EFFECT OF JOINT VENTURE FINANCING ON THE LEVEL OF OPERATIONAL RISK AMONG AFFORDABLE HOUSING DEVELOPERS IN KENYA

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE IN MASTERS OF BUSINESS ADMINISTRATION, FACULTY OF BUSINESS AND MANAGEMENT SCIENCE, UNIVERSITY OF NAIROBI

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DECLARATION

This project is my effort and work and it has not been used or presented in any other college.

Signature....   Date 20/11/2023 ....

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This project has been submitted and approved for review with my guidance and approval as the faculty supervisor.

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DEDICATION

I dedicate this project to my family.

ACKNOWLEDGEMENT

I acknowledge my supervisor Dr. Chogii, colleagues, friends, family and lecturers for the support

in this project.

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ABSTRACT

This study investigated the impact of joint venture financing on operational risk reduction within the context of affordable housing development in Nairobi, Kenya. Data for this research were collected through a structured questionnaire administered to 55 affordable housing project developers, yielding a response rate of 93.22%. The questionnaire gathered information related to respondents' background, management level, education, work experience, and perceptions of joint venture financing and operational risk. The collected data were subjected to rigorous statistical analysis, including regression modeling and analysis of variance. The findings revealed a strong positive relationship between joint venture financing and operational risk reduction, as indicated by a high correlation coefficient ($R = 0.787$) and a significant coefficient of determination (R Square = 0.619). This suggests that increased utilization of joint venture financing strategies is associated with improved operational risk reduction. The analysis of variance (ANOVA) further validated the statistical significance of the regression model, confirming that joint venture financing is a key factor contributing to the variation in operational risk reduction. The regression coefficients indicated that specific components of joint venture financing, such as financial strategy partnerships, research synergy, collaborative funding, and resource combination, all play a statistically significant and positive role in reducing operational risk. This study underscored the importance of fostering financial partnerships and collaborative strategies to mitigate risk within the affordable housing development sector. The findings have implications for policymakers, industry stakeholders, and affordable housing developers seeking to enhance risk management practices and promote sustainable housing development in Nairobi.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Morkunas et al. (2019) posit that the increasing demand for housing is one of the elements that has led to expansion of the housing sector in both developing and developed countries globally. In many regions, there is the rising human population that is characterized by rural-urban migrations and this has led to the high demand for houses in both rural and urban areas of the world. In highly populated regions in Africa and Asia, there are many challenges and risks facing the housing sector. This has led to many firms considering joint venture financing models in their operations to control risks. According to Zhang and Zhou (2007), joint venture is the number one risk reduction measure among housing developers. This is because it helps in sharing of risks, create synergy as well as help in sharing of resources, research tools and this reduce costs while expanding new markets and networks of managing risks in operations.

The portfolio and theory of constraints as well as the dynamic capability theory served as the foundation for this investigation. According to the dynamic capability theory, firms must evaluate the context of their operations and adopt flexible models in their activities (Ahmadimousaabad et al., 2013). The portfolio theory also supports diversification and joint management to avoid and reduce risks. However, theory of constraints supports the need for firms to manage their plans through risks identification and sharing models (Vasiliou, Eriotis & Daskalakis, 2009).

With increasing demand on housing, many housing developers around the world including Kenya are seeking proper joint venture financing strategies to reduce their risks and improve

their performance (Hassan et al., 2020). One of the risk reductions measures that is increasingly gaining trajectory is joint venture financing model. Many housing developers have realized the need to joint venture financing to promote their operations. However, many firms in Kenya are not supporting this model due to lack of necessary data. As such, this paper determined the effects of Joint venture financing on risk reduction for affordable housing developers in Nairobi, Kenya.

1.1.1 Joint Venture Financing

A Joint Venture (JV) is a formal arrangement involving two or more companies to establish a new business entity known as a Special Purpose Vehicle (SPV). This collaboration aims to achieve mutually advantageous objectives, often centered around expanding the business, especially through the development of new entry and products into new markets (Banalieva & Dhanaraj, 2013). A joint venture involves multiple firms working together on a specific project. Key features include a shared objective and a clear or implied agreement that the group aims to accomplish. In this venture, participants encounter both shared losses and profits, while also holding equal authority in overseeing the project. Joint venture financing refers to the financial arrangement where two or more firms pool their financial resources to establish a joint venture entity for pursuing a specific business opportunity or project (Park & Russo, 1996).

According to Contractor, Kumar and Kundu (2007), joint venture financing involves the sharing of investment costs, capital contributions, and financial risks between the partnering firms. Through joint venture financing, firms combine their financial strengths to access additional capital that would be otherwise difficult to obtain individually, allowing them to pursue strategic initiatives such as market entry, product development, or infrastructure investments. Joint

venture financing provides a collaborative approach to funding, enabling firms to leverage each other's financial capabilities and enhance their capacity for growth and expansion.

However, Park and Russo (1996) noted that in a joint venture financing arrangement, partnering firms share the financial risks associated with a specific project or market endeavor. By pooling their financial resources, firms can distribute the financial burdens and reduce their individual exposure to potential losses. This risk-sharing aspect is particularly valuable when firms are venturing into new markets, embarking on high-cost projects, or taking on significant investments. Joint venture financing allows firms to mitigate financial risks by tapping into the combined financial strength of the partners, enabling them to navigate uncertainties and challenges more effectively. The collaborative nature of joint venture financing provides a mechanism for firms to manage and reduce risks collectively, thereby increasing their overall resilience and ability to pursue growth opportunities.

According to Banalieva and Dhanaraj (2013), joint venture financing plays a crucial role in enhancing the financial stability of participating firms. By leveraging the financial resources of their partners, firms can strengthen their financial position and improve their liquidity. Joint venture financing provides an opportunity for firms to access additional capital, which can be utilized for various purposes such as research and development, marketing initiatives, talent acquisition, or technological advancements. The availability of increased financial stability through joint venture financing allows firms to withstand market fluctuations, navigate economic downturns, and invest in long-term strategic initiatives. By diversifying their financial resources and reducing reliance on internal funding, firms can achieve greater financial stability and position themselves for sustained growth and competitiveness.

1.1.2 Level of Operational Risk

Smithson and Wilford (1995) define risk as the uncertainty that encircles future events and their outcomes. It represents the estimation of the likelihood and consequences of an event that holds the power to yield both negative and positive effects. Risk embodies the fusion of the event's probability (usually unfavorable) and the event's magnitude and characteristics. Risk mitigation, however, entails endeavors directed at curbing the impact or severity of the risk. To effectively diminish risks, it is essential to initially evaluate the potential ramifications of the risk. Addressing operational risk, as outlined by Bessis (2015), pertains to the potential for financial setbacks or unfavorable consequences originating from unsuccessful or deficient internal operations, external incidents, personnel, or systems. This category encompasses a broad spectrum of risks intertwined with an organization's day-to-day functioning. They include fraud, compliance breaches, errors, misconduct, system failures, and unexpected external events. Operational risk is distinct from other types of risks like credit or market risk, as it is primarily driven by the inefficiencies or vulnerabilities within an organization's operational structure rather than fluctuations in financial markets or creditworthiness.

The level of operational risk within an organization is influenced by a number of things, including the complexity of its operations, the quality of its internal controls and risk management practices, the competency and integrity of its staff, the reliance on technology and infrastructure, and its exposure to external events such as regulatory changes or geopolitical developments. High levels of operational risk may arise when an organization lacks robust risk mitigation strategies, proper governance, and effective communication across departments. Crabb (2003) argued that managing operational risk involves identifying potential

vulnerabilities, implementing preventive measures, developing contingency plans, and continuously monitoring and adapting to changes in the operational environment. Organizations that effectively manage operational risk can enhance their resilience, protect their reputation, and improve overall business performance (Plourd, 2009).

Some of the key measures of level of operational risk include having effective internal controls, conducting risk assessment and management as well as adopting employee training and awareness. There is also the use of technology and automation as well as business continuity planning and compliance through transparent reporting and having effective operational risk insurance. Monitoring of activities and adopting regular or periodic reviews and audits is also important (Park & Russo, 1996). The results are on operational risks avoidance, identification and control, which are the key measures in this study.

1.1.3 Joint Venture Financing and Level of Operational Risk

Joint venture financing are often employed as a strategy for risk reduction among firms. According to Li and Zhang (2007), joint ventures allow firms to share both financial and operational risks associated with a specific project or market entry. By pooling resources, expertise, and risk-bearing capabilities, partnering firms can reduce their individual exposure to uncertainties and potential losses (Li & Zhang, 2007). Furthermore, research by Luo and Rui (2009) highlights that joint ventures enable firms to access new markets or unfamiliar industries with reduced risk. The level of operational risks stems from the sharing of market knowledge, distribution networks, and local expertise with the partner firm. By leveraging the partner's existing resources and capabilities, firms can navigate regulatory challenges, cultural barriers, and competitive landscapes more effectively (Luo & Rui, 2009).

Moreover, joint ventures provide a platform for firms to combine their complementary strengths and capabilities, thus enhancing their ability to manage risks. In their study, Contractor, Kumar, and Kundu (2007) emphasize the importance of partner selection and collaborative governance mechanisms in mitigating risks in joint ventures. The alignment of strategic goals, effective communication, and clear contractual agreements help establish trust and ensure shared risk management practices (Contractor, Kumar, & Kundu, 2007). This means that joint ventures serve as a risk mitigation strategy for firms by enabling the sharing of financial burdens, leveraging partner's resources and capabilities, accessing new markets, and establishing collaborative risk management practices. Through effective partner selection and governance mechanisms, firms can enhance their risk management strategies and increase their chances of success in joint ventures.

1.1.4 Affordable Housing Developers in Nairobi

Affordable housing development constitutes a business procedure encompassing activities ranging from procuring raw land to vending developed properties or plots to external parties. This encompasses tasks like re-leasing or revamping pre-existing structures (Tapp, 2020). These operations are orchestrated by real estate developers who translate ideas from plans into tangible properties. Despite the fact that many house contractors also manage the construction process or take part in house-building with the intention of selling to others, real estate development nowadays differs from house-building and construction.

Presently, a pivotal objective for numerous governmental bodies in Kenya involves making affordable housing accessible to its populace. The rising demand-supply ratio for affordable housing within the nation is a consequence of robust population growth, escalating middle-class

income levels, and swift urbanization (Gopalan, 2015). An analysis by the McKinsey Global Institute (MGI, 2014) projects a global shortage of roughly 440 million urban households by 2025. Aligned with this, the United Nations Sustainable Development Goals Report (2015) underscores Goal 11, which aims to foster sustainable, secure, resilient, and all-inclusive cities and human settlements, striving for equitable access to reasonably, secure, and suitable priced essential and housing services. Notwithstanding these aspirations, the provision of affordable housing faces obstacles, foremost among them being the lack of a viable housing finance framework capable of continually infusing the capital-intensive housing development sector with fluid finances. The pursuit of housing development is also hindered by challenges such as the sluggish uptake of contemporary building technologies, steep interest rates, escalating construction material expenses, ambiguous regulatory frameworks and policies, and the elevated and scarcity cost of urban land especially in developing regions like Kenya. Thus, this study aims to understand how joint venture can be used as a risk mitigation strategy among affordable housing developers in Nairobi, Kenya. Some of the well known housing developers in Nairobi include Kings Developers Ltd., Knight Frank, Impala developers as well as Hass Consult Mi Vida, and AMG Realtors.

1.2 Research Problem

In the current economic climate, affordable housing expansion is essential to the economies of the majority of countries since it advances the governments' goals of ensuring housing is affordable and accessible. In many areas of Africa and throughout the world, the number of registered affordable housing developers has grown significantly in the past 10 years, particularly from 2012 to 2023. Given the significant rise, it is generally believed that the

number of dwelling units built over the same period should have increased at a similar pace or faster. However, the absence of efficient risk management strategy is a big challenge. There is need for adoption of joint ventures to promote risks mitigation among housing developers. This is because joint venture financing is associated with risk sharing, resource synergy and development of new talents to improve firm capacity.

The country's rising housing demand can be addressed as the Kenyan government plans to construct 500 000 housing units by the end of 2023 (HHK, 2019). At the national level, Kenya has a housing unit shortage of around 2.6 million units in 2020, and this is predicted to increase to over 3 million units by 2023. Additionally, more than 60% of the estimated 60 million people in Kenya by 2030 are likely to live in urban areas (Cytonn, 2019). This means that in order to foster their success and development, affordable housing developers need look into effective risk reduction measures to promote their success (Huang & Ma, 2015). There is need for adoption of joint venture models to control and promote risk sharing in the industry.

Joint venture financing as a risk reduction measure has been the subject of several researches across the globe. Morkunas et al. (2019) conducted a study in Europe exploring the viability of using joint ventures (JVs) to manage risks for companies within the construction industry. By comparing risk maps of JVs and standalone firms and employing the analytical hierarchy process methodology to assess the significance of various risk factors in both scenarios, the researchers discovered that the effectiveness of JVs as risk management tools depended on a company's ability to handle standard risks, construction, organizational, financial, and operational. The study revealed shifts in companies' risk profiles upon entering JVs. Notably, certain risk factors

gained importance, while some risks vanished from companies' risk maps. This indicates that JVs have the capacity to absorb potentially detrimental risks, allowing companies to redirect their focus toward other emerging risks and critical business facets. It is worth noting that this research solely concentrated on the European context.

Mikapagaro et al. (2018) conducted a study in Dar-Es-Salaam to assess the application of risk management strategies in joint venture (JV) construction projects. Their research utilized a descriptive design, focusing on Category I – IV contractors involved in JV building contracts as respondents. The study employed 8 structured interviews and 40 questionnaires, achieving an impressive 85% response rate. The findings highlighted several effective approaches for implementing risk mitigation, including joint training initiatives, modification of JV terms, venture dissolution, clear and comprehensive documentation, well-organized meetings, and conditions, and making assessments based on past experiences. These strategies were found to facilitate avoidance, risk reduction, retention, and insurance within JV projects. Additionally, conflicts among members, poor communication, and poor cooperation came out as factors affecting risk management strategy implementation. However, this study was done in late 2018 and only focuses on construction projects in Tanzania.

Mba and Agumba (2017) presented a differing perspective regarding the risk-mitigating nature of joint ventures (JVs). Despite JVs being prevalent in the South African construction sector, the authors contended that approximately 70% of JV failures stem from the associated risks. Their research involved a quantitative investigation covering 20 JVs. Data was gathered through interviews and structured questionnaires, and subsequent analysis involved linear regression and correlation techniques. The study's findings underscored the argument that the success of a JV hinges on the collaborative synergy generated by the distinct contributions of its partners. If one

partner contributes more in terms of time and energy, they will be burdened with construction and logistical risks.   However, this study was done in South Africa.

In a study conducted in Kenya by Oyieyo et al. (2020), it was observed that the implementation of joint ventures in the construction industry did not effectively alleviate construction risks, including time and cost overruns, as well as labor-related issues. Despite this, joint ventures did facilitate the distribution of risks among involved parties. The research was grounded in contingency theory and employed a pragmatic paradigm to assess the extent to which risks associated with construction time overruns impact the successful execution of joint venture projects in Kenya. The study centered on the entire contracting entities of the Sondu-Miriu Power project. The researchers employed a combination of questionnaires and interviews for data collection, utilizing both quantitative and qualitative regression methods to analyze the variables. The findings indicated that risks linked to construction time overruns significantly influenced the accomplishment of joint venture construction projects. Nevertheless, it is important to note that this investigation solely concentrated on the case study of the Sondu-Miriu Power project.

Based on the analysis of the studies above, there are little known studies done on this topic. The few studies done on the topic also focus on affordable housing projects outside Kenya. In addition, the studies were done mainly among road and electricity-based projects and failed to focus on affordable housing projects. Therefore, this study filled the contextual, methodological, and contextual gaps by determining the effects of Joint venture financing on risk reduction for affordable housing developers in Nairobi, Kenya**.** The research was guided by the study questions-What are the effects of Joint venture financing on operational risk reduction for affordable housing developers in Nairobi?

1.3 Research Objectives

This study's objective was to determine the impact of Joint venture financing on operational risk reduction for affordable housing developers in Nairobi

1.4 Value of Study

This research would be vital in the formulation of policies to the management and more so the affordable housing developers in Nairobi, Kenya. It would assist affordable housing developers in Nairobi, Kenya in comprehending the impacts of joint venture plans on the success of their project and risk control. Through the findings of the study, affordable housing developers in Nairobi, Kenya and their management would learn more on the impact that joint venture have on risk mitigation and management of their projects. This will enable them to promote effective risk control in their projects.

The study would also be of benefit to the various key participants in the real estate sector including policy makers. The policy makers in the real estate sector would use the research results to formulate policies that deal with risk management and joint venture models in their major operations. This will enable them to put across various joint venture strategies which could boost their success and risk management in the long run.

The research would be of use to scholars and researchers who would use the study to enhance, add or critic the sentiments and findings of the study. The study would be important as it will provide empirical literature on effects of joint venture on risk mitigation among affordable housing developers in Nairobi, Kenya. Additionally, the research would propose further areas of study would be important to researchers who will explore further insights on the topic of the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Literature review discusses recent research on the study's topic, which is to ascertain how joint venture determines risk mitigation among housing developers. The chapter also discussed the theoretical framework, knowledge gaps, and empirical review.

2.2 Theoretical Review

By choosing suitable theories, one may better comprehend the study's variables. A cohesive explanation is offered by a theory for why things act or exist the way they do, and these explanations are founded on broad principles. Thus, a theory is a fundamental presumption whose goal is to offer explanations for phenomena. Postulates from theories aid in defending the existence of certain entities. In a research, theoretical review serves as the theoretical foundation upon which all conceptions of knowledge about variables in this study are founded. This study was guided by portfolio theory as well as dynamic capability theory.

2.1.1 Portfolio Theory

Portfolio theory, initially formulated by Harry Markowitz in 1959, revolves around the concept of not placing all investments in a single entity, akin to the saying "don't put all your eggs in one basket." This concept underscores the risk-mitigating aspect of distributing investments across diverse assets. By creating a portfolio, unfavorable news affecting one company can be balanced to some extent by positive news about another. Various proponents of the theory advocate for its role in managing and mitigating risks.

Markowitz (1995) contribution lies in providing tools to identify portfolios that offer the best possible return for a given level of risk. This empowers investors to choose the optimal balance between risk and return based on their personal risk tolerance. The theory's essence lies in minimizing risk by spreading investments across multiple assets rather than relying on a single investment. Businesses have effectively applied this theory to market risk, resulting in reduced fluctuations in earnings and stock prices, lowered external capital costs, and enhanced capital efficiency. Holistically considering an organization's entire risk portfolio facilitates exploiting synergies in risk management through an understanding of risk interdependencies. The significance of this theory is evident as it advocates diversification of assets to hedge against market risk and risks unique to a particular company (Lienberbeg and Hoyt, 2003). Consequently, a portfolio, a blend of assets, represents a weighted amalgamation of their returns. Notably, when different assets are combined through collaborative endeavors, firms can achieve diversification, crucial for long-term success in preserving firm value.

2.2.2 The Dynamic Capabilities Theory

The foundations of this theory can be traced back to the collaborative efforts of David Teece, Gary Pisano, and Amy Shuen in their 1997 publication "Dynamic Capabilities and Strategic Management." In this work, they define it as the "firm's capacity to effectively blend, construct, and adapt internal and external competencies in response to swiftly changing circumstances." Teece and his colleagues, in their 2007 work, introduced the Capability Hypothesis to elucidate how organizations can reconcile seemingly conflicting objectives.

The first objective revolves around the necessity for organizations to maintain stability and consistently deliver value in their established manner. The second objective requires

organizations to be flexible and resilient enough to pivot when circumstances dictate. Central to the theory is the assumption that managerial personnel possess the skills to employ a range of academic methods and exercises their authority to steer the organization toward specific outcomes. While standard competencies reflect best practices, dynamic capabilities are unique to each organization and are deeply embedded in the organization's historical evolution. These distinctive capabilities are enshrined in business models that span decades and are challenging to replicate. Lynda Gratton and the late Sumantra Ghoshal aptly referred to these as "signature processes," as they define the methods by which an organization achieves prosperity.

According to Teece (2007), these signature processes draw from the organization's past experiences and origins. Teece outlines three managerial activities that can imbue a capability with dynamism. The first entails sensing, which involves recognizing and evaluating external opportunities. The second activity involves seizing, wherein an organization harnesses its resources to capitalize on these identified opportunities. The third activity centers on transformational renewal. Teece's framework (2007) provides insights into anticipating the future correctly and positioning today's resources strategically for tomorrow's challenges.

This model is relevant to this study since it indicates how firms can use dynamic capabilities associated with joint ventures and promote the success of their major operations. With dynamic views, firms can adopt flexible management systems. This is important in managing risks and promoting success in firm operations.

2.2.3 Theory of Constraints

The Theory of Constraints (TOC) presents a management framework asserting that any manageable system confronts limitations that hinder the attainment of its organizational objectives (Ondara, 2017). TOC adopts a process-oriented approach to gauge firm performance, spotlighting the crucial steps that chiefly impact project and consequently, firm success. Tackling these steps leads to an overall enhancement in workflow, as well as an efficient allocation and utilization of firm resources.

TOC asserts the existence of at least one constraint and advocates a focus-oriented methodology to pinpoint and align other processes around it. Key parameters like throughput, operational expenses, and inventory are utilized for measurement and control when identifying constraints. Here, inventory denotes the financial costs of production necessities, operational expense signifies production costs (transforming inventory into throughput), and throughput denotes the rate at which the system generates sales revenue.

According to TOC, in an ideal scenario where constraints are not impeding an organization's throughput, its performance would be boundless. However, this isn't feasible in real-world systems. Only by optimizing the flow through constraints can overall output be maximized. Constraints can be internal, where supply falls short of demand, or external, where supply surpasses demand. TOC suggests five essential steps to channel processes through constraints: recognizing system constraints, crafting strategies to capitalize on these constraints, prioritizing these strategies, boosting constraint capacity, and continuously monitoring and enhancing with pertinent feedback loops.

This theory holds significance in this study as it highlights how firms can recognize risks and enhance their chances of success. Risk incidents are prioritized based on their potential impact at

different project stages. This signifies that, throughout the project's lifecycle, distinct risks gain varying degrees of importance as the project advances. Employing the feedback loop embedded in TOC's final focusing step guarantees effective management of risk incidents by consistently mitigating the most crucial existing risk. This ensures a systematic, gradual reduction in overall risk, which proves pivotal in efficiently allocating resources for affordable housing projects' execution.

2. 3 Determinants of the Level of Operational Risks

Within organizations, risk pertains to unpredictable occurrences and their effects on a project's goals. Ward and Chapman (2017) delve into the intricacies of risk and propose adopting a broader notion of uncertainty. They posit that the term 'risk' often carries negative connotations, emphasizing threats rather than opportunities. In every project, three primary risk categories exist: unforeseen uncertainties, foreseeable uncertainties, and identified risks. These risks can be effectively addressed using diverse strategies, encompassing four key response approaches: retaining risk, lessening risk, transferring risk, and evading risk. The level of operational risk in firms is influenced by various determinants that collectively shape the organization's susceptibility to operational losses and failures. These are noted below.

2.3.1 Complexity of Operations

The complexity of operations within a firm has a direct correlation with its operational risk exposure. Organizations with intricate operational processes, diverse product lines, and complex supply chains face heightened operational risk due to the increased potential for errors and miscommunications. As operations become more intricate, the chances of oversight or

breakdowns in communication rise, making it harder to monitor and control operations effectively. In a complex environment, it can be challenging to identify and rectify operational vulnerabilities, leading to delays, inefficiencies, and even catastrophic failures. According to Thomas (2009), to mitigate the impact of operational risk stemming from complexity, firms often focus on simplifying processes, streamlining workflows, and enhancing transparency. They may invest in advanced technology solutions that offer real-time monitoring and data analytics to identify potential issues before they escalate. Additionally, clear communication channels and well-defined responsibilities across departments are crucial to ensure that all aspects of the complex operations are properly coordinated and managed.

2.3.2 Quality of Internal Controls

Effective internal controls and risk management practices are critical components in mitigating operational risk. Weak internal controls, such as inadequate segregation of duties or insufficient oversight, can create opportunities for fraudulent activities, errors, and compliance breaches. These vulnerabilities can lead to financial losses, reputational damage, and legal consequences for the organization. Without robust internal controls, a firm's ability to prevent, detect, and respond to operational risks is compromised. Rahman and Kumaraswamy (2015) noted that firms strive to enhance the quality of their internal controls by implementing robust policies, procedures, and monitoring mechanisms. Regular audits and assessments are conducted to identify weaknesses and gaps in control frameworks. Adequate training for employees on the importance of following internal controls and ethical behavior is also essential to enhance a culture of risk awareness and compliance within the firm.

2.3.3. Human Capital and Expertise

The human factor offers a crucial part in operational risk. The competence, training, and ethical behavior of employees directly impact the likelihood of operational failures. Insufficiently trained or inexperienced employees are more likely to make errors or inadvertently deviate from established procedures, increasing the potential for operational disruptions. Moreover, unethical behavior or misconduct by employees can lead to significant operational risk, tarnishing the organization's reputation and exposing it to legal and financial liabilities. However, Mhetre, Konnur and Landage (2016) confirmed that to mitigate operational risk related to human capital, organizations invest in comprehensive training programs that equip employees with the skills and knowledge required to perform their roles effectively. Creating a culture of accountability, where employees understand the consequences of their actions on operational risk, fosters responsible behavior. Regular performance assessments and feedback mechanisms also contribute to maintaining a skilled and ethical workforce.

2.3.4 Technology and Infrastructure

In today's digital age, reliance on technology and infrastructure introduces a significant dimension of operational risk. Firms that heavily depend on technological systems and networks are susceptible to disruptions caused by system failures, cyberattacks, data breaches, and technological glitches. Outdated technology or inadequate safeguards against cyber threats can expose organizations to operational risk, potentially leading to data loss, business interruptions, and financial losses. From the views of Bhoola, Hiremath and Mallik (2014), for firms to address operational risk related to technology and infrastructure, they need to prioritize cybersecurity measures and invest in robust IT infrastructure. This includes implementing firewalls,

encryption, intrusion detection systems, and regular security assessments to safeguard against cyber threats. Additionally, organizations ensure they have contingency plans in place to recover quickly from technology-related disruptions, minimizing potential damage to operations and reputation.

2.3.5 External Events and Environment

Operational risk is also influenced by external variables which are beyond the company's jurisdiction. The external environment in which an organization operates can introduce significant risks, such as regulatory changes, geopolitical tensions, natural disasters, and economic shifts. These events can disrupt operations, supply chains, and markets, leading to operational failures if not adequately managed. Study by Roque and de Carvalho (2016) indicated that to address operational risk stemming from external events, firms engage in scenario planning and stress testing. They assess the potential impact of various external factors on their operations and develop contingency plans to mitigate risks. Maintaining a strong network of industry connections, staying informed about regulatory changes and actively monitoring geopolitical developments enables organizations to swiftly adjust to environmental changes and minimize the impact on their operations. This means that the five determinants including the complexity of operations, quality of internal controls, human capital and expertise, technology and infrastructure, and external events and environment, interact to shape the level of operational risk in firms. Recognizing the significance of each determinant and taking proactive measures to address them is crucial for organizations to manage and mitigate operational risk effectively, ensuring smoother operations, better risk resilience, and sustained business success.

2.3.6 Joint Venture

Kimani and Memba (2017) conducted a research on the elements that affect Kenya's real estate market. This study's goal was to ascertain whether there was any correlation between real estate expansion and the GDP, currency rates, inflation rates, and interest rates. This research was based on secondary data that was extracted from publications by Hass Consultancy and CBK. The study noted that joint venture is one of the best models of managing risks.

In 2017, Abdulatif and Almujamed conducted research on joint ventures in Kuwait and the elements that contribute to their success. In order to determine if joint ventures are successful as strategic alliances, the study looked at the impact of partner selection, joint venture creation, regulatory concerns, and implementation issues. The researchers claimed that the optimal framework for drawing inferences was a descriptive study approach. By speaking with real estate companies around the nation, first-hand information was obtained. The authors discovered that the execution of the three phases was crucial to the success of joint ventures as strategic partnerships. Therefore, selecting a partner, adhering to governance guidelines, and handling post-implementation concerns were crucial joint venture success elements and this is effective in managing firm risks.

2.4 Empirical Review

Engaging in international construction projects is widely recognized as a venture fraught with high risks due to insufficient familiarity with foreign construction landscapes and environmental factors. Even projects of a similar nature can exhibit distinct risk profiles based on their geographic locations. Novices in this field find it challenging to spot novel risks in unfamiliar settings. Furthermore, comprehensively assessing these risks and understanding their intricate

interplay poses a formidable challenge. Neglecting such risks is imprudent and can result in impractical decisions. Conversely, the identification and assessment of these emerging risks, along with their interdependencies, demand substantial time and intricate analysis. Zhi (2005) investigated the impact joint ventures(JVs) with local companies had in mitigating risks faced by Chinese construction companies operating in foreign environments. Using qualitative techniques, Zhi noted that Chinese companies that entered into joint ventures with local companies managed operational, event, and strategic risks effectively.

In Hong Kong, sizeable construction endeavors have commonly been executed through partnerships between local and international construction companies. Walker and Johannes (2003) note that this approach is frequently adopted by major construction firms as a means to distribute risk and capitalize on synergies through collaborative efforts. The two researchers conducted an initial inquiry into the function of joint ventures in minimizing risk. Nine top managers from joint venture construction organizations took part in structured interviews that took two hours to complete. All nine managers admitted that foreign construction companies enter into joint ventures with local firms to spread the risk and better understand the environment.

Morkunas et al. (2019) investigated the viability of joint ventures as risk management mechanisms for European construction industry enterprises. Through distinct risk assessments of joint ventures and independent firms, and by applying the analytical hierarchy process methodology to evaluate the significance of specific risk factors for both scenarios, they determined that joint ventures can function as risk management tools contingent on a company's adeptness in handling operational, construction, organizational, financial, and normative risks. The researchers observed shifts in companies' risk profiles upon engaging in joint ventures. This

not only altered the importance attributed to certain risk factors but also led to the elimination of some risks from firms' risk maps. This underscores joint ventures' potential to absorb potential hazardous risks, thereby allowing companies to concentrate on other pivotal business aspects and emerging risks.

Zhang and Zhou (2007) agree with Morkunas et al. (2019) that, even though JVs are effective risk mitigation arrangements, the newly created companies come with new risks – especially in China. They established a hierarchical structure for risk assessment and subsequently devised a fuzzy analytical hierarchy process to assess the risk landscape associated with joint ventures, aiding informed decision-making. To demonstrate the utility of this suggested fuzzy analytical hierarchy model, they employed a practical case study. Their findings indicated the efficacy of the fuzzy model in effectively addressing risks inherent in joint venture projects.

In Dar-Es-Salaam, Mikapagaro et al. (2018) conducted an assessment of risk mitigation strategies in joint venture construction projects. Employing a descriptive approach, they selected Category I – IV contractors participating in joint venture building contracts as respondents. 8 structured interviews and 40 questionnaires were used to collect data leading to an 85% response rate. They found that; joint venture termination, clear documentation, conducting clear meetings, training programs, change of JV terms and conditions, and judging using experience can be used to implement risk reduction, retention, insurance, and avoidance. Additionally, conflicts among members, poor communication, and poor cooperation came out as factors affecting risk management strategy implementation.

According to Abdulrahman et al. (2019), the key to success for Nigerian construction firms lies in a steadfast commitment to proactive and consistent risk management. They emphasize the importance of determining the Risk Management Maturity (RMM) of organizations as the initial

step in appraising their current risk management culture. The researchers identified a lack of risk management knowledge as a contributing factor to the failure of joint ventures involving Nigerian construction companies. Their study focused on assessing the RMM of construction firms engaged in joint venture projects. The evaluation criteria for RMM were drawn from existing literature. The analysis utilized a Fuzzy synthetic evaluation model, revealing that construction companies participating in joint venture contracts are positioned at the "defined level of maturity." This signifies their adoption of informal risk management practices and reliance solely on qualitative risk evaluation strategies.

Famakin et al. (2012) assessed the elements influencing the effectiveness of partners within joint venture construction projects in Lagos. Through the distribution of questionnaires to consultants and partners with prior engagement in joint venture construction undertakings alongside the Lagos State Development and Property Corporation, they acquired primary data. Employing techniques like factor analysis, Kruskal-Wallis (H-test) test, and Wilcoxon-Mann-Whitney (U-test) test, they analyzed the collected data. The researchers found that, of all the factors affecting construction JVs in the city, risk management was the most important. They advise partnering companies to develop risk maps to understand the risks they are faced with.

Mba and Agumba (2017) don't agree that JVs mitigate risks. Even though JVs are one of the most common types of business arrangements used in the South African construction industry, they argue that the risks associated with them contribute to 70% of their failures. They conducted a quantitative study on 20 JVs – collecting data using structured questionnaires and interviews and analyzing using correlation and linear regression. They found that, the success of a JV relies on the interaction between the partners separate contributions. If one partner contributes more in terms of time and energy, they will be burdened with construction and logistical risks.

Mburu and Sang (2019) realized there were inconsistencies in the performance of companies contracted in the rural electrification project (REP) in terms of electric access rate, cost of sales and reliability in Naivasha. One phenomenon that caught their eye was that companies in joint ventures performed extremely well relative to stand-alone companies. They conducted a study to investigate what JVs were doing right. Their study employed a descriptive and qualitative research design. Using purposive sampling, they selected 45 participants working in REP companies. What they found is that risk sharing, risk transfer (outsourcing), and risk insurance were some of the factors driving performance in JVs.

Delayed funding distribution for building projects because of stringent risk-based requirements, regulatory variables, and stakeholder competence has become an outcome and norm. JV financing has thus become a feasible construction funding alternative. Wangora et al. (2019) studied the relationship between risk perceptions macro-economic factors, legal and regulatory framework, and project team competence that indirectly and directly influence the adoption of JV funding options toward housing development in Nairobi County. They used stratified random sampling to select a representative sample and collected data using online questionnaires. The found that, to improve funding in the sector, stakeholders should encourage companies to get into joint ventures to shield themselves from financial risk.

In reference to Oyieyo et al. (2020), the adoption of joint ventures in the construction sector might not effectively alleviate common construction risks such as labor-related uncertainties, time delays, and cost overruns. Nevertheless, it does provide a platform for distributing these risks. Their investigation was rooted in the contingency theory and embraced a pragmatic approach to gauge the extent of influence that construction time delays exert on the fulfillment of joint venture projects in Kenya. Their focus was on all parties involved in the Sondu-Miriu

Power project. The data collection involved questionnaires and interviews. The research incorporated both quantitative methodologies and qualitative regression to analyze the variables. The outcomes demonstrated a significant impact of risks linked to construction time overruns on the successful completion of joint venture construction undertakings.

Wanjiku (2013) researched the global entry strategies Huawei used to penetrate the Kenyan telco industry. She interviewed 5 management-level employees and analyzed responses using qualitative content analysis. According to the author, the company used exporting strategy, licensing strategy, full ownership strategy, and joint venture strategy. However, its most preferred entry method was joint venture. Using JVs, the company shared control and equity with companies from the host country. Further investigation revealed that JVs was mostly used to manage risk as Kenya's telco industry is highly competitive.

2.5 Conceptual Framework

This framework illustrates the relationship between the variables under investigation. The study designates joint venture as the independent variable, while risk mitigation for Affordable Housing Developers in Kenya serves as the dependent variable. However, control value here is government policies.

This is shown in figure 1 below.

Independent Variables   **Dependent Variable**

Joint Venture Financing

Strategic Partnership

Level of Operational Risk
• Frequency of Incidents

Synergy in research and capacity building

Resource Combination

Collaborative Funding

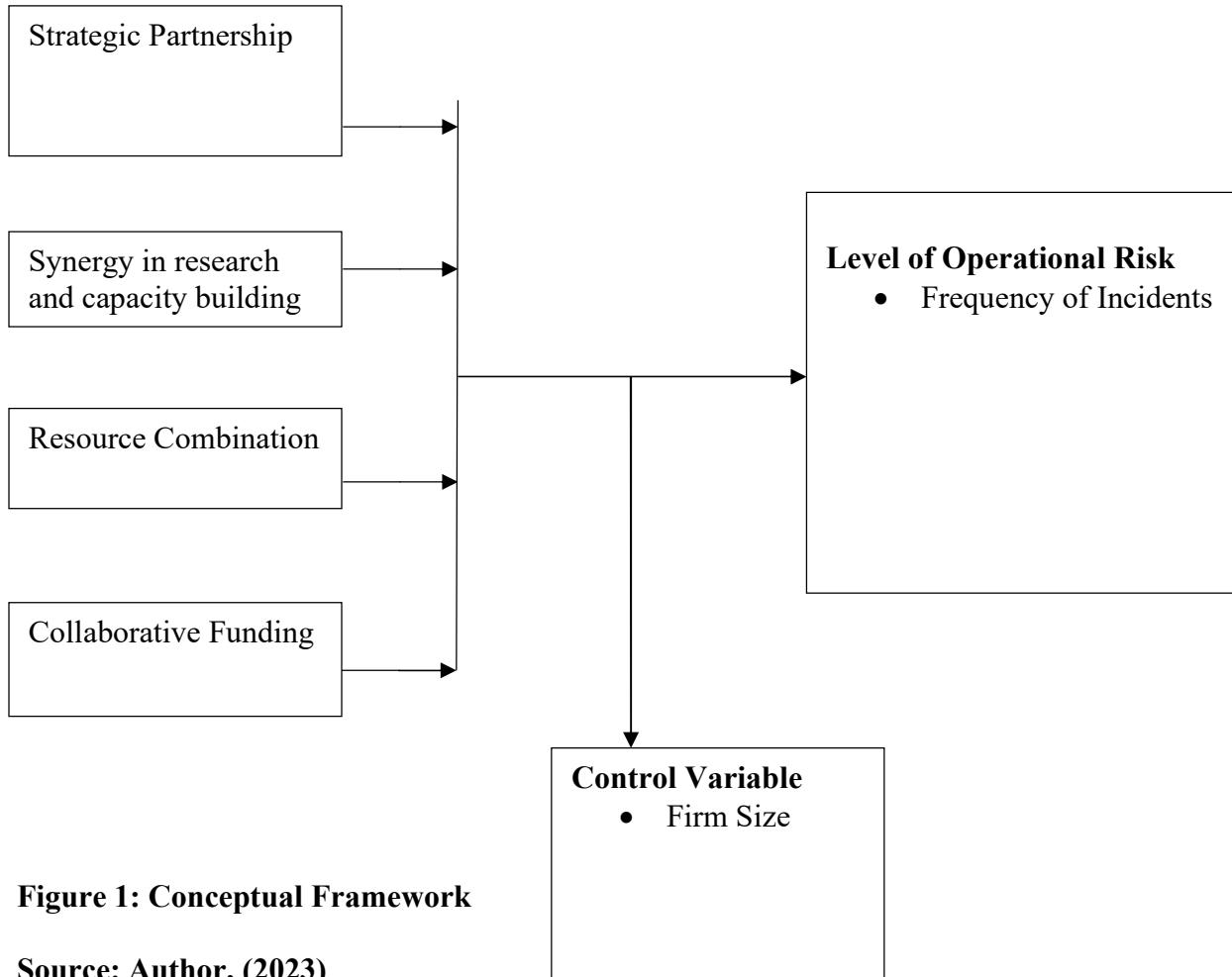| Control Variable |
|---|
| • Firm Size |

Figure 1: Conceptual Framework

Source: Author, (2023)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section outlines the approach used for conducting the study. It encompasses the research design, population under investigation, data collection techniques, data analysis methods, and diagnostic tests that shaped the study.

3.2 Research Design

In any study, the design determines the plans and procedures that guide the objective of the research. A study by Mugenda and Mugenda (2003) also noted that research design as the technique used by a researcher in solving the research problem. This study included panel data and time series data. According to Kothari (1990) panel series data help to check data across time on various variables and this data were used in solving of the research question. Since data was gathered at a particular point, the study employed a cross sectional research design. The design promoted accurate data collection and this depicted the findings clearly despite the huge population of the study.

3.3 Population of the Study

It is the population where participants are derived. Mugenda and Mugenda (2003) defines the population of the study to include groups that provide data or information related to the topic of the study. This study focussed on the affordable housing developers that are members of Kenya Property Developers Association. In Nairobi, there are 70 affordable housing developers that are registered as at October 2022 (KPDA, 2022). According to Creswell (2017), population of study

is a group of people which is selected by the researcher to provide data on a related to the study topic.

3.4 Sample Design and Sample Size

Sampling is important to cover the population without challenges. In this study, convenience sampling method was used. This helped to target affordable housing developers in Kenya. This was selected from 70 Kenya Property Developers Association in Nairobi. The study focused on the 59 members to promote achievement of the study goals within time and set budget. This was achieved using Yamane (2007) formula as shown below.

$N=N/(1+Ne^2)$

Where N is Total Population=70

e=the level of error which is 0.05

n=is the sample size

The sample size $(n)=70/ (1+70*0.05^2)$

n was sample size at=59

The inquiry was based on sample size of 59 affordable housing developers in Nairobi, Kenya.

3.5 Data Collection

The research sought to achieve the objective through the application of non-field data. Consequently, the research involved the use of primary data, which were gathered through the utilization of survey questionnaires. The methodology employed the drop and pick approach for

questionnaire distribution and collection. The data collected related to the effects of Joint venture on level of operational risks among affordable housing developers in Nairobi.

The questionnaire was in different sections. Section A gathered general information about the respondents. Section B focused on joint venture financing adopted by the firms. However, Section C assessed the level of operational risks among the affordable housing developers in Nairobi.

3.6 Diagnostic Tests

In the scope of this study, the researcher conducted thorough diagnostic assessments on the collected data to identify and address any potential anomalies or irregularities. The assessment began with normality tests, which aim to determine if the data follows a normal distribution pattern. This involved gauging the likelihood of the data being naturally distributed according to the underlying random variable. Moreover, the study encompassed multi-collinearity tests, which play a pivotal role in assessing whether predictor variables can be precisely predicted linearly based on other variables. Autocorrelation tests were conducted, particularly for time series data, to ascertain whether error terms carry over from one time period to another, highlighting any temporal dependencies. Additionally, the analysis involved homoscedasticity tests to examine the uniformity of variance across the dataset. Lastly, linearity tests evaluated the relationship between independent and dependent variables, scrutinizing whether changes in the former cause proportionate changes in the latter. These comprehensive diagnostic assessments collectively contribute to the robustness and reliability of the study's findings.

3.7 Data Analysis

The research methodology encompassed both inferential and descriptive statistical analyses. Descriptive statistics was visually presented through graphs and tables, offering insights into key measures such as mean, median, and standard deviation. A multiple linear regression model presented inferential statistics. Chi-square was used to test the independence of variables

3.7.1 Analytical Model

The data analysis approach involved the utilization of an analytical model, chosen for its ability to present findings in a straightforward and unambiguous manner. This analytical model not only facilitated a comprehensive examination of study outcomes but also contributed to the thorough exploration of results. Employing the multiple linear regression models, the research leveraged the Social Science Statistical Software Analytical Package-SPSS Statistics 28 to analyze the collected data. This regression analysis furnished estimations for the study's parameters as outlined in the model presented below:

$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \mathcal{E}$

Where:

Y = Level of Operational Risk

X_1 = Financial strategy partnership

X_2 = Synergy through research and financial resource combinations

X_3 = Collaborative Funding

X_4 = Resource combination

a = constant term

$\beta_1, \beta_2, \beta_3, \beta_4$ = Beta coefficients

ε = Error term

The table below depict the operationalization of the variables

Operationalization of Variables

Variables	Indicators	Measurement	Source
Level of Operational risks	Frequency of incidents	Number of the Errors	Park & Russo (1996).
Joint Venture Financing			
Financial Partnership	People contributing money and working as partners	Working with different partners	Banalieva & Dhanaraj (2013).
Financial Resource Combination	Pooling of capital resources	Combining resources and capital	Li & Zhang (2007).
Collaborative Funding	Joint funding	Sharing money to invest	Park & Russo (1996).
Synergy in Research	Doing research with different parties	Sharing knowledge and research work	Banalieva & Dhanaraj (2013).

Source: Author, (2023)

3.7.2 Tests of Significance

The research encompassed significance tests, encompassing both F-tests and T-tests. F-tests yielded a comprehensive evaluation of the overall significance of the linear regression model,

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illustrating its superior fit to the data compared to a model devoid of independent variables. T-tests, on the other hand, serve as statistical hypotheses and was applied to analyse one or two means within the sample.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents an analysis, findings, and discussion of the study. The collected data was analyzed using descriptive statistics approach, which include percentages, frequencies, mean, standard deviation, and proportions. The findings derived from these analyses are presented in pie charts, bar graphs, and tables. Multiple linear regression model was used to determine how joint venture financing on the level of operational risk among affordable housing developers in Kenya. The chapter further presents an interpretation and discussion of the obtained findings against the existing scholarly literature and studies to determine the conformity of the study to the past literature. Before the analysis, the researcher captured the respondents' demographic characteristics such as gender, age, work position, and education level.

4.2 Analysis and Presentation

In the questionnaires, respondents started with filling in information related to their background, including gender, management level, level of education, and work experience. Data on the variables was collected, analyzed, and presented as shown below.

4.2.1 Response Rate

Response rate refers to the percentage expression of the respondents that participated in the study over those sampled to participate in the study. In this research, out of the 59 sampled affordable housing project developers, fifty-five of them returned their questionnaires. This translated to response rate of 93.22% for the study. The chart below presents the response rate for this study.

Figure 4.1: Response Rate
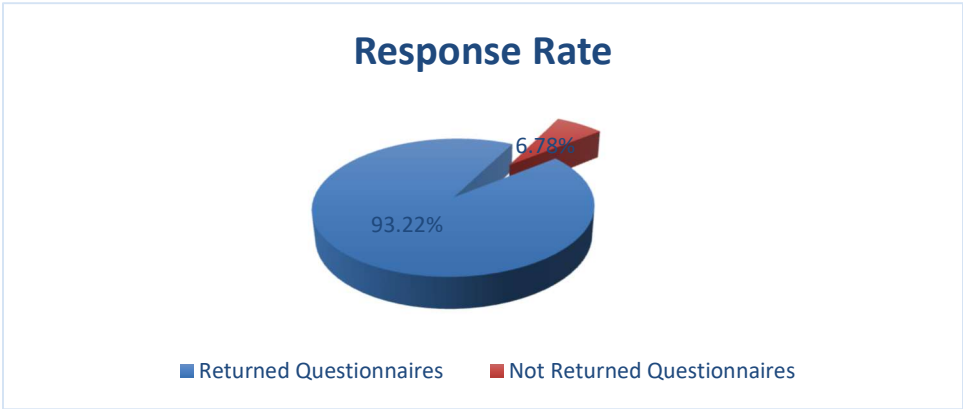
4.2.2 Management Level

Respondents were asked to indicate their level of management in their housing development companies. The study focused on operational risk among affordable housing developers in Kenya, which makes capturing the management level essential to the study as risk levels differ from one management level to another. The findings are shown in chart below.

Figure 4.2: Level of Management
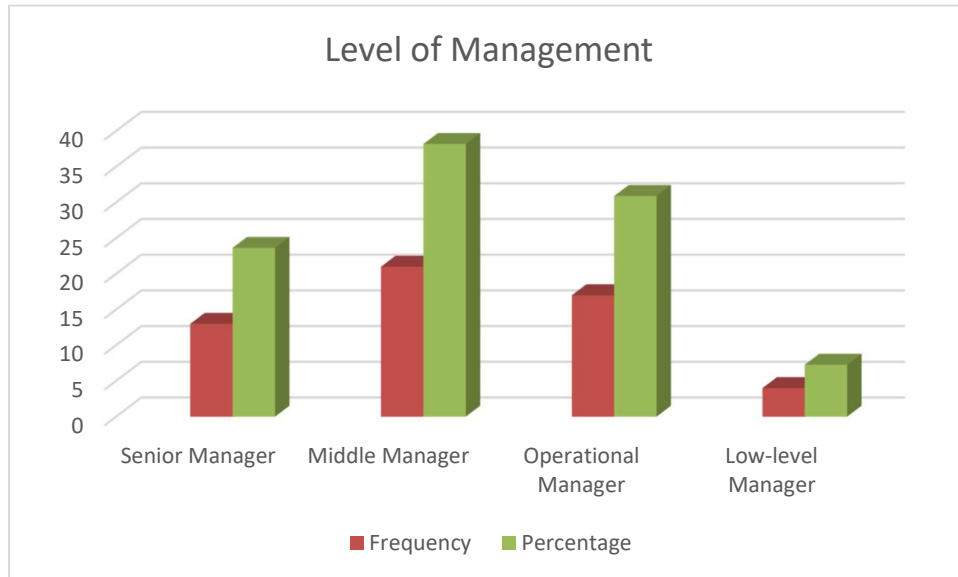
Source: Primary Data

From the table, majority of the respondents were on middle-level managers (38.18%), followed by operational managers (30.9%), then senior-level managers (23.64%), and lastly, low-level managers (7.27%). This shows that the respondents were spread across all the management levels in the housing companies.

4.2.3 Gender

The respondents indicated their respective gender. Seeking the respondents' gender was important in the study because it would help in anticipating the gender distribution in the housing industry. The graph below shows the gender distribution in the study.

Figure 4.3: Gender
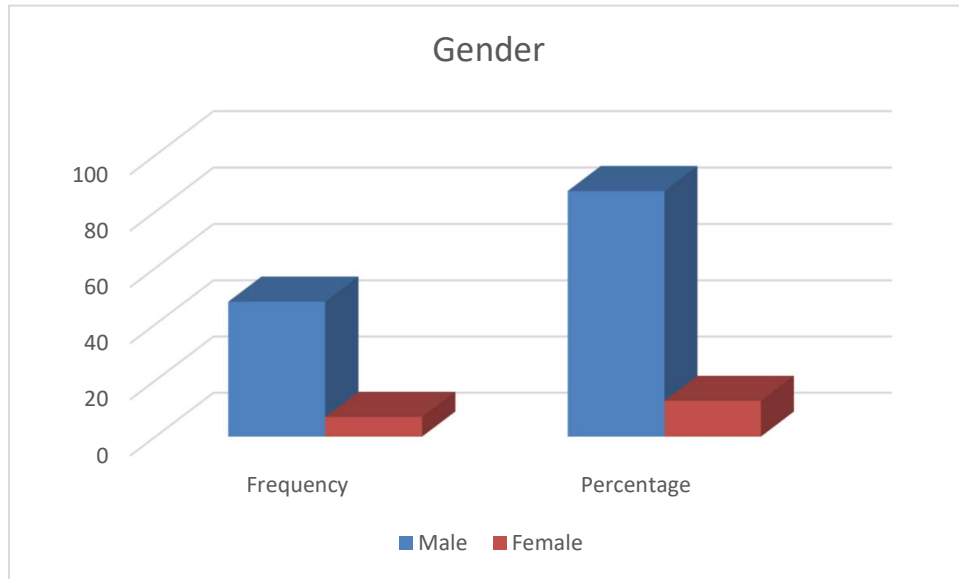
Source: Primary Data

According to the graph, 48 of the 55 respondents were male, representing 87.27 of the respondents. The remaining 7 respondents were female, representing 12.73%. This indicates that the housing industry in Kenya is male dominated, especially in the management positions.

4.2.4 Length of Service

Respondents were also asked to indicate the number of years they have worked in the affordable housing development. This was deemed vital to the study because it determined the respondents' experience in the sector, influencing their knowledge on the research subject as well as quality and nature of their responses in the questionnaires. The distribution of the respondent length of service in the industry is shown in the table below.

Table 4.1: Length of Service

Length of Service	Frequency (No. of Respondents)	Cumulative Frequency	Percentage
Less than 5 years	11	11	20%
6 – 10	21	32	38.18%
11 – 15	18	50	32.73%
Over 15 Years	5	55	9.09%
Total	55		100%

Source: Primary Data

Table 4.1 shows that majority of the respondents had offered affordable housing development services for between 6 and 10 years (21), followed by 18 of the respondents that had offered the service for between 11 and 15 years. 11 of the respondents had stayed in the sector for less than five years with 5 having more than 15 years. These findings indicate that most of the managers in the affordable housing development have adequate work experience of between 6 and 15 years, which is enough to respond to questions about how joint ventures financing affects the level of operational risk among affordable housing developers in Kenya.

4.2.5 Level of Education

The level of education determines the level of knowledge and exposure to joint ventures financing in the housing or real estate industry; hence, important for this study. The respondents

indicated the highest level of education they have attained. Table 4.2 shows the respondents'
level of education.

Table 4.2: Level of education of the respondents

Level of Education	Frequency	Cumulative Frequency	Percentage
Certificate	4	4	7.27%
Diploma	9	13	16.36%
Degree	31	44	56.36
Post-Graduate	11	55	20%
Total	**55**		**100%**

Source: Primary Data

From Table 4.1, it is clear that majority of the respondents are degree holders (31), representing
56.36%, followed those with post-graduate degree (11), representing 20%, then those who have
diploma has their highest education achievement (9), representing 16.36%, and finally certificate
holders (4), representing 7.27%. This indicates that majority of affordable housing development
managers are well-educated and can effectively handle the research subject and question in this
study.

4.2.6 Correlation Analysis

This was done and the results are shown in the table 4.5 below.

Table 4.5: Correlation Analysis

		Level of operational risk	Financial strategy	Synergy through research	Collaborative funding	Resource Combination	Firm Size
Level of operational risk	Pearson Correlation	1	.133	-.144	.028	-.220*	.421**
	Sig. (2-tailed)		.276	.166	.644	.069	.000
Financial strategy	Pearson Correlation	.135	1	-.388**	.329**	.056	.280*
	Sig. (2-tailed)	.211		.001	.001	.456	.050
Synergy through research	Pearson Correlation	-.165	-.258**	1	-.432**	.188	-.056
	Sig. (2-tailed)	.153	.001		.001	.166	.230
Collaborative	Pearson Correlation	.078	.345**	-.456**	1	-.145	-.109

funding	Sig. (2-tailed)	.561	.034	.000		.135	.468
Resource Combination	Pearson Correlation	-.223*	.021	.132	-.188	1	.033
	Sig. (2-tailed)	.067	.334	.146	.134		.722
Firm Size	Pearson Correlation	.111**	.310*	-.035	-.100	.023	1
	Sig. (2-tailed)	.000	.043	.632	.202	.761	

Source: Researcher-2023

The correlation analysis presented in Table 4.5 reveals a statistically significant positive correlation ($r = 0.421$, $p < 0.01$) between the level of operational risk and resource combination, suggesting that as operational risk increases, firms tend to engage in resource combination strategies. Additionally, a negative correlation between operational risk and collaborative funding ($r = -0.220$, $p < 0.05$) implies that as firms face higher operational risk, they are less likely to pursue collaborative funding approaches. The financial strategy is negatively correlated with operational risk ($r = -0.144$, $p = 0.166$), while being positively correlated with collaborative funding ($r = 0.329$, $p < 0.01$) and resource combination ($r = 0.056$, $p = 0.456$), indicating potential strategic adjustments in response to risk. Synergy through research exhibits a positive correlation with financial strategy ($r = 0.258$, $p < 0.01$) and a negative correlation with collaborative funding ($r = -0.432$, $p < 0.01$), suggesting that firms employing research synergy may rely less on collaborative funding.

4.3 Joint Venture Financing

Section II of the research focused on the variables of the study. Under section II, part B focused on information about independent variable: Joint Venture Financing and part B focused on information regarding dependent variable: Level of Operational Risk. Data and analysis of these variables are shown in tables 4.3 and 4.4 below.

To determine how joint venture financing affect the level of operational risk among affordable housing developers in Kenya, the researcher consider multiple variables, including strategic partnerships, synergy in research and capacity building, resources combination, and collaborative funding. The respondents' extent of agreement on these variables were recorded using the five-point Likert scale: (5) Strongly Agree; (4) Agree; (3) Neutral; (2) Disagree; (1) Strongly disagree. The collected data were the analysed using mean and standard deviation. Table 4.3 shows data collected on these variables.

Table 4.3: Joint Venture Financing

Statement	SA 5	A 4	N 3	D 2	SD 1	Mean	Standard Deviation
The firm has joint financing working relationship with others in terms of capital contributions	12	25	7	8	3	3.64	3.28
The firm currently team with other partners in capital management	15	29	4	5	2	3.90	3.52
The firm is engaging in financing resource combination with other firms	22	26	0	6	1	4.13	3.73
The firm value joint financing commitment and sharing in its major operations	23	28	0	4	0	4.28	3.82
The firm value financing Synergy in research and capacity building with other firms	19	27	5	4	0	4.11	3.68
There are joint financing activities with partners	16	30	2	5	2	3.96	3.57
The firm has adopted collaborative funding to promote its activities	18	28	3	6	0	4.05	3.63

Table 4.3 shows that the respondents agree that most of the joint venture financing variables are being undertaken by their companies. All the means round off to agree code (4), which shows that joint financing is a major way that most affordable housing developers use in Kenya to source funds for their projects. Essentially, most of the firms are committed to joint venture financing of their major operations (M=4.28, SD=3.82). Similarly, the firms have shown great engagement in financing resources combination with other firms (M=4.13, SD=3.73) and incredible value financing synergy in research and capacity building with other firms (M=4.11, SD=3.68). Collaborative funding has also been adopted by most of these firms to promote their affordable housing activities (M=4.05, SD=3.63). However, the strategic partnership variable remains quite low among the firms. Joint financing activities with partners (M=3.96, SD=3.57) and joint financing working relationship with others in terms of capital contributions (M=3.64, SD=3.28). With the mean and standard deviation of the responses rounding off to agree code, it is apparent that joint venture financing is embraced by most affordable housing firms in Kenya. These companies are exploring joint ventures such as strategic partnership with interested firms, collaborative funding, combination of resources, and investing in research and capacity building to source funds and other resources for facilitating affordable housing development in Kenya.

4.4 Level of Operational Risk

The dependent variable of the study was examined in the second part of the section II. The respondents were subjected to various questions surrounding the variable, including frequency error incidents, risk sharing, capacity building, periodic review and audit activities, compliance and adherence to accounting policies, and reporting and communication. The respondents' extent of agreement on these variables was recorded using a scale ranging from 1-5. 5 =greatly; 4 =

considerately; 3=moderately; 2=remotely; 1=Not at all. Table 4.4 below shows the data collected on these variables and their mean and standard deviation analysis.

Table 4.4: Level of Operational Risk

Statement	Greatly 5	Considerately 4	Moderately 3	Remotely 2	Not at All 1	Mean	Standard Deviation
The organization has low frequency of errors	0	20	25	10	0	3.18	2.73
The organization has low severe incidents financial losses	0	15	22	12	6	2.84	2.47
The firm engage in risk sharing to avoid damages	14	16	15	7	3	3.56	3.24
The firm support capacity building and low reputational damage	11	23	13	5	1	3.64	3.26
The firm engage in periodic review and audit of its activities	17	26	11	1	0	4.07	3.61
The firm engage in compliance and adhere to regulations	21	29	5	0	0	4.29	3.80
The firm has strong reporting and open communication models	18	28	6	3	0	4.11	3.66

Table 4.4 indicates that most of the variables surrounding level of operational risk among affordable housing developments in Kenya are highly moderate. In particular, the frequency of errors, financial incidents, risk sharing, and capacity building and low reputational damages are moderate among affordable housing developers in Kenya. Operational risks involving reporting and communication, compliance and adherence to regulations, and periodic review and audit of the development activities are considerable considered by the developers in their operations. Analytically, these results indicate that the affordable housing developers are aware of operational risks surrounding their operations and often undertake various considers minimizing their occurrences.

Typically, the table provides insight into the perceived level of operational risk within an organization based on various statements. The mean values for each statement suggest the respondents' average assessment of the organization's operational risk. Notably, the data reveals that the organization is perceived to have a moderate level of operational risk, with a mean score of 3.18, indicating that respondents consider the frequency of errors to be at a moderate level. Similarly, the organization is seen as moderately exposed to the risk of severe financial losses (mean = 2.84). On the positive side, the organization is viewed more favorably in terms of risk mitigation strategies, such as risk-sharing (mean = 3.56), capacity building support (mean = 3.64), and engagement in periodic review and audit activities (mean = 4.07).

Furthermore, the organization is generally regarded as compliant with regulations (mean = 4.29) and maintains strong reporting and open communication models (mean = 4.11). These findings suggest that while the organization faces some operational risks, it is actively engaged in risk

management and compliance measures to mitigate those risks and promote a culture of safety and transparency. This means operational risks must be managed for the firm to achieve its long-term value.

4.5 Regression Analysis

The study included regression model. The output of the model in shown in table 4.5 below.

Table 4.5 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.787(a)	.619	.612	.0456

   Source, Author (2023)

The Table 4.5, which is the Model Summary for a study on the impact of joint venture financing on operational risk reduction for affordable housing developers in Nairobi, provides important information about the statistical performance and goodness of fit of the regression model used in the study. The "R" value, which is approximately 0.787, represents the correlation coefficient or the multiple correlation coefficient of the model. It signifies the strength and direction of the relationship between the independent and dependent variables. In this case, an R value of 0.787 suggests a strong positive correlation between joint venture financing and operational risk reduction.

The "R Square" value, which is approximately 0.619, is the coefficient of determination. It tells us the proportion of the variation in the dependent variable (operational risk reduction) that is

explained by the independent variable (joint venture financing). In this case, roughly 61.9% of the variation in operational risk reduction can be attributed to joint venture financing. This is a significant portion, indicating that the variable plays a substantial role in risk reduction. As such, the Model Summary indicates that joint venture financing has a strong positive relationship with operational risk reduction for affordable housing developers in Nairobi, as evidenced by the high R value. Furthermore, the R Square value tells us that a significant portion of the variation in operational risk reduction can be explained by joint venture financing. The adjusted R Square confirms the model's validity even when considering the number of predictors and the low standard error of the estimate suggests that the model provides reasonably accurate predictions.

The study also included analysis of variance-ANOVA. The table 4.6 below depicts analysis of variances.

Table 4.6: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.711	4	7.016	120.41	.000[b]
	Residual	3.360	50	0.510		
	Total	31. 315	54			

Source, Author (2023

The data presented in Table 4.6, indicates that the sum of squares is 28.711. This value represents the variation in the dependent variable (operational risk reduction) that is explained by the independent variable (joint venture financing). In this case, a higher sum of squares indicates

that joint venture financing contributes significantly to explaining the variation in operational risk reduction. The F-statistic is used to test the overall significance of the regression model. A high F-statistic indicates that the independent variable(s) are collectively significant in explaining the variation in the dependent variable. In this case, the F-statistic is 120.41, which is quite high. It suggests that the joint venture financing variable, as a whole, has a significant impact on operational risk reduction. The significance level, denoted by ".000b," is very close to zero. This indicates an extremely low p-value, suggesting a highly significant relationship between the independent variable (joint venture financing) and operational risk reduction. The "b" often denotes that the p-value is very close to zero. Thus, the ANOVA table confirms that the regression model used to study the impact of joint venture financing on operational risk reduction is highly significant. The F-statistic is considerably high, and the p-value is very close to zero, indicating that the model provides a strong and statistically significant explanation of the relationship between joint venture financing and operational risk reduction for affordable housing developers in Nairobi.

The analysis also included coefficient of regressions. This is shown in the table 4.7 below.

Table 4.7: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.401	.172		2.211	.004
	Financial strategy partnership	.383	.200	.141	2.141	.021
	Synergy through research	.404	.145	.018	1.891	.034
	Collaborative Funding	.357	.319	.010	.813	.012
	Resource combination	.543	.173	.013	.318	.017

Source, Author (2023)

The data presented in Table 4.7 provides the coefficients of the regression model used in the study. These coefficients offer insights into the relationships between the independent variables (financial strategy partnership, synergy through research, collaborative funding, resource combination) and the dependent variable (operational risk reduction). The established regression equation is as follows:

$$Y = \beta + 0.401 + 0.383X1 + 0.404X2 + 0.357X3 + 0.543X4$$

The "Y" represents the predicted value of operational risk reduction, and the coefficients (0.401, 0.383, 0.404, 0.357, and 0.543) represent the impact or contribution of each independent variable to operational risk reduction. It is evident that the constant (intercept) term, represented by 0.401, is statistically significant with a t-value of 2.211 (p = 0.004). This means that even without

considering the impact of the independent variables (X1, X2, X3, X4), there is a significant baseline level of operational risk reduction in the model. Moving to the individual independent variables, financial strategy partnership (X1) has a positive and significant impact on operational risk reduction with a coefficient of 0.383 and a t-value of 2.141 (p = 0.021). Synergy through research (X2) also contributes positively to operational risk reduction, with a coefficient of 0.404 and a t-value of 1.891 (p = 0.034). Collaborative funding (X3) and resource combination (X4) show smaller, but still statistically significant, positive effects on operational risk reduction with coefficients of 0.357 and 0.543, respectively.

This means that the established regression equation suggests that joint venture financing, operationalized through financial strategy partnership, synergy through research, collaborative funding, and resource combination, has a significant and positive impact on operational risk reduction for affordable housing developers in Nairobi. The equation provides a quantitative understanding of how each of these factors contributes to operational risk reduction. These findings are valuable for policy and decision-makers in the housing development sector, indicating that fostering financial partnerships, research collaboration, funding cooperation, and resource combination can lead to reduced operational risk in the affordable housing industry in Nairobi.

4.6 Discussion of the Findings

This study begins by examining the demographics and characteristics of the respondents to gain a comprehensive understanding of their backgrounds. The response rate for the study was notably high, with 93.22% of the sampled affordable housing project developers returning their questionnaires. This level of participation demonstrates a strong engagement from the housing

industry professionals, indicating a genuine interest in the subject matter. The gender distribution within the respondents shows that the affordable housing industry in Kenya is predominantly male-dominated, especially in management positions, with 87.27% of respondents being male. Furthermore, the length of service analysis indicates that the majority of respondents have considerable work experience in the affordable housing development sector, with a significant proportion having served between 6 and 15 years. This level of experience is particularly valuable when assessing the impact of joint venture financing on operational risk reduction, as it reflects a diverse range of insights and perspectives from seasoned professionals.

The level of education among the respondents is notably high, with a majority holding degrees (56.36%) and post-graduate degrees (20%). This well-educated group is well-equipped to address the complexities and challenges of the housing industry and is likely to provide informed responses to the research questions. Moving on to the core variables of the study, the findings concerning joint venture financing suggest that most affordable housing developers in Kenya actively engage in various forms of joint financing initiatives. These initiatives include strategic partnerships, research synergy, capacity building, resource combination, and collaborative funding. The means of these variables consistently fall within the "Agree" range, indicating that joint venture financing is a prominent and integral strategy within the affordable housing industry. This alignment between the housing developers' practices and the focus of the study underscores the relevance of exploring the relationship between joint venture financing and operational risk reduction.

Furthermore, the level of operational risk within these housing development firms is analyzed. The findings reveal that the respondents generally perceive their organizations as having a moderate level of operational risk. While there are considerations related to errors and financial losses, the firms actively engage in risk-sharing, capacity building, compliance with regulations, periodic review, and effective reporting and communication models. This indicates that the housing developers are aware of the operational risks inherent in their activities and have established measures to mitigate them. It should be noted that the section provides a comprehensive foundation for the subsequent analysis, highlighting the characteristics and practices of the respondents and indicating the strong presence of joint venture financing as a financial strategy within the affordable housing sector in Kenya. Additionally, it offers insights into the perceived operational risk levels and the risk mitigation measures adopted by the industry. These findings lay the groundwork for a deeper exploration of the impact of joint venture financing on operational risk reduction.

In this study, it is it is true that there is a relationship between joint venture financing and operational risk reduction for affordable housing developers in Nairobi. The Model Summary statistics reveal a strong association, with an R value of approximately 0.787. This correlation coefficient underscores a robust positive relationship between joint venture financing and operational risk reduction, implying that as joint venture financing increases, operational risk reduction tends to improve. The R Square value, at approximately 0.619, underscores the model's ability to explain roughly 61.9% of the variation in operational risk reduction. This proportion is a significant testament to the impact of joint venture financing, reinforcing its substantial role in mitigating operational risk for affordable housing developers in Nairobi. Moreover, the adjusted R Square value, at 0.612, reaffirms the model's validity after accounting for the number of

predictors, while the low standard error of the estimate suggests that the model makes reasonably accurate predictions.

The ANOVA results, as depicted in Table 4.6, substantiate the statistical significance of the regression model. The high sum of squares for the regression component (28.711) demonstrates that joint venture financing significantly contributes to explaining the variation in operational risk reduction. This is further confirmed by the remarkably high F-statistic of 120.41, denoting that the joint venture financing variable, collectively, has a substantial impact on operational risk reduction. The very low p-value, signified as ".000b," emphasizes the statistical significance of the relationship, indicating that it is highly improbable that the observed correlation occurred by chance. Thus, the ANOVA table underscores that the regression model effectively elucidates the connection between joint venture financing and operational risk reduction, making it an invaluable tool for understanding and addressing risk within the affordable housing development sector in Nairobi.

The Regression Coefficients in Table 4.7 delve deeper into the specific contributions of individual variables. The regression equation, $Y = \beta + 0.401 + 0.383X1 + 0.404X2 + 0.357X3 + 0.543X4$, unveils the impact of each independent variable. The constant term, 0.401, signifies a baseline level of operational risk reduction even in the absence of the independent variables. The individual coefficients for financial strategy partnership, synergy through research, collaborative funding, and resource combination are all statistically significant, further affirming their positive contributions to operational risk reduction. These findings imply that fostering financial partnerships, promoting research synergy, engaging in collaborative funding, and harnessing

resource combination practices can collectively and distinctly enhance operational risk reduction for affordable housing developers in Nairobi. This analysis provides actionable insights for policymakers and industry stakeholders seeking to improve risk management strategies and ultimately bolster the resilience of the affordable housing development sector.

CHAPTER FIVE: SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1   Introduction

This chapter consists of summary of the research findings, a discussion of the findings and then the recommendations based on the research findings. This research was guided by the objective of the study.

5.2   Summary of the Findings of the Study

The comprehensive study on the impact of joint venture financing on operational risk reduction among affordable housing developers in Nairobi offers valuable insights into the dynamics of the housing industry in Kenya. The research findings reveal a strong positive relationship between joint venture financing and operational risk reduction. The Model Summary statistics, with a correlation coefficient (R) of approximately 0.787, demonstrate this robust connection, indicating that an increase in joint venture financing is associated with improved operational risk reduction.

Moreover, the coefficient of determination (R Square) at approximately 0.619 underscores the significant role played by joint venture financing, explaining roughly 61.9% of the variation in operational risk reduction. The adjusted R Square value enhances the model's credibility even when considering multiple predictors. The ANOVA results further emphasize the statistical significance of the regression model, with a high F-statistic and an extremely low p-value, reinforcing that joint venture financing is a crucial factor in mitigating operational risk for affordable housing developers. The Regression Coefficients provide granular insights into the

impact of individual variables, highlighting that financial strategy partnership, synergy through research, collaborative funding, and resource combination practices all significantly and positively contribute to operational risk reduction. These findings have significant implications for policy and decision-makers, offering a data-driven foundation for enhancing risk management strategies and promoting the resilience of the affordable housing development sector in Nairobi.

In summary, this study offers a comprehensive exploration of the interplay between joint venture financing and operational risk reduction in affordable housing development in Nairobi, making a significant contribution to the industry's understanding and offering valuable guidance for future decision-making and policy development. It indicates the importance of financing strategies in promoting success of firms. It also delves on how firms should promote joint activities in their major operations.

5.3 Conclusions

This study indicated the role of joint venture financing in reducing operational risk for affordable housing developers in Nairobi, Kenya. The research findings affirm a strong and positive relationship between joint venture financing and operational risk reduction, underlining that as joint venture financing increases, the level of operational risk tends to decrease. The statistical evidence, including high correlation coefficients and significant regression coefficients for specific financing strategies, confirms that affordable housing firms actively engaged in financial partnerships, collaborative funding, research synergy, and resource combination practices are better positioned to mitigate operational risks. These findings are of paramount importance to stakeholders in the housing development sector, offering empirical insights that can guide

strategic decisions and risk management efforts. By recognizing the efficacy of joint venture financing, policymakers and industry professionals have the opportunity to proactively enhance risk reduction strategies, thereby strengthening the resilience of the affordable housing sector in Nairobi. Moreover, the study's thorough examination of respondent demographics, characterized by high levels of education and work experience, underscores the significance of these findings, as they originate from a well-informed and experienced cohort within the housing industry.

The research concluded that there is need for continued collaboration and innovation in housing development. The study reveals that many affordable housing developers in Nairobi actively adopt joint financing initiatives, emphasizing strategic partnerships, resource combination, collaborative funding, and research synergy. This dynamic approach to financing is not only beneficial in risk reduction but also reflects the adaptability and creativity of the industry. As the demand for affordable housing continues to grow in Nairobi and other urban centers, fostering collaborative financing strategies becomes even more critical. In light of these findings, stakeholders in the housing sector should consider these innovative financing approaches as not only effective risk management tools but also as vehicles for promoting sustainable and resilient affordable housing development in Nairobi and beyond.

5.4   Recommendations of the Study

Based on the findings of this study, several recommendations can be made to guide affordable housing developers and policymakers in Nairobi toward more effective risk reduction and sustainable development. Firstly, affordable housing developers should proactively engage in and expand their joint venture financing initiatives. This study underscores the positive impact of strategies such as strategic partnerships, research synergy, collaborative funding, and resource

combination in reducing operational risk. It is advisable for housing developers to seek out and cultivate such partnerships to strengthen their financial positions, enhance resource access, and improve operational efficiency. Additionally, affordable housing developers should explore opportunities to collaborate with financial institutions, government agencies, and non-profit organizations to expand financing options and reduce dependence on single sources of capital. By diversifying their financial base through innovative joint venture financing models, affordable housing firms can not only lower their risk levels but also contribute to the overall growth and sustainability of the housing sector.

The policymakers should focus on creating a conducive regulatory environment to support joint venture financing and affordable housing development. The government and relevant regulatory bodies can play a pivotal role in promoting affordable housing by offering incentives, streamlined approval processes, and facilitating partnerships between developers, financial institutions, and investors. Moreover, authorities should provide clear guidelines and legal frameworks that encourage responsible and transparent financing practices within the housing sector. This will help protect the interests of all stakeholders while minimizing the potential risks associated with joint venture financing. By actively fostering a collaborative and supportive ecosystem for affordable housing developers and financiers, policymakers can further the growth of the affordable housing sector, addressing a crucial need in Nairobi's urban development and ensuring the long-term sustainability of affordable housing initiatives.

5.5   Suggestions For Further Studies

Future studies could delve deeper into the specific mechanisms and practices employed by affordable housing developers in their joint venture financing initiatives. This could involve a

qualitative exploration of successful case studies and best practices to provide a comprehensive understanding of the strategies that yield the most significant risk reduction benefits. In addition, considering the male-dominated nature of the affordable housing industry in Nairobi, it would be valuable to investigate the role of gender diversity in housing management and its potential influence on risk mitigation. A gender-focused study could assess whether diverse leadership teams contribute to more effective risk management strategies and sustainable development.

Moreover, future research could extend beyond Nairobi and analyze joint venture financing practices and risk reduction in affordable housing in other regions of Kenya or even other countries. Comparative studies would help identify regional variations and provide a broader perspective on how joint venture financing impacts operational risk within the affordable housing sector. As the study highlights the importance of regulatory and policy support for joint venture financing in affordable housing, further research can explore the specific regulatory changes and policy initiatives required to foster a conducive environment for the sector's growth. There is also the need for longitudinal studies tracking the long-term impact of joint venture financing on risk reduction and affordable housing development can provide valuable insights into the sustainability of these strategies and their effects over time. Such studies could help in refining risk management policies and strategies for affordable housing developers as they evolve in response to changing economic and societal conditions.

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APPENDICES

Appendix I: Questionnaire

SECTION A: BACKGROUND INFORMATION

1. What level of management are you?

    a) Top Level   ( )   b) Middle level   ( )

    c) Supervisory Level   ( )   d) Others (Specify)   ( )

2. What is your Gender

M ( )   F   ( )

3. Length of service

    a) Less than 5 years   ( )   b) 6 -10 years   ( )

    c) 11 – 15 years   ( )   d) More than 15 years   ( )

4. What is level of education?

    a) Certificate   ( )   b) Diploma   ( )

    c) Degree   ( )   d) Post graduate   ( )

SECTION B: JOINT VENTURE FINANCING

6. Below is different joint venture financing plans adopted in your organization. Please indicate the extent to which you agree with the statement by ticking (√) in the box that it is the most appropriate according to your view. In reference to these, a five-point Likert-scale is used:

Key;   5) Strongly agree; 4) Agree; 3) Neutral; 2) Disagree; 1) **S**trongly disagree;

	Statement	5	4	3	2	1

1.	The firm has joint financing working relationship with others in terms of capital contributions					
2.	The firm currently team with other partners in capital management					
3.	The firm is engaging in financing resource combination with other firms					
4.	The firm value joint financing commitment and sharing in its major operations					
5.	The firm value financing Synergy in research and capacity building with other firms					
6.	There are joint financing activities with partners					
7.	The firm has adopted collaborative funding to promote its activities					

SECTION C: LEVEL OF OPERATIONAL RISK

7. Below are operational risk reduction indicators. Please indicate the extent to which these apply

to your organization

Where, 5 = Greatly; 4 = Considerately; 3 = Moderately; 2 = Remotely; 1= Not at all

Statement					
The organization has low frequency of errors					
The organization has low severe incidents financial losses					

The firm engage in risk sharing to avoid damages					
The firm support capacity building and low reputational damage					
The firm engage in periodic review and audit of its activities					
The firm engage in compliance and adhere to regulations					
The firm has strong reporting and open communication models					