Limited	Metal and Allied Sector

599.	Iron Art Ltd	Metal and Allied Sector
600.	ISL Kenya Limited	Metal and Allied Sector
601.	Jumbo Steel Mills Ltd	Metal and Allied Sector
602.	Kab Kam Enterprises Ltd	Metal and Allied Sector
603.	Kaluworks Limited	Metal and Allied Sector
604.	Kens Metal Industries Ltd	Metal and Allied Sector
605.	Kenya General Industries Ltd	Metal and Allied Sector
606.	Khetshi Dharamshi & Co. Ltd	Metal and Allied Sector
607.	King Steel	Metal and Allied Sector
608.	Kitchen King Ltd	Metal and Allied Sector
609.	Laminate Tubes Industries	Metal and Allied Sector
610.	Load Trailers (E.A) Ltd	Metal and Allied Sector
611.	Mabati Rolling Mills Limited	Metal and Allied Sector
612.	Machine 4 Africa Ltd	Metal and Allied Sector
613.	Mann Manufacturing Co. Ltd	Metal and Allied Sector
614.	Mecol Limited	Metal and Allied Sector
615.	Menengai Rolling Mills Ltd	Metal and Allied Sector
616.	Metal Crowns Limited	Metal and Allied Sector
617.	Mitsubishi Corporation Nrbi Liaison Off.	Metal and Allied Sector
618.	Modulec Engineering Systems Ltd	Metal and Allied Sector
619.	Nails & Steel Products Ltd	Metal and Allied Sector
620.	Nalin Steel Works	Metal and Allied Sector
621.	Nampak Kenya Limited	Metal and Allied Sector
622.	Napro Industries Limited	Metal and Allied Sector
623.	Narcol Aluminium Rolling Mills Ltd	Metal and Allied Sector
624.	Ndume Ltd	Metal and Allied Sector
625.	Nirmal Fabricators Limited	Metal and Allied Sector
626.	Nyagah Mechanical Engineering Limited	Metal and Allied Sector
627.	Orbit Engineering Ltd	Metal and Allied Sector
628.	Palak International Limited	Metal and Allied Sector
629.	Patken Limited	Metal and Allied Sector
630.	Patnet Steel Makers Manufacturers Ltd	Metal and Allied Sector
631.	pyrrex General Agencies Ltd	Metal and Allied Sector
632.	Red Oak Limited	Metal and Allied Sector
633.	Richfield Engineering Ltd	Metal and Allied Sector
634.	Royal Mabati Factory Ltd	Metal and Allied Sector
635.	Safal Building Systems Limited	Metal and Allied Sector
636.	Sheffield Steel Systems Ltd	Metal and Allied Sector
637.	Sil Wire Products Limited	Metal and Allied Sector
638.	Silverspread Hardwares Ltd	Metal and Allied Sector
639.	Siya Industries (K) Ltd	Metal and Allied Sector
640.	Soni Technical Services Ltd	Metal and Allied Sector
641.	Southern Engineering Co. Ltd	Metal and Allied Sector

642.	St Theresa Industries Kenya Limited	Metal and Allied Sector
643.	Stainless Steel Products Ltd	Metal and Allied Sector
644.	Standard Rolling Mills Ltd	Metal and Allied Sector
645.	Steel structures Ltd	Metal and Allied Sector
646.	Steelmakers Ltd	Metal and Allied Sector
647.	Steelwool (Africa) Ltd	Metal and Allied Sector
648.	Sundries Bargains (Nairobi) Limited	Metal and Allied Sector
649.	Superfit Steelcon Ltd	Metal and Allied Sector
650.	Tarmal Wire Products Ltd	Metal and Allied Sector
651.	Tensiles EA Ltd	Metal and Allied Sector
652.	Tin Can Manufacturers Ltd	Metal and Allied Sector
653.	Tononoka Rolling Mills Ltd	Metal and Allied Sector
654.	Tononoka Steel Ltd	Metal and Allied Sector
655.	Top Steel Kenya Limited	Metal and Allied Sector
656.	Towertech Africa Limited	Metal and Allied Sector
657.	Varomotech Limited	Metal and Allied Sector
658.	Velka Engineering Limited	Metal and Allied Sector
659.	Vicensa Investments Ltd	Metal and Allied Sector
660.	Viking Industries Ltd	Metal and Allied Sector
661.	Vivek Investments Ltd	Metal and Allied Sector
662.	Warren Enterprises Ltd	Metal and Allied Sector
663.	Welding Alloys Ltd	Metal and Allied Sector
664.	Wire Products Limited	Metal and Allied Sector
665.	Zenith Steel Fabricators Ltd	Metal and Allied Sector
666.	Abson Motors Limited	Motor Vehicle Assemblers & Acc.
667.	Ace Motors	Motor Vehicle Assemblers & Acc.
668.	Africom Group lImited	Motor Vehicle Assemblers & Acc.
669.	Alamdar Trading Company Ltd	Motor Vehicle Assemblers & Acc.
670.	Associated Battery Manufact. (E.A.) Ltd	Motor Vehicle Assemblers & Acc.
671.	Associated Vehicle Assemblers Ltd	Motor Vehicle Assemblers & Acc.
672.	Auto Accessories International	Motor Vehicle Assemblers & Acc.
673.	Auto Ancilliaries Ltd	Motor Vehicle Assemblers & Acc.
674.	Auto Industries Ltd	Motor Vehicle Assemblers & Acc.
675.	Auto Springs East Africa Ltd	Motor Vehicle Assemblers & Acc.
676.	Automobile Warehouse Ltd	Motor Vehicle Assemblers & Acc.
677.	Azad Automobile Trimmings Ltd	Motor Vehicle Assemblers & Acc.
678.	Banbros Ltd	Motor Vehicle Assemblers & Acc.
679.	Bhachu Industries Ltd	Motor Vehicle Assemblers & Acc.
680.	Big Race Motors Ltd	Motor Vehicle Assemblers & Acc.
681.	BMG Holdings Ltd	Motor Vehicle Assemblers & Acc.
682.	Bodastar Enterprises Ltd	Motor Vehicle Assemblers & Acc.
683.	Choda Fabricators Ltd	Motor Vehicle Assemblers & Acc.
684.	Chui Auto Spring Industries Ltd	Motor Vehicle Assemblers & Acc.

685.	Cica Motors	Motor Vehicle Assemblers & Acc.
686.	Dalcom Kenya Limited	Motor Vehicle Assemblers & Acc.
687.	Deeking Kenya Limited	Motor Vehicle Assemblers & Acc.
688.	Dodi Autotech	Motor Vehicle Assemblers & Acc.
689.	Foton East Africa Ltd	Motor Vehicle Assemblers & Acc.
690.	Global Motors Centre Limited	Motor Vehicle Assemblers & Acc.
691.	Handa (K) Ltd	Motor Vehicle Assemblers & Acc.
692.	Hans Kenya Ltd	Motor Vehicle Assemblers & Acc.
693.	Harveer Bus Body Builders Limited	Motor Vehicle Assemblers & Acc.
694.	Highway Car Cushion & Upholstery	Motor Vehicle Assemblers & Acc.
695.	Honda Motorcycle Kenya Ltd	Motor Vehicle Assemblers & Acc.
696.	Impala Glass Industries Ltd	Motor Vehicle Assemblers & Acc.
697.	Isuzu E. A. Ltd Formerly G.M E.A Ltd.	Motor Vehicle Assemblers & Acc.
698.	Jextin Kenya Company Limited	Motor Vehicle Assemblers & Acc.
699.	Kenya Coach Industries Ltd	Motor Vehicle Assemblers & Acc.
700.	Kenya Vehicle Manufacturers Limited	Motor Vehicle Assemblers & Acc.
701.	Kenyon Limited	Motor Vehicle Assemblers & Acc.
702.	Keri Energy Limited	Motor Vehicle Assemblers & Acc.
703.	Kibo Africa Ltd formerly Koneksie Ltd	Motor Vehicle Assemblers & Acc.
704.	King Finn Kenya Limited	Motor Vehicle Assemblers & Acc.
705.	King-Bird (K) Ltd	Motor Vehicle Assemblers & Acc.
706.	Labh Singh Harnam Singh Ltd	Motor Vehicle Assemblers & Acc.
707.	Makindu Motors Limited	Motor Vehicle Assemblers & Acc.
708.	Mash East Africa Ltd	Motor Vehicle Assemblers & Acc.
709.	Master Fabricators Ltd	Motor Vehicle Assemblers & Acc.
710.	Megh Cushion Industries Ltd	Motor Vehicle Assemblers & Acc.
711.	Mobikey Truck & Bus Limited	Motor Vehicle Assemblers & Acc.
712.	Mobius Motors Kenya Ltd	Motor Vehicle Assemblers & Acc.
713.	Mutsimoto Motor Company	Motor Vehicle Assemblers & Acc.
714.	Necst Motors Kenya Limited	Motor Vehicle Assemblers & Acc.
715.	Opibus Limited	Motor Vehicle Assemblers & Acc.
716.	Pinnacle Systems Limited	Motor Vehicle Assemblers & Acc.
717.	Pipe Manufacturers Ltd	Motor Vehicle Assemblers & Acc.
718.	Plateau Motors Limited	Motor Vehicle Assemblers & Acc.
719.	R.T. (East Africa) Limited	Motor Vehicle Assemblers & Acc.
720.	Rockey Africa Limited	Motor Vehicle Assemblers & Acc.
721.	Romageco Kenya Ltd	Motor Vehicle Assemblers & Acc.
722.	Ruidu (Kenya) Company Ltd	Motor Vehicle Assemblers & Acc.
723.	Safe & Cool Ltd	Motor Vehicle Assemblers & Acc.
724.	Saferider Management System	Motor Vehicle Assemblers & Acc.
725.	Sagoo Holdings Ltd	Motor Vehicle Assemblers & Acc.
726.	Scania East Africa Limited	Motor Vehicle Assemblers & Acc.
727.	Silverline Accessories Ltd	Motor Vehicle Assemblers & Acc.

728.	Simba Caetano Formula Limited	Motor Vehicle Assemblers & Acc.
729.	Simba Corporation Limited	Motor Vehicle Assemblers & Acc.
730.	Skyline Holdings Limited	Motor Vehicle Assemblers & Acc.
731.	Sohansons Ltd	Motor Vehicle Assemblers & Acc.
732.	Songyi Motorcycles International Ltd	Motor Vehicle Assemblers & Acc.
733.	Sonlink (Kenya) Co. Ltd	Motor Vehicle Assemblers & Acc.
734.	Soroya Motors Spares Ltd	Motor Vehicle Assemblers & Acc.
735.	Springtech (K) Ltd	Motor Vehicle Assemblers & Acc.
736.	Sunrise Capital Ltd	Motor Vehicle Assemblers & Acc.
737.	Theevan Enterprises Ltd	Motor Vehicle Assemblers & Acc.
738.	Toyota Kenya Ltd	Motor Vehicle Assemblers & Acc.
739.	Toyota Tshusho East africa Limited	Motor Vehicle Assemblers & Acc.
740.	Transafrica Motors Ltd	Motor Vehicle Assemblers & Acc.
741.	Transallied Ltd	Motor Vehicle Assemblers & Acc.
742.	Transtrailers Limited	Motor Vehicle Assemblers & Acc.
743.	Turaco Limited	Motor Vehicle Assemblers & Acc.
744.	Unifilters Kenya Ltd	Motor Vehicle Assemblers & Acc.
745.	Uni-Truck World Ltd	Motor Vehicle Assemblers & Acc.
746.	Varsani Brakelinings Ltd	Motor Vehicle Assemblers & Acc.
747.	Adpak International Limited	Paper & Board Sector
748.	Allpack Industries Ltd	Paper & Board Sector
749.	Anke Home Appliance Services Ltd	Paper & Board Sector
750.	Anvi Emporium Ltd (Andika Industries)	Paper & Board Sector
751.	Armor East Africa Imaging Supplies Ltd	Paper & Board Sector
752.	ASL Packaging Limited	Paper & Board Sector
753.	Associated Paper & Stationery Ltd	Paper & Board Sector
754.	Autolitho Ltd	Paper & Board Sector
755.	Avery Dennison Kenya Limited	Paper & Board Sector
756.	Bag and Envelope Converters Ltd	Paper & Board Sector
757.	Bags & Balers Manufacturers Ltd	Paper & Board Sector
758.	Bizkard Limited	Paper & Board Sector
759.	Boxpack Limited	Paper & Board Sector
760.	Brand Printers Limited	Paper & Board Sector
761.	Capitol Printers Limited	Paper & Board Sector
762.	Carton Manufacturers Ltd	Paper & Board Sector
763.	Cartubox Industries (E.A.) Ltd	Paper & Board Sector
764.	Cempack Solutions Limited	Paper & Board Sector
765.	Chrome Partners Limited	Paper & Board Sector
766.	Colour Labels Ltd	Paper & Board Sector
767.	Colour Packaging Ltd	Paper & Board Sector
768.	Colourprint Ltd	Paper & Board Sector
769.	D. L. Patel Press (Kenya) Limited	Paper & Board Sector
770.	Digital Hub Limited	Paper & Board Sector

771.	Dodhia Packaging Kenya Limited	Paper & Board Sector
772.	E. African Packaging Industries Limited	Paper & Board Sector
773.	E. A. Paper Mills (Kenya Paper Mills)	Paper & Board Sector
774.	Economic Industries Ltd	Paper & Board Sector
775.	Elegant Printing Works Limited	Paper & Board Sector
776.	Elite Offset Ltd	Paper & Board Sector
777.	Ellams Products	Paper & Board Sector
778.	English Press Ltd	Paper & Board Sector
779.	Essential Manufacturing Co. Ltd	Paper & Board Sector
780.	Euro Packaging Ltd	Paper & Board Sector
781.	Excel Packaging Ltd	Paper & Board Sector
782.	Fortuna Industries Ltd	Paper & Board Sector
783.	Fortunes Printers & Stationers Ltd	Paper & Board Sector
784.	Franciscan Kolbe Press	Paper & Board Sector
785.	G & F Kenya Company Limited	Paper & Board Sector
786.	General Printers Limited	Paper & Board Sector
787.	Graphic Lineups Limited	Paper & Board Sector
788.	Green Pencils Ltd	Paper & Board Sector
789.	Guaca Stationers Ltd	Paper & Board Sector
790.	Highland Paper Mills Ltd	Paper & Board Sector
791.	International Paper & Board Supplies Ltd	Paper & Board Sector
792.	Jubilee Tissue Industries	Paper & Board Sector
793.	Juja Pulp & Paper Ltd	Paper & Board Sector
794.	Kartasi Industries Ltd	Paper & Board Sector
795.	Kenafric Diaries Manufacturers Ltd	Paper & Board Sector
796.	Kenafric Manufacturing Limited	Paper & Board Sector
797.	Kenya Stationers Ltd	Paper & Board Sector
798.	Kim-Fay East Africa Ltd	Paper & Board Sector
799.	Kul Graphics Ltd	Paper & Board Sector
800.	Label Converters Limited	Paper & Board Sector
801.	Mainstream Bookshop	Paper & Board Sector
802.	Manipal International Printing Press Ltd	Paper & Board Sector
803.	Mega Pack (K) Ltd	Paper & Board Sector
804.	MFI Ultra Print Limited	Paper & Board Sector
805.	Modern Lithographic (K) Ltd	Paper & Board Sector
806.	Nation Media Group Ltd	Paper & Board Sector
807.	National Printing Press Limited	Paper & Board Sector
808.	Ndalex Digital Technology	Paper & Board Sector
809.	Packaging Manufacturers (1976) Ltd	Paper & Board Sector
810.	Palmy Enterprises Limited	Paper & Board Sector
811.	Paperbags Limited	Paper & Board Sector
812.	Paperplast Limited	Paper & Board Sector
813.	Platinum Packaging	Paper & Board Sector

814.	Pressmaster Africa	Paper & Board Sector
815.	Prime Cartons Limited	Paper & Board Sector
816.	Printing Services Ltd	Paper & Board Sector
817.	Printpak Multi Packaging Ltd	Paper & Board Sector
818.	Printwell Industries ltd	Paper & Board Sector
819.	Punchlines Ltd	Paper & Board Sector
820.	Raffia Bags (K) Ltd	Paper & Board Sector
821.	Ramco Printing Works Ltd	Paper & Board Sector
822.	Regal Press Kenya Ltd	Paper & Board Sector
823.	Rodwell Press Ltd	Paper & Board Sector
824.	Safari Stationers (K) Ltd	Paper & Board Sector
825.	Shri Krishana Overseas Ltd	Paper & Board Sector
826.	Sintel Security Print Solutions Limited	Paper & Board Sector
827.	Sitima Printer & Stationers Limited	Paper & Board Sector
828.	Skanem Interlabels Nairobi Limited	Paper & Board Sector
829.	Sketchers Design Promoters Ltd	Paper & Board Sector
830.	Soloh Worldwide Inter-Enterprises Ltd	Paper & Board Sector
831.	Standard Group Ltd	Paper & Board Sector
832.	Statpack Industries Ltd	Paper & Board Sector
833.	Taws Limited	Paper & Board Sector
834.	Tetra Pak Ltd	Paper & Board Sector
835.	The Paper House of Kenya Ltd	Paper & Board Sector
836.	The Print Exchange Limited	Paper & Board Sector
837.	Tissue Kenya Limited	Paper & Board Sector
838.	Twiga Stationers & Printers Ltd	Paper & Board Sector
839.	Uneeco Paper Products Ltd	Paper & Board Sector
840.	UR Home International (Kenya)	Paper & Board Sector
841.	Wandi Packaging Ltd	Paper & Board Sector
842.	Zaam Industries Ltd	Paper & Board Sector
843.	Advanced Molecular Imaging Limited	Pharmaceutical & Medical Equipment
844.	African Cotton Industries Ltd	Pharmaceutical & Medical Equipment
845.	Alpha Medical Manufacturers Ltd	Pharmaceutical & Medical Equipment
846.	Autosterile (East Africa Limited	Pharmaceutical & Medical Equipment
847.	Benmed Pharmaceuticals Limited	Pharmaceutical & Medical Equip
848.	Beta Healthcare International Limited	Pharmaceutical & Medical Equip
849.	Biodeal Laboratories Ltd	Pharmaceutical & Medical Equip
850.	Biopharma Ltd	Pharmaceutical & Medical Equipment
851.	Cooper K- Brands Ltd	Pharmaceutical & Medical Equipment

852.	Cosmos Limited	Pharmaceutical & Medical Equipment
853.	Dawa Limited	Pharmaceutical & Medical Equipment
854.	Elys Chemicals Industries Ltd	Pharmaceutical & Medical Equipment
855.	Essential Drugs Limited	Pharmaceutical & Medical Equipment
856.	Glaxo Smithkline Kenya Ltd	Pharmaceutical & Medical Equipment
857.	KAM Industries Limited	Pharmaceutical & Medical Equipment
858.	Laboratory & Allied Limited	Pharmaceutical & Medical Equipment
859.	Medisel Kenya Ltd	Pharmaceutical & Medical Equipment
860.	Medivet Products Ltd	Pharmaceutical & Medical Equipment
861.	Metlex International Ltd	Pharmaceutical & Medical Equipment
862.	Nerix Pharma Ltd	Pharmaceutical & Medical Equipment
863.	Njimia (K) Ltd	Pharmaceutical & Medical Equipment
864.	Oss.Chemie (K) Limited	Pharmaceutical & Medical Equipment
865.	Pharm Access Africa Ltd	Pharmaceutical & Medical Equipment
866.	Pharmaceutical Manufacturung Ltd	Pharmaceutical & Medical Equipment
867.	Promed Industries Limited	Pharmaceutical & Medical Equipment
868.	Questa Care Ltd	Pharmaceutical & Medical Equipment
869.	Regal Pharmaceuticals Ltd	Pharmaceutical & Medical Equipment
870.	Revital Healthcare (EPZ) Ltd	Pharmaceutical & Medical Equipment
871.	Rift Sanitary Products Co. Ltd	Pharmaceutical & Medical Equipment
872.	Skylight Chemicals Limited	Pharmaceutical & Medical Equipment
873.	SoSure AFRIpads Ltd	Pharmaceutical & Medical Equipment
874.	Ultimate Sports Nutrition Kenya Ltd	Pharmaceutical & Medical Equipment
875.	Ultravetis East Africa Ltd	Pharmaceutical & Medical Equipment

876.	Universal Corporation limited	Pharmaceutical & Medical Equipment
877.	Vetcare Kenya Limited	Pharmaceutical & Medical Equipment
878.	VIVA Healthcare	Pharmaceutical & Medical Equipment
879.	Zain Pharma & Medical Equipment	Pharmaceutical & Medical Equipment
880.	A Plus PVC Technology Company Ltd	Plastics & Rubber Sector
881.	Abhani Commercial Limited	Plastics & Rubber Sector
882.	Ace Plastics Company Limited	Plastics & Rubber Sector
883.	ACME Containers Ltd	Plastics & Rubber Sector
884.	Adarsh Polymer Limited	Plastics & Rubber Sector
885.	Advanced Plastics Limited	Plastics & Rubber Sector
886.	Afri Piping Systems Kenya Ltd	Plastics & Rubber Sector
887.	Africa PVC Industries Ltd	Plastics & Rubber Sector
888.	Afro Plastics (K) Ltd	Plastics & Rubber Sector
889.	Aquosys Limited	Plastics & Rubber Sector
890.	Betatrad (K) Ltd	Plastics & Rubber Sector
891.	Bobmil Industries Ltd	Plastics & Rubber Sector
892.	Brush Manufacturers Ltd	Plastics & Rubber Sector
893.	Buruk General Trading	Plastics & Rubber Sector
894.	Canaaneast Company Limited	Plastics & Rubber Sector
895.	Coast Polythene	Plastics & Rubber Sector
896.	Cocorico Investments Ltd	Plastics & Rubber Sector
897.	Complast Industries Limited	Plastics & Rubber Sector
898.	Coninx Industries Limited	Plastics & Rubber Sector
899.	Darshan Plastic Ltd	Plastics & Rubber Sector
900.	Digital Packaging Innovations Holdings	Plastics & Rubber Sector
901.	Dune Packaging Ltd	Plastics & Rubber Sector
902.	Dynaplas Limited	Plastics & Rubber Sector
903.	Eco LAB CO LTD	Plastics & Rubber Sector
904.	Ecological Green Limited	Plastics & Rubber Sector
905.	Elgitread (Kenya) Ltd	Plastics & Rubber Sector
906.	Elgon Kenya Ltd	Plastics & Rubber Sector
907.	Eslon Plastics of Kenya Ltd	Plastics & Rubber Sector
908.	Finlay Brushware Ltd	Plastics & Rubber Sector
909.	Five Star Manufacturers Limited	Plastics & Rubber Sector
910.	Flair Kenya Ltd	Plastics & Rubber Sector
911.	Foam Mattress Ltd	Plastics & Rubber Sector
912.	General Industries Ltd	Plastics & Rubber Sector
913.	General Plastics Limited	Plastics & Rubber Sector
914.	Goldsun Ventures Limited	Plastics & Rubber Sector
915.	Hari Pipes & Fittings Ltd	Plastics & Rubber Sector

916.	Hi-Plast Ltd	Plastics & Rubber Sector
917.	Hi-Tech Poly Limited	Plastics & Rubber Sector
918.	Hope Plastics Limited	Plastics & Rubber Sector
919.	Huming PVC Co. Ltd	Plastics & Rubber Sector
920.	Jalaram Plastics (K) Ltd	Plastics & Rubber Sector
921.	Jamlam Industries Ltd	Plastics & Rubber Sector
922.	Jay Giriraj Industries (K) Limited	Plastics & Rubber Sector
923.	Jumbo Chem (K) Ltd	Plastics & Rubber Sector
924.	Jumbo Nile Limited	Plastics & Rubber Sector
925.	Jumbo Quality Products Limited	Plastics & Rubber Sector
926.	Just Plastics Limited	Plastics & Rubber Sector
927.	Kamba Manufacturing (1986) Ltd	Plastics & Rubber Sector
928.	Kenpoly Manufacturers Ltd	Plastics & Rubber Sector
929.	Kenrub Ltd	Plastics & Rubber Sector
930.	Kenstar Plastic Industries Limited	Plastics & Rubber Sector
931.	King Plastics Industries Ltd	Plastics & Rubber Sector
932.	Kinpash Enterprises Limited	Plastics & Rubber Sector
933.	Kwality Packaging House Limited	Plastics & Rubber Sector
934.	L.G. Harris & Co. Ltd	Plastics & Rubber Sector
935.	Lakhir Plastics Limited	Plastics & Rubber Sector
936.	Laneeb Plastic Industries Ltd	Plastics & Rubber Sector
937.	Malplast Industries Ltd	Plastics & Rubber Sector
938.	Mega (EA) Plastics Ltd	Plastics & Rubber Sector
939.	Metro Plastics Kenya Limited	Plastics & Rubber Sector
940.	Mo and Mo Company	Plastics & Rubber Sector
941.	Mombasa Polythene Bags Ltd	Plastics & Rubber Sector
942.	Nairobi Plastics Ltd	Plastics & Rubber Sector
943.	Nakuru Plastics Limited	Plastics & Rubber Sector
944.	NES polypack Limited	Plastics & Rubber Sector
945.	Novamont Kenya Limited	Plastics & Rubber Sector
946.	Ombi Rubber Rollers Ltd	Plastics & Rubber Sector
947.	Packaging Industries Ltd	Plastics & Rubber Sector
948.	Packaging Masters limited	Plastics & Rubber Sector
949.	Paras Industries Limited	Plastics & Rubber Sector
950.	Plast Packaging Industries Limited	Plastics & Rubber Sector
951.	Plastic Electricons	Plastics & Rubber Sector
952.	Plastics & Rubber Industries Ltd	Plastics & Rubber Sector
953.	Polly Propelin Bags Ltd	Plastics & Rubber Sector
954.	Polyblend Limited	Plastics & Rubber Sector
955.	Polyflex Industries Ltd	Plastics & Rubber Sector
956.	Polytanks and containers	Plastics & Rubber Sector
957.	Polythene Industries Ltd	Plastics & Rubber Sector
958.	Premier Industries Ltd	Plastics & Rubber Sector

959.	Pyramid Packaging Ltd	Plastics & Rubber Sector
960.	Pyramid Industries Ltd	Plastics & Rubber Sector
961.	Qualityplast Ltd	Plastics & Rubber Sector
962.	Redplum Enterprises Limited	Plastics & Rubber Sector
963.	Ritepak Limited	Plastics & Rubber Sector
964.	Royal Group Industries (K) Ltd	Plastics & Rubber Sector
965.	Rubber Products Ltd	Plastics & Rubber Sector
966.	Rushabh Industries Ltd	Plastics & Rubber Sector
967.	Safepak Limited	Plastics & Rubber Sector
968.	Sameer Africa Ltd	Plastics & Rubber Sector
969.	Sanpac Africa Ltd	Plastics & Rubber Sector
970.	Shiv Enterprises (E) Ltd	Plastics & Rubber Sector
971.	Signode Packaging Systems Ltd	Plastics & Rubber Sector
972.	Silafrica Kenya Ltd	Plastics & Rubber Sector
973.	Silpack Industries Limited	Plastics & Rubber Sector
974.	Silver Coin Imports Limited	Plastics & Rubber Sector
975.	Singh Retread Ltd	Plastics & Rubber Sector
976.	Smartpack Limited	Plastics & Rubber Sector
977.	Springbox Kenya Ltd	Plastics & Rubber Sector
978.	Style Industries ltd (Previously Strategic)	Plastics & Rubber Sector
979.	Styroplast Limited	Plastics & Rubber Sector
980.	Super Manufacturers ltd	Plastics & Rubber Sector
981.	Supreme Poly Pack (K) Ltd	Plastics & Rubber Sector
982.	Techno-Plast Ltd	Plastics & Rubber Sector
983.	Techpak Industries Ltd	Plastics & Rubber Sector
984.	Top pak Ltd	Plastics & Rubber Sector
985.	Torrent East Africa Limited	Plastics & Rubber Sector
986.	Treadsetters Tyres Ltd	Plastics & Rubber Sector
987.	Umoja Rubber Products Ltd	Plastics & Rubber Sector
988.	Uni-plastics Limited	Plastics & Rubber Sector
989.	United Bags Manufacturers Ltd	Plastics & Rubber Sector
990.	Vectus Kenya Ltd	Plastics & Rubber Sector
991.	Vintz Plastics Limited	Plastics & Rubber Sector
992.	Visionone Industries Limited	Plastics & Rubber Sector
993.	Vyatu Ltd	Plastics & Rubber Sector
994.	Zaverchand Punja Ltd	Plastics & Rubber Sector
995.	Adpack Limited	Textile & Apparels Sector
996.	Africa Apparels EPZ LTD	Textile & Apparels Sector
997.	Akinyi Odongo	Textile & Apparels Sector
998.	Alltex EPZ Ltd	Textile & Apparels Sector
999.	Alpha Knits Limited	Textile & Apparels Sector
1000.	Ashton Apparel EPZ Ltd	Textile & Apparels Sector
1001.	Beberavi Collections	Textile & Apparels Sector

1002.	Beberavi Collections Ltd	Textile & Apparels Sector
1003.	Bedi Investments Limited	Textile & Apparels Sector
1004.	Brilliant Garments EPZ Ltd	Textile & Apparels Sector
1005.	Chalange Industries	Textile & Apparels Sector
1006.	Dharamshi & Co. Ltd	Textile & Apparels Sector
1007.	Eriken Manufacturing Industries Ltd	Textile & Apparels Sector
1008.	Ethical Fashion Artisans EPZ Ltd	Textile & Apparels Sector
1009.	Fantex (K) Ltd	Textile & Apparels Sector
1010.	Forces Equipment (Kenya) Ltd	Textile & Apparels Sector
1011.	Gees services on Wheels Limited	Textile & Apparels Sector
1012.	Global Apparrels Ltd	Textile & Apparels Sector
1013.	Gone Fishing	Textile & Apparels Sector
1014.	Hanitex (EPZ) Ltd	Textile & Apparels Sector
1015.	Hansraj and Fulchand Group Ltd	Textile & Apparels Sector
1016.	Hantex Garments EPZ Limited	Textile & Apparels Sector
1017.	Hela Intimates EPZ LTD	Textile & Apparels Sector
1018.	Insight Kenya	Textile & Apparels Sector
1019.	Kamyn Industries Limited	Textile & Apparels Sector
1020.	Kapric Apparels EPZ Ltd	Textile & Apparels Sector
1021.	Kavirondo Filments Ltd	Textile & Apparels Sector
1022.	Kema E.A. Ltd	Textile & Apparels Sector
1023.	Ken-Knit (Kenya) Ltd	Textile & Apparels Sector
1024.	Kenya Shirts Manufacturers Company	Textile & Apparels Sector
1025.	Kenya Tents Limited	Textile & Apparels Sector
1026.	Kenya Trading EPZ Ltd	Textile & Apparels Sector
1027.	Kiboko Leisure Wear Limited	Textile & Apparels Sector
1028.	Kidosho Apparel	Textile & Apparels Sector
1029.	Kikoy Co. Ltd	Textile & Apparels Sector
1030.	Kikoy Mall	Textile & Apparels Sector
1031.	Kikoy Mall EPZ Ltd	Textile & Apparels Sector
1032.	Knitkraft Products Limited	Textile & Apparels Sector
1033.	Le-Stud Limited	Textile & Apparels Sector
1034.	Life Bridge Limited	Textile & Apparels Sector
1035.	Long-Yun (Senior Best Garments)	Textile & Apparels Sector
1036.	Longyun Garments Kenya EPZ Ltd	Textile & Apparels Sector
1037.	Manchester Outfitters Limited	Textile & Apparels Sector
1038.	Mega Apparel Industries (EPZ) Ltd	Textile & Apparels Sector
1039.	Mega Garment Industries Kenya (EPZ)	Textile & Apparels Sector
1040.	Metamophosis Fashions Limited	Textile & Apparels Sector
1041.	Midco Textiles (EA) Ltd	Textile & Apparels Sector
1042.	Mills Industry Ltd	Textile & Apparels Sector
1043.	Mombasa Apparells	Textile & Apparels Sector
1044.	Nakuru Industries Ltd	Textile & Apparels Sector

1045.	New Wide Garments Kenya EPZ LTD	Textile & Apparels Sector
1046.	Omega Apparels Ltd	Textile & Apparels Sector
1047.	Oriental Mills Ltd	Textile & Apparels Sector
1048.	Panah Limited	Textile & Apparels Sector
1049.	Penny Galore Ltd	Textile & Apparels Sector
1050.	Rivatex (East Africa) Ltd	Textile & Apparels Sector
1051.	Roar Media Limited	Textile & Apparels Sector
1052.	Royal Garment Industries EPZ Ltd	Textile & Apparels Sector
1053.	Sai Sportswear Uniform Limited	Textile & Apparels Sector
1054.	Shin-Ace Garments Kenya (EPZ) Ltd	Textile & Apparels Sector
1055.	Shona EPZ Limited	Textile & Apparels Sector
1056.	Shuka Duka limited	Textile & Apparels Sector
1057.	Simba Apparel EPZ Ltd	Textile & Apparels Sector
1058.	SOKO EPZ Ltd	Textile & Apparels Sector
1059.	Spin Knit Limited	Textile & Apparels Sector
1060.	Spinners & Spinners Ltd	Textile & Apparels Sector
1061.	Spot On Enterprises	Textile & Apparels Sector
1062.	Straightline Enterprises Ltd	Textile & Apparels Sector
1063.	Suman Shakti	Textile & Apparels Sector
1064.	Summit Fibres Ltd	Textile & Apparels Sector
1065.	Sun Pride Garments Limited	Textile & Apparels Sector
1066.	Sunflag Textile & Knitwear Mills Ltd	Textile & Apparels Sector
1067.	Supra Textiles Ltd	Textile & Apparels Sector
1068.	Tarpo industries	Textile & Apparels Sector
1069.	Teita Estate Ltd	Textile & Apparels Sector
1070.	Thika Cloth Mills Ltd	Textile & Apparels Sector
1071.	TSS Spinning And Weaving Ltd	Textile & Apparels Sector
1072.	Tulips Collections Limited	Textile & Apparels Sector
1073.	Ubuntu Life Foundation	Textile & Apparels Sector
1074.	United Aryan (EPZ) Ltd	Textile & Apparels Sector
1075.	Vaja's Manufacturers Limited	Textile & Apparels Sector
1076.	Vicamech Limited	Textile & Apparels Sector
1077.	Vivo Actve Wear	Textile & Apparels Sector
1078.	Wildlife Works (EPZ) Ltd	Textile & Apparels Sector
1079.	World of Kikoys	Textile & Apparels Sector
1080.	Zaritex Knitwear Kenya	Textile & Apparels Sector
1081.	64Door Factory Ltd	Timber, Wood & Furniture Sector
1082.	African Retail Traders (2005) Ltd	Timber, Wood & Furniture Sector
1083.	Biashara Master Sawmills	Timber, Wood & Furniture Sector
1084.	Budget Furniture Ltd	Timber, Wood & Furniture Sector
1085.	Comply Industries Ltd	Timber, Wood & Furniture Sector
1086.	Contrive Industries Limited	Timber, Wood & Furniture Sector
1087.	Decagon Sawmills Ltd	Timber, Wood & Furniture Sector

1088.	Economic Housing Group Ltd	Timber, Wood & Furniture Sector
1089.	Elburgit Enterprises Ltd	Timber, Wood & Furniture Sector
1090.	Elida Industries Limited	Timber, Wood & Furniture Sector
1091.	Fine Wood Works Ltd	Timber, Wood & Furniture Sector
1092.	FunKidz Limited	Timber, Wood & Furniture Sector
1093.	Furniture International Limited	Timber, Wood & Furniture Sector
1094.	GreenPot Enterprises Limited	Timber, Wood & Furniture Sector
1095.	House of Sahara Enterprises Limited	Timber, Wood & Furniture Sector
1096.	Kenya Wood Products Limited	Timber, Wood & Furniture Sector
1097.	Kimita Investment	Timber, Wood & Furniture Sector
1098.	Ligna Ltd	Timber, Wood & Furniture Sector
1099.	Little Cribs Ltd	Timber, Wood & Furniture Sector
1100.	Major Furniture	Timber, Wood & Furniture Sector
1101.	Marlowlink Timber Products Ltd	Timber, Wood & Furniture Sector
1102.	Marvel Lifestyle Ltd	Timber, Wood & Furniture Sector
1103.	Match Masters Ltd	Timber, Wood & Furniture Sector
1104.	Newline Ltd	Timber, Wood & Furniture Sector
1105.	Panesar's Kenya Ltd	Timber, Wood & Furniture Sector
1106.	Party Lounges Ltd	Timber, Wood & Furniture Sector
1107.	PG Bison Ltd	Timber, Wood & Furniture Sector
1108.	Rai Plywoods (Kenya) Ltd	Timber, Wood & Furniture Sector
1109.	Renocon	Timber, Wood & Furniture Sector
1110.	Rosewood Furniture Manufacturers Ltd	Timber, Wood & Furniture Sector
1111.	Savanah Saw Mills	Timber, Wood & Furniture Sector
1112.	Shah Timber Mart Ltd	Timber, Wood & Furniture Sector
1113.	Shamco Industries Ltd	Timber, Wood & Furniture Sector
1114.	Shayona Timber Ltd	Timber, Wood & Furniture Sector
1115.	Springboard Timber Craft Ltd	Timber, Wood & Furniture Sector
1116.	Timber Treatment International Ltd	Timber, Wood & Furniture Sector
1117.	TIMSALES LIMITED	Timber, Wood & Furniture Sector
1118.	Tropical Saw Mill Limited	Timber, Wood & Furniture Sector
1119.	Turea Ltd	Timber, Wood & Furniture Sector
1120.	Watervale Investments Ltd	Timber, Wood & Furniture Sector
1121.	Woodmakers (K) Ltd	Timber, Wood & Furniture Sector
1122.	Woodtex Kenya Ltd	Timber, Wood & Furniture Sector
1123.	Yangguang Property Design & Manuf.	Timber, Wood & Furniture Sector

Source: Kenya Association of Manufacturers (2019).