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Bank-Imposed Conditions, the Business Environment, and Performance of Kenyan Firms

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Abbreviations and Acronyms

BE	Business Environment
BIC	Bank-Imposed Conditions
CE	Conditional Effect
CI	Confidence Interval
CFA	Confirmatory Factor Analysis
CMA	Capital Markets Authority
DE	Direct Effects
EF	Effect Size
FA	Firm Age
FR	Financial Requirement
IAL	Innovation-Activity Level
IC	Intellectual Capacity
IE	Indirect Effect
IPRs	Intellectual Property Rights
KAM	Kenya Association of Manufactures
KASNEB	Kenya Accountants and Secretaries National Examinations Board
KNBS	Kenya National Bureau of Statistics
KSH	Kenya Shilling
NSE	Nairobi Stock Exchange
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Square
OMP	Owner-Manager Perception
OT	Ownership Type
PA	Path Analysis
R&D	Research and Development
SEM	Structured Equation Modeling
SME	Small and Medium Enterprise
VIF	Variance Inflation Factor

INTRODUCTION

"Once an organization loses its spirit of pioneering and rests on its early work, its progress stops"- Thomas J. Watson (1874-1956)

1.1 Study Background

The existing empirical literature suggests that access to formal credit has a strong influence on the firm. Credit-constrained firms register an inferior financial performance than those with considerable credit facilities access (Fowowe, 2017). Credit availability influences crucial firm facets like expansion, research, development (R&D), or innovation (Agénor & Canuto, 2017). For instance, finance availability was a significant factor in firm survival during the 2007 Global Financial Crisis (McGuinness, Hogan, & Powell, 2018). Likewise, with the Covid-19 pandemic, businesses across the globe may face a similar GFC scenario. Whereas firms may use internally generated funds, often, they are forced to source the deficit externally.

Fundamental to any modern economy is a well-functioning financial system with banks playing a central role. The banking industry has been the traditional provider of credit to private businesses. Studies establish a statistically significant correlation between access to bank finance and firm performance (Lee, 2019). Specific industry factors like bank market power (Cubillas & Suárez, 2018) and competition (X. Wang, Han, & Huang, 2020a) may influence firms' credit flow. Also, a country's monetary policy determines credit availability—for instance, an expansionary policy results in increased outflow and vice-versa. Research establishes a meaningful association between monetary policy, bank market power, and bank competition.

Further, banks may impose specific conditions or standards on a firm before advancing credit. These requirements vary across firms based on industry, age, ownership, operations, among others. Thus, access to credit lines for private firms is more contingent on bank-imposed standards than for public firms. Firms are unlikely to gain access to new lines when credit market conditions tighten. Still, credit crunches have a disproportionate effect on private firms. Businesses with no credit lines use more trade credit whenever banks tighten lending conditions. Nonetheless, pre-existing banking relationships may mitigate credit contractions to private firms (Demiroglu, James, & Kizilaslan, 2012).

Likewise, Köhler Ulbrich, Hempell, and Scopel (2016) demonstrate that banks revise lending standards based on their vulnerability to macroeconomic shifts in the domestic and global environment. As a result, even banks operating in the same economic block may institute

different standards depending on their vulnerability. For example, those in country A may tighten the rules while those in B may do the opposite. Firms, especially the small and medium, should pursue relationship building and trust banking. Research suggests that these approaches minimize information asymmetry leading to higher credit flow (Kautonen, Fredriksson, Minniti, & Moro, 2020; Moro & Fink, 2013).

Even so, technological breakthroughs are revolutionizing firm fundraising, and SMEs are no exception. Technologies such as Initial Coin Offering (ICO) and blockchains such as crypto-currencies or crypto-assets are game-changers (Boreiko, Ferrarini, and Giudici, 2019). The merging of technology and financial services (FinTech) is a paradigm shift in the traditional bank financing options. These technologies are enabling high-value firms to pool funds from all corners of the globe. They offer firms with profitable investment opportunities a lifeline that would otherwise be cut short by bank loan rejections (Haamledari & Fischer, 2020).

Moreover, the task (industry-specific) and the remote environment (external to the firm) are the firms' two business environment types. Whereas the remote environment is beyond a firm's control, the task environment determines how well an industry performs relative to another. Research shows that different business environment elements have varying impacts on firms. Factors deemed insignificant in one country may substantially affect firms in another economy (Commander & Svejnar, 2011). Gogokhia and Berulava (2020) established that the business environment strongly relates to R&D investments, innovation, and labor productivity.

That notwithstanding, the literature establishes a substantial nexus between innovation and firm performance (Gök & Peker, 2017; Saunila, 2017). A firm must employ a dynamic business model reflective of the ever-shifting business environment. A case in point is the Borders Company and Amazon's business model innovation in the bookselling industry. Borders collapsed just because top management never shifted from the traditional superstore identity despite changes in the business environment. The unfortunate outcome demonstrates why, in some instances, firm unlearning may be inadequate, leading to organizational demise instead of a renewal. Other examples include Kodak film and Nokia (which has since reinvented its business model).

Finally, firm age and ownership are essential firm characteristics. As the firm ages or goes through different business life phases, so are its preferred financing options and investment opportunities (Adelino, Ma, & Robinson, 2017; Kieschnick & Moussawi, 2018). Besides, these two characteristics influence firm involvement in innovation activities (Fan & Wang, 2019a).

While researchers concur that firm age is a significant determinant of performance (Coad, Daunfeldt, & Halvarsson, 2018), they seem to differ between the young and old firms' superior performance. Likewise, the link between ownership type and firm performance remains a gray area. Some scholars opine that ownership structure influences performance (Maria and Bogumil, 2017), but others establish no meaningful relationship.

1.2 Statement of the Problem

Extensive research suggests that small and medium enterprises (SMEs) account for a higher percentage of all businesses in emerging and mature economies. Researchers have explored SMEs' contribution to the national economic basket, such as through productivity and employment. A few selected examples across different economies include the European market (González-Loureiro & Pita-Castelo, 2012), Asian (Aris, 2007), American (Kruja, 2013), Latin American (Cravo, Gourlay, & Becker, 2012), and African (Taiwo, Falohun, & Agwu, 2016).

Likewise, substantial literature explores Kenyan SMEs and their role in the country's economic development. Kenya's institutions of higher learning continually produce a skilled workforce against few job opportunities. The government continues to face a situation of high labor supply against a dwindling job supply. For example, the country had an unemployment rate of approximately five percent before the Covid pandemic; however, the rate has since doubled based on the Kenya National Bureau of Statistics (KNBS) report (2020). Further, the KNBS report (2016), a national survey of Micro, Small, and Medium Enterprises (MSMEs) meant to assist county, and national governments in planning had insightful findings. The report finds that MSMEs contribute over a third of the country's gross national product.

Still, the KASNEB-CMA report (2020) finds that MSMEs account for 80% of the country's employment opportunities and 40% of the GDP. Cognizant of the role SMEs play in economic development, the government is fronting self-employment or job creation. The strategy is to address the growing levels of unemployment, mainly among the youth. Unfortunately, the biggest hurdle to would-be or existing entrepreneurs is access to financial resources. The government, through state corporations, avails funds to spur entrepreneurial activities. The funding bodies include the Youth Fund, Uwezo Fund, and Women Enterprise Fund, explicitly targeting youth, women, and persons with disabilities.

Also, other government-linked bodies offer credit to private companies but under stringent requirements. These include the Industrial and Commercial Development Corporation (ICDC),

Kenya Industrial Estates (KIE), Industrial Development Bank (IBD), and Agricultural Finance Corporation (AFC). These four deal exclusively with medium and large enterprises, unlike the previous three. Ultimately, the demand for credit outweighs the (government) supply. Thus, the majority of the firms have to secure financing elsewhere. Regrettably, domestic firms have not harnessed technology's power to explore new ways of raising capital. The scenario is contrary to firms in developed markets that successfully employ innovative financing tools (Boscoianu, Prelipean, Calefariu, & Lupan, 2015).

The regulatory framework has been one of the greatest undoings for local firms. Over time, SMEs could not raise funds publicly due to stringent Capital markets Authority (CMA) regulations. However, the CMA report (2020) highlights the Growth Enterprise Market Segment (GEMS) establishment. GEMS allows venture companies with no prior profit history and SME-sized firms to list on the Nairobi Securities Exchange's GEMS to raise substantial initial and ongoing capital. These enterprises experience increased profile and liquidity within a regulated environment explicitly designed to meet their unique needs. GEMS also serves as an exit route for venture capitalists, private equity, entities, and family businesses.

Likewise, debate on blockchain-like technologies is ongoing to develop the necessary regulatory framework—limited options of raising the much-needed capital from the public force domestic SMEs to bank loans. The country's banking sector has experienced substantial changes over the last decade. For instance, the government had introduced interest rate control through Section 33B of the Banking (Amendment) Act, 2016. It provided for, among other things, a ceiling of 4% of commercial above the Kenya Bankers Reference Rate (KBRR). The Act got repelled in 2019 after pressure from international and domestic industry players. During the period, credit flow to private businesses fell drastically, with banks avoiding risky borrowers. On the converse, firms had expected easier access to cheap credit locally.

Moreover, Kenya, Eastern Africa's biggest economy, has the most developed financial sector. Be as it may, local banks have set standards to be met by firms seeking credit facilities. Further, banks have developed SMEs' dedicated products and relationships. Despite these efforts, the KNBS-MSME report (2016) found that the domestic start-ups' average life cycle is about 3.8 years. These firms cite substantial hurdles in accessing credit facilities from commercial banks as the main reason for failure. Apart from costs associated with bank loans, other conditions like providing significant collateral and other disclosure requirements remain challenging. On

the converse, freely available information has allowed firms to develop criteria for selecting their bank financiers.

Relevant agencies often experience regulatory challenges when dealing with commercial banks (Ashton, and Pressey, 2004). Part of the challenge pertains to increasing credit to the private sector which is part of the reason, Kenya introduced the short-lived interest rate controls. The CBK's persuasion of commercial banks to be moral in loan pricing seems not to work. SMEs deemed risky are locked out of credit facilities due to high costs. Banks exploit to the fullest flexibility accorded by the CBK in loan costing and remain opaque. Besides, corporate governance issues of the bank erode confidence in the banking systems. It explains the failure of three mid-tier banks between 2015 and 2016, namely Dubai, Imperial, and Chase bank. Besides, the regulatory framework, is the business model of each bank given attention?

The monetary policy committee (MPC) of an economy's Federal or Central bank determines the money quantity in circulation. Based on the prevailing business environment, a country may pursue an expansionary or contractionary monetary policy. Ultimately, the MPC dictates the amount of money available to domestic businesses by varying the interest rate. Taking the cue from MPC, commercial banks review the costing and terms of their credit facilities to businesses. Be as it may, in a free economy the forces of demand and supply should set credit facility pricing. While it was finally repealed, the introduction of interest rate controls between 2016 and 2019, significantly affected credit access by firms in Kenya.

Could it be a time that small and medium enterprises in emerging economies shifted their focus from the traditional financing sources? In these economies, when the financial system does not intermediate funds properly, then bank lending channels get impaired (Mishra, Montiel, and Spilimbergo, 2012). Presently, technology is leveling the playing field between SMEs and large firms in numerous ways. SMEs with profitable opportunities should tap into the "crypto" world. For instance, the initial coin offer (ICO) allows firms access to funds bypassing the stringent stock market requirements. However, a policy framework should be developed to safeguard investors' interests.

Besides, firms operate in a competitive environment and progressively innovate to thrive (Aksoy, 2017). Such innovation will ensure that their products (or services) reach untapped customer needs. The Kenyan MSME report found that of the four innovation types (product, process, organizational, and marketing), product innovation was the most preferred by domestic firms, specifically in manufacturing, information, communication & technology

(ICT), financial, and health activities. Nonetheless, process and marketing innovations were mainly not standard features among these firms. The findings suggest that domestic firms do not implement innovation activities regularly or prefer imitation rather than originality. Bearing this in mind, how resilient are domestic firms to changes in the business environment?

In conclusion, the present study explores how firm financing (bank-imposed conditions, external financial requirement & owner-manager perception of future finance availability), innovation-activity level, and firm characteristics (firm age & ownership type) correlate to performance. Specifically, the researcher explores bank-imposed conditions and the business environment's direct and indirect effects on performance. The indirect effect is through external financial requirements and innovation-activity levels. Further, the study examines the two factor's direct and indirect impact conditional on owner-manager perception and firm characteristics.

1.3 Significance of the Study

It is no doubt that SMEs' play a critical role in economies the world over. Like in other emerging economies, Kenyan regulators in the financial sector often face impediments in channeling funds to deserving financially constrained firms. For instance, since the Global Financial Crisis (GFC), there is a growing trend in alternative financing. These include but are not limited to equity-based crowdfunding, debt-based securities, invoice trading, donation-based crowdfunding, and P2P business or consumer lending (Baeck, Collins, & Zhang, 2014). Also, the growth in fintech and crypto-based assets piles more pressure on regulators in growing economies. Macchiavello (2017) notes that a lack of clarity on alternative financing models may results in regulatory failure while overshadowing the banking industry.

Be that as it may, the majority of domestic businesses depend on traditional banking for credit. Unprecedented bank failures in the recent past as highlighted earlier threaten confidence in the banking sector. Such incidences result in the CBK continually reevaluating its monitoring efforts of the financial sector. For example, locally some of the banking industry regulations resulted in credit-constrained firms, particularly small to medium firms (Alper, Clements, Hobdari, Porcel, & Chief, 2019). A major concern for regulators about Kenyan banks are hidden costs that makes credit cost expensive. Often, the disparities between financial institutions are significant with CBKs moral persuasion not achieving the intended purpose. As stated elsewhere in this work, the study comes after two major incidences a short interval apart.

One is the repealing of the interest rate controls in the formal banking sector. Two is the Covid-19 pandemic whose effects on firms are worldwide.

Likewise, domestic small to medium enterprises have low innovation-related activities as evidenced by a recent study. In extreme cases, some of these businesses never itemize such expenditure in the capital budgets. Poon (2000) suggests that there is a correlation between the business environment and the benefits firms can derive from innovation programs. The GFC and the Covid-19 pandemic are classical examples of why firms must engage in innovation activities. Domestics firms that are subsidiaries of multinational firms usually benefit from external technology transfer (Howells, 1998). That notwithstanding, firms may obtain technology through collaborations with higher learning or research institutions (Fitjar & Rodríguez-Pose, 2013; Kafouros, Wang, Piperopoulos, & Zhang, 2015). Of concern then is, are local firms willing to invest in partnership with local academic institutions? Better still, how many of these small to medium enterprises have an R&D department with dedicated staff?

When firms overcome some of these challenges by registering sustained success, they may eventually shade off the SME tag by breaking into the large firms' category. Unfortunately, small and medium enterprises face hurdles in raising funds externally as if the challenge of insufficient internal financial resources is not enough. Whereas technology offers immense opportunities to these firms, innovative financing tools remain elusive for local firms. On a brighter note, SMEs with profitable investment opportunities and good relationships with their bankers can access finance. The current study on entrepreneurial financing and innovation is a step in the right direction. The findings provide a more in-depth and scientific understanding of the bank financing-SMEs relationship based on these firms' innovative nature.

Besides, these results may be a point of reference for future decision-making by relevant industry players. The study period is three years, 2017-2019, particularly regarding innovation activities. Two reasons justify the period; one, most scholars support a medium-term duration in appraising innovation-related activities. Two, technology and or innovation change rapidly, rendering what was "new yesterday completely obsolete today" (Heredia Pérez, Geldes, Kunc, & Flores, 2019; Saunila, 2017b). The study confines itself to the study variables and their boundaries. Below are the research questions guiding the study.

1.4 Objectives of the Study

The study's objectives are divided into two, namely, general and specific. Whereas the general goal broadly examines the research's pillars, the other explicitly focus on each particular factor.

1.4.1 General Objective

The study's general objective is to examine the bank-imposed conditions and the business environment's direct, indirect, and conditional effects on Kenyan SMEs' performance.

1.4.2 Specific Objectives

The specific objectives are to:

i. Establish bank imposed conditions (BIC) and business environment's (BE) direct effect on the performance and their indirect impact through external finance requirement (FR) and innovation-activity level (IAL).
ii. Explore the owner managers' perception (OMP) of future finance availability's effect on the BIC and BEs' influence on performance.
iii. Determine BIC and BE's indirect effect on firm performance conditional on ownership type
iv. Investigate ownership type and firm age's role in the relationship between the two factors (BIC & BE) and the outcome variable.

1.5 Research Hypotheses

The study has four main hypotheses anchored on the research objectives. These are:

i. ***H1(a)****:* Bank-imposed conditions and the business environment have no meaningful effect on external financial requirements, either separately or jointly
ii. ***H1(b)****:* Bank-imposed conditions and the business environment have no meaningful effect on the innovation-activity level, either separately or jointly
iii. ***H1(c)****:* Bank-imposed conditions and the business environment jointly have a strong influence on the innovation-activity level through external financial requirements
iv. ***H1 (d)****:* Bank-imposed conditions and the business environment have a direct, meaningful effect on firm performance.
v. ***H1 (e)****:* Bank-imposed conditions and the business environment's direct and mediated effects on the firm performance are definitively different from zero.
vi. ***H2***: The moderating effect of owner-manager perception of future finance availability on the BIC and BE's effect is robustly different from zero.
vii. ***H3****:* Ownership type substantially influences BIC and BE's indirect effect on performance. Besides, it strongly correlates to external FR and IAL.

viii. ***H4:*** BIC and BE's effect on performance conditional on ownership type and firm age is not statistically different from zero.

1.6 Conceptual Framework

The conceptual framework depicted in figure 1 summarizes how the study factors relate. The researcher recommends interpreting the figure with each hypothesis's specific conceptual framework (appendices) and statistical framework (next chapter). Nevertheless, the first hypothesis has five sub-hypotheses and assumes the absence of owner-manager perception, ownership type, and firm age.

The hypothesis assumes that the model's main predictors (bank-imposed conditions and the business environment) affect performance directly and indirectly. The predictors indirectly affect the outcome through the mediators (external financial requirements and the innovation-activity level). The direct pathway is $(X \rightarrow Y)$, whereas the indirect effect is $(X \rightarrow M \rightarrow Y)$.

The second hypothesis builds on the first one and introduces the first moderator, the owner-manager perception of future finance availability—which conditions the predictors' direct and indirect effects on performance. Directly, it conditions the path between the predictors and the outcome variable. Indirectly, it conditions the predictors' impact on the mediators (FR and IAL) and; the association between the mediators and the dependent variable. Precisely, the OMP direct effect is $(X \rightarrow Y)$ and indirectly $(X \rightarrow M \rightarrow Y)$.

The third hypothesis introduces the second mediator, ownership type while excluding the OMP. The theory assumes three different indirect effects as illustrated in the specific conceptual framework $(Xs \rightarrow M_1 \rightarrow M_2 \rightarrow Y)$; $(Xs \rightarrow M_1 \rightarrow Y)$; and $(Xs \rightarrow M_2 \rightarrow Y)$. Be as it may, ownership type influences the first and third indirect effects at the point $(M_2 \rightarrow Y)$ and at $(M_1 \rightarrow Y)$ for the second indirect effect. Like in the first hypothesis, external FR is presumed to influence IAL.

The fourth hypothesis builds on the third one by introducing firm age. Thus, ownership type and firm age simultaneously affect the predictors' direct and indirect outcomes. In particular, ownership type conditions the relationship between the predictors and the mediators $(Xs \rightarrow M)$ and firm age, the correlation between the mediators, and performance $(M \rightarrow Y)$. Further, both OT and FA simultaneously influence the direct association between the predictors and the outcome $Xs \rightarrow Y$.

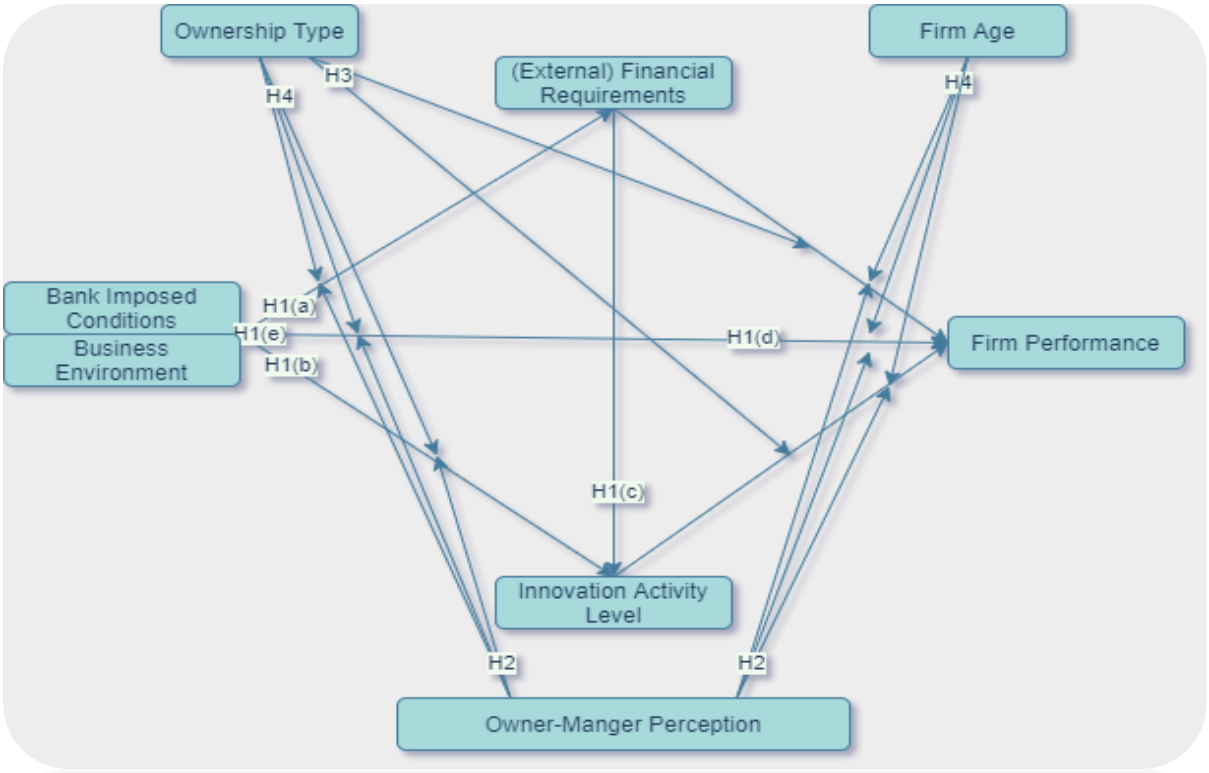

Figure 1. Conceptual Framework
Source: Author's Conceptualization

LITERATURE REVIEW

2.1 Introduction

The chapter begins by reviewing relevant theoretical and empirical literature, highlighting inconsistencies and contradictory findings. Based on the review, the researcher makes a case for the present study. The study employs the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) technique by Moher, Liberati, Tetzlaff, Altman, and Group (2009) to execute the literature review.

2.2 Theoretical Review

The section presents the study's anchoring theories relating to capital structure. These are the Pecking-Order, Trade-Off, and Signalling Theories. Besides, it explores arguments in support of and against the three theories.

2.2.1 The Pecking Order Theory

The theory hypothesizes that significant asymmetric information costs force firms to opt for securities with nominal information costs (Barclay & Smith, 1999). Myers and Majluf (1984) developed Pecking Order Theory through their seminal work '*Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have.'* They argue that investors negatively perceive a share issue with firms assumed to do so after overpricing their shares.

The theory suggests that a firm is more likely to issue debt than equity, avoiding the information effects of new share issues. The pecking order theory hypothesizes that firms follow the least resisted path and work through a pecking order by issuing the cheapest type of financing. Thus, firms will opt for retained earnings due to the absence of adverse selection problems. The firm will only issue debt on exhausting retained earnings. Equity issuance will be the last resort for financing when it does not make more sense to issue more debt.

Furthermore, firms with limited investment opportunities but substantial free cash flows maintain low debt ratios. On the contrary, high-growth enterprises but financially constrained will have high debt ratios. With Pecking Order Theory, firms hierarchically finance their operations. Firms start with internal financing (retained earnings), then debt, before equity financing. The financing moves from sources with the lowest cost and risk to costlier and riskier ones.

2.2.1.1 Evidence for and against the Pecking Order Theory

The Pecking-Order Theory has received support and criticism in equal measure. Rajan and Zingales (1995) analyzed data of public firms in seven industrialized economies (G-7). They find support for the pecking order theory since there is an inverse relationship between leverage and profitability. Shyam-Sunder and Myers (1999) examined 157 listed firms in the United States, albeit with a caveat on the sample size. Nonetheless, their study supports the Pecking-Order Theory assumptions. However, other authors seem to disagree with these findings.

Frank and Goyal (2003) raise concerns about the general applicability of the theory. They examined publicly listed firms in the United States from 1971 to 1998. Their findings contradict the Pecking Order Theory. Net debt issues do not track the financing deficit more closely, unlike net equity issues. Helwege and Liang (1996) tested the theory by examining IPO security offerings from 500 firms from 1984 to 1992. The study concludes that firms able to access the capital markets do not stick to the pecking order in their choice of the security type to offer.

Further, Seifert and Gonenc (2010) also evaluated the theory by focusing on 23 emerging economies. Contrary to expectations, there is minimal evidence to show that the Pecking-Order Theory holds for all firms in emerging markets. Firms in these economies finance their deficit primarily with equity as opposed to debt. Where their findings resonate with the theory, there is a rider. For example, the theory's support in such markets is due to acute information asymmetry problems, agency costs, or both. Bessler, Drobetz, and Grüninger (2011) found evidence suggesting that information asymmetry is the primary driving force of dynamic pecking order behavior.

In summary, opinion on the Pecking Order Theory is mixed up based on the evidence analyzed. The difference is primarily due to the study methodology. Also, financing decisions are subject to several factors that affect capital structure differently.

2.2.2 The Trade-off Theory

The theory originates from Kraus and Litzenberger's (1973) study titled '*A state-preference model of optimal financial leverage.'* The two researchers introduced the interest tax shields concept related to debt and the financial distress costs. The trade-off theory of capital structure hypothesizes a firm that tries to balance the advantages of interest tax shields against the present value associated costs of financial distress (Myers, 2001). As such, the theory postulates the

existence of some form of optimal capital structure that balances the present value of interest tax shields and the cost of bankruptcy (Chakraborty, 2010).

Further, bankruptcy costs are either direct or indirect. Direct costs include the legal and administrative expenses incurred by a bankrupt firm (Malkiel, 1966). Conversely, the indirect costs are related to a decrease in its market value due to its inability to meet its debt obligations. Barclay and Smith (1999) show that such indirect bankruptcy costs may constitute a substantial proportion of the firm's market. The main issue in capital structure theory is deciding the acceptable debt proportion that offsets tax implications while avoiding risks associated with excessive leverage.

As illustrated in figure 2, there is a trade-off between the present value of the tax shield associated with growth in leverage and the present value of bankruptcy costs. Firms always seek an optimal capital structure—a level that maximizes tax benefits while minimizing bankruptcy risk from excessive debt use. The trade-off theory makes some assumptions. It assumes that businesses set a target debt ratio that differs from firm to firm (Graham & Harvey, 2001).

Still, the theory presupposes that businesses with relatively safe tangible assets are less exposed to financial distress costs and are expected to borrow more. Similarly, firms possessing risky intangible assets are exposed more to the financial distress cost, thus expected to borrow less (Rajan and Zingales, 1995). Finally, the trade-off theory assumes a relationship between higher marginal tax rates and higher leverage levels due to interest tax deductibility. Nonetheless, some studies are of a contrary opinion to the prediction made by the trade-off theory.

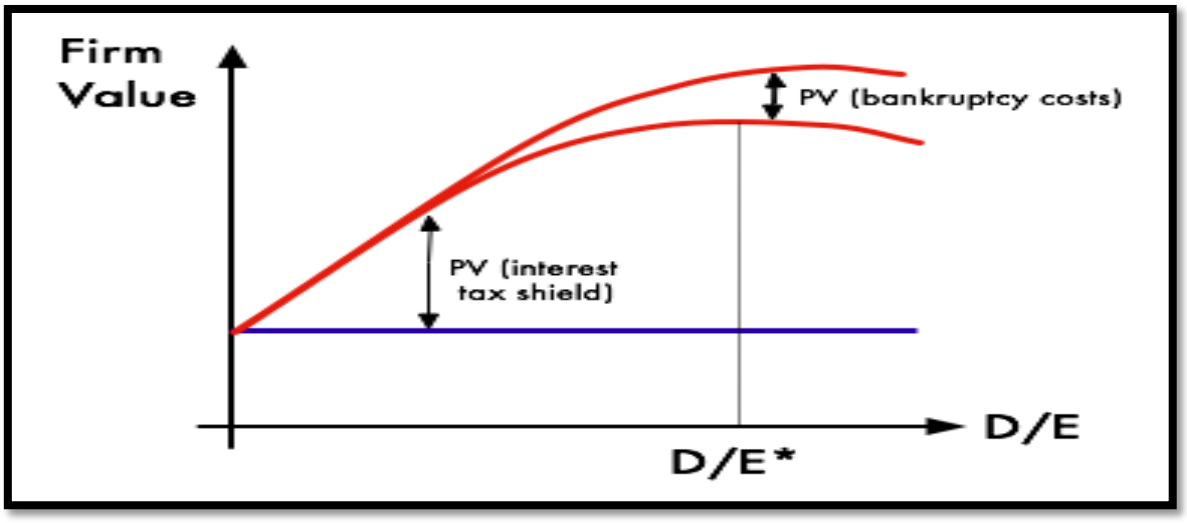

Figure 2. The Trade-Off Theory Predictions
Source: Brealey and Myers (2007, p.504)

2.2.2.1 Evidence for and against the Trade-Off Theory

Kraus and Litzenberger's (1973) Trade-Off Theory has support and criticism from different scholars. For instance, Graham and Harvey (2001) sampled chief financial offers (CFOs) of 392 firms concerning capital budgeting, the cost of capital, and capital structure. Their findings support Pecking-Order and Trade-Off capital structure hypotheses. In particular, large firms depend heavily on the capital asset pricing model and present value techniques. On the converse, small firms are more likely to rely on the payback criterion.

Likewise, research suggests that tax benefits substantially affect equity and debt issuance decisions, whereas most researchers fail to establish significant effects. The study clarifies the correlation between tax shield and debt policy. In most firms, tax shields have a weak impact on the marginal tax rate. Also, marginal tax rates vary substantially due to the tax code's dynamics, business cycle effects, tax regime shifts, and the statutory tax schedule's progressive nature (MacKie-Mason, 1990). Firms in high-tax-rate markets issue more debt than those in low-tax-rate regimes (Graham, 1996).

That notwithstanding, other researchers hold a contrary opinion to the Trade-Off proponents. Fama and French (1998) find no evidence that interest tax shields contribute to the firm's market value. They argue that firms may have no incentive to add more debt to take advantage of the tax shields if this is the case. However, the documented evidence shows that taxes play a moderate role in explaining firm capital structure.

Bradley, Jarrell, and Kim's (1984) findings contradict the Trade-Off Theory assumptions. They establish a positive association between firm debt to value ratios and non-debt tax shields (Chakraborty, 2010). The positive relationship may also imply that enterprises with high non-debt tax shields like depreciation have sufficient tangible assets, which allow them to support more debt.

On the converse, Titman and Wessels (1988) find that the non-debt tax shield insignificantly relates to leverage. Still, Opler and Titman (2009) investigated firms over 20 years and found an insignificant negative relationship between non-debt tax shields and leverage levels. The results suggest that highly leveraged enterprises lose significant market share to more

conservatively financed firms. Ozkan's analysis of the United Kingdom's market draws a similar conclusion.

In conclusion, there is sufficient evidence supporting the first three main assumptions of the Trade-Off Theory. The fourth assumption is moderately supported. However, most empirical literature confirms that firms with more non-debt tax shields entertain more debt in their capital structure.

2.2.3 The Signaling Theory

Ross (1977) developed the Signaling theory through a study titled *'The determination of financial structure: the incentive-signaling approach.'* He hypothesized that the capital structure choice would signal information to the market when management has insider information. The theory bases itself on the information asymmetries between firm management and shareholders. Managers will issue debt when they perceive their firms as undervalued, with equity issuance being the last financing option. On the other hand, if the firms are overvalued based on the management's assessment, they issue equity first.

Papaioannou and Karagozoglu (2017) suggest that Signaling Theories assume that the issuing firms' management knows more about their firms' quality than outside investors. Investors may not distinguish between low-quality and high-quality firms when faced with imperfect information. Thus, high-quality firms opt to under-price new issues to signal their actual value. A critical condition of these models is the firm's real quality revelation before it undertakes actions that may trigger a new valuation after the issuance event. Revealing the firm's actual quality (state) before, for instance, a follow-up seasoned equity offering means low-quality enterprises cannot gain from under-pricing since investors learn of their low quality before the follow-up offering.

The Signaling Theory has implications for financing decisions exercised by corporate managers. Firms will time their equity instrument issuance based on the prevailing market conditions. Baker and Wurgler (2002) confirm a robust relationship between historical market values of equity and firm financing decisions. The firm's capital structure is the cumulative effect of the management's past market timing attempts. Like the previously discussed theories, Signaling Theory finds support and criticism based on existing literature.

2.2.3.1 Evidence for and against the Signaling Theory

The theory's proponents include Welch (1989), who argued that under-pricing is conditional on the expectation that high-quality firms aim to achieve desirable valuation in future seasoned offerings. High-quality firms under-price to get a better value if and when they return to the public market. Welch's study establishes that many firms raise significant amounts of additional equity from the capital markets after their initial public offer.

Booth and Smith (1986) evaluated the theory empirically and establish an average reduction of three percent in share price for firms' that announced new equity offerings. On the contrary, there is a nominal share price decline following debt issue announcements. Besides, debt growths are associated with increased share price returns of approximately fourteen percent for debt-equity substitutions.

In support, Barclay, Smith, and Watts (1995) categorized firms whose earnings grew the following year as undervalued, while those whose earnings decreased as overvalued firms. Their study finds a minimal statistically significant but positive correlation between unexpected earnings and leverage.

Nevertheless, Michaely and Shaw (1994) tested the Signaling Theory's assumptions but found no supportive evidence. Brounen, De Jong, and Koedijk (2006) sampled 313 CFOs of firms in the Netherlands, the UK, Germany, and France. They also found no evidence to suggest that these managers' private information signal affects capital structure decisions. Finally, the evidence adduced here indicates that the Signaling Theory holds to a more considerable extent. Table 1 summarizes the theoretical literature review.

Table 1. Selected Arguments for and against the Three Theories

Theory	Theory Origin	Proponents	Opponents
Pecking-Order	Myers and Majluf (1984)	Rajan & Zingales (1995); Shyam-Sunder and Myers (1999);	Seifert & Gonenc (2010); Bessler, Drobetz, & Grüninger (2011)
Trade-Off	Kraus & Litzenberger (1973)	Graham & Harvey (2001); MacKie-Mason (1990)	Fama & French (1998); Titman & Wessels (1988)

		Booth & Smith (1986); Barclay, Smith, & Watts (1995)	Michaely & Shaw (1994); Brounen, De Jong, and Koedijk (2006)
Signaling	Ross (1977)		

Source: Author's Work

2.3 Empirical Review

The section provides an in-depth evaluation of current literature focusing on the study variables. The researcher summarizes the selected literature reviewed in a tabular format at this section's tail end.

2.3.1 Firm Financing

The section explores the current literature on three study objectives: external financial requirements, bank-imposed conditions, and owner-manager perception of future finance availability.

2.3.1.1 External Financial Requirements

Finance is a critical and scarce resource that substantially influences the firm's ability as a going concern—especially for small and medium enterprises. Aghion *et al.'s* (2019) study shows that access to credit enhances firm productivity. Moreover, Zhang (2020) analyzed 4,790 private manufacturing enterprises in six Latin-American countries using the World Bank Enterprise Surveys of 2006, 2010, and 2017. The study concludes that had constrained firms had access to credit, capacity utilization increased by 26.8%, while unconstrained firms would have experienced a decrease of 23.7% had their access to credit constrained.

Grundy and Verwijmeren (2020) found a strong association between investment characteristics and debt and equity financing preference. Özer and Çam (2020) studied firms from 71 countries using multi-equation models. They show that long-term debt and equity play a significant role in capital expenditures financing (working asset investment). With the strengthening of the institutional environment, the enterprises' increase (decrease) reliance on equity (debt) issuance in funding capital expenditures. These firms also extend their debt maturity and decrease their leverage levels.

Likewise, Yano and Shiraishi (2020) explored Chinese non-listed firms sampled from 2000 to 2009. Their findings suggest that those firms preferred trade credit in financing physical capital investments. The complementary relationship between external and internal finance sources oscillates between trade credit and cash flow to bank loans and cash flow as investment risk

increases. Besides, firms forfeit debt funding, including bank loans, and opt for internal cash flows to finance investments under increasingly riskier conditions.

Chen and Matousek (2020) established a nexus between productivity and preferred external finance sources. Using a sample of 1591 manufacturing firms in the Asian market, they show that productivity helps firms raise new equity finance. However, its effect on total leverage and long-term debt is negligible. The findings hold, particularly for private firms. Still, large and old firms exploit their productivity better to access external finance than small and young firms.

Similarly, Li, Liao, and Zhao (2018) surveyed 600,000 firms between 1998-2009. The OLS regression results show a substitution effect between external credit and internal finance supply. The marginal impact of internal finance on firm productivity is feeble when firms have substantial external credit. Still, internal finance is more important for enterprises in financially vulnerable industries.

Furthermore, firms employ different approaches to address financial constraints. These include but are not limited to dependence on the more mature informal financial markets, cost-cutting through lower inventory, necessary working capital adjustments, and higher reliance on retained earnings. Meaningful differences exist in private enterprises' external financial access, with small private firms experiencing more financial constraints than established ones. For high-growth firms, equity value is more significant than financial leverage (Karpavičius & Yu, 2019).

Firms depend almost entirely on internally generated funds to finance investment in case of increased external financing constraints. However, the impact of internal financing on enterprise growth reduces with an improvement in access to bank credit facilities. A fall in the external financing constraint allows the enterprise to depend less on internal funds—it switches to these external sources to primarily fund its growth. The oscillation between external and internal funding options is higher in small firms. Smaller and emerging firms rely heavily on internal funding due to consistent, stringent external financing requirements (Dong & Men, 2014).

Financial constraints affect operations regardless of firm size—more so in emerging economies. Molla (2019) evaluated 4720 firms in 11 African economies and found that such limitations adversely affect an enterprise's decision to implement innovative activities. Financial constraints on innovation activities differ across firm size, sector, and age groups. Fowowe (2017) examined 10,888 firms in 30 different African markets and concluded that

finance access hurdles negatively and substantially affect firm growth. Financially unconstrained firms experience higher growth than those constrained.

Firms change their financing preferences depending on prevailing economic conditions. Specifically, large firms finance their growth with pay-out equity and debt during the boom phase, whereas small enterprises prefer issuing equity and debt. That is, large firms generally oscillate between equity and debt financing over the business cycle, while small firms stick to a pro-cyclical financing strategy of debt and equity (Begenau & Salomao, 2018).

Rashid (2014) examined United Kingdom's manufacturing firms from 1981 to 2009. The findings reveal that firms consider both firm-specific and economic risk in making external financing and debt-equity decision. Enterprises are less (more) likely to accept external funding when macroeconomic (firm-specific) risk is high. The propensity of debt versus equity financing falls significantly in uncertain times. Firms prefer repaying outstanding debt instead of repurchasing existing equity when faced with either type of risk. Firm-specific risk is economically critical in the firm's external financing decisions.

Basil (2017) analyzed United Kingdom's SMEs and correlated firm value and external financing needs. In particular, the study finds a positive relationship between size or profitability and firm value. The established small and medium enterprises and those with lower-debt levels have desirable corporate governance structures. The firms' ability to raise funds externally, for instance, from the public, existing shareholders, or easy access to bank financing depends on its industry's competitiveness levels.

Research shows the existence of a considerable financing difference between innovation and non-innovation orientated firms. Regardless of firm size, they all face financial constraints in pursuing R&D activities (Prędkiewicz & Prędkiewicz, 2018). Small firms experiencing economic challenges are unlikely to engage in R&D or innovation-related activities (Journal, Broome, Moore, & Alleyne, 2018). Still, R&D spending depends on SMEs' access to external financing.

Alam, Uddin, & Yazdifar (2019) examined 302 firms from 20 emerging economies from 2003 to 2015. The study finds that firms in these economies prefer financing their R&D investments through internal sources. Hewa and Fernandez (2019) analyzed 13,430 firms from Central Asian Eastern Europe economies. They establish a positive association between formal finance and both process and product innovation. The effect is which is higher for growing SMEs than

that of mature ones. On the converse, informal financing significantly impacts established firms' product innovation.

Further, ease of access to financing may be a source of competitive advantage. Yigitcanlar et al. (2018) analyzed 188 Brazilian firms in the technology industry. The multivariate probit findings reveal the significance of public innovation funding, showing that firms that utilize federal funds become competitive nationally. In contrast, those using commercial bank loans are unlikely to become competitive nationally and internationally. Besides, those reinvesting revenues are likely to grow market share and increase the number of employees, while those unaware of public funding projects are unlikely to invest in R&D and innovation.

However, Adegboye and Iweriebor's (2018) study adds a new twist to the finance access-innovation relationship. They used the World Bank Enterprise Survey (ES) dataset to analyze Nigerian SMEs. The logit estimation results indicate that accessing bank credit has a robust positive effect on local firms' innovation and influences their R&D behavior. Interestingly, they demonstrate that increased access to finance can lead to productivity decline among firms.

Small and medium enterprises in traditional sectors occasionally experience difficulties accessing the much-needed credit to finance their innovation activities. Market failures in funding creative SMEs' traditional industries imply that the existing venture capital, private equity, and mezzanine fund models may not offer satisfactory financing solutions (Harel & Kaufmann, 2016).

Regarding external financing sources, St-pierre, Sakka, and Bahri (2018) surveyed 151 Canadian firms. They find that equity and bank finance positively influence performance, but the latter had a more significant effect. However, Cheng, Wu, Olson, and Dolgui (2020) explored a firm's dilemma when faced with readily available trade credit, bank credit, and portfolio credit (financing from both trade credit and bank loans at different ratios) options. These firms prefer trade credit to bank loans; the ratio discriminates against bank loans in a portfolio credit.

In the African context, Ayalew and Xianzhi (2019) sampled 9632 firms in 27 African markets between 2013-2016. They showed that bank competition has positively and significantly affected firms' external financing needs, applying for new credit lines, and banks' loan approval decisions. Despite higher loan application approval rates by banks, many firms are discouraged from applying for bank loans. Young firms and SMEs report higher financing

constraints, require more external financing but are less likely to apply for bank loans, and have low access to bank loans.

2.3.1.2 Bank Financing

The banking sector has traditionally channeled credit to the private sector. According to Schumpeter, banks' role is primarily to liquidate loans to businesses with poor prospects and reallocate them to more prosperous, expanding firms. Lee (2019) explores the link between external financial requirements, bank financing, and firm performance. The Korean-focused study concludes that a firm's financial condition significantly influences its growth. Firms short in internal cash flows have slower growth than those that are not. However, loans access by these firms mitigate the adverse effects of financial condition on growth significantly

Esubalew and Raghurama (2020) analyzed 411 Ethiopian MSMEs using structural equation modeling. The study concludes that bank finance has a substantial positive effect on the MSMEs performance. Behavioral finance significantly mediates the relationship between bank finance and performance. In developing economies, sometimes governments crowd out the private sector by borrowing heavily from the domestic markets through different instruments. Salachas, Laopodis, and Kouretas (2017) demonstrate that commercial banks' balance sheets for private firms lending thins out when this happens.

Information asymmetry between banks and businesses, mainly SMEs, is the primary reason for loan request rejection. Banks will impose conditions to grant credit facilities if there is information asymmetry. Kautonen, Fredriksson, Minniti, and Moro's (2020) study of 160 Finnish SMEs finds a robust positive association between trust and credit access. Likewise, Wellalage and Locke (2017b) show that lowly educated female entrepreneurs in South Asia cannot access bank financing due to information asymmetry.

Wang, Han, and Huang (2020a) examined the bank-SMEs relationship in 17 European markets from 2007 to 2015. They matched 533 banks to 78,531 SMEs, employing econometric models for analysis. The study finds that bank market power lowers SMEs' access to bank finance and aggravates their credit constraints at the disaggregated level. However, a concentrated bank market enhances credit supply to firms. Notable, the undesirable market power effect is more substantial for SMEs that are more informationally opaque, more dependent on external finance, and riskier.

Farzin, Ryszard, and Azman-Saini (2016) used the general moment's method to analyze 5,77enterprisesse from 21 major emerging economies from 2006 to 2013. The study establishes a substantially positive relationship between firm leverage and banking concentration. Thus, in emerging countries, a higher banking concentration results in greater formal finance availability. The situation affects firms' investment decision-making since enterprises with better credit access use debt to finance profitable investment opportunities.

Sun, Calabrese, and Girardone (2020) analyzed United Kingdom's SMEs' advanced overdraft (10,673 observations) and (5864) loan facilities from 2011 to 2017. The study concludes that the credit approval chances are higher for female-owned firms operating as partnerships but with a higher initial credit balance. The applications for smaller, younger, and more innovative firms are more likely to be rejected. Nonetheless, their chances of success in subsequent applications increase with time.

Prevailing global crises may affect credit flow to the private like the Covid-19 pandemic. Cubillas and Suárez (2018a) surveyed 735 banks from 17 European markets from 2003to 2012. They conclude that the Global Financial Crisis (GFC) directly affected banks' ability to supply loans. Conversely, increased bank market power counteracted this negative effect over the years after the crisis onset. These findings are relevant in economies with less stringent regulations on bank activities and less supervisory control.

The environment under which financial institutions operate influences their activities. Chortareas, Kapetanios, and Ventouri (2016) explored an average of 3,809 commercial banks in different American states from 1987 to 2012. The fractional regression model results indicate that banks in states with higher degrees of economic freedom are cost-efficient. Greater financial and banking markets independence from government controls leads to higher bank efficiency.

Hasan, Jackowicz, Kowalewski, and Kozłowski (2017) used the ordinary least square regression model to explore Polish SMEs-banks relations from 2008 to 2012. They show that local cooperative banks enhance bank financing access, lower financial costs, boost investments and favor SMEs' growth. Moreover, counties in which cooperative banks hold a strong position experience a higher new firm creation pace. The opposite holds when foreign-owned banks dominate local banking markets. Viverita, Lubis, Bustaman, and Riyanti's (2015) study supports foreign-owned banks' findings. Institutional changes like banks' capital base

compounding can hamper bank credit outflow to the private sector (Pogodaeva, Baburina, & Dmitrieva, 2018).

Literature finds a substantial correlation between bank financing and innovation. Molla (2019) evaluated 11,173 enterprises in 28 African economies. The study finds that innovative SME financing patterns substantially differ from their non-innovative parts. However, this is not the case with large firms. These firms prefer financing their innovation activities primarily through bank finance and internal sources. Besides, bank and equity finance significantly affect innovation activities, followed by internal sources, non-bank financial institutions, and trade credit finance, respectively. Qi and Ongena's (2020) results resonate with Molla's findings. Their study explored 6422 small firms from 22 emerging economies.

Likewise, Spatareanu, Manole, and Kabiri (2019) surveyed 2,855 innovative firms in the United Kingdom from 2008 to 2011. The econometric model results indicate that bank distress negatively affects the quality and quantity of firms' innovation. The negative effect is substantial for small and medium enterprises. Banks' specialization in financing innovation addresses the impact of bank distress. Also, bank competition greatly enhances firms' R&D programs (Tian, Han, & Mi, 2020)

Nevertheless, not all firms can access available finance facilities. Pogodaeva et al.'s (2018) findings are supportive of this argument. The study, which focused on Russia, suggests that banks avoid financing riskier but innovative firms in a volatile business environment. Still, other researchers demonstrate that trade credit financing is preferable to a bank loan when faced with a decision on the two financing sources (Yang, Zhuo, Shao, & Talluri, 2021).

Firm size plays an essential role in securing funds externally. Angori, Aristei, and Gallo (2019) examined Italian firms and found that banks' multiple relationships lessen small enterprises' financial constraints, whereas borrowing from several lenders deters large firms' credit access. Significant differences across firm size groups determine the relationship between credit access and banking relationship characteristics.

Nonetheless, Lussuamo and Serrasqueiro (2020) contradict Angori, Aristei, and Gallo's findings. Their study focused on Angolan SMEs, used primary data but with a smaller sample size. They demonstrate that despite the close firm-bank relationships, firms consider other factors when seeking bank financing. Critical ones include the high-interest rates charged

by banks on loans and collateral requirements. Interestingly prior firm performance is not a significant factor to banks when loans but other considerations.

That notwithstanding, does the external financing source affect default risk? Chiu, Wang, and Peña (2018) answer this question by investigating 3,169 non-financial firms in the United States from 2006 to 2010. Their findings reveal that firms depending mainly on bank financing have a higher default risk than firms with no dependence. Firms relying primarily on bank lending may not counter the adverse effect of bank financing shocks by substituting these loans with publicly traded debt.

Phan (2018) advises caution based on 435 Vietnam firms' findings. The Generalized Methods of Moments results show that the debt level has a significant negative impact on firm investment, but debt maturity is insignificantly related to investment rate. The negative relation between firm investment and leverage holds for private enterprises with long-term debt financed by banks.

2.3.1.2 Owner-Manager Perception

Existing empirical literature finds a robust correlation between perception or attitude and financial investment. For instance, Lim et al. (2018) evaluated 492 respondents in Malaysia using purposive sampling. The results suggest that perception and attitude positively and substantially influence a person's financial behavior on investing. Moreover, Jackowicz and Kozłowski (2019) sampled 697 Polish SME owners and concluded that social ties affect SME managers' opinions about banks. These ties boost an SME's access to bank financing and stimulate investment

Likewise, Rabia and Hafeez (2019) surveyed 285 Pakistanian SMEs. The structural equation modeling results suggest that owner-managers low awareness level of available financial products and procedures strongly affects their attitude. Still, insufficient knowledge of financing and the dominant role of owner-managers in making firm decisions negatively affect their attitude. Hirsch, Schiefer, Gschwandtner, and Hartmann (2016) confirm these findings by analyzing 187 Chinese entrepreneurs (Mallinguh, Wasike and Zeman, 2020).

Chassé and Courrent (2018) demonstrated that owner-manager personal sustainability behavior influences firm performance in the French scenario. That notwithstanding, the manager's perceived level of independence in making decisions (like financing) affects firm performance

(Agut, Hernández Blasi, and Lozano Nomdedeu, 2019). Owner–managers' awareness of possible future financing problems allows them to prepare against related risks.

While conventional SME finance studies focus on changing financing options and preferences, these businesses move through different phases. Wong, Holmes, and Schaper's (2018) surveyed eleven business owners and demonstrated that SME owner-managers deliberately decide how to manage their enterprises' finance as a direct consequence of owning the firm. The findings suggest that specific underlying factors define the goals and perceptions of small business owners. Also, they affect their financial decision and future funding options.

Jude and Adamou (2018) analyzed 450 Cameroonian SMEs using logistic regression. They show that owner-managers perceptions significantly influence the SMEs' decision to apply for bank loans. However, findings contradict the Pecking-Order Theory suggesting that these firms prefer debt to equity as it does not entail any business control loss. Fairouz and Bouchra (2018) concur with Jude and Adamou's findings; specifically, they sampled 153 Morracon SMEs. The factor analysis results indicate that attitudes and perceived behavioral controls substantially influence the financial decision-making process.

Erdogan (2019) sampled 492 Turkish SMEs in the manufacturing and service sectors. Logistic regression findings suggest that relatively more innovative and older SMEs are more optimistic about their ability to secure bank loans than firms with longer relationships with their oldest banks. The bank loan applications of firms with two or more owners imply higher credibility than a single owner. However, having more owners results in more complex agency problems for banks. Compared with loss-making firms, owner-managers of firms making profits or break-even perceive it easier to obtain bank financing.

Choo, Wang, Yin, and Li's (2020) findings contrast the Pecking-Order Theory assumptions. Their study's regression results focusing on Taiwan's firms suggest that firms with more skilled managers mitigate information risk better by increasing equity while lowering loan financing. The effect is substantial in well-governed and financially unconstrained firms. The implication is that highly skilled managers prefer financially sound and well-governed firms prefer equity to external finance sources.

Further, a decision made by banks on an SME loan application affects the owner-owner manager. Owens, George, and Anne-Marie (2017) surveyed 2,500 United Kingdom SMEs from 2004 to 2008. They find that outright bank credit rejection lowers owner-managers

financial self-confidence and perception of subsequent applications. On the converse, partial bank credit rejection may boost confidence. There is strong evidence suggesting that financial education increases financial self-confidence.

Rao and Kumar's (2018) study resonates with the above conclusion. A 309 SMEs sample size's findings established that demand-side financing factors are significantly related to the preferred SMEs financing source. The demand-side factors include the owner-managers attitude towards risk, business goals, and control over networking ties, business, and personal attributes. Notably, SME owner-managers must be conscious of their attitude or perception since it impacts their financing decisions.

In the African context, Tolba, Seoudi, and Fahmy (2016) examined 149 Egyptian SMEs. The mixed-method results show low intentions to take a commercial bank loan by SMEs in the country. The owner-managers have negative perceptions of the service quality offered by banks. Subjective norms and knowledge primarily influence loan-taking decisions. Still, intentions vary based on the specific company and demographic characteristics.

Nevertheless, Johan, Rowlingson, and Appleyard (2020) call for caution on the effect of formal financial training on perception and attitude (towards investment). They find no significant connection between the two factors. However, Yasmeen, Stuart, and Zakaria's (2019) study dispute these findings. They used Kruskal Wallis's non-parametric technique to examine 385 Oman SMEs. Their study establishes a significant association between financial literacy and the adoption of new financing options.

In conclusion, Duxbury, Gärling, Gamble, and Klass (2020) note that unconscious mental processes play a significant role in human activities like financial investments. Thus, anticipated and anticipatory emotions interact to influence investors' decisions, and entrepreneurs are no exception (Taffler, 2018).

2.3.2 Business Environment

The business environment comprises the general or remote and immediate task (Jung, Foege, & Nüesch, 2020). They argue that environmental dynamism and complexity influence performance. In particular, the environmental contingencies of an enterprise's organizational task environment affect performance. Ching and Dewi (2013) describe the task environment as comprising of industry-specific factors. Environmental uncertainty is more significant in the task environmental sector than in the general environment.

Kotler, Armstrong, Harris, and Piercy (2013) define the remote environment as (an) external factor(s) influencing all firms operating in the environment. These include the economic status, regulatory frameworks, technological advancement, political instability, socio-cultural settings, and demographic structure. The task environment is industry-specific, and the closeness allows firms to identify relevant information about the threats to businesses and opportunities. The situation enables firms to grow (Nadkarni & Barr, 2008).

Nudurupati, Garengo, and Bititci (2021) theorize how business trends (environment) affect the quantification of firm performance regarding innovation. Alexander, Romero, and Ann (2020) sampled 223 Australian SMEs and used multiple hierarchical techniques to test their hypotheses. They show that entrepreneurs' psychological capital, entrepreneurial education, and social capital directly affect their firm performance. Notably, the study singles out the business environment role; specifically, it is better when the business environment is favorable.

Secches, Da, and Da (2021) explore a country's entrepreneurial environment attractiveness determinants by examining how countries compare. The comparison regards their entrepreneurial opportunities and business environment; moreover, whether these aspects change over time. The study analyzed emerging and mature economies from 2001 to 2016 and found a significant difference in emerging economies' trajectories. The business environment stirred India's entrepreneurial activities more than Brazil, Argentina, and South Korea over the study period.

The business environment affects firms in the same industry differently. Wanke, Tan, Antunes, and Hadi-Vencheh (2020) sampled 128 Chinese firms in the energy sector. They found that the business environment led to a more significant dispersion in the efficiency level among firms. The resultant efficiency influenced financial performance and competition. Also, the efficiency was related to fixed assets, inventories, and research and development expenditure. Eling and Schaper's (2017) study resonates with the findings. Their study explored 970 European insurance from 14 different markets.

Gaganis, Pasiouras, and Voulgari (2019) concur with the above findings, based on a survey of 40,000 European firms from 25 nations from 2006 to 2014. They conclude that the business environment, like the ease of getting credit, greatly enhances firm profitability. In the African set-up, the analysis of firms operating in sub-Saharan countries draws a similar conclusion.

Ease of access to external finance as a measure of the business environment results in 39% firm output dispersion (Bah & Fang, 2015).

Oyekunle, Abimbola, Bamidele, and Richard (2020) sampled 72 South African construction firms. They find a significant association between the business environment and firm performance. In New Zealand, the business environment strongly correlates to the tourism sector's performance (Gani & Clemes, 2020). Reyes, Roberts, and Xu (2021) analyzed firms from 128 nations and show that finance access as a factor in the business environment affects firm performance. However, other factors like the workforce had no meaningful influence.

The business environment influences informal and formal sectors; for instance, Ahmed and Mohammed (2015) analyzed 438 Bangladeshian firms in the informal sector. The study confirms that the business environment influences informal businesses as it would the formal ones. Nguimkeu (2016) investigates the African scenario by focusing on the Cameroonian retail industry while contrasting informal with legal firms. The study concluded that a low business environment score based on the World Bank's Enterprise Survey hurts performance.

In conclusion, Khazaei and Azizi (2020) sampled 176 top-performing companies globally. The multiple linear regression results established a significantly positive association between the business environment and financial performance. Like in cases described previously, some factors are inconsequential to the outcome. Nevertheless, most of the reviewed literature suggests a robust correlation between business environment and performance.

2.3.4 Innovation

The Oslo Manual (2018) titled *"Guidelines for Collecting, Reporting and Using Data on Innovation, The Measurement of Scientific, Technological and Innovation Activities"* defines innovation as applying a new or significantly enhanced product (tangible or intangible) or process, an original marketing method, or a new organizational method in business practices, enterprise organization, or external affiliation (Kahn, 2018)(Kahn, 2018). The manual identifies four main types of innovation: product, process, marketing, and organizational. It defines product innovation as launching a new or new service or significantly improving the characteristics or intended use.

Process innovation is developing new or significantly enhanced techniques (s) of production, administrative, or delivery methods. Marketing innovation refers to recent or significant changes in non-functional features such as product design (packaging), promotion, place, and

pricing. Organizational innovation develops new corporate methods in an enterprise's business practices, workplace organization, or external relationships.

The four definitions guided the researcher in the present study. Nevertheless, scholars have explored other innovative strategies employed by firms to remain competitive. These include but are not limited to the business model and supply chain as reviewed next.

2.3.4.1 Product Innovation

Product (or service) innovation refers to products developed and produced through new design principles or technical concepts. Besides, it may entail significant improvements to existing products in material, structure, technology, or material that substantially improve their performance (S. Sun & Anwar, 2018).

Also, Zulkepli, Hasnan, and Mohtar (2015) define service innovation as a unique or enhanced service process positioned on technology. Service innovation is a process of accessing the essential resources, their (re)combination, and conversion into new services. Firms with scarce resources should consider ways to; actively address the scarcity, economically utilize what is available, improvise resource recombination, and collaborate (Witell et al., 2017).

Ramadani *et al.* (2019) used the Crepon-Duguet-Mairesse model on a sample of 6246 firms in nine European Union economies (Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Poland, Romania, Slovakia, and Slovenia) and seven south-eastern non-European Union states (Albania, Bosnia and Herzegovina, Kosovo, Macedonia, Montenegro, Serbia, and Turkey) for the period 2013-2014. The study finds product innovation to affect the performance of a firm in transition economies positively. Augmenting the result is the significant outcome of specific control factors like size, cost of labor, and the entity's capital.

Kuncoro and Suriani (2018) analyzed 100 respondents using PLS structural equation modeling. The study findings a significant positive impact of product innovation on both the sustainability of competitive advantage and market driving. Also, market driving has a positive and significant effect on sustainable competitive advantage.

Hsiao and Hsu's (2018) regression analysis results of 150 cases of new product development from listed Taiwanese firms show that product innovation capability positively moderates the relationship between marketing strategy and innovative performance. Also, the R&D strategy's

effect on innovation performance is mainly through the mediating impact of product innovation capability.

Additionally, Michaelis et al.'s (2018) factor analysis findings demonstrate how introducing new products is critical for entrepreneurial firms by sampling 334 firms from 24 countries. The results indicate that high scores across all innovation culture aspects have high new product profits and sales.

Bratti and Felice (2018) examine seven European economies: with around 3,000 entities from France, Germany, Italy, and Spain; about 2,200 firms from the UK; and another 500 firms for Austria and Hungary. The study finds that most firms in Europe engage in production to order for other companies. The product-to-order suppliers of foreign entities are more innovative as compared to those of home-based firms. Entities' innovation and globalization strategies hinge on product features.

2.3.4.2 Process Innovation

Process innovation is the launching of a new or unique production method, the key to a firm's level of competitiveness as an entity can experience higher efficiencies in the production process and improved product quality and features (Flaig & Stadler, 1994). Wang, Pauleen, and Zhang (2016) proposed extracting principle innovation know-how from process patents to back systematic process innovation in manufacturing. The proposed method categorizes process patents through process methods, using manufacturing objects and feature reference points.

Soetevent and Bružikas (2018) analyzed pump prices at selected automated filling stations for 2005-2013 in the Netherlands against those with no conversion. The pump prices at automatic service stations fell by 1.7 to 3.2% immediately after conversion and stabilized at lower prices than those with no automation. For SMEs, enhanced process innovation boosts efficiency in their operations (Papetti, Marilungo, Gregori, & Germani, 2016). Process and product innovation may be advantageous to a monopolistic firm but undesirable in any economy (Li, 2018; Zhong & Zhang, 2018)

Process innovation is associated with environmental sustainability. Moyano-Fuentes, Maqueira-Marín, and Bruque-Cámara (2018) find a strong relationship between sustainability engagement and process innovation. Firms usually fulfill both economic sanctions imposed on their competitive environment and institutional strains originating from their stakeholders.

Correspondingly, entities give more consideration to institutional pressures at the start and economic challenges in subsequent stages of their evolution

2.3.4.3 Marketing Innovation

Marketing innovation is a new marketing concept or approach that differs significantly from previous marketing strategies. In essence, it needs substantial variations in product designing or packaging, product placement, product promotion, and pricing but does not include regular, seasonal, and, other routine changes in marketing strategies. The guidance is based on the Eurostat manual (2013) themed *"The Community Innovation Survey 2012–Methodological Recommendations"*. Marketing is a critical function in any entity's operations, and as such, firms must be able to transform information from the external environment into marketing innovation.

Ramirez, Parra-Requena, Ruiz-Ortega, and Garcia-Villaverde (2018) evaluated a sample of 994 Spanish manufacturing firms. The partial least squares structural equation modeling findings suggest that externally obtained information on partnerships with customers, suppliers, and competitors results in marketing innovation. Also, both product and organizational innovation positively affect the relationship between marketing and external information changes. As such, entities should use external information inflows to stir change in both the products and organizations as a precondition to marketing innovation.

Similarly, firm size and external information positively affect marketing innovation, but inter-organizational cooperation negatively influences (Felzensztein, 2013). Gupta, Malhotra, Czinkota, and Foroudi (2016) used structured equation modeling and fuzzy-set qualitative comparative analysis techniques on a sample of 649 industry players. The findings indicate that a healthy relationship business-wise between a brand and its retailers enables both parties to be competitive in the market. Still, innovations in a brand's marketing activities are a function of its inputs to its competitiveness.

The recognition of consumer needs through effective relationship management and turning them into marketing innovation are value creation. These two key processes can also boost a firm's competitive advantage, resulting in desirable profitability, cost reduction, and promoting technology use. Sánchez-Gutiérrez, Cabanelas, Lampón, and González-Alvarado (2018) analyzed 450 Mexican SMEs using confirmatory factor analysis and structural equation modeling. The findings illustrate that management competencies in handling customer

relationships and converting customer-need knowledge into specific solutions lead to positive customer value creation, economic achievement, cost reduction, and technology used, all of which embody competitive advantage.

Knowledge is an intangible resource, and its acquisition through learning capability may influence marketing innovation. Thus, collective expertise affects marketing innovation directly and indirectly through the learning capability. However, the influence of the experience by persons on marketing innovation is by way of learning capability

2.3.4.4 Organisation Innovation

Birkinshaw, Hamel, and Mol (2008) define management innovation as the "generation and implementation of management practice, process, structure or technique that is new to state of the art intended to further organizational goals." Management innovations are often applied deep at the micro-level of the firm.

Therefore, management innovation is a sophisticated program that entails organizational routines representing a key and crucial firm element. Corporate methods evolve during innovation implementation through a three-process phase: extant-routine-domination, new-routine-development, and; solidification. Each stage displays different innovative actions and attributes of participants' cognition and behaviors. Recreating new routines is vital for routine evolution and, ultimately, successful management innovations (Lin, Chen, & Su, 2017).

Entities do not function in a vacuum and continually interact with the external environment. The main reason is that firms rely on ideas or knowledge in implementing organizational innovation originates from the external environment. Simao and Franco's (2018) study of 2,591 Portuguese enterprises shows that externally acquired knowledge from customers and trade partners influences innovation practices.

However, external expertise from competitors, the state, academic, and research institutions has minimal effect. Some factors may determine the implementation of organizational innovation. Busaibe, Singh, Ahmad, and Gaur (2017) show gender moderates between corporate change and corporate culture, leadership, and employee performance management.

Transformational and transactional leadership boost organizational innovation performance, respectively. Also, both openness breadth, and depth mediate the favorable effect of

transformational leadership and the deleterious impact of transactional leadership style on innovation (Jia, Chen, Mei, & Wu, 2017).

Moreover, organizational innovation affects other innovations, such as technology, products, and services (Chen, Zheng, Yang, and Bai, 2016). Still, organizational innovation affects the persistence rate of technological innovation. Additionally, knowledge management significantly impacts product innovation persistence, whereas workplace organization affects process innovation persistence. These are the findings of a study by Nguyen-Thi, Mothe, and Le Bas (2015), who analyzed 287 Luxembourg businesses.

Firms do not follow a similar path when selecting and implementing innovative strategies. Instead, there is a wide range of preferences or techniques available to these firms (Karlsson & Tavassoli, 2016). However, innovation can be a source of competitive advantage for firms in emerging economies. Anning-Dorson's (2018) study focusing on the Ghanaian and Indian markets finds evidence supporting this argument.

A firm can implement innovation activities internally, externally, or both ways. The implementation depends on internal resource availability and risk-taking propensity (Giacomarra et al., 2019). These activities can boost productivity should a firm strike the ideal strategic balance between internal and external implementation. Knowledge acquisition and internal R&D interact differently over time. Firms with limited internal capacity may go the external way. However, the internal implementation of innovation activities is more efficient in the long run (Denicolai, Ramirez, & Tidd, 2016).

2.3.4.5 Business Model Innovation

Business model innovation (BMI) searches for a new entity logic and new methods of creating and capturing value for its stakeholders (Foss & Saebi, 2018). Nunes and Do Val Pereira's (2020) survey of 51 Brazilian firms in technological parks finds a substantial positive correlation between BMI and firm performance. Also, value creation and proposition correlate positively to business performance (as an aggregate variable). In the financial service sector, based on the Nigerian findings, the constant need to align the firm's resources with the customer demand conditions triggers BMI (Iheanachor, David-West, & Umukoro, 2021).

Zhang, Zhao, and Xu (2016) outlined three main types of business model innovation: original, induced, and imitative. Some iconic businesses emerged due to their business models and related innovations (Mikhalkina & Cabantous, 2015). Ghezzi and Cavallo (2018) evaluated

digital start-ups and concluded that lean start-up approaches could be used as agile to facilitate business model innovation for digital Entrepreneurs.

Bashir and Verma (2019) explained how an entity's internal capabilities might be harnessed to bring about competitive advantage. Wong, Wong, and Ke (2016) analyzed 187 Chinese firms using the Ordinary Least Square regression method. They establish a significant correlation between managerial ties (owner-manager) and a firm's business model innovation. Ghezzi (2017) argues that reinventing the wheel approach unleashes business model innovation by reinventing past resources and competencies, digital technologies usage, and the customer-centered experience and journey.

SMEs pursue varying strategic goals, which affect BMI implementation differently. Heikkilä, Bouwman, and Heikkilä (2018) examined European SMEs from 2013-2016. The findings suggest that SMEs' strategic aims (like starting a new venture, growth, or profit maximization) propel firms to different BMI routes. Firms keen on growth commence from the right side of a business canvas, whereas profit-orientated from the back end, on the left side of the Canvas. New ventures adopt a cyclical strategy of checking model components while still redesigning and testing the business model.

Often, managers in traditional industries lack a structured mechanism for linking digital business model strategies to a specific entity's context. Remane, Hanelt, Nickerson, and Kolbe (2017) advise that firms identify existing products or services, dismantle business models, and develop new configurations. Pang, Wang, Li, and Duan (2019) sampled 165 Chinese firms. Their findings demonstrate that business model innovation has a significant mediating effect on the link between an entity's performance and integrative capability.

Nonetheless, BMI implementation is never successful in all cases. The hurdles to successful BMI implementation relate to culture, awareness, logic, search, and system. In most cases, the limitations unnoticed. However, overcoming the hurdles requires openness, networking, and acceptance of existing complexities (Friedrich von den Eichen, Freiling, & Matzler, 2015). A firm must employ a dynamic business model in the ever-shifting business environment.

2.3.4.6 Supply Chain Innovation Strategy

Supply chain innovation (CSI) is incremental or radical change within the supply chain's process, network, technology, or a mixture of the three to boost or create new value for the stakeholder (Arlbjørn, de Haas, & Munksgaard, 2011). Based on the Indian scenario, Mandal's

(2016) study surveyed 169 firms shows a strong association between SCI and firm performance. SCI complements firms' competencies regarding value creation, delivery, and capture. Research proses three key interacting components related to supply chain innovations: business process, network structure, and technology. The value created by supply chain innovations results from cost focus (Munksgaard, Stentoft, & Paulraj, 2014).

Customer knowledge acquisition is paramount in logistic innovation. Da Mota Pedrosa, Blazevic, and Jasmand (2015) suggest that boundary-spanning employees engage sequentially in deepening consumer knowledge during the logistics innovation development progress. Still, the specific sequence counts on the kind of innovation developed, whether customized or standardized. Customer knowledge usually deepens in close interactions, whereas knowledge broadens in interactions with many and different consumer firm members.

Queiroz and Telles (2018) surveyed 155 Brazilian firms in the supply and logistics industry. They argue that sustainable logistic innovation (SCI) requires identifying critical factors and tackling any related challenges. The SCI process comprises five stages: idea generation, idea selection; concept development; ensuring a sustainable business program, and; implementation and learning. Some settings require numerous internal and external actors, whereas others require just a few internal actors (Björklund & Forslund, 2018).

SCI improves a firm's capabilities in risk management, particularly from an international perspective. Kwak, Seo, and Mason (2017) surveyed 174 South Korean manufacturing firms and logistics intermediaries engaged in global supply chain operations. The factor analysis and structural equation modeling results show that SCI significantly affects all aspects of risk management capabilities. Improvements in risk management, in turn, improve substantially competitive advantage.

2.3.5 Firm Characteristics

The section reviews the literature on two factors: firm age and forms of business ownership

2.3.5.1 Firm Age

Existing literature extensively explores the correlation between a firm's age and varying aspects of performance. The literature suggests that as the firm ages, many of its operations and behavior also change. Aging may be at the firm or industry level, influencing its life cycle (Esteve-Pérez, Pieri, and Rodriguez, 2018). Financial theories have never given an exact way forward if firm performance is more pronounced for younger or older firms. For instance,

Cowling, Liu, and Zhang (2018) argue that young firms register higher growth or productivity rates than their mature counterparts.

Theories on organizational failure suggest that corporate death explanations may differ depending on the firm's age and life cycle stage. Kücher, Mayr, Mitter, Duller, and Durstmüller (2018) find that different causes of failure dominate specific business life phases. In particular, mature small and medium-sized firms encounter growing economic slowdowns and competition, whereas young and adolescent enterprises fail due to inherent drawbacks.

Coad (2018) suggests that firm age's most significant characteristics start manifesting between five to seven years. Coad, Daunfeldt, and Halvarsson (2018) examined 316,298 Swedish firms between 1998-2008. The logit regression results reveal a continuous positive growth in sales for new firms, which rapidly turns negative as the business ages. They concluded that younger businesses register sustained growth while older firms experience more erratic growth patterns.

Likewise, Megaravalli and Sampagnaro (2017) analyzed 1905 Indian manufacturing firms from 2010 to 2014. They concluded that firm age influences the probability of a firm becoming a low or high growth business. In a nutshell, firm age significantly and negatively correlates with the growth of the firm.

On the converse, some studies dispute the above assertion. Capasso, Gallucci, and Rossi (2015) evaluated 455 Italian winery firms between 2008-2011. They split the sample into two, 187 as "old" and 287 as "young." The study examined firm performance proxied as revenue trends, profitability, and financial leverage. The OLS regression results suggested that the older firms outperform the younger ones in financial and economic indexes. The older wineries exhibited higher revenue and profitability but lowered financial leverage trends.

Hande's (2017) study of 188 Turkish firms across sectors concurs with the above findings. Factor analysis and structural equation modeling results reveal that older SMEs perform better than young enterprises. Chay, Kim, and Suh (2015) agree with other researchers that firm age substantially determines its valuation. That notwithstanding, their study of Korean listed firms shows a negative correlation between age and firm valuation.

Further, Cowling and Tanewski (2019) sampled 954,367 Australian firms from 2014 to 2015 in all sectors. They conclude that young (0–2 years) and the oldest firms (> 9 years) are less productive than those between the two categories. Panza, Ville, and Merrett (2018) analyzed

349 privately listed Australian firms. The regression model results suggest that, among other factors, firm age is a critical determinant of firm survival.

Similarly, Kücher, Mayr, Mitter, Duller, and Durstmüller (2018) analyzed 455 Austrian firms using binary logistic regression. They established that specific business failure causes are associated with different firm life cycles or ages. In particular, young and adolescent enterprises fail primarily due to internal weaknesses. On the contrary, mature firms struggle more with economic slowdowns and increased competition. Still, firm age is a critical determinant of return on investment. Brawn and Aleksandar (2018) find older American firms to have a higher dividend pay-out than their younger counterparts.

Besides, the literature differs on firm age correlates to capital financing decisions. Bhama, Kumar, and Singh (2018) evaluated 405 firms listed on the Indian Stock Exchange. Their findings illustrated that firm age has no significant effect on the pecking order for businesses with capital deficits; they issue large debts to bridge the difference. However, when there is capital sufficiency, older enterprises, followed by growing companies, redeem more debt than young firms. Besides, younger firms prefer to retain more funds for future financing needs as they grow.

On the flip side, the Asian findings described above contradict the European situation. Maç and Vidigal (2016) sampled 1006 Portuguese family-owned firms, categorizing them from 2000 to 2009. The econometric model results revealed that firm age significantly influences a firm's financing decisions. Moreover, the financing decisions of young, low-sized family-owned businesses closely mirror the Pecking Order Theory assumptions while old, high-sized family-owned enterprises are those of Trade-Off Theory.

One other area of debate is whether smaller firms are more productive than larger businesses. The theory does not offer guidance on the way forward, whereas existing empirical literature does not address the subject adequately. Whereas small firms can leverage higher flexible management and quick response time to market dynamics, the larger companies possess advantages such as economies of scale, better access to credit facilities, licenses, and contracts, more so in developing countries (Nagaraj, 2014).

Moreover, age is a significant factor for firms keen on boosting their growth by raising finance through the stock exchange Yan and Williams (2020). These firms must exercise reasonable financial prudence and corporate governance. In short, as the firm ages, governance features

related to managerial entrenchment influence managerial risk preferences. Such plays a more significant role in the firm's capital structure decisions (Kieschnick & Moussawi, 2018). Likewise, Pellegrino (2018) finds a negative relationship between an enterprise's age and its ability to assess internal and external financial resource shortages.

In innovation, mature firms are better innovators by utilizing nascent or sophisticated knowledge. The performance arises from the availability of economies of scale, scope, and slack human capital. These firms lower the uncertainty and risks, improve on newer expertise, and amplify the available opportunities to build value from more established and aged experience. Conversely, smaller firms can exploit better the advantages of greater flexibility, allowing a conducive environment for the promotion of innovative ideas in a much better way (Messeni Petruzzelli, Ardito, & Savino, 2018).

Medase (2020) analyzed 9503 firms in 11 sub-Saharan African countries using the World Bank Enterprise and Innovation Follow-up surveys. The study establishes a substantial correlation between firm age and innovation.

Nonetheless, not all researchers crystalize the relationship between performance and firm age. For example, Legesse (2018) surveyed 6370 Ethiopian manufacturing firms from 2010 to 2015. The OLS regression results establish no significant correlation between firm age and performance. Moreover, firm age negatively moderates the association between family-owned enterprises and profitability (Albert, Régis, & A., 2017).

Mabenge, Ngorora-Madzimure, and Makanyeza (2020) sampled 330 Zimbabwean firms and used SEM and moderated regression techniques to test their hypotheses. They conclude that innovation does not influence a firm's financial or non-financial performance. However, separately, marketing innovation had a meaningful influence. They recommended that younger firms leverage innovation to improve their performance, whereas older people exercise caution in using it for the same purpose.

Whereas literature suggests SMEs implement innovation activities faster than their mature counterparts, some researchers call for caution. For instance, Coad, Segarra, and Teruel (2016) investigated Spanish firms from 2004 to 2014. The quantile regression results indicated that R&D investment or spending by young enterprises carries significant risk compared to mature entities. In support of the findings, Di Cintio, Ghosh, and Grassi (2017) illustrate how older enterprises exploit seasoned knowledge better due to lengthened learning experience.

2.3.5.2 Ownership Type

The firm ownership structure is a critical governance component since it affects firm performance. Srivastava and Bhatia (2020) sampled 179 listed Indian firms in different sectors and varying family-ownership proportions. The OLS regression results suggested that firm performance and family ownership have a nonlinear relationship. In particular, family ownership positively influences firm performance to a specific level, negatively affecting the outcome. Still, in the same Asian economy, Kumar, Kumar, Sabyasachi, and Abhijeet (2019) executed a similar study with a sample size of 421 firms. While they confirm the association between ownership and performance (pay low dividends), they also establish under-diversified.

Likewise, Doddy, Bandi, Lian, and Irwan (2016) sampled Indonesian listed firms and finds ownership type strongly related to performance. Their findings resonate with those of Bethke, Gehde-Trapp, and Kempf (2017). Espinosa-Méndez, Araya-Castillo, Jara Bertín, and Gorigoitía (2020) demonstrated that ownership plays a crucial moderating role by focusing on the Chilean market. They sampled 47 firms over ten years and concluded that ownership concentration positively affects the firm performance, like diversification strategies. On the converse, the business groups' affiliation negatively influences the diversification-performance relationship.

However, Chung and Dahms (2018) demonstrate that indirect ownership positively influences performance instead of direct control. The effect relates to a situation where an affiliate is in a different country. Focusing on emerging economies of Eastern Europe and Central and the former Soviet Union, Iwasaki and Mizobata (2020). The study established a positive and statistically significant impact of ownership concentration on firm performance.

Saona, San Martín, and Jara (2018) found that group-affiliated businesses capitalize on internal capital markets and transactions with related parties. These include loans at competitive interest rates or low transference price that reduces the demand for external debt. Similarly, Jara, Pinto-Gutiérrez, and Núñez (2018) sampled Chilean family and non-family owned firms. They concluded that family-controlled firms have low leverage ratios due to their access to internal capital markets. Conversely, listed affiliate family firms provide more loans to related businesses than comparable non-family firms.

Jabbouri and Jabbouri (2020) explored the Middle East and North African (MENA) scenario by analyzing Moroccan-listed firms. They found that institutional ownership positively affects performance more than family-ownership both pre-and-post crises. Yeh's (2019) study resonated with Jabbouri and Jabbouri's findings. Specifically, the study sampled 15 listed tourism firms in Taiwan from 2011 to 2015. The ordinary least square regression results positively affected performance and ownership (institutional shareholders and controlling owners).

There is debate about the difference in resources efficiency (financial) between family-owned and non-family-owned SMEs ownership. Xiang, Chen, Tripe, and Zhang's (2018) study reveals that family-owned firms' investment in innovation input is lower than non-family-owned ones, outpaced through innovation output. These may be through the introduction or sales of new technology or products. Budgetary constraints explained their increased transformation rate of innovation input to production. The synergy between family ownership and finance cost negatively impacts innovation as quantified through innovative sales and R&D intensity

Nonetheless, other scholars have found no substantial nexus between ownership and performance. For instance, Tran and Le's (2020) findings dispute the above assertion. Based on Vietnamese firms, they found that ownership concentration does not influence firm performance.

Further, the literature finds a substantial connection between ownership type and innovation performance. For example, Fan and Wang (2019a) sampled Chinese manufacturing firms and established a significant relationship between firm age, innovation while ownership substantially moderated the correlation. Likewise, Lewellyn and Bao (2021) analyzed 11,262 firms from 35 economies and drew a similar conclusion. Other related studies include Atallah, De Fuentes, and Panasian (2020); Panasian (2020); and Cucculelli and Peruzzi (2020).

In conclusion, the researcher identified related studies with confirmatory and contradictory findings based on the literature reviewed. The results expose the existing literature gaps and support the need for further research like the present one. Table 2 presents selected literature per study factor.

Table 2. A Section of Empirical Literature Reviewed

Author	Research paper	Related Factor	Main Findings
Chen and Matousek (2020)	Do productive firms get external finance? Evidence from Chinese listed manufacturing firms	External financing; Productivity	Large and old firms exploit their productivity better to access external finance than small and young firms.
Grundy and Verwijmeren (2020)	The external financing of investment	External financing; Capital expenditure	An investment's characteristics correlate to the choice between equity and debt financing. The investment's payoffs (hit or miss) determine the financing option.
Molla (2019)	The effect of financial constraints on innovation in developing countries	Financial constraint; External finance; innovation	The adverse effect of financial constraints on innovation varies across the sectors, firm sizes, and age groups. The possibility of encountering financial constraints depends on the firms' ex-ante financing structure, collateral requirement, accounting and auditing practices, and group membership.
Adegboye and Iweriebor (2018)	Does access to finance enhance SME innovation and productivity in Nigeria? Evidence from the world bank enterprise survey	Bank Financing; R&D	The ease of accessing bank credit has a robust positive effect on local firms' innovation and influences their R&D behavior. Interestingly, they demonstrate that increased access to finance can lead to productivity decline among firms.
Ayalew and Xianzhi (2019)	Bank Competition and Access to Finance: Evidence from African Countries	External Finance; Finance access	Bank competition positively affects firms' external financing needs, applying for new credit lines, and loan approval decisions. Despite higher loan application approval rates by banks, many firms are discouraged from applying for bank loans. Young firms and SMEs report higher financing constraints, require more external financing but are less likely to apply for bank loans, and have low access to bank loans
Wang, Han, and Huang (2020)	Bank market power and SME finance: Firm-bank evidence	Bank financing	Bank market power lowers SMEs' access to bank finance and aggravates their credit constraints at the disaggregated level. However, a concentrated bank

	from European countries		market enhances credit supply to firms. Notable, the undesirable market power effect is more substantial for SMEs that are more informationally opaque, more dependent on external finance, and riskier.
Esubalew and Raghurama (2020)	The mediating effect of entrepreneurs' competency on the relationship between Bank finance and the performance of micro, small, and medium enterprises (MSMEs)	Bank financing	Bank finance has a substantial positive effect on the MSMEs performance. Behavioral finance significantly mediates the relationship between bank finance and performance
Rabia and Hafeez (2019)	Attitude for inclusive finance: influence of owner-managers and firms' characteristics on SMEs' financial decision making	Perception; Attitude; External financing	Owner-managers low awareness level of available financial products and procedures strongly affects their attitude. Still, insufficient knowledge of financing and the dominant role of owner-managers in making firm decisions negatively affect their attitude
Wanke et al. (2020)	Business environment drivers and technical efficiency in the Chinese energy industry: A robust Bayesian stochastic frontier analysis	Business environment;	The business environment leads to a more significant dispersion in the efficiency level among firms. The resultant efficiency influences financial performance and competition. Also, the efficiency relates to fixed assets, inventories, and research and development expenditure
Khazaei and Azizi (2020)	How is the financial performance of the world's top companies related to the business environment?	Business environment;	There is a positive correlation between the business environment (like access to formal finance) and the financial performance of top global companies
Mallinguh et al. (2020)	Technology Acquisition and SMEs Performance, the Role of Innovation, Export, and the Perception of Owner-Managers	Perception; Financing; Innovation	The perception of owner-managers towards formal credit availability moderates the mediated relationship between the capital budget's portion spent on technology and sales as mediated by innovation activities
Capasso et al. (2015)	Standing the test of time. Does firm performance improve	Firm age; Performance	The older firms outperform the younger ones in both the financial and economic indexes. The older wineries exhibited

	with age? An analysis of the wine industry		higher revenue and profitability but lowered financial leverage trends.
Cowling and Tanewski (2019)	Did firm age, experience, and access to finance count? SME performance after the global financial crisis	Firm age; Funding;	Young firms tend to register higher growth or productivity rates than their mature counterparts.
Espinosa-Méndez, Araya-Castillo, Jara Bertín, and Gorigoitía (2020)	International diversification, ownership structure, and performance in an emerging market: evidence from Chile	Ownership type	Ownership positively moderates the firm the correlation between diversification strategies and performance. On the converse, the business groups' affiliation negatively influences the diversification-performance relationship.
Tran and Le (2020)	Ownership concentration, corporate risk-taking, and performance: Evidence from Vietnamese listed firms	Ownership type	Ownership has no substantial influence on firm performance.

Source: Author's work

2.4 The Literature Review Process

The researcher adopted the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach to reviewing selected articles, as shown in figure 3. The first step was to identify the papers through the university's primary databases like Scopus, Web of Science (W.o.S), Springer, Wiley, Oxford, EBSCO, Taylor online library, and, Emerald Publishing. Nevertheless, other reviewed articles originated from databases like Google Scholar and online research forums like Research Gate and Academician.

The database search resulted in over 350 articles. The second stage involved screening the articles, of which 300 articles remained after removing duplicates. A further 93 articles never met the cut based on keywords, abstract, limited full access, and language used. The screening resulted in 207 eligible articles with full access rights granted. A detailed review of these articles showed a disconnect between the researcher's interest and 16 papers. Thus, in the end, only 191 articles met the set inclusion criterion.

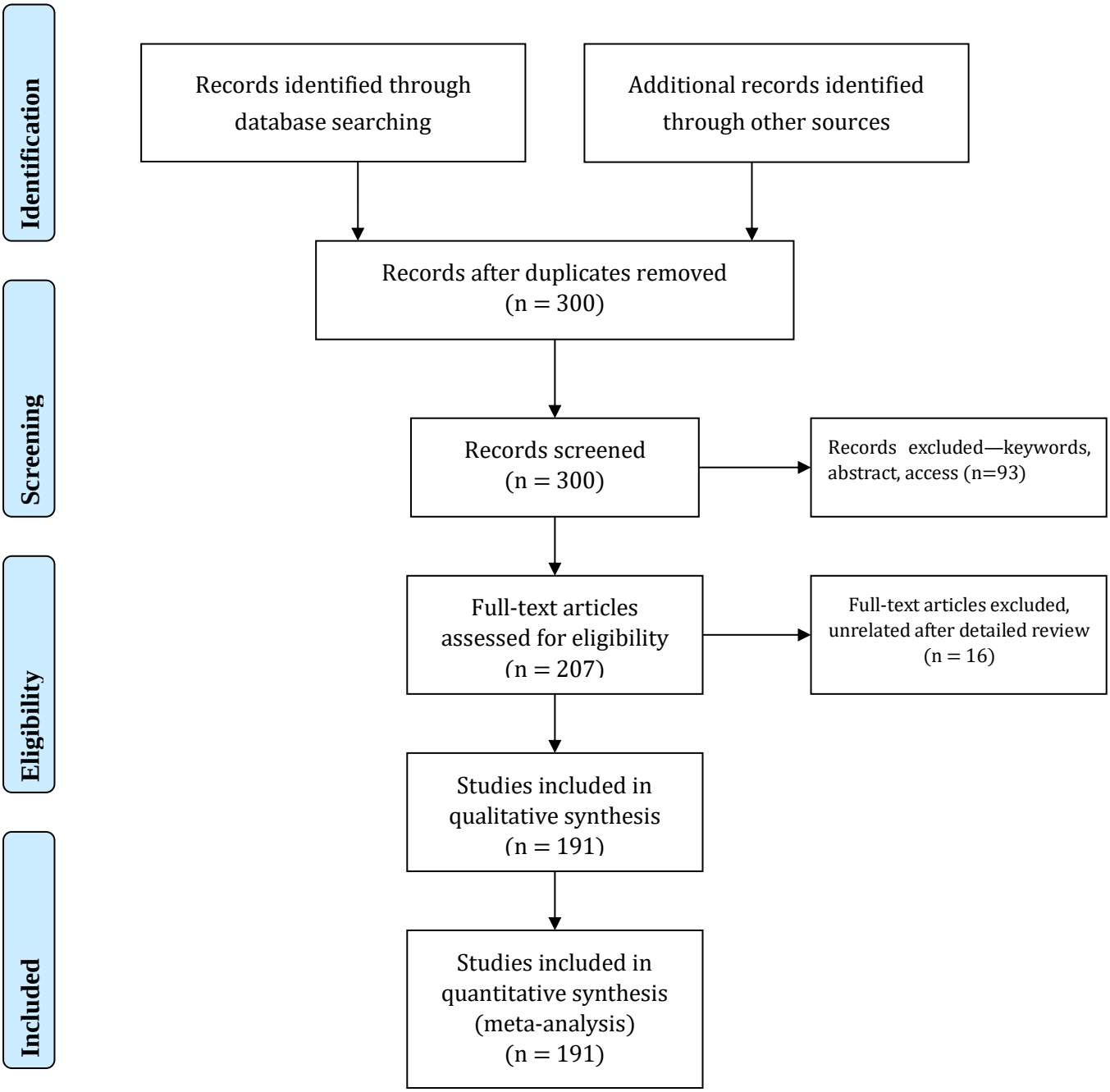

Figure 3. Preferred Reporting Items for Systematic Reviews and Meta-Analyses Flow-Chart

Source: *Adopted from*: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009).

2.5 Research Gaps in Reviewed Literature

The review has exposed inconsistencies and contradictory findings in the existing literature. For instance, Zhang's (2020) analysis of six Latin American countries concludes that credit-constrained firms' finance access increases productivity or capacity utilization by 26.8%. Besides, unconstrained firms would have experienced a decrease of 23.7% if their credit access is constrained. On the contrary, Adegboye and Iweriebor's (2018) evaluation of the Nigerian market highlights the importance of credit access to innovation activities. However, the researcher also found that increased access to finance (bank) results in productivity declines among firms. The two related studies but different set-ups (Latin America and West Africa) have contradictory findings.

Further, Molla (2019) pinpointed the financing pattern differences between innovative and non-innovative firms, highlighting banks' crucial role. Nonetheless, Sun, Calabrese, and Girardone (2020) suggested that banks are discriminatory towards smaller, younger, and more innovative firms—with their loan applications likely to be rejected. That notwithstanding, Phan (2018) suggests that the debt level has a significant negative effect on investment for private firms employing bank loans. Still, debt maturity is insignificantly related to investment rate. The findings put to question bank financing logic for private businesses when there are other alternatives.

Moreover, Cowling, Liu, and Zhang (2018) suggest that young firms experience higher growth or productivity rates than their mature counterparts. Ordinarily, one expects such positive growth or productivity (non-financial performance) to reflect sales (financial performance). Interestingly, Capasso et al. (2015) demonstrate that older firms have superior performance than younger ones financially and non-financially. These two studies focused on the European markets. On the converse, Legesse (2018) establishes no significant correlation between firm age and performance in the African set-up.

Still, Nunes and Do Val Pereira (2020) demonstrate a significant positive correlation between innovation and firm performance. Also, they conclude that value creation and proposition correlate positively to business performance. On the flipside, Mabenge, Ngorora-Madzimure, and Makanyeza (2020) could not crystalize the association between these two factors. They find that innovation does not influence a firm's financial or non-financial performance.

Research shows that innovation is one of business competitiveness, with SMEs applauded for the ease and speed of innovation implementation (Dobni, 2010; Weerawardena & Mavondo, 2011). However, Coad, Segarra, and Teruel (2016) suggest that R&D investment by young enterprises carries significant risk compared to mature firms. The argument places SME owner-managers at a crossroads. Still, the effect of the business environment on performance depends on the elements analyzed. Researchers concur that some elements in the environment are significant while others have no meaningful impact.

Finally, the relationship between ownership type and firm performance varies depending on the market considered. For instance, studies supporting a substantial correlation between these two factors include (Atallah et al., 2020; Cucculelli & Peruzzi, 2020; Saona et al., 2018). Nonetheless, other studies dispute these findings, suggesting that ownership does not affect performance (Trung, 2020). In conclusion, the literature confirms and contradicts itself in certain circumstances. The market considered could partially explain the divergence in the findings. The literature's inconsistencies justify the need for more research, especially in economies with limited studies on the subject matter.

Thus, the present study seeks to build on the existing literature by exploring the situation in Kenya. Besides, developing economies in Africa have received less attention from researchers. Most of the reviewed literature is mainly on Asian, European, American, and to some extent, the Middle East and North African (MENA) region. On the African continent, these studies focus primarily on West, Southern, and North African countries. East Africa, where Kenya, a developing economy lies, has received less attention over the years. The present study is a step towards addressing limited research on the Eastern African economies.

MATERIALS AND METHODS

3.1 Introduction

The chapter describes the research methodology used to test the study hypotheses and answer research objectives. The section includes philosophical orientation, questionnaire development, the method applied, and empirical specification of the models

3.2 Philosophical Orientation

Research philosophy is a structure of beliefs and presumptions about knowledge development (Saunders, 2009). Galliers (1991) defines research philosophy as a belief about how data on a phenomenon should be collected, analyzed, and utilized. The assumptions distinguish the three main groups of research philosophies— epistemology (what is known to be real), doxology (what we believe to be real), and ontology (what is the nature of reality).

Besides, the above three key assumptions can influence the execution of research from design to conclusions. Therefore, it is crucial to understand and evaluate these aspects so that approaches congruent to the specific study's nature and objectives are adopted, allowing understanding, exposure, and minimization of the researcher's biases (Flowers, 2006). Science transform beliefs into what is known, which is doxa to episteme.

Research in business and management fields revolves around six philosophies. These are positivism, realism, criticism, pragmatism, interpretivism, and post-modernism. The current study adopts the positivism research philosophy based on truth, values of reason, and validity. The primary focus is on facts collected through direct inspection and experience, then empirically measured using quantitative methods (Eriksson & Kovalainen, 2008). Business and management researchers have never agreed on one specific philosophy to guide the research in these fields.

Scholars have taken decades debating if many research philosophies, paradigms, and methodologies are helpful with no consensus reached. Instead, two opposing views exist, Unificationism and Pluralism. Unificationists hold that business and management are fragmented, arguing that fragmentation prevents it from becoming a real scientific discipline. They propose the unification of business research into one robust research philosophy, paradigm, and methodology. On the converse, pluralists view diversity as applicable, stating that it enriches business and management (Knudsen & Tsoukas, 2009).

3.3 Data Collection Tool

The researcher developed a structured questionnaire for primary data collection. The data collection tool borrowed heavily from two different questionnaires previously used but related to the current study.

3.3.1 Original Sources of the Questionnaire

The first tool is the *European Commission and European Central Bank Survey on SMEs' access to finance* questionnaire by European Central Bank (2009). The survey assisted the European Commission with evidence for policymaking to improve businesses' financial access and European Central Bank monetary policy formulation. Existing studies have utilized the same questionnaire as Martinez, Guercio, and Bariviera (2020). The second tool is the *Community Innovation Survey (CIS 4)* by Eurostat (2004). Be as it may, the researcher is cognizant of different updated versions of CIS as found at https://ec.europa.eu/eurostat/web/microdata/community-innovation-survey. The researcher appreciates the latter improvements in the CIS 4 and made provisions in this study's final questionnaire.

The tool offers information on innovativeness based on types of sectors, firms, and innovation. Studies that have used this tool include but are not limited to (Hashi and Stojčić, 2013; Cricelli, Greco, and Grimaldi, 2016). It also explores the various aspects of innovation development like objectives, information sources, public funding, and expenditures. The survey happens every two years across the EU candidate countries, EFTA countries, and European Union. For comparability purposes, Eurostat and member states came up with a standard core questionnaire. Finally, whereas the two considered tools focused on the European market, they are equally appropriate for the African countries, albeit with minor modifications.

3.3.2 Questionnaire Design and Development

Table 3 presents the constructs, their coding, and the sets of questions. Lavrakas (2008) notes, certain constructs can be fully operationalized through only one or a few questions, whereas others are more complex, requiring several questions to measure. These complex constructs entail multiple facets bound together by a specific commonality forming one primary construct together.

The tool has the general firm characteristics (demographic), financing, the business environment, innovation, and performance sections, as shown in appendix 10. In particular, bank-imposed conditions combine the loan pricing and non-pricing requirements. Likewise,

performance has both financial and non-financial parameters. Previous studies that have employed a similar approach include Mabenge et al. (2020) and (Rok, Vesna, & Mojca, 2008). Firm characteristics responses are multiple choices. However, the other sections had scaled responses (1-5).

Whitley (2000) advises on having a sequence of related questions since some questions influence others' responses within the same category. The questionnaire sequence minimizes ambiguity; besides, the length is adequate to capture all critical aspects of the study variable. The researcher was cognizant of the fact while formulating the questionnaire.

Table 3. A Brief Outlay of the Questionnaire

Construct Sections	**Section Description**	**Questions**
Firm characteristics	Demographics, age*, ownership, sector, size, etc.	**FC1-5**
Financing	Financial requirements & Sources, bank conditions, perception	**FF1-7**
Business environment	The country's general economic and remote & task firm environment	**BE1**
Innovation	The product, process, marketing, and organizational innovation-related activities initiated by the firm.	**IAL1-4**
Performance	Financial (revenue-related) and non-financial (operational-related) parameters	**FP1-7**

Source: Author's construction based on previously used tools and existing literature

*Based on the Guidelines on the Registrar of Companies in Kenya under the State Law Office.

3.4 Research Design

Research design is a blueprint that offers the researcher a detailed outline or strategy to gather and analyze data. The approach involves the scientist's decisions on the research plan, setting, operationalized definitions, and measurement of the research's constructs of interest (Rosenthal & Rosnow, 1991). It is the logical sequence that links empirical data to a research's initial study question and, finally, to its conclusion (Yin, 1994). Explanatory research (causal research) seeks to establish a cause-effect relationship between phenomena. Such studies involve hypothesized causes or explanatory variables and their effect on dependent variables (Oppewal, 2010). The current study employs a descriptive, non-experimental research design, a systematic empirical approach in which the researcher has no direct control of explanatory variables as they are inherently non-manipulable or their manifestations already took place.

Thus, inferences about associations among variables are made with no direct intervention from the concomitant variation of predictor and predicted variables (Kerlinger & Lein, 1986). Quantitative non-experimental research is a significant field of study for financial experts since numerous critical, but non-manipulable explanatory variables require further investigation (Johnson, 2007). Most of the findings highlighted in the previous section, the literature review, are country or region-specific and may not be generalized in all cases. Although existing studies focus on developing or emerging economies, these markets' peculiarities call for caution in the findings' blanket generalization.

Nonetheless, the study followed Eurostat's (2013a) methodological recommendations for the Community Innovation Survey. These relate to the targeted population, survey methodology, data collection, processing, and construct weighting.

3.4.1 Target Population

The target population for a study is the whole set of units for which the study data may make inferences. Also, the target population describes those units for which the study's findings are for generalization purposes. Nonetheless, the populations must be precisely defined since the definition dictates whether sampled units are eligible or ineligible for the survey (Lavrakas, 2008). In particular, the current study focused on medium-sized enterprises within the Kenyan economy. The KNBS Basic Report (2016) on MSMEs established that the country had over 1.5 million such businesses. Most of these enterprises were in the micro or small category and unlicensed.

Furthermore, the KNBS classifies businesses in the country on two bases, the number of employees and the turnover. The researcher adopts a workforce classification approach since some firms may be sensitive to sharing financial performances. It defines a medium-sized firm as any business that employs between 50-99 people. Those with a workforce of 11-49 and 1-10 are classified as small and micro, respectively. The present study emphasizes the small enterprises to medium-sized companies which form the target population.

3.4.2 Sample Design

Lavrakas (2008) defines a sample design as the framework or road map that serves as the basis for selecting a survey sample and affects many other important aspects of a survey. Likewise, Kabir (2018) states that the sample design defines the plans and methods adopted in selecting a sample from the target population and the estimation techniques for analyzing the sample

statistics. The resultant statistics are the estimates operationalized to infer the population parameters. The present study sought to examine specific information on SMEs through a survey based on the study variables.

Based on the Kenyan Ministry of Industrialization, Trade & Enterprise Development report, and KNBS, the country had approximately 310,000 registered companies in 2020, with only 65 listed on the Nairobi Stock Exchange. Whereas the figure is for all legal businesses operating in the country regardless of the firm size, it nevertheless guided in the sample size arrived at. The study used two main business directories to find a comprehensive list of firms operating in the country and their contact details. One is the Kenya Association of Manufacturers (KAM) directory, whose membership comprises enterprises of all sizes.

Two, the Kenya Business Directory (KBD) from Africa Business Pages. The directory lists over 52,000 registered companies operating in the country. Like those in the KAM directory, most of these firms are in major cities. Still, the researcher reached out to the Top100SMEs secretariat. The Top-00 SMEs is an annual competition run by one of the country's leading media houses (Nation) and KPMG (Kenya). It aims to recognize, reward, and assist small and medium businesses based on their performances; the study excluded financial (deposit-taking) institutions like banks, microfinance institutions, and mortgage or insurance companies. Their inclusion, while they offer credit to businesses, is contradictory.

3.4.5 Data Collection

The researcher used a questionnaire since the study sought primary data from sampled firms. Saunila (2017) used a similar approach to quantify business excellence. The researcher preferred primary data for uniqueness and originality based on the study requirements (Victor, 2017). Data collection was mainly online due to the target firms' geographical position and the global health crisis (the Covid-19 pandemic at the time).

The instrument targeted those in specific managerial positions like finance/accounts, sales/marketing, strategic business units (SBUs), innovation, product, research, and Development (R&D) departments. The firms cut across the different sectors of the economy. The researcher made targeted telephone calls and company visits to spur confidence and improve the response rate. Such company visits offered an opportunity to collect data in hard copies.

3.5 Pilot Study and Instrument Validation

The study's nature necessitated the need for a pilot study for which Isaac and Michael (1995) recommend a sample of 10-30 participants. In executing the pilot study, the researcher followed Oyekunle, Abimbola, Bamidele, and Richard (2020). A pilot study is advisable to address several concerns, such as instrument development or preliminary scale. Specific issues like item discrimination, item difficulty, response rates, internal consistency, and parameter estimation are generally relevant (Johanson & Brooks, 2010). Nonetheless, it is not an assurance of success in the full-scale investigation, but it certainly boosts the probability of success (van Teijlingen & Hundley, 2014).

That notwithstanding, reviewed literature supports the criterion validation. The researcher applied a two-step tool pre-test approach. First, eleven working and part-time Master of Business Administration tested the questionnaire. Their responses enhanced the clarity and minimized ambiguities in the data collection tool. Secondly, the researcher emailed the improved questionnaire to ten top and middle-level managers whose responses enhanced the tool. Where necessary, the researcher made follow-up telephone calls and emails for further clarification of issues raised.

Face validation of the questionnaire was through discussions with the supervisors. The researcher held a pre-field meeting with Professor Zeman Zoltan before traveling back to Africa. The meeting offered an opportunity to validate the modified tool and relate it to the African setup. The researcher also discussed the tool with a few postdoctoral fellows in finance and innovation, who gave insightful advice.

3.4.3 Sampling Technique and Sample Size

According to Taherdoost and Group (2017), the sampling process involves a clearly defined target sample, selecting sampling frames and techniques while determining the sample size before commencing data collection. The researcher adopted a probabilistic stratified (clustering) random sampling based on the country's eight primary geographical regions. These regions formed eight, from which the researcher proceeded to draw a sample. Chang and Krosnick (2009) advise that the probability samples are more representative of the national field experiment than the non-probability samples. Whereas Eurostat's (2013a) report has economic and employee numbers as other stratification approaches, regional sampling appealed more to the researcher.

Three main sample size determination methods exist empirical formulae, the rule of thumb, and statistical software. All three have their advantage and shortcomings depending on application circumstances. Extensive literature explores the empirical formulae approach in practicability, precision, and power balancing (Dattalo, 2008). Also, 'rules of thumb' continue persisting in multiple regression studies' designs despite the Development of procedures for calculating sample size as a function of relevant effect size parameters (Maxwell, 2000). Green (1991) finds support for a rule-of-thumb for the multiple correlations where $n \geq 50 + 8m$ and $n \geq 104 + 8m$ for the partial correlation—for medium-sized effects; where $m = the\ number\ of\ predictors.$

Advances in technology have resulted in superior statistical software capable of determining the sample size based on the effect size desired. The effect size may be small, moderate, or high, and the smaller the effect, the larger the sample. The researcher opted for the statistical sample size determination over the other two approaches. Effect size determination is a critical component of pathway analyses, particularly mediation and moderation. Other researchers have used software to determine the sample size based on the effect size desired (Fritz & MacKinnon, 2007).

Furthermore, any small, medium, or significant effect designation depends on a case-by-case basis and is fundamentally arbitrary. The effect size is the ratio of total indirect effect to total effect mediated with values closer to one, suggesting that the predictor's impact on the outcome is through the mediator (Alwin & Hauser, 1975). Cohen (1988), on the other hand, suggests that values of $0.1;\ 0.3; and\ 0.5$ should be interpreted as small, moderate and large effects. Baron and Kenny (1986) advise that the test of the indirect effect should have $0.8\ (80\%)$ power.

Based on G-Power statistical software, the ideal sample size for this is 160 firms. However, the researcher had 198 usable questionnaires fulfilling the set criteria for inclusion in the analysis. Whereas the number is higher than what the software calls for, the study included all retuned and usable data collection tools. The first part of chapter four explains further the subject.

3.5.1 Confirmatory Factor Analysis (CFA)

Ursachi, Horodnic, and Zait (2015) note that whereas single or multi-dimensional scales may measure constructs, reliability often sticks out, particularly in social sciences studies involving non-observable and latent variables. They caution that while Cronbach's alpha is an acceptable

measure of reliability, researchers must consider external factors that might affect the study's reliability. The researcher performed confirmatory factor analysis (CFA) as a critical process of the validation process.

CFA, a structural equation modeling technique, is a crucial analysis tool in the social sciences. CFA allows the investigation of causal associations among observed and latent variables in a priori specified, theory-derived models. CFA gives valuable information on how data fits the specific, theory-derived measurement model while exposing specific items with potential weaknesses. That is item loading strength on factors they should measure (Mueller & Hancock, 2001).

Table 4 presents how items load on their respective factors. CFA assisted in identifying and excluding items with low factor loading. Scholars disagree on the exact item loading cut-off point with ranges from 0.3 to 0.5 deemed acceptable. However, most concur on a 0.4 to 0.5 range (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Williams, Onsman, & Brown, 2010). For purposes of the present study, the set item loading cut-off is at 0.5. Thus items some items were omitted from the analysis. These include **FP7** for firm performance, **FR4** for financial requirements, **IAL1**, **IAL2**, and **IAL 8** for innovation activity.

Table 4. Confirmatory Factor Analysis Results

Construct Indicators	Factor1	Factor2	Factor3	Factor4	Factor5	Factor6
FP1. Labor costs and production costs	0.497					
FP2. Investment cost in new equipment and facilities	0.831					
FP3. Firm output capacity	0.941					
FP4. The number of workers	0.556					
FP5. Sales turnover	0.865					
FP6. Profitability	0.895					
FP7. Assets compared to debts*	**0.070**					
BIC1. Level of interest rates		0.793				

		0.85			
BIC2. Non-interest related costs		1			
		0.72			
BIC3. The size of the loan or credit line		0			
		0.88			
BIC4. Loan maturity duration		3			
		0.88			
BIC5. Collateral requirements		6			
		0.69			
BIC6. Other requirements		2			
BE1. General economic outlook			0.739		
BE2. Public financial support and access			0.704		
BE3. Firm-specific outlook on the business plan or sales and profitability			0.806		
BE4. The firm's capital outlook			0.899		
BE5. The firm's credit history			0.714		
BE6. The willingness of banks to offer credit facilities			0.915		
BE7. The willingness of business partners to avail of trade credit			0.839		
BE8. The willingness of investors to take up equity or debt instruments			0.749		
				0.84	
FR1. Bank loan				7	
				0.69	
FR2. Trade credit				8	
				0.70	
FR3. Equity investment				7	
FR4. Debt issuance instrument*				**0.177**	
				0.77	
FR5. Other financings (family, leasing, factoring, etc.)				3	
OMP1. Internal funds, like from the sale of assets and retained earnings					0.731
OMP2. Bank loans					0.687
OMP3. Equity investments in the firm					0.508
OMP4. Trade credit					0.919
OMP5. Debt securities issued					0.857
OMP6. Others (non-bank loans, factoring, hire purchase, and leasing)					0.645
IAL1. Goods innovations*					**0.105**

IAL2. Service innovations*		**0.131**
IAL3. New or improved (NI)production processes		0.787
IAL4. NI logistics, delivery, or distribution methods		0.658
IAL5. NI supporting activities for your processes		0.901
IAL6. New business practices (NBP) for organizing procedures		0.877
IAL7. NBP organizing work responsibilities and decision making		0.792
IAL8. NBP organizing external relations with other enterprises*		**0.195**
IAL9. Significant changes to the aesthetic design or packaging		0.979
IAL10. New media or techniques for product promotion		0.824
IAL11. New methods for product placement or sales channels		0.652
IAL12. New methods of pricing goods or services		0.520

Source: Author's work

Table 5 shows the three indices that measure the items' appropriateness level, namely Adjusted Goodness of Fit (AGFI), Comparative Fit Index (CFI), and Standardized Root Mean Square Residual (SRMR). ADFI is the proportion of variance due to the estimated population covariance with AGFI ≥ 0.90, suggesting a good fit (Baumgartner & Homburg, 1996). West, Taylor, and Wu (2012) advise that CFI ≥ 0.95 is a good fit; however, values above 0.90 are equally acceptable. SRMR is the square root of the variation between the model's covariance matrix and the sample covariance matrix. SRMR values < 0.08 are acceptable and indicate a low insufficient fit level (Bentler, 1990).

All three indices are within acceptable levels implying that the items fit appropriately under their respective factor. CFA was crucial in deriving average extracted variance (AVE) detailed in the next chapter. Nevertheless, it is critical to outline different conditional and unconditional models supporting this study. These models are below.

Table 5. CFA Fit Measure Indices

Index	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Adjusted Goodness of Fit	0.901	0.902	0.911	0.941	0.956	0.900
Comparative Fit Index	0.904	0.906	0.907	0.904	0.926	0.905

Standardized Root Mean Square Residual	0.04	0.053	0.064	0.074	0.056	0.05

Source: R program Output

3.6 Scholarly Work Anchoring the Study

Table 6 summarizes selected scholarly works that ground the present study, linking factors and models to related studies or literature. BIC and BE are the primary predictors, while firm performance is the outcome variable. External FR and IAL are the two mediators, while; owner-manager perception (OMP) of future finance availability, firm age (FA), and ownership type (OT) are the three moderators. The two predictors and external financial requirements are financing factors, whereas age and ownership, firm characteristics.

A moderator changes the strength or direction of the predictor's effect on the outcome variable. Montoya (2019) states that in statistical analysis, moderation tests whether the correlation between a focal predictor (*X*) and a predicted variable (*Y*) depends on another variable (moderator-*W*). The moderator variable can change the predictor's effect strength from strong to moderate to zero effect.

On the converse, mediation analysis focuses on estimating a focal predictor's (*X)* indirect effect on the outcome variable (*Y)* through an intermediary (mediator) variable (*M)*, causally located between two variables. The model takes the form of $X \rightarrow M \rightarrow Y$ (Hayes & Hayes, 2015). When the correlation between the predictor and predicted variable depends on the mediator, it highlights why the relationship exists; a mediator variable carries an effect. Practically, the relationships between the predictor, mediator, and predicted variables test a correlational relationship but not causality.

Table 6. Selected Scholarly Literature Grounding the Methodology

Variable	Type	Study Title	Author
Predictors	Bank Imposed Conditions	What affects bank debt rejections? Bank lending conditions for UK SMEs. *The European Journal of Finance*	Sun, Calabrese and Girardone (2020)
	Business Environment	How important are financing constraints? The role of finance in the business environment. *The world bank economic review*	Ayyagari, Demirgüç-Kunt and Maksimovic(2008)

Mediators	External Financial Requirements	Access to external finance: Theory and evidence on the impact of monetary policy and firm-specific characteristics. *Journal of Banking & Finance*	Bougheas, Mizen, and Yalcin (2006)
	Innovation Activity Level	Knowledge processes, knowledge intensity, and innovation: a moderated mediation analysis. *Journal of knowledge management*.	Kianto, Sáenz and Aramburu (2017)
Moderators	Firm Age	Product innovation and employees' slack time. The moderating role of firm age & size. *Journal of Innovation & Knowledge*	Medase (2020)
	Ownership Type	Firm age, ultimate ownership, and R&D investments. *International Review of Economics & Finance*.	Fan and Wang (2019)
	Owner-Manager Perception	Technology Acquisition and SMEs Performance, the Role of Innovation, Export and the Perception of Owner-Managers. *Journal of Risk and Financial Management*	Mallinguh, Wasike and Zoltan (2020)
Outcome	Performance	Like milk or wine: Does firm performance improve with age? *Structural Change and Economic Dynamics*	Coad, Segarra, and Teruel, (2013)
Models	Mediation	Integrating mediators and moderators in research design. *Research on social work practice*	MacKinnon (2011)
	Conditional Path Analysis	Introduction to mediation, moderation, and conditional process analysis: A regression-based approach. *Guilford publications*.	Hayes (2017)

Source: Author's Work

3.7 Models Specification and Statistical Software

The study adopts a path analysis approach, focusing on the BIC and BE's direct, indirect and conditional effects on the outcome variable. The researcher uses the ordinary least squares regression models (OLS) in exploring these effects. The study also examines how the two

mediators and three moderators influence the predictors' impact on performance. Three statistical software do the analysis, namely, R studio (v4.3.0), SPSS (v27), and Process Macro (v3.5). The researcher preferred the R's latent variable analysis (Lavaan)—due to its ability to model complex relationships more than any other program and model customization. Besides, as the name suggests, it is ideal for handling the latent type of variables—a feature of this study.

One cornerstone of this study is the integration of mediation and moderation models. Feng, Song, Zhang, Zheng, and Pan (2020) highlight four approaches that test the integration of the two types of models. They include product indicator analysis (PI, unconstrained approach, and constrained approach), path analysis (PA), and latent moderated structural equations (LMS). Specifically, the current study focuses on two types of integrated moderated mediation namely, PA and LMS. Process Macro runs on the SPSS platform and has specific advantages. The software can handle complicated conditional relationship analyses. Still, it automatically addresses particular OLS assumptions violated by the data used. For convenience, the presented equations use universally accepted variable codes. That is, $BIC = X_1; BE = X_2; FR = M_1; IAL = M_2; OMP = Q$. Others include ownership type (W), firm age (Z), and performance (Y).

3.7.1 Model One: The Mediation Model

Hypothesis one states that the BIC and the BE's direct and mediated effects on the firm performance are definitively different from zero. With a serial formation, external FR influences IAL. The conceptual framework for the model is in appendix 5. Figure 4 presents the various relationships between the variables and related structural equations. Mediation takes the form of $X \rightarrow M \rightarrow Y$. The mediators act as both endogenous $(X \rightarrow M)$ and exogenous $(X \rightarrow Y)$ factors. The model also serves as a mother model upon which others build.

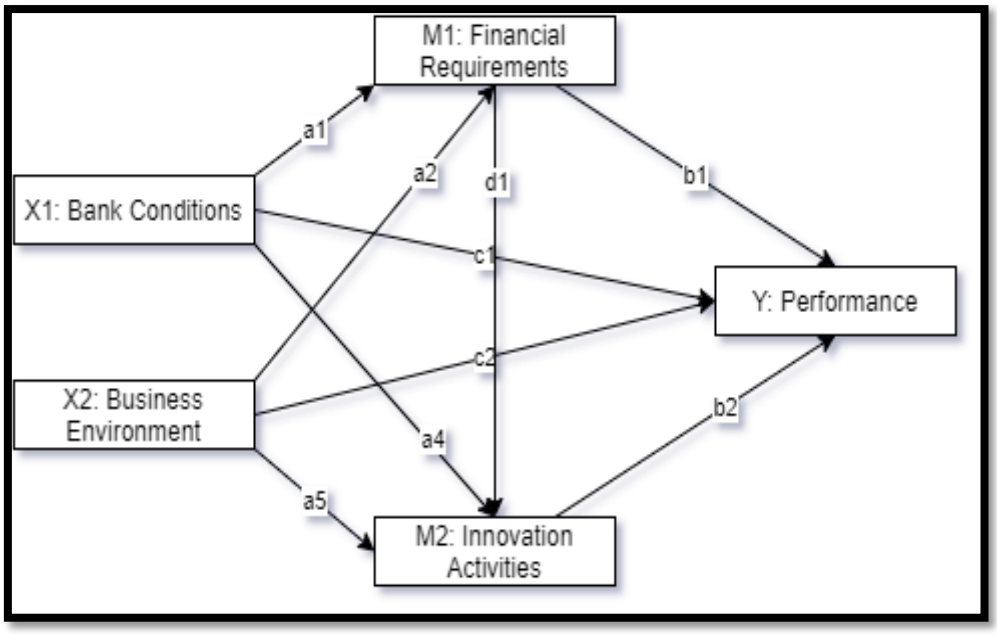

Figure 4. Mediation Model Statistical Framework
Source: Author's Conceptualization

1. Three structural equation models summarize the predictors *(Xs)* effect on firm performance *(Y)*

$$M_1 = i_{M1} + a_1X_1 + a_2X_2 + e_{M1} \dots\dots\dots\dots\dots\dots\dots\dots (i)$$

$$M_2 = i_{M2} + a_3X_1 + a_4X_2 + d_1FR + e_{M2} \dots\dots\dots\dots\dots (ii)$$

$$Y = i_Y + b_1M_1 + b_2M_2 + c'_1X_1 + c'_2X_2 + e_Y \dots\dots\dots (iii)$$

Where: $(i_M)\ and\ (i_Y)$ are the intercept terms, (a_s), (b_s) and (d_1) regression estimates while (e_{ij}), the error terms.

2. The 'Product of the Coefficients' tests the predictors' indirect effect (pathway significance). The three indirect paths are:

$$via\ M_1 = (a_1 + a_2)b_1 \dots\dots\dots\dots\dots\dots\dots\dots (iv)$$

$$via\ M_2 = (a_3 + a_4)b_2 \dots\dots\dots\dots\dots\dots\dots\dots (v)$$

$$via\ both\ mediators = (a_1 + a_2) * d_1 * b_2 \dots (vi)$$

3. Pathway contrast:

$$Cont\ 1 = (a_1 + a_2)b_1 - (a_3 + a_4)b_2 \dots\dots (vii.a)$$

$$Cont\ 2\ = (a_1 + a_2)d_1 * b_2 - (a_1 + a_2)b_1 \ldots (vii.b)$$

$$Cont\ 3\ = (a_1 + a_2)d_1 * b_2 - (a_3 + a_4)b_2 \ldots (vii.c)$$

4. The predictors' effects:

    - Total indirect effects:

$$= (a_1 + a_2)b_1 + (a_3 + a_4)b_2 + (a_1 + a_2)d_1 * b_2 \ldots (viii.a)$$

    - The direct effects

$$= c_{dash1} + c_{dash2} \ldots\ldots\ldots\ldots\ldots\ldots (viii.b)$$

    - The total effects (indirect plus direct)

$$Y = i_Y + b_1M_1 + b_2M_2 + c_1X_1 + c_2X_2 + e_Y \ldots\ldots (viii.c)$$

5. The proportion mediated:

$$P_M = \frac{Total\ Indirect\ Effect}{Total\ Effect} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (ix)$$

3.7.2 Model Two: The Three-Way Moderated Mediation Model

Objective two hypothesizes that the moderating effect of owner-manager perception of future finance availability on the BE and BIC's effect is robustly different from zero. OMP is assumed to have a conditional influence on all three paths (a), (b), and (c)—illustrated in figure 6 and the conceptual framework in appendix 5.

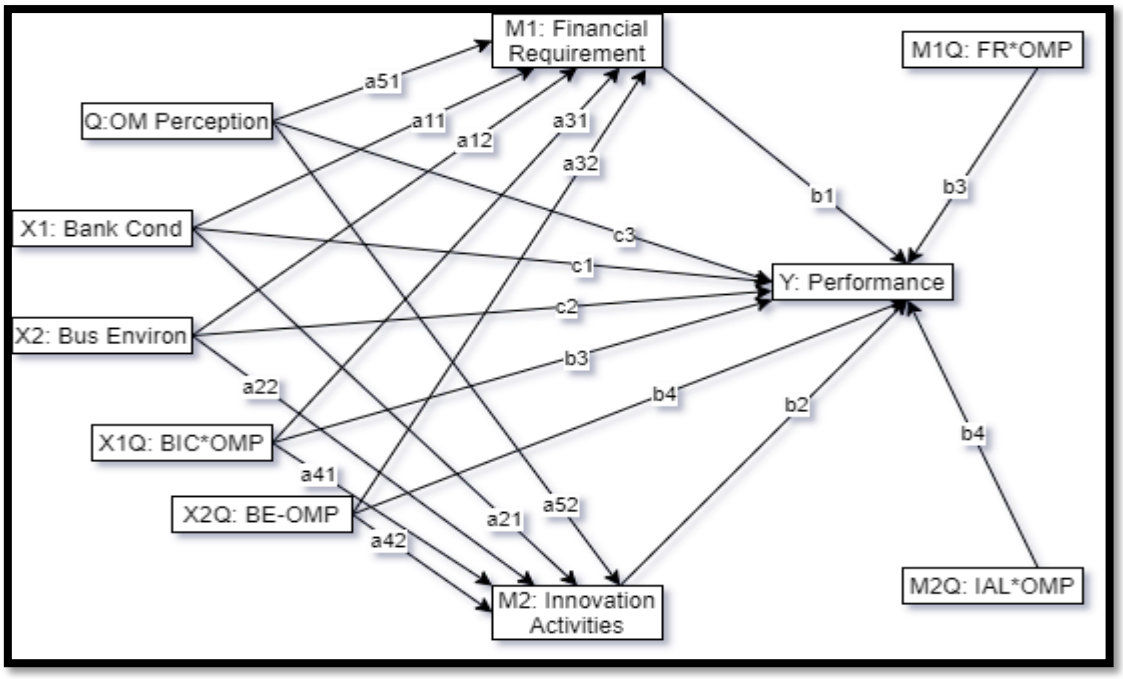

Figure 5. A Three-Way Moderated Mediation Statistical Framework
Source: Author's Conceptualization

6. BIC and BE's indirect effect on the performance conditional on OMP:

$$M_1 = i_{M1} + a_{11}X_1 + a_{12}X_2 + a_{31}X_1Q + a_{32}X_2Q + a_{51}Q + e_Y \dots\dots\dots (x)$$

$$M_2 = i_{M2} + a_{21}X_1 + a_{22}X_2 + a_{41}X_1Q + a_{42}X_2Q + a_{52}Q + e_Y \dots\dots\dots (xi)$$

7. BIC and BE's direct effect on the performance conditional on OMP:

$$= c_1X_1 + c_2X_2 + c_3X_1Q + c_4X_2Q \dots\dots\dots\dots\dots\dots\dots (xii)$$

8. Total effect:

$$Y = i_Y + b_1M_1 + b_2M_2 + b_3M_1Q + b_4M_2Q + c_1X_1 + c_2X_2 + c_3X_1Q + c_4X_2Q + c_3Q + e_Y \dots\dots\dots\dots (xiii)$$

9. The proportion mediated conditional on OMP:

$$P_M = \frac{Indirect\ Effect}{Total\ Effect} \dots\dots\dots\dots\dots\dots\dots\dots (xiii)$$

10. The index of moderated mediation tests the pathway significance:

$$im_1 = (\,a_{31} + a_{32})b_1 + (a_{11} + a_{12})b_3 + (\,a_{31} + a_{32})b_3 \ldots\ldots\ldots\ldots (ix.a)$$

$$im_2 = (\,a_{41} + a_{42})b_2 + (a_{21} + a_{22})b_4 + (\,a_{41} + a_{42})b_4 \ldots\ldots\ldots\ldots (ix.b)$$

3.7.3 Model Three: The Conditional Indirect Effect Model

Objective three hypothesizes that ownership type (*W)* substantially influences BIC and BE's indirect effect on performance while strongly correlating to both mediators. Like in the mediation model, the mediators are in a serial format—with external financial requirements influencing innovation activities. Ownership type affects the two different indirect paths ($b_1 amd\ b_2$) but not the direct path (c'). Figure 6 is the statistical framework illustrating the associations between variables, while the conceptual framework is in appendix 7.

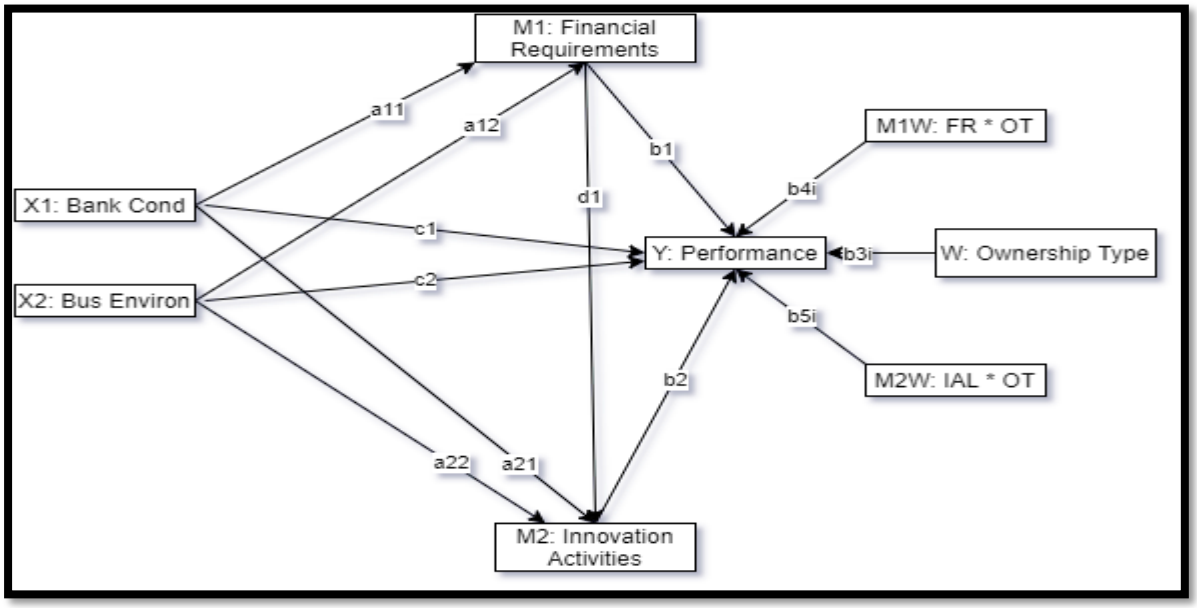

Figure 6. The Indirect Conditional Effect Statistical Framework
Source: Author's Conceptualization

*i is the ownership type under considerations

11. The model's three equations are:

- Predictors' effect on mediators

$$M_1 = i_{M1} + a_{11}X_1 + a_{12}X_2 + e_{M1} \ldots\ldots\ldots\ldots\ldots\ldots\ldots (x)$$

$$M_2 = i_{M2} + a_{21}X_1 + a_{22}X_2 + d_1M_1 + e_{M2} \ldots\ldots\ldots (xi)$$

- Total effect (direct and indirect)

$$Y = i_Y + b_1M_1 + b_2M_2 + b_3W + b_4M_1 + b_5M_2 + c'_2X_1 + c'_2X_2 + e_Y \ldots. (xii)$$

12. Breaking down the total effect

- Three indirect conditional effects conditional on *W:*

$$= (a_{11} + a_{12})(b_1 + b_4W) \dots\dots\dots\dots\dots\dots\dots\dots (xiii.a)$$

$$= (a_{21} + a_{22})(b_2 + b_5W) \dots\dots\dots\dots\dots\dots\dots\dots (xiii.b)$$

$$= d_1(a_{11} + a_{12})(b_2 + b_5W) \dots\dots\dots\dots\dots\dots (xiii.c)$$

- The direct effects:

$$= c'_2X_1 + c'_2X_2 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (xiv)$$

3.7.4 Model Four: The Moderated-Moderated Mediation Model

Objective four investigates ownership type and firm age's role in the relationship between the predictors (BIC & BE) and the outcome variable. The model testing this hypothesis is a combination of the first and second-stage moderation models. In the first-stage model, path $(a\theta_{X\to M})$; ownership type *(W)* conditions the predictors' effect on the mediators. In the second stage, the path $(\theta_{M\to Y})b$, firm age *(Z)* moderates the correlation between the mediators and the predictors.

Moreover, the two moderators simultaneously condition the direct correlation between the predictors and the outcome variable, path (c'). Figure 7 is an illustration of the statistical model, while the conceptual framework is in appendix 8.

13. The three model equations are:

- The predictors' direct effect on the mediators:

$$M_1 = i_{M1} + a_{11}X_1 + a_{12}X_2 + a_{31}X_1W + a_{41}X_2W + a_{51}W \dots\dots (xv)$$

$$M_2 = i_{M1} + a_{21}X_1 + a_{22}X_2 + a_{32}X_1W + a_{42}X_2W + a_{52}W \dots\dots (xvi)$$

$$Y = i_Y + b_1M_1 + b_2M_2 + b_3M_1Z + b_4M_2Z + c'_2X_1 + c'_2X_2 + c'_3W + c'_4Z + c'_5X_1W + c'_6X_2W + c'_7X_1Z + c'_8X_2Z \dots\dots\dots\dots\dots (xvii)$$

14. The predictors' indirect effect conditional on *W* and *Z:*

$$Via\ M_1 = [a_{51}W(a_{11} + a_{12})](b_1 + b_3V) \dots\dots (xviii.a)$$

$$Via\ M_2 = [a_{52}W(a_{21} + a_{22})](b_2 + b_4V) \ldots\ldots (xviii.b)$$

15. The predictors' direct effect conditional on W and Z:

$$= c'_2X_1 + c'_2X_2 + c'_3W + c'_4Z \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (xix)$$

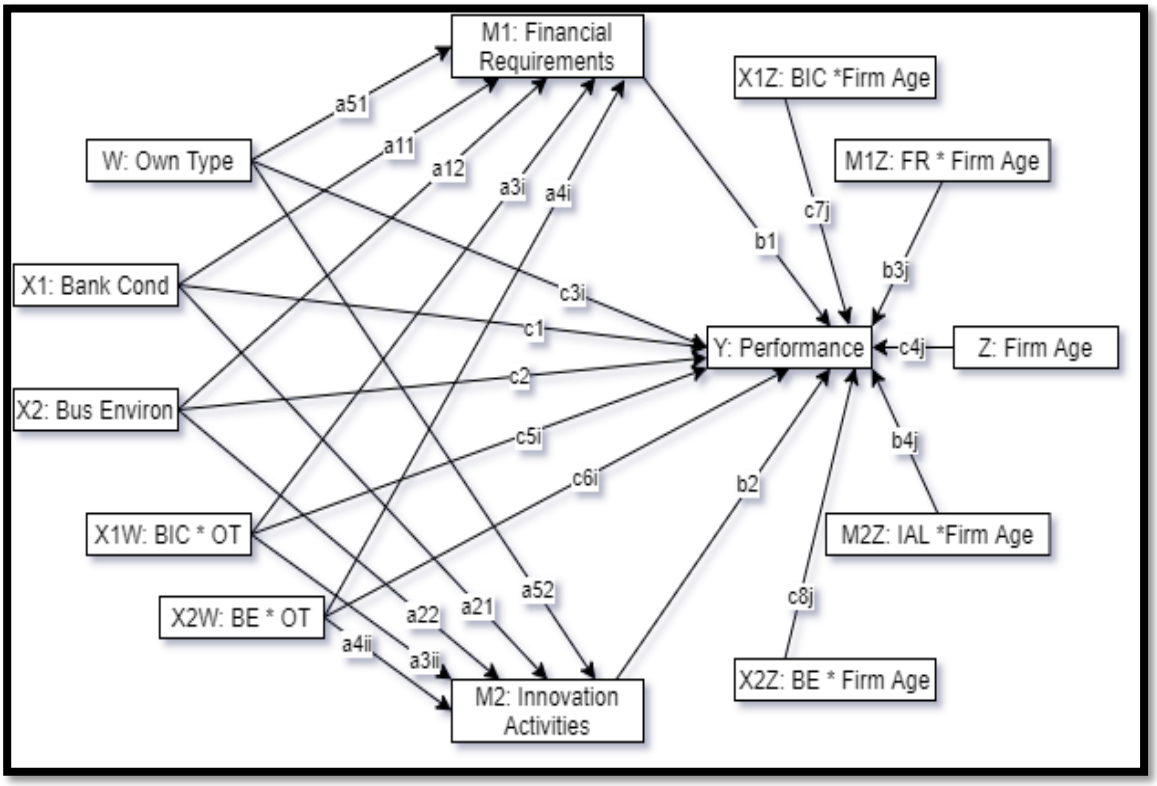

Figure 7. The Moderated-Moderated Mediation Model Statistical Framework
Source: Author's Conceptualization

$*\ (i) and\ (j)$ represents ownership type and firm age category under consideration, respectively.

RESULTS AND DISCUSSIONS

4.1 Introduction

The chapter provides actual findings based on the research objectives. The study used a questionnaire to explore how the availability of finance, owner-manager perception, and other firm-related attributes influence performance. The researcher sent out soft and hard copies of the questionnaire to about 1000 firms in the country. To improve the response rate, the researcher sent out follow-up reminder emails and made telephone calls. The high number was to improve the success rate

About 260 companies responded at the end of the data collection period, a 26 percent response rate. On further evaluation, only 198 (76 percent of the responses) met the set criteria. Moreover, based on Maxwell's (2000) argument, the 198 respondents are likely to yield a power of 0.8 even if additional predictors explain no additional variance. Likewise, it is sufficient to eliminate any bias in the regression coefficients should any predictor have a low prevalence in the model (Ogundimu, Altman, and Collins, 2016). The following section is a descriptive overview of the sampled firms.

4.2 Model Validity and Reliability Statistics

4.2.1 Construct Reliability and Convergent Validity

Reliability is a construct's quality criterion, the degree to which a variable(s) is consistent in what it intends to measure (Hair, Celsi, Ortinau, & Bush, 2010). Cronbach alpha (CA) and composite reliability (CR) are the two most standard construct reliability measures. As a conservative measure of items, the Coefficient's alpha estimates the multiple-item scale's reliability. To achieve a construct's internal reliability, Pallant (2013) advocates for a Cronbach's Alpha value greater than 0.7. However, composite reliability assumes equal indicator weighting and not equivalency among the measures. According to Henseler and Sarstedt (2013), the CR cut-off is similar to any reliability measure where a score between 0 .6 and 0.7 suggests sufficient construct reliability.

Validity is the degree of precision by which a score represents a concept. Construct validity (CV) is crucial in social sciences as it explores how well obtained findings of a measuring tool fit the theories designed to test (Sekaran & Bougie, 2010). There are approaches to measuring validity, convergent and discriminant—this study focuses on the former. Convergent validity is how close the new scale relates to other items and other measures of the same construct. The construct correlates with related variables, but it should not correlate with unrelated, dissimilar

ones (Campbell & Fiske, 1959). CV is the level to which a measure relates positively with an alternative measure of the same construct.

The average variance extracted (EVA) assess convergent reliability. AVE is the average variance shared between a construct and its measures. It indicates the grand mean of the indicators squared loadings associated with a particular construct divided by the numbers of indicators (Hair Jr *et al.*, 2014). The rule of thumb is that a value higher than or equal to 0.50 is acceptable (Barclay, D., Thompson, R., dan Higgins, 1995). That is, items should explain about 50% of their respective factor variances or the R squared average for items within a factor. In support, Cheung and Wang (2017) suggest convergent validity exists when AVE is not significantly smaller than 0.5 and recommends standardizing factor loadings of all items not substantially less than 0.5.

Table 7 presents the model validity and reliability tests. Based on the findings, these values are within the normal range after deleting specific items described under their constructs. The Composite Reliability ranges from 0.708 to 0.935 while AVE is above 0.5. The results are evidence that the study fulfills convergent validity and construct reliability requirements.

Table 7. Continuous Factor Convergent Validity and Internal Consistency Test

	Latent Constructs	Cronbach's Alpha	Composite Reliability	Average Variance Extracted	Indicators Deleted*
FP	Firm Performance	0.786	0.787	0.552	1
BIC	Bank imposed Conditions	0.916	0.935	0.71	Nil
BE	Business Environment	0.828	0.769	0.507	Nil
OMP	Owner-Manager Perception	0.786	0.757	0.586	Nil
FR	Financial Requirements	0.775	0.859	0.605	1
IAL	Innovation Activity Level	0.709	0.705	0.536	3

Source: SPSS Output

* Number of items per construct after deleting those with low loadings

The overall quality of the models' measurement was sufficient after observing sufficient internal consistency and reliability. The process allowed the researcher to commence modeling and analysis. However, before that, next is a presentation of the collected data in raw format.

4. 2 Qualitative Data Analysis

The section provides the descriptive statistics of the study variables based on raw data. That is the itemization of research factors before data transformation.

4.2.1 Distribution of the Firms across the Country

Figure 8 shows the distribution of sampled businesses in the country. For a correct representation, there has to be a coverage of firms in all regions. Sample representativeness assessment is a critical element of any empirical study performed before reaching any conclusions. If a sample is not representative, any decisions or deductions will be incorrect (Ramsey & Hewitt, 2005).

The response rate follows the economic status of these regions on a national scale. Notably, the country's capital and business hub, Nairobi, had the most responses at 46%. The area with the second biggest city, Coast, had a response rate of 16%. Nyanza and Rift valley had 11% and 13% of the firms surveyed, respectively. The lowest responses came from Eastern (2%) and North-Eastern (1%) regions. That notwithstanding, the distribution is representative of the firms in the country.

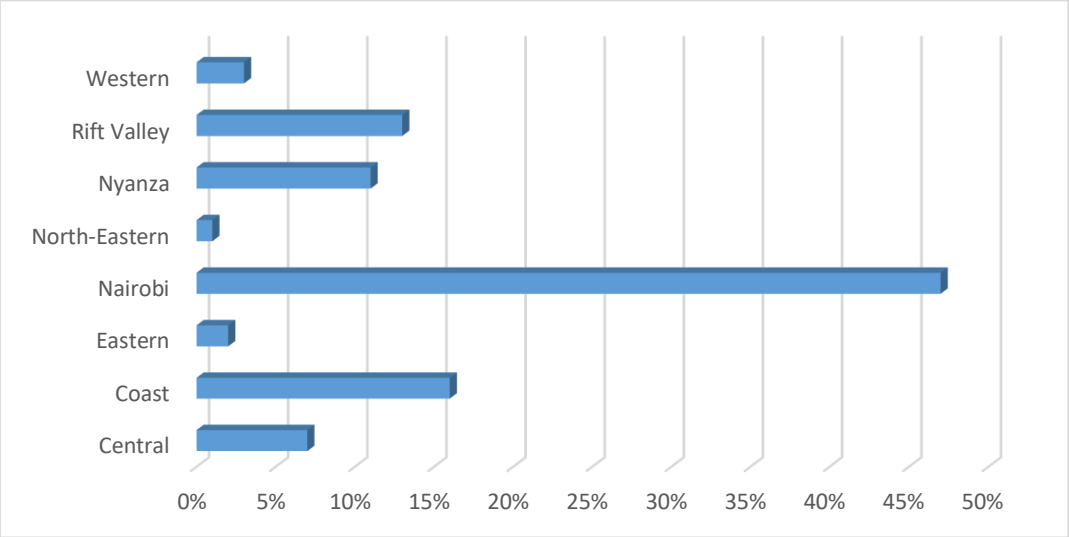

Figure 8. Distribution of the Firms by Region
Source: Author's survey

4.2.2 Distribution of Firms across Economic Sectors

Figure 9 presents the distribution of sampled firms across different economic sectors. The sectors reflect the listing at the Nairobi Stock Exchange (NSE). The 'Others' category entails all those business types not placed in any of the eight categories. Based on the findings, 22%

of firms sampled are in the 'Commerce & Services' category. The 'Manufacturing & Allied' and 'Construction & Allied' follow at 17%. 'Telecommunication & technology,' and 'Energy & Petroleum,' follow 11% and 10%, respectively. However, Agriculture, Insurance, and others are below 10%. Under the 'others' category, it may be difficult to place some ventures, such as healthcare, education, and training.

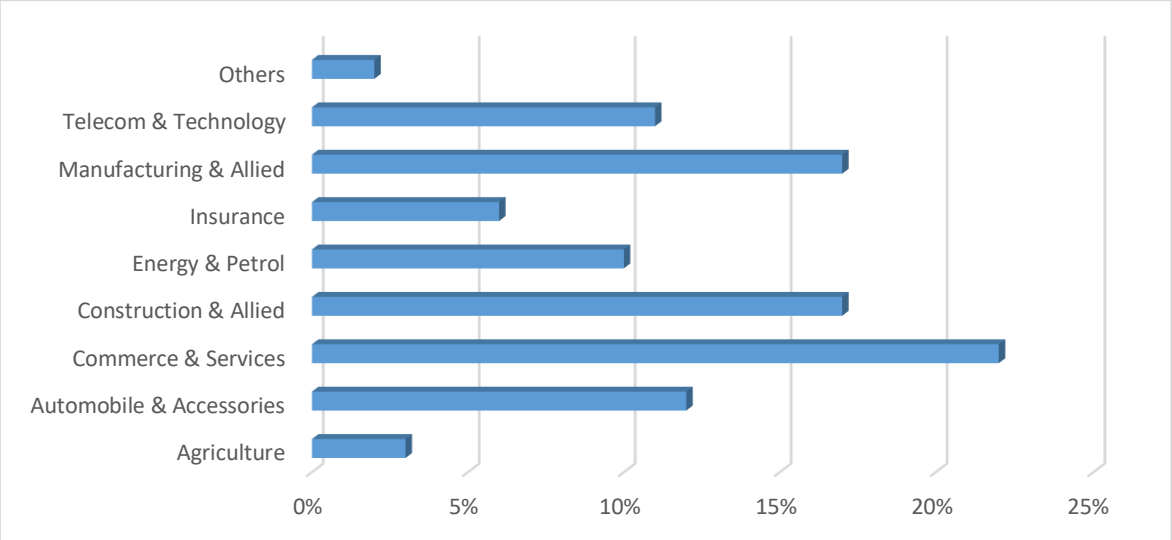

Figure 9. Distribution of the Firms by Sector
Source: Author's survey

More specifically, the distribution of surveyed firms signifies coverage of the country's economic sectors, whether in service, manufacturing, or both.

4.2.3 Distribution of Firms by Age and Size

Figure 10 illustrates surveyed enterprise distribution based on age, a proxy for the firm life-cycle. From the findings, most of the firms have been in operation for over five years. That is 34% for over five but under ten years and 43% for firms over ten years. The remainder is for firms above two but below five years (9%) and under two years (14%). In particular, these age brackets demonstrate the business life cycle of sampled firms. In particular, most of the surveyed firms (over 50%) have operated for over five years.

Firm age is a significant factor since the average life span of businesses is about 3.8 years (Kenya National Bureau of Statistics, 2016). Empirical literature shows that firm age is a significant factor in the evaluation of any venture. For instance, firm age substantially influences innovation activities (Pellegrino, 2018) and growth level (Coad, Daunfeldt, et al., 2018).

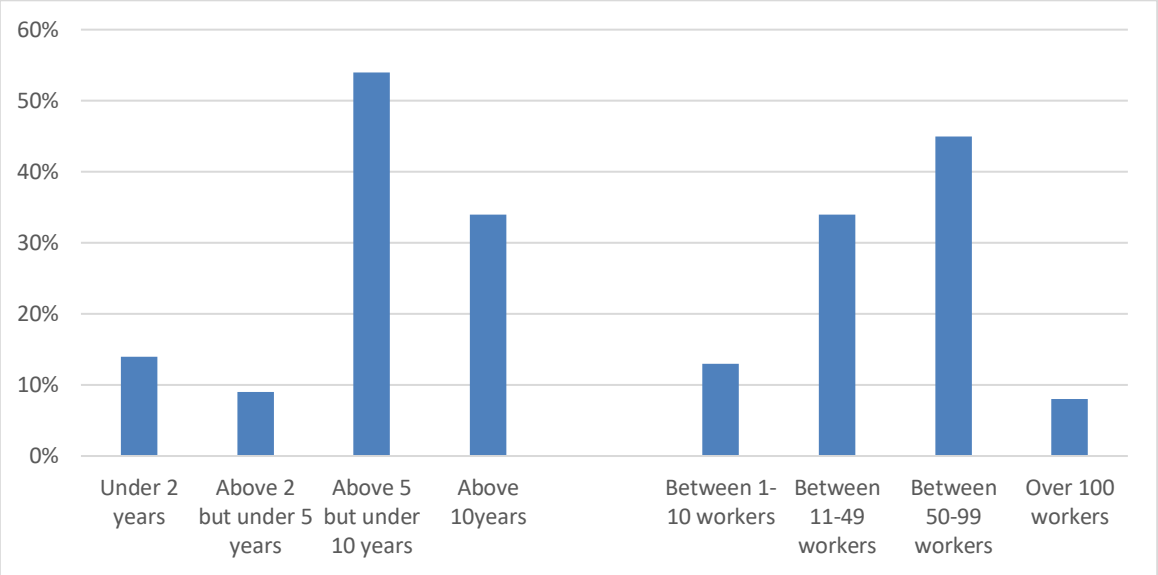

Figure 10. Distribution of the Firms by Age and Size
Source: Author's survey

Moreover, most of the surveyed firms (45%) had a workforce of between 50 and 99, thus medium-sized enterprises. Those categorized as small-sized with a human resource ranging from 11 to 49 stood at 34%. Likewise, precisely 13% of sample firms had between 1 to10 employee, while 8% had over a hundred workers. Simultaneously, the KNBS categorizes firms with over a hundred employees as large firms, essentially locking them out of the present study. However, their inclusion is because these SMEs may temporarily employ extra workers when the demand arises. Nevertheless, 79% of all surveyed were small or medium-sized, fitting the study's target group.

4.2.4 Distribution by Ownership Type

Figure 11 shows firm ownership distribution based on ownership. For businesses owned by one entrepreneur, 31% are by men while 22% are by women. However, the high number of male-owned ventures does not imply women-owned businesses are fewer than men. Further, 34% belong to more than one person (but entrepreneurs). Besides, 8% of these businesses belong to other firms or are subsidiaries/associates. The last category with the lowest firms, at 5%, trades their shares privately at the Nairobi Stock Exchange.

Research shows that, unlike their male counterparts, women in developing economies venture into businesses for various reasons. Robert and Sevgi (1999) call for caution in generalizing theories concerning women entrepreneurs in emerging economies, particularly about

developed economies and vice-versa. Also, firm ownership based on gender is a significant determinant of firm access to credit facilities (Wellalage & Locke, 2017a).

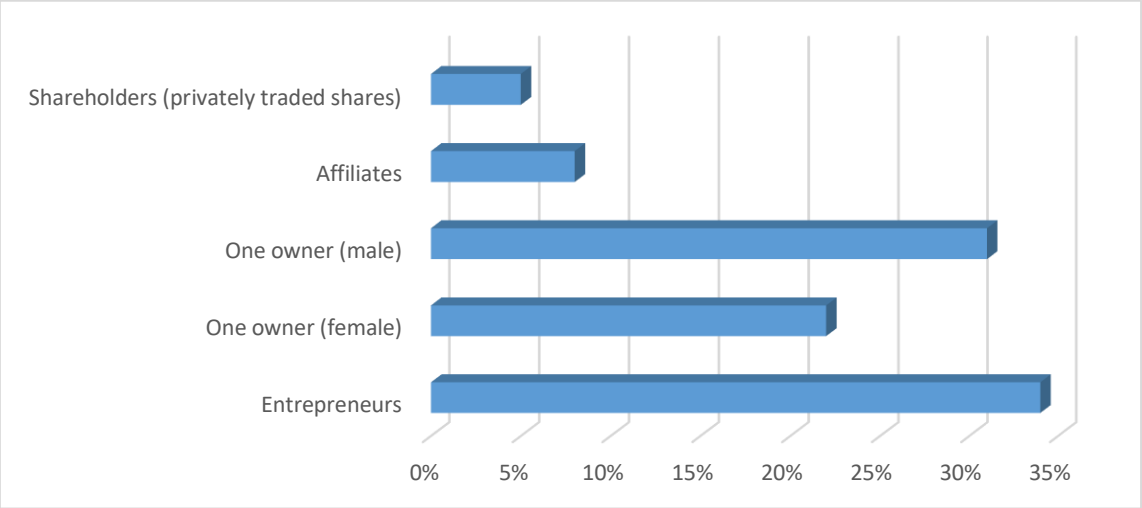

Figure 11. Distribution of the Ownership
Source: Author's survey

4.2.5 Used and Preferred Financial Sources

Table 8 is about used and preferred sources of firm financing. Regarding internal and external financing sources, all surveyed firms relied on internally generated funds and bank overdraft facilities at one point or the other. Further, 75% of the firms applied for bank loans, whereas 80% relied on business partners through trade credit. Be as it may, debt securities and equity issuance are the least employed external funding sources at 5% of all surveyed firms.

Concerning the preferred external finance source, bank loan stands at 56%. Whether from new or existing investors, a loan from other sources like a related company, trade credit, and equity investment stood at over 16%. Likewise, some entrepreneurs preferred raising funds through loans from friends or family (10%). Surprisingly, none of the sampled firms employed innovative methods of raising funds from the public. Technological breakthroughs like blockchain technologies offer promising approaches to raising funds from the public, even for SMEs (Hamledari & Fischer, 2020).

Table 8. Financing sources used by domestic firms

	Description	Proportion
	Internal and external finance sources used	
1.	Internally generated funds	1.00
2.	Bank loan (excluding bank overdraft)	0.75
3.	Bank overdraft or credit facilities	1.00
4.	Trade credit	0.80
5.	Leasing, hire purchase or factoring	0.35
6.	Debt securities issuance	0.05
7.	Equity securities issue, new investors	0.05
8.	Others (like loans from parent co., friends, family)	0.27
	The preferred source of external finance	
1.	Bank loan	0.56
2.	A loan from other sources (e.g., trade credit, a related co., shareholder)	0.16
3.	Equity investment	0.16
4.	A loan from friends and family	0.10
5.	Innovative sources (crowdfunding, technology-based like block-chain, initial coin offer [ICO])	0.00
6.	I do not know	0.02
	Total	**1.00**

Source: Author's survey

Still, 10% of sampled firms favor equity financing, raising required funds from existing, new shareholders, or both. Still, some firms would instead go for other external financing sources, such as wealthy friends and family members, rather than loans. Interestingly, while 3% of these firms are unsure of their preferred external funding source, none has innovatively raised finances. These innovative options include an initial coin offer (ICO), crowdfunding among others. Whereas local businesses fail to exploit technology, research shows that disruptive innovations like ICO are a paradigm shift in firm financing (Lipusch, 2018).

4.2.6 Factors Considered when Selecting a Bank Loan

Firms will decide on the financial institutions to borrow from based on specific factors. The degree of importance accorded to these factors may vary across firms. Figure 12 shows the level of importance attached to seven factors considered by firms when deciding on a bank loan. Generally, a high degree of importance is linked to all the factors, except for bank

location. The low significance of this factor is due to technological advancements like digital banking. Bank institutions are downgrading their physical while upscaling digital presence. Carbó-Valverde, Cuadros-Solas, Rodríguez-Fernández, and EY (2020) note that banks' investments in IT leads to a substantial positive effect on clientele adoption of financial digitalization. These investments also enhance bank customers' probability of doing financial transactions through digital channels rather than physical branches (Kaur, Ali, Hassan, & Al-Emran, 2021).

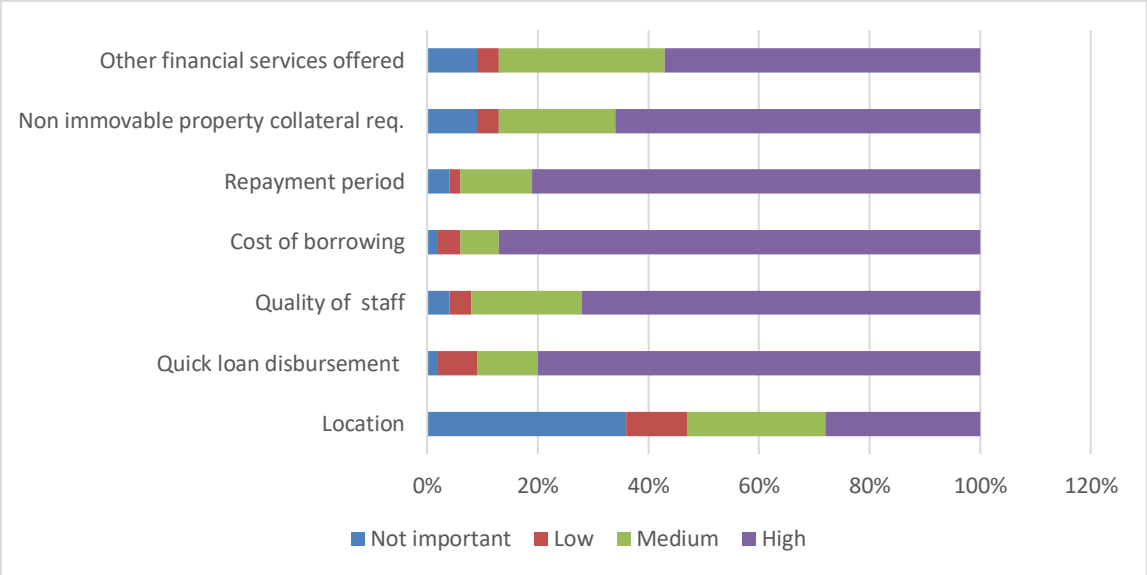

Figure 12. Factors Considered by Firms before Accessing Bank Loans
Source: Author's survey

4.2.7 Bank-Imposed Conditions

Bank-imposed conditions act as a sieve, channeling limited resources to firms with promising opportunities. BIC acts as a measure of formal finance access and financial discipline imposed on borrowing firms by banks. BIC is a composite of six constructs on a scale of one to five (where 1 = improved, 2 = no change, 3 = deteriorated, 4 = do not know, 5 = not applicable). Items (**BE 1-2**) are facility costs while (**BE 3-6**) are non-loan costs but other conditions.

Table 9 presents the general response determined by calculating the constructs' mean (M) and standard deviation (SD)—tabulated based on descending means. From the results, owners and managers of medium-sized firms reported a decline in the loan amounts advanced (M = 2.95, SD = 1.093). Besides, other related loan requirements like loan covenant, evidence of internal funds to fund part of the project are high (M = 2.91, SD = 1.218).

Moreover, financial institutions seem not to improve on the loan repayment period (M = 2.73, SD = 1.129).

Also, guarantee requirements before advancing credit facilities negatively influence formal finance access (M = 2.53, SD = 2.53). Nonetheless, there was no adverse change in other non-interest rate costs like insurance or stamp duty levies (M = 2.29. SD = 1.369) and the credit facility cost (M = 2.19, SD = 1.252). There were no 'not applicable' responses implying that these firms had sought credit facilities at some point. The grand mean (M = 2.60) suggests that the BICs have not improved formal finance access by firms.

The findings are hardly surprising as the Central Bank (CBK) requires banks to model their loan pricing strictly based on Kenya bankers' reference rate (KBRR), introduced in 2014. The framework aimed to enhance transparency in credit pricing and improve monetary policy transmission signals into changes in banks' lending rates (CBK's Banking Circular No 1 of 2015; *Operationalization of the Kenya Banks' Reference Rate*). The scenario has forced commercial banks to heighten risk assessment resulting in limited credit flow to the private sector.

Thus, banks' current pricing of loans like interest rates and non-interest rate costs improve access to credit facilities by domestic firms. On the contrary, non-pricing requirements like security, maturity period, and loan size hamper SMEs' access to these facilities.

Table 9. Mean and Standard Deviation of Bank-Imposed Conditions

Code	Item	N	Mean	SD
BIC 3	Loan or credit facility size	198	2.95	1.093
BIC 6	Other loan-related requirements	198	2.91	1.218
BIC 4	Loan maturity period	198	2.73	1.129
BIC 5	Collateral requirements	198	2.53	1.354
BIC 2	Other non-interest rate costs	198	2.29	1.369
BIC 1	Interest rate levels	198	2.19	1.252
	Grand mean		**2.60**	

Source: Author's survey

4.2.8 Business Environment

The business environment proxies the economic soundness in which surveyed firms operate. Different factors act separately and collectively to influence access to finance. Eight constructs

quantified the business environment and scaled like BIC. Still, the mean and standard deviation show the level of response tabulated with a decreasing mean. Table 10 summarizes the responses. Medium-sized firms find it hard to attract new equity, directly or indirectly, through privately placed securities (M = 3.38, SD = 1.392).

Also, there is no positive change in three other areas like securing public or government guarantees (M = 2.99, SD = 1.170), willingness of banks to provide loans (M = 2.78, SD = 1.379), and trade credit from business partners (M = 2.73, SD = 1.265). On the converse, the general economic prospects had no adverse effects on business operations (M = 2.40, SD = 1.030). Likewise, firms remain opportunistic about their credit ratings, sales, and capital adequacy (at M = 2.16, 1.93, and 1.84, respectively). The grand mean (M = 2.53) suggests that there is generally no improvement in the business environment.

In a nutshell, the task environment, like the firm's capital adequacy, specific outlook about revenue or profitability, credit history, and economic status, are favorable elements of the business environment. However, other factors like to do with external finance are adverse elements of the same domain.

Table 10. Means and Standard Deviations for Measures of Business Environment

Code	Item	Mean	SD
BE.8	The willingness of investors to invest in the firm or privately offered securities	3.38	1.392
BE.2	Access to public financial support and guarantees	2.99	1.170
BE.6	Banks' willingness to offer loan facilities	2.78	1.379
BE.7	The business partners willing to provide trade credit	2.73	1.265
BE.1	General economic outlook	2.40	1.030
BE.5	The firm's credit history	2.16	1.113
BE.3	The firm's specific outlook regarding sales and profitability	1.93	1.077
BE.4	The firm's capital adequacy	1.84	0.835
	Grand mean	**2.53**	

Source: Author's survey

4.2.9 External Finance Requirements

While firms may generate funds sufficient to finance their operations, the existence of profitable opportunities forces them to seek external finance in case of a deficit (Hasan et al., 2017). Four primary sources of external finance quantify firm requirements for external

finance. Respondents had to choose the nature of the change or otherwise for each of the instruments. For the responses, 1 = increase, 2 = no change, 3 = decreased, 4 = do not know and 5 = instrument does not apply to the firm.

Table 11 summarizes the responses computed as means and their standard deviations. Based on the results, firms were not keen on raising additional capital through equity issuance (M = 3.25, SD = 1.652). Likewise, the need for finance raised through other sources like family, leasing, hire purchase was also on the decline (M = 2.63, SD = 1.631). On the converse, there is no decline in bank financing (M = 2.48, SD = 1.473) and trade credit (M = 2.36, SD = 1.456). Private firms unable to access cheap financial sources depend on and continuously adjust their optimal trade credit levels (Abdulla, Dang, & Khurshed, 2017). Further, most of the firms never used debt instruments (M = 1.25). The grand mean (M = 2.68) suggests that firms never experienced much change in their external finance requirements.

In summary, local SMEs registered higher growth in the need for trade credit and bank loans as external finance sources. However, the firms had the slightest need for funds sourced through equity and debt issuance. The probable explanation for such a low demand is fear of losing control and the inability to access the stock exchange.

Table 11. Mean and Standard Deviation of External Financial Requirements

Code	Item	Mean	SD
FR4	Debt securities issuance*	4.25	1.835
FR3	Equity investments issued	3.25	1.652
FR5	Other financings (family, lease, factoring)	2.63	1.631
FR1	Bank loan	2.48	1.473
FR2	Trade credit	2.36	1.456
	Grand mean	**2.68**	

Source: Author's survey

*Deleted

4.2.10 Owner-Manager Perception of Future Finance Availability

The nature of the prevailing economic environment determines firm access to business. The conditions shape entrepreneurs' and owner managers' perceptions of finance availability. These perceptions significantly influence management financing decisions. For this question, respondents had to state their views on each construct's future finance availability scenario.

Five constructs quantified the owner-manager perception of finance availability (1 = will improve, 2 = will remain unchanged, 3 = will deteriorate, 4 = do not know, 5 = instrument does not apply). Table 12 summarizes the responses.

Whereas perceptions are crucial, research establishes a significant correlation between the perception of finance availability and the entrepreneur's gender (Caleb, Dylan, & Piers, 2012). The respondents have a positive perception of future finance availability regarding three sources. These are internally generated revenues (M = 1.61, SD = 1.100), trade credit from other business partners (M = 2.34, SD = 1.431) and bank credit (M = 2.40, SD = 1.536). Their perception of raising additional funds from new equity, related company or shareholders, and debt issued in the future is doubtful (M = 2.82, 2.91, and 3.40, respectively). The grand mean (M = 2.58) suggests that investors feel that future firm financing may experience no substantial change.

Table 12. Mean and Standard Deviation of Owner-Perception of Finance Availability

Code	Item	Mean	SD
OMP.5	Debt securities issued	3.40	1.480
OMP.6	Loans from related companies or shareholders	2.91	1.611
OMP.3	Equity investment in the firm	2.82	1.726
OMP.2	Bank Loan	2.40	1.536
OMP.4	Trade credit	2.34	1.431
OMP.1	Internal earnings from, for example, retained earnings and asset sale	1.61	1.100
	Grand mean	**2.58**	

Source: Author's survey

In summary, firm owners and managers have a future positive perception of internally generated funds than other sources. The probable explanation is that internal funds generation depends on firm performance, mainly on the owner-manager decision-making process.

4.2.11 Innovation

Different techniques measure innovation activities or their effect on firm performance. Brattström, Frishammar, Richtnér, and Pflueger (2018) summarize the existing literature on other quantifying firm innovation performance. As presented in table 13, twelve constructs capture firm innovation-activity level (where 1 = Yes, 2 = No, and 3 = Do not know). Notably,

none of the surveyed firms contracted out R&D programs to other enterprises or government-affiliated institutions (for instance, technical or universities).

Moreover, medium-sized domestic firms focus more on service innovation by introducing a new or significantly improved product (M = 1.46, SD = 0.5). Others include new methods of organizing work (M = 1.71, SD = 0.454) and aesthetic product presentation (M= 1.78, SD = 0.413). A national survey of MSMEs with a focus on innovation established that manufacturing (31.6 percent), information, communication & technology (33.3 percent), financial (44.4 percent), and health activities were at (42.5) percent. However, these firms engaged less in process innovation (Kenya National Bureau of Statistics, 2016).

In a nutshell, domestic firms implemented service (as a product) innovations more than those related to process, organization and marketing.

Table 13. Mean and Standard Deviation of Innovation Introduced

Code	Item	Mean	SD
IAL12	New methods of pricing goods or services (like first-time use of variable pricing by demand, discount systems)	1.98	0.122
IAL10	New media or techniques for product promotion (like first-time use of a new advertising media, an original brand image, introduction of loyalty cards)	1.91	0.281
IAL11	New methods for product placement or sales channels (i.e., first-time use of franchising or distribution licenses, direct selling, exclusive retailing)	1.90	0.295
IAL6	New business practices for organizing procedures (i.e., first-time use of supply chain management, business re-engineering, knowledge management, lean production)	1.88	0.321
IAL1	Goods innovations: New or significantly improved goods (exclude the simple resale of new products and changes of a solely aesthetic nature)*	1.87	0.339
IAL3	New or significantly improved methods of manufacturing for producing goods or services	1.86	0.344
IAL8	New methods of organizing external relations with other enterprises or public organizations (i.e., first-time use of alliances, partnerships, outsourcing, or sub-contracting)*	1.86	0.349
IAL5	New or significantly improved supporting activities for the firm's processes, such as maintenance systems or operations for purchasing, accounting, or computing	1.85	0.354
IAL4	New or significantly improved logistics, delivery, or distribution methods for the firm's inputs, goods/services	1.81	0.391
IAL9	Significant changes to the aesthetic design or packaging of a good or service (exclude changes that alter the product's functional or user characteristics – these are product innovations)	1.78	0.413

IAL7	New methods of organizing work responsibilities and decision making (i.e., first-time use of a new system of employee responsibilities, teamwork, decentralization, integration or de-integration of departments, education/training systems).	1.71	0.454
IAL2	Service innovations: New or significantly improved services*	1.46	0.500
	Grand Mean	**1.89**	

Source: Author's survey

*Deleted

Table 14 shows innovation activities programs pursued by surveyed firms and reasons for not engaging in the same. From a general point of view, these firms focused mainly on three activities. These are in-house R&D, acquisitions (both at 21%), and training for innovative activities (27%). On the converse, design and external R&D activities received less attention at 4% and 5%, respectively.

Further, low demand for innovations in respective markets was the main reason (45%) why domestic firms never engaged in innovative activities during the study period. Likewise, these firms cited a lack of good ideas (37%) as another reason for not implementing such activities. Nonetheless, there is a need to innovate as a competitive strategy based on the findings (8%).

Table 14. Innovation Activities and Programs

Innovation Activity	Proportion
1. In-house Research and Development	0.21
2. External Research and Development	0.05
3. Acquisition of machinery, equipment, software & buildings	0.21
4. Acquisition of existing know-how from other enterprises or organizations:	0.07
5. Training for innovative activities	0.27
6. Market introduction of innovations	0.09
7. Design: Change the appearance, shape, or goods or services' usability	0.06
8. Other contracted out or in-house activities to execute significantly improved or new processes and products like feasibility studies, tests, industrial engineering, tooling up,	0.04
Total	**1.00**

The main reason for not implementing innovation	
1. Low demand for innovations in your market	0.45
2. No need to innovate due to previous innovations	0.10
3. No need to innovate due to very little competition in your enterprise's market	0.08
4. Lack of good ideas for innovation	0.37
Total	**1.00**

Source: Author's survey

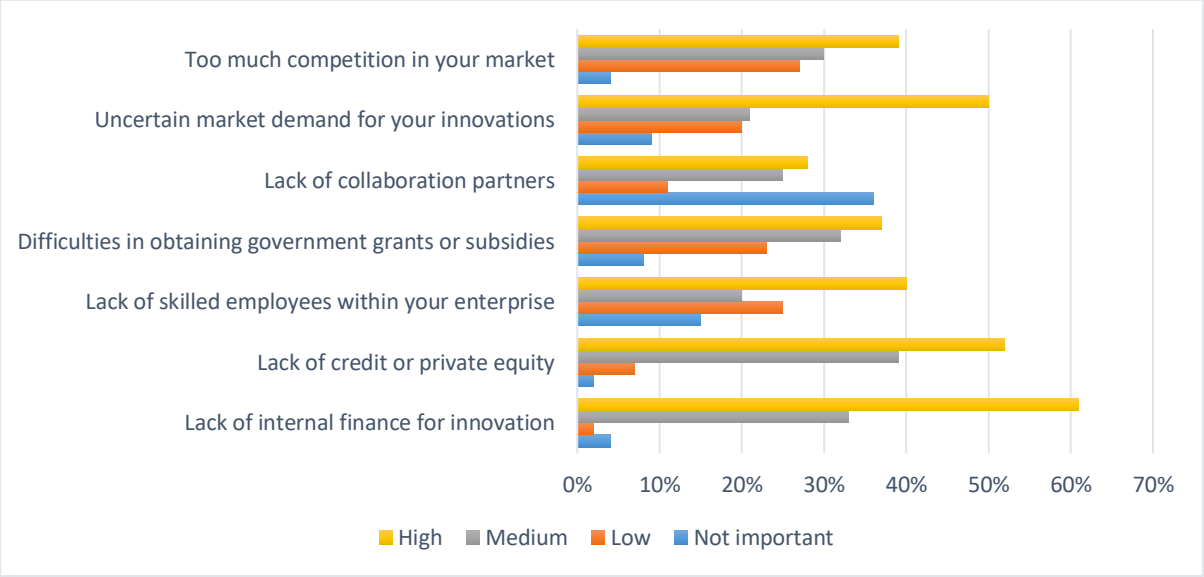

Figure 13. Barriers to Innovation
Source: Author's survey

Figure 13 presents the main reasons why SMEs never engaged in innovative activities during the study period. Based on the findings, finance availability is a significant issue (lack of internal finance or access to credit and private equity) so is the uncertainty of how the market may receive these innovations, particularly if capital intensive. On the flip side, the availability of collaborative partners and a skilled workforce were inconsequential determinants.

4.2.12 Firm Performance

Firm performance is measured in three primary ways, financial parameters (Delen, Kuzey, & Uyar, 2013), non-financial parameters (Abdel-Maksoud, Dugdale, & Luther, 2005), or by both (Rok et al., 2008). For the present study, both financial and non-financial measures quantified performance. The respondents had to confirm whether for each of the constructs, 1 = increased,

2 = remained unchanged, 3 = decreased, 4 = do not know/firm is recent, as illustrated in table 15. These firms registered a decline in their asset to financial liabilities obligations.

However, there was no decline in profitability levels (M= 2.07, SD = 1.045). In 2017, 67% of the local MSMEs reported profitability, 69% in 2018, and 63.3% in 2019 (CMA-KASNEB Report on SMEs, 2020). Also, there was no notable change in sales turnover and number of workers. Nonetheless, there appears to be an increase in new equipment acquisition expenditure (M = 1.42, SD = 0.728) and production and labor expenses (M = 1.37, SD = 0.741).

Table 15. Mean and Standard Deviation of Performance

Code	Item	Mean	SD
FP 7	Change in assets to debt ratio*	2.64	1.116
FP 6	Change in profitability	2.07	1.045
FP 5	Change in sales turnover	1.90	1.040
FP 4	Change in number of workers*	1.88	0.803
FP 3	Change in production capacity	1.87	0.992
FP 2	Change in new equipment acquisition	1.42	0.728
FP 1	Change production and labor costs	1.37	0.741
	Grand mean	**1.88**	

Source: Author's survey

*Deleted

Change in debt-asset ratio item was deleted because of the low loading in the CFA while the number of workers significantly lowered the Cronbach's alpha.

4.3 Quantitative Data Analysis

The section focuses on mean-centering, the fulfillment of ordinary least square assumptions, and hypotheses testing.

4.3.1 Item Mean-Centering, OLS Assumptions, and Bootstrapping

Table 16 presents variable itemization, their descriptive statistic, and related OLS assumptions fulfillment. The statistics presented in the table emanate from the composite indices derived from the summation of all constructs for each item (variable). The primary model predictors are Bank-Imposed Conditions (BIC) and the Business Environment (BE), while the mediators are external Finance Requirement (FR) and Innovation-Activity Level (IAL).

The moderators are the Firm Age (FA), Owner-Manager Perception (OMP), and Ownership Type (Own), whereas performance (Perf) is the outcome variable. Except for the outcome variable, the table captures these variables as abbreviations for a better presentation based on descending means. Firm age and ownership level being categorical variables are not mean-centered. Likewise, according to Hayes (2013), the outcome variable should not be mean-centered. However, other scholars suggest that categorical data (with over five levels) is continuous data and should be treated as such (Rhemtulla, Brosseau-Liard, & Savalei, 2012).

Including the interaction terms in regression models creates multicollinearity and related potential problems. Mathematicians and statisticians concur that there are no practical reasons for data standardization for interaction analyses (like mediation and moderation). Instead, the predictor variables' mean-centering minimizes or eliminates multicollinearity problems posed by the resultant interaction term (Afshartous & Preston, 2011; Dalal & Zickar, 2011).

Shieh (2011) proves that mean-centering alters both the variance inflation factor and the corrected sum of squares of the product of two independent variables such that the residual sum of squares for the regression of the product term on the centered predictor variables resembles the original or uncentred data. Besides, mean-centering does not hinder or affect the detection of the interaction term. Mean-centering ensures that the regression coefficients are more reliable and valuable (Hayes, 2013).

Moreover, the ‘skewness stat’ and ‘kurtosis stat’ represent skewness and kurtosis data distribution tests. Research shows that values in the range of -2 and +2 for the two statistics suggest a normal distribution of the data set (George & Mallery, 2016; Gravetter & Wallnau, 2014). Based on this argument, the data set for the present study is within the normality limits. The correlation between the factors is less than 0.8, implying an absence of multicollinearity. The variance inflation factor (VIF) and tolerance are other collinearity diagnostic statistics in multiple regression (Miles, 2014a).

Furthermore, Salmerón, García, and García (2018) state that, as a rule of thumb, values of VIF higher than ten imply a minimum eigenvalue of $X^t X$ less than 0.1—thus the presence of collinearity. The VIF statistics for the study are above one but below ten. The Durbin Watson value (1.95) from a multilinear regression analysis is closer to two. As a rule of thumb, the test statistics range between 1.5 and 2.5. Field (2009) states that values less than one or more than three are a definite cause for concern.

Table 16. Itemized Descriptive Statistics and OLS Assumption (All Continuous Variables Mean-Centred Except the Outcome)

Item	Mean Stat	Max Stat	Std Dev	Skew Stat	Kurt Stat	VIF	FA	OMP	Own	IAL	BE	BIC	FR
Perf	1.88	3.83	0.65	.077	0.55								
FA	2.66	4.00	1.33	-0.19	-1.8	1.34	1						
OMP	2.61	5	1.03	-0.04	-1.1	1.29	.34	1					
Own	2.01	6	1.29	1.44	1.48	1.07	-.09	0.09	1				
IAL	0.00	0.18	0.14	-1.57	2.2	1.42	-.32	0.00	0.05	1			
BE	0.00	1.97	0.79	0.03	-.09	1.51	-.12	-.18	0.00	0.38	1		
BIC	-0.33	1.08	1.04	0.35	-1.5	1.70	-.03	-.24	-.16	0.17	0.48	1	
FR	-4.44	-2.1	1.20	0.49	-.88	1.47	-.08	-.05	-.17	0.22	0.29	0.48	1
DW	1.95												

Source: SPSS Results Output

Thus there is no autocorrelation between the predictor factors based on Field's argument. Whereas all OLS assumptions are strictly adhered to in this study, Process Macro handles non-normally distributed data. The software automatically means centers the variables while addressing any heteroscedasticity.

Bootstrapping is a nonparametric statistical inference technique that swaps intensive computation for more traditional distributional assumptions and asymptotic results (B Efron, 1979). It is a resampling procedure drawn from original sample data with a replacement allocation method to develop a sampling distribution of a statistic for statistical inference (Sillabutra et al., 2016).

The study uses two bootstrapping techniques as inference for the actual coefficients—the percentile and the bias-corrected and accelerated (BCa). BCa addresses the over coverage shortcomings in percentile bootstrap confidence intervals (CIs). BCA cures skewness and bias of the (percentile) bootstrap parameter estimates by introducing bias-correction and acceleration factors (Efron, 1987).

4.3.2 Equation Modeling and Hypotheses Testing

The section provides answers to the stated research objectives by statistically testing the related research hypotheses. Hair, Black, Babin, and Anderson (2010) define Structural Equation Modeling as s "family of statistical models that seek to explain the relationship among multiple variables. The section below illustrates SEM developed through the R-Studio as well as Process Macro Output. Business studies widely embrace mediation and moderation analyses to explore

variables' conditional and interaction effects on the outcome, like marketing (Borau, El Akremi, Elgaaied-Gambier, Hamdi-Kidar, & Ranchoux, 2015).

4.3.2.1 BIC and BE's Mediated Effect on Performance

The study's first objective explored the BIC and BE's direct and indirect effects on firm performance. The predictors' indirect effect is through external financial requirements and innovation activities. Five sub-hypotheses are associated with this objective. Table 17 summarizes the structural equation modeling estimates (SEM) for the different relationships shown in the statistical model 4.

Pathway ($\theta_{X\to M1\to Y}$) shows the indirect effect of bank imposed conditions(X_1), and the business environment(X_2), on performance through finance requirements(M_1). As mentioned earlier, the two mediators act as both endogenous variables ($\theta_{X1;X2\to M}$) and exogenous factors ($\theta_{M\to Y}$). Considering M_1, the banks' imposed conditions (BIC) before access to credit facilities' effect on a firm's finance requirement (FR) is definitively different from zero—as the bootstrap confidence interval has no zero ($a_1 = 0.443; p = 0.000; CI = 0.315\ to\ 0.679$). Likewise, the business environment (BE) has a positive effect, but this is insignificant since the bootstrap confidence interval contains a zero($a_2 = 0.080; p = 0.279; CI = -0.104\ to\ 0.371$).

Pathway ($\theta_{X\to M2\to Y}$) shows the indirect effect of the BIC(X_1), and the BE(X_2), on performance through the innovation-activity level (M_2). The test results show that the business environment's effect on innovation-activity level (IAL) is distinctly different from zero($a_4 = 0.373; p = 0.000; CI = 0.028\ to\ 0.086$). Whereas the bank imposed conditions correlate negatively to innovation activities, it is not conclusively different from zero($a_3 = -0.075; p = 0.494; CI = -0.026\ to\ 0.012$).

Path ($\theta_{X\to M1\to M2\to Y}$) illustrates the indirect effect of the two predictors on the outcome variable through serial mediation. Firm external FR(M_1), positively influences IAL (M_2) but this is not substantially different from zero based on percentile CI ($d_1 = 0.144; p = 0.274; CI = -0.001\ to\ 0.034$). Moreover, finance requirement substantially mediates the correlation between predictors and performance, pathway ($\theta_{M1\to Y}$) However, while statistically significant, it negatively mediates this relationship($b_1 = -0.246; p = 0.000; CI = -0.211\ to\ -0.061$). Nonetheless, the innovation activity level insignificantly mediates the association between the predictors and the outcome variable ($b_2 = -0.091; p = 0.144; CI = -1.274\ to\ 0.060$).

Pathway ($\theta_{X1;X2\to Y}$) is the direct effect of the model's primary predictors on the performance. The two predictors have a substantial positive influence on performance based on the PCI. In particular, $(c_1 = 0.273; p = 0.001; CI = 0.071\ to\ 0.275)$ for BIC and; $(c_2 = 0.442; p = 0.000; CI = 0.241\ to\ 0.487)$ for BE. Moreover, value standardization is essential for variable loading comparison—thus, the business environment (0.442) strongly loads on performance more than BIC (0.273). Figure 14 is a diagrammatic presentation of the path analysis with standardized coefficients and variable variance.

Table 17. Structural Equation Modeling Estimates, Standard Errors, and *p*-value

Antecedent	Estimate	SE.*boot*	*P*-value	95% PCI
$X_1; M_1:$ BIC→Fin. Req.	$a_1 = \mathbf{0.443}$	0.091	0.000	0.315—0.676
$X_2; M_1:$ BE →Fin. Req.	$a_2 = 0.080$	0.120	0.276	-0.104—0.371
$X_1; M_2:$ BIC →Inno. Act	$a_3 = -0.075$	0.010	0.494	-0.026—0.012
$X_2; M_2:$ BE→Inno. Act	$a_4 = \mathbf{0.373}$	0.015	0.000	0.028—0.086
$M_1; M_2:$ BIC & BE→FR→IA	$d_1 = 0.144$	0.009	0.274	-0.007—0.025
$M_2; Y:$ Fin Req→Perform	$b_1 = \mathbf{-0.246}$	0.038	0.000	-0.211— -.061
$M_1; Y:$ Innovation→Perform	$b_2 = -0.091$	0.339	0.144	-1.274—0 .060
Cdash1: BIC→Perform	$c_1 = \mathbf{0.273}$	0.051	0.001	0.071— 0.275
Cdash2: BE→Perform	$c_2 = \mathbf{0.442}$	0.063	0.000	0.24— 0.4870
Intercepts:				
Performance	$i_y = \mathbf{-0.534}$	0.196	0.001	-0.772—0.004
Financial Requirements	$i_{m1} = \mathbf{-4.267}$	0.200	0.000	-4.497— -3.701
Innovation Activity level	$i_{m2} = \mathbf{0.070}$	0.049	0.058	0.033—0.222

Source: Test results from the R program

* PCI= Percentile confidence level based on 5,000 bootstrap iterations; SE.*boot* = Bootstrapped standard error

4.3.2.2 Assessing the Indirect Effects (Product of Coefficients Test)

Table 18 presents SEM estimates for the indirect path, pathway contrasts, and total effects. The model assumed a serial mediation—where finance requirement (M_1) influences innovation activity level (M_2). The 'product of coefficients' tests the indirect effect of BIC and BE on firm performance. The model has three different indirect pathways.

The first indirect pathway considers the effect of BIC and BE on the outcome through mediator one. The coefficients product shows that BIC and BE's indirect impact on the performance through finance requirements is definitively different from zero($ab_1 = -0.086; p =$

$0.006; CI = -0.155\ to -0.032$). That is, the two predictors have a negative influence on the outcome variable.

The second indirect pathway is through mediator two ($\theta_{X\to M2\to Y}$). The coefficients product result suggests that the two predictors have no substantial indirect effect on performance through innovation activity level($ab_2 = -0.025; p = 0.212; CI = -0.074\ to\ 0.003$). The third indirect pathway ($\theta_{X\to M1\to M2\to Y}$) assumes the indirect effect of the two predictors through both mediators, serially. The findings show that BIC and BE have a nil indirect effect through the two mediators($ab_3 = 0.000; p = 0.169; CI = -0.001\ to\ 0.000$).

Table 18. Test Results for the Product of Coefficients and Path Contrasts

Antecedent	Estimate	SE_{boot}	*p*-value	95% PCI
Indirect Effect 1: $(a_1 + a_2)b_1$	$ab_1 = \mathbf{-0.086}$	0.031	0.006	-0.155 – -0.032
Indirect Effect 2: $(a_3 + a_4)b_2$	$ab_2 = -0.025$	0.020	0.212	-0.074 – 0.003
Indirect Effect 3: $d_1(a_3 + a_4)b_2$	$ab_3 = 0.000$	0.000	0.169	-0.001– 0.000
Cont. 1: $(a_1 + a_2)b_1 - (a_3 + a_4)b_2$	$k_1 = -0.062$	0.035	0.082	-0.133– 0.008
Cont. 2: $d_1(a_3 + a_4)b_2 - (a_1 + a_2)b_1$	$k_2 = \mathbf{0.074}$	0.029	0.007	0.032 – 0.155
Cont.3: $d_1(a_3 + a_4)b_2 - (a_3 + a_4)b_2$	$k_3 = 0.024$	0.020	0.215	-0.003– 0.073
Total Indirect Effect: $ie_1 + ie_2 + ie_3$	$i_t = \mathbf{-0.111}$	0.039	0.004	-0.200 – -0.047
Total Effect : $cdash_1 + cdash_2 + i_t$	$t_2 = \mathbf{0.442}$	0.061	0.000	0.332 – 0.570
R Square Estimates:	Performance	0.297		
	Finance Req.	0.236		
	Innovation	0.160		

Source: Test results from the R program

Besides, the 'product of coefficients' allows for the path contrast analysis. The coefficients product difference for pathways ($\theta_{X\to M1\to Y}$) and ($\theta_{X\to M2\to Y}$) is statistically insignificant($k_1 = -0.062; p = 0.082; CI = -0.133\ to\ 0.008$). Similarly, there is no substantial difference in the product of coefficients for paths ($\theta_{X\to M1\to M2\to Y}$) and ($\theta_{X\to M2\to Y}$) which is, ($k_3 = 0.024; p = 0.215; CI = -0.003\ to\ 0.073$).

Nevertheless, there is a significant difference in the coefficient products for pathways ($\theta_{X\to M1\to M2\to Y}$) and ($\theta_{X\to M1\to Y}$) which is ($k_2 = 0.074; p = 0.007; CI = 0.032\ to\ 0.155$). Thus, there is a substantial difference in BIC and BE's indirect effect through mediators and finance requirements. However, with the indirect effect through both mediators being insignificant, there is no reason to probe further the differences.

Moreover, BIC and the BE's total indirect effect on performance is statistically different from zero based on the PCI ($i_t = -0.100; p = 0.004; CI = -0.200\ to\ -0.047$). Still, the total effect (direct and indirect) is substantial ($t_2 = 0.442; p = 0.000; CI = 0.332\ to\ 0.570$). That notwithstanding, these factors account for 23.6% of the finance request change, 16% for innovation activities, and performance at 29.7%. R-squared represents the proportion of variance in the outcome variable explained by the predictors, while adjusted R-squared estimates the population (Miles, 2014b).

Henseler and Sarstedt (2013) argue that adjusted R squared penalizes a higher number of predictors or the model's complexity and the sample size, which is more recommended. R squared values higher than 0.67 are considered sufficient, with 0.33 as moderate and 0.15 as weak (Chin, 1998). Nonetheless, a "high" R Square is relative; thus, a lower value in a specific field may be higher in another (Garson, 2016). Also, further analysis is essential to make sense of the indirect effect, as explained next.

4.3.2.3 Probing the Effect Size

Mediation analysis occurs when the goal is to explore the process by which an effect operates. "A natural question to ask given evidence of an effect of (*X)* on (*Y)* is how much of the effect of (*X)* on (*Y)* operates indirectly through *M* (Hayes, 2017, p. 137). Alwin and Hauser (1975) explain that the effect size is the proportion of the total effect mediated (P_M). If the value is closer to one, then more of the effect of predictor(s) on the outcome operate(s) through the mediator(s) and vice-versa.

Table 19 shows three ratios of the predictors' indirect effect on performance. The first two effects are for mediators in a parallel format and the last in serial. The proportion of BIC and BE's indirect to total effect (via external finance requirements) is distinctively different from zero based on the percentile CI ($P_{M1} = -0.193, CI = -0.382 - -0.071$). The indirect effect of the two predictors accounts for approximately 20% of the variance in performance. The negative correlation indicates the effect nature, adverse.

However, such an effect size is weak when the predictors act through innovation or both mediators. Such an effect size is not meaningful when the predictors are in a serial format ($P_{M3} = -0.001, CI = -0.002 - 0.001$). MacKinnon, Warsi, and Dwyer (1995) call for caution in the use of P_M, as its volatility depends on the sample used. It is possible have to a zero within

its CI when most other indirect effect measures clearly show evidence that the effect is different from zero. They advise on the use of sufficient or extensive data.

Table 19. The Ratio of the Indirect Effect to the Total Effect

Proportion Mediated	Effect Size	SE_{boot}	95% PCI
Prop. Mediated1: Indirect 1/Total Effect	$P_{M1} = -\mathbf{0.193} *$	0.082	-0.382— -.071
Prop. Mediated 2: Indirect 2/Total Effect	$P_{M2} = -0.064$	0.194	-0.183—0.009
Prop. Mediated 3: Indirect 3/Total Effect	$P_{M3} = -0.001$	0.273	-0.002—0.001

Source: Test results from the R program

*The findings support those in table 17 $(b_1 = -0.246)$, confirming that the firm's external financing needs have a significant, partial negative mediating effect on the correlation between the predictors and performance.

Interchanging the terms gives the best appropriate mediation equation models as:

1. BIC and BE's effect on the mediators: Path Path $(a\theta_{X\to M})$;

$$\boldsymbol{FR} = -4.099 + 0.443BIC + 0.080BE$$
$$\boldsymbol{IAL} = 0.127 - 0.075BIC + 0.3736BE + 0.144FR$$

2. The outcome (total effect): Path (c_{dash});

$$\boldsymbol{Perform} = -0.534 - 0.246FR - 0.091IAL + 0.273BIC + 0.442BE$$

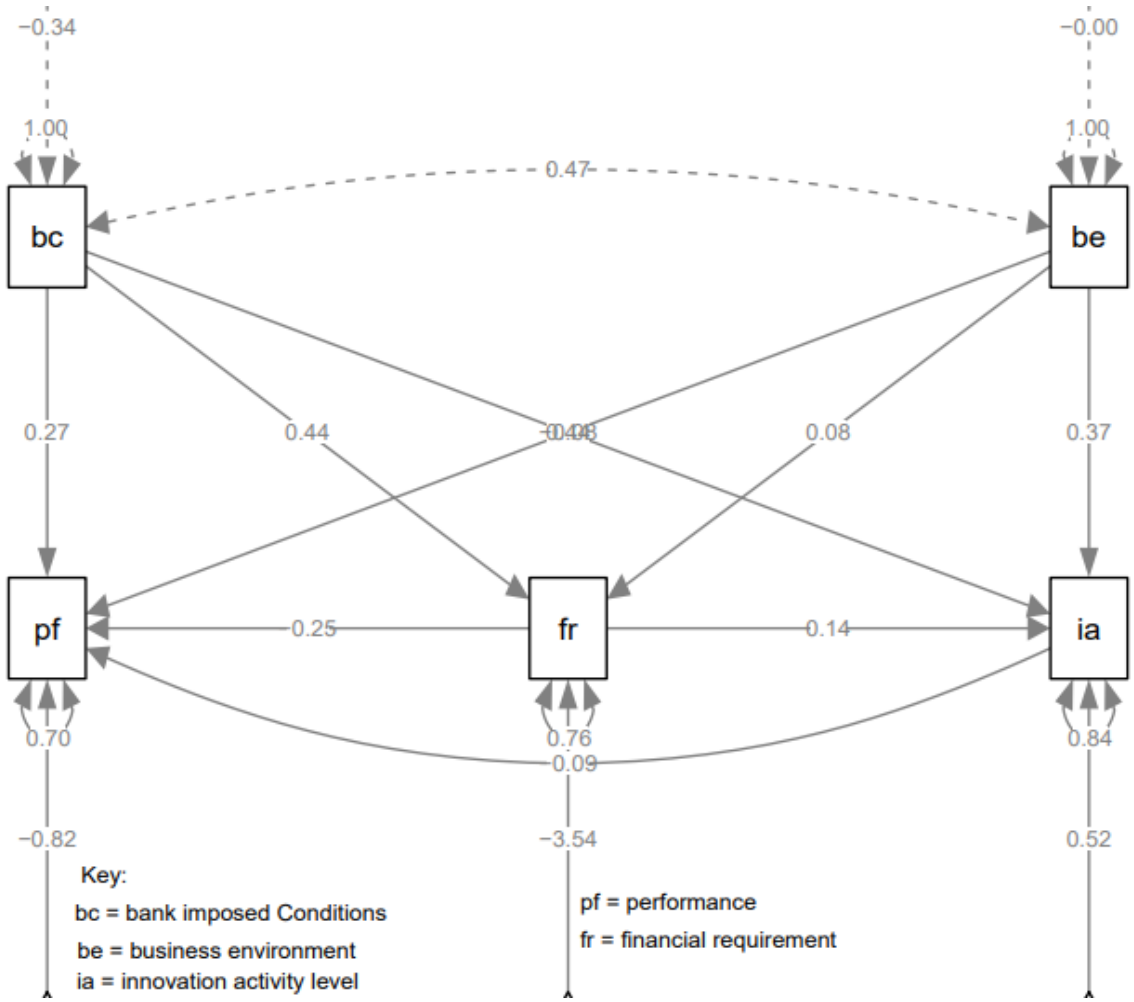

Figure 14. Mediation Pathway Analysis with Standardized Coefficients
Source: R-studio Output

*The regression coefficients are standardized

4.3.2.4 Model Fit Assessment

In most structural equation modeling (SEM) applications, the model under consideration is to some degree misspecified, or in more explicit terms, incorrect (MacCallum, 2003). Therefore, it is crucial to establish whether the model is a close fit or fits precisely or if the misfit is statistically insignificant (Shi, Maydeu-Olivares, & DiStefano, 2018). Some goodness-of-fit indices developed over time attempt to assess the size of a model's misfit. Shi and Maydeu-Olivares (2020) state that understanding the estimation methods' effects on SEM fit indices is essential when fitting these models to ordinal data.

For instance, obtained conclusions and conventional through an estimator may not be generalized to models with a different estimator. Other authors suggest that ordinal data with a

higher number of response categories (above five) be treated as continuous (Rhemtulla et al., 2012). The utilization of multiple linear estimations techniques while treating data as continuous; or least-squares methods when treating the data as ordinal results in substantially different fit indices across estimators, even when the fitting same structural model to the data. This study adopts three commonly used indices to assess model fit.

The comparative fit index (CFI) by Bentler (1990) measures the relative improvement in model fit, moving from the baseline model to the postulated model. CFI is a normed fit index ranging between 0 and 1, with high values indicating a better fit. West, Taylor, and Wu (2012) advise that for a good fit, CFI ≥ .95. The model's CFI results indicate a good fit; however, it is essential to analyze the same with other related indices.

Table 20. Model Fit Test Results

	Index	Statistic
1.	Comparative fit index (CFI)	0.99
2	Tucker–Lewis index (TLI)	1.00
3.	Root mean square error of approximation (RMSEA)	0.00
4.	Standardized Root Mean Square Residual (SRMSR)	0.00

Source: R-studio Output

The Tucker–Lewis index (TLI) quantifies a relative reduction in misfit per degree of freedom (Tucker & Lewis, 1973). Higher TLI values indicate a better fit for the model. The index being non-normed is not required to be between 0 and 1. Whereas values larger than 0.95, the cut-off value acceptable in a great deal of research is 0.97. From the test results, TLI=1.00, indicative of a model fit, is shown in table 20.

The root means square error of approximation (RMSEA) is a badness-of-fit measure, with lower values indicating a better fit. An RMSEA lower than 0.06 is within an acceptable range, whereas a low of 0.10 is unacceptable (Browne & Cudeck, 1992; Hu & Bentler, 1999). SRMSR is the square root of the difference between the sample covariance matrix's residuals and the hypothesized model; values lower than 0.08 suggest a better fit. Both RMSEA and SRMSR are equal to zero based on the test results. The four indices are within acceptable limits, and thus, the mediation model above is a fit.

In conclusion, thus:

i. H1(a): Bank-imposed conditions and the business environment have no meaningful effect on external financial requirements, either separately or jointly fails to hold. Bank-imposed conditions positively influence external financial requirements

ii. H1(b): Bank-imposed conditions and the business environment have no meaningful effect on the innovation-activity level, either separately or jointly, thus not supported. The business environment has a positive impact on innovation.

iii. H1(c): Bank-imposed conditions and the business environment jointly strongly influence the innovation-activity level through external financial requirements is not supported.

iv. H1(d): Bank-imposed conditions and the business environment have a direct, meaningful effect on firm performance is confirmed. Both factors positively impact performance

v. H1(e): Bank-imposed conditions and the business environment's direct and mediated effects on the firm performance are definitively different from zero is confirmed.

4.3.3 Owner-Manager Perception of Future Finance Availability on the Mediated Correlation between the Predictors and the Performance.

The study's second objective is to explore the owner manager's perception of future finance availability's effect on BE and BIC's performance. The goal informs the second hypothesis: the moderating effect of the owner or manager's perception of future finance availability on the BE and BIC's effect is robustly different from zero. Table 21 summarizes the results for the statistical model in figure 5.

The model hypothesizes OMP as substantially moderating paths (a),(b), and (c). Specifically, these are the indirect pathways: $\theta_{X1;X2\rightarrow M}$; $\theta_{M\rightarrow Y}$ and the direct path $\theta_{X1;X2\rightarrow Y}$. Path (a), as illustrated in the statistical model, has two parts, one for each moderator. The model build-ups on the previous one (mediation), where the predictors' and control factor effects on the mediators are the same.

Regarding the first part of the path (a), or $\theta_{X1;X2\rightarrow M1}$—the OM perception of future finance availability substantially affects external finance requirements $(a_{51} = 0.404; p = 0.000)$. OMP's interaction with the predictors has a discernible effect on the mediators $(a_{31} = 0.356; p = 0.000)$. That is, OMP positively moderates the correlation between BIC and

external finance requirements. On the converse, it has a negative moderating effect in the case of the business environment ($a_{32} = -0.258; p = 0.014$). The effects are statistically different from zero based on the bias-corrected and accelerated (BCa) bootstrap CI.

For the second part: ($\theta_{X1;X2\rightarrow M2}$), OMP positively influences innovation activities albeit insignificantly ($a_{52} = 0.011; CI = -0.006 - 0.027$). Besides, it negatively moderates the predictors' effect on the innovation-activity level. The interaction with bank-imposed conditions results in a weak effect ($a_{41} = -0.009; p = 0.284$). On the contrary, OMP robustly moderates BE's effect on IAL since there is no zero in the BCa CI ($a_{42} = -0.041; CI = -0068 - -0.015$).

Concerning indirect path (b) or ($\theta_{M\rightarrow Y}$), the predictors' effect and significance levels on the two mediators resonate with the mediation model. Still, OMP substantially moderates external FR and performance's association ($b_3 = 0.101; CI = 0.001 - 0.033$), as illustrated in figure 15. Nonetheless, its interaction with innovation-activity level, though positive, is weak ($b_4 = 0.617; p = 0.072$). For the direct conditional path, (c), the predictors are still significant determinants of performance. On the flip side, OMP weakly moderates BE ($c_4 = -0.086; p = 0.105$) and BICs ($c_3 = 0.047; p = 0.253$) effects on the performance.

Figure 15 is the owner-managers perception moderation plot. The negative perception of future finance availability has a steep gradient. Thus, the moderation effect is more pronounced at low perception levels compared to firms whose owners and managers are indifferent or positive about future financing prospects. External financial needs moderation effect while statistically significant accounts for about 5.24 percent of the change in performance.

Nevertheless, owner-manager perception of future finance availability correlates positively to the firm performance ($c_4 = 0.400; CI = 0.063 - 0.783$). Also, this effect is meaningfully different from zero since there is no zero in the BCa CI. These factors and interactions account for 43% of the external FR's change and 25.9% for IAL. More specifically, they account for 58.4% of the change in performance, which is quite substantial. However, further probing of the SEM estimates is necessary.

Table 21. Structural Equation Modeling Estimates of BE and BIC's Indirect Effect Conditional on Owner-Manager Perception

	Financial (*M1*)		Requirement	Outcome: Innovation	(*M2*)	Level			Performance (*Y*)
Antecedent	Coefficient	*p-value*	95% BCA CI	Coefficient	*P-value*	95% BCA	Coefficient	*p-value*	95% BCA CI
Constant	$i_{m1} = -\mathbf{4.27}$	0.000	-4.427— -4.10	$i_{m2} = 0.009$	0.342	-0.011 — 0.028	$i_y = -.\mathbf{449}$	0.003	-0.753— -.155
X_1: Bank Cond	$a_{11} = \mathbf{0.503}$	0.000	0.371— 0.640	$a_{21} = -.007$	0.419	0.297 — 0.538	$c_1 = \mathbf{0.134}$	0.007	0.043 — 0.242
X_2: Business Environ.	$a_{12} = -.056$	0.609	-0.276— 0.158	$a_{22} = \mathbf{0.062}$	0.000	0.038 — 0.087	$c_2 = \mathbf{0.419}$	0.000	0.297 — 0.538
X_1W: BIC * OMP	$a_{31} = \mathbf{0.356}$	0.000	0.229— 0.483	$a_{41} = -.009$	0.284	-0.026 — 0.007	$c_3 = .047$	0.253	-0.127 — 0.031
X_2W: BE * OMP	$a_{32} = -.\mathbf{258}$	0.014	-0.453— -0.045	$a_{42} = -.\mathbf{041}$	0.002	-0.068 — -.015	$c_4 = -.086$	0.105	-0.186 — 0.021
W: OM-Perception	$a_{51} = \mathbf{0.404}$	0.000	0.246— 0.557	$a_{52} = 0.011$	0.199	-0.006 — 0.027	$c_5 = 0.400$	0.031	0.063 — 0.783
M_1: Finance Require.							$b_1 = -.\mathbf{109}$	0.003	-0.183— -.039
M_2: Innovation Act							$b_2 = -.358$	0.391	-1.238 — 0.383
M_1W: Fin. Req. * OMP							$b_3 = \mathbf{0.101}$	0.014	0.001 — 0.033
M_2W: Inno. Act * OMP							$b_4 = 0.617$	0.072	-0.157 — 1.550
				$R^2_{M2} = 0.412$		$R^2_{M2} = 0.202$			$R^2_Y = \mathbf{0.588}$

Source: Test results from the R program

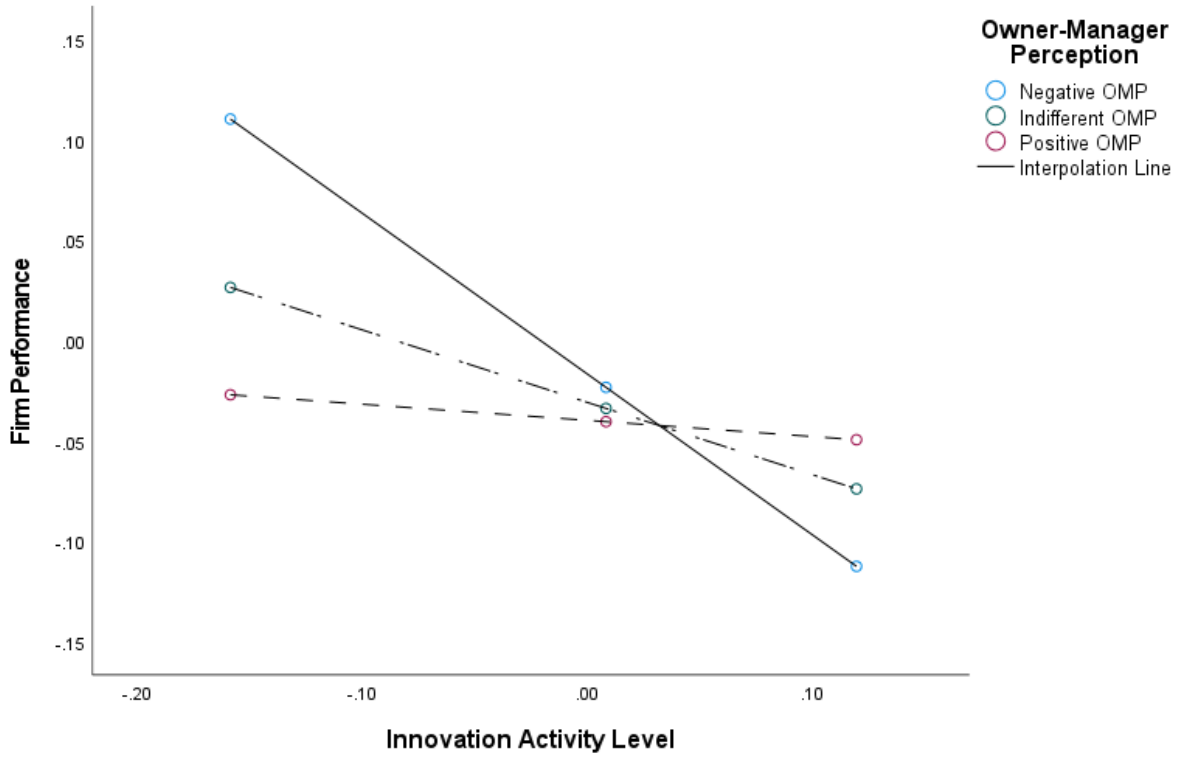

Figure 15. Owner-Manager Perception moderation plot
Source: SPSS Output

4.3.3.1 Testing the Effect Size and Conditional Effects

In path analysis, further probing of the direct, indirect conditional, and total effects is crucial. Such an analysis identifies significant pathway(s) from the rest at varying levels of primary predictors. Table 22 examines the predictor's indirect effect on performance conditional on OMP at one-SD from their mean. The indirect predictors' effect (via external financial requirements) is definitively different from zero at one SD above the mean. That is, $(ab_2 = 0.060; CI = -0.127 - -0.018)$, for path $[a(\theta_{(X1;X2\rightarrow M1\rightarrow Y)}b]$. Notably, such a conditional effect inversely relates to the outcome variable.

Table 22. Results of the Direct and indirect Effects Conditional on OMP

		Indirect Effect				Direct Effect		
Pathway	Deviation	Estimate	Std. Dev	95% BCA CI	Pathway	Estimate	Std. Dev	95% BCA CI
$a(\theta_{(X1;X2\rightarrow M1\rightarrow Y)}$	One-SD Below Mean	$ab_1 = -.038$	0.028	-0.114 — -0.000	$\theta_{(cdash1;2\rightarrow Y}$	$c_i = \mathbf{0.689}$	0.008	0.548 — 0.864
	One-SD Above Mean	$ab_2 = \mathbf{-.060}$	0.027	-0.127 — -0.018		$c_{ii} = \mathbf{0.418}$	0.072	0.270 — 0.557

$a(\theta_{(X1;X2\rightarrow M2\rightarrow Y)}$	One-SD Below Mean	$ab_3 = -.038$	0.046	-0.146 — 0.036				
	One-SD Above Mean	$ab_4 = -.001$	0.008	-0.029 — 0.008				
		Total	**Conditional**	**Effects**		**Proportion**	**Mediated**	
	One-SD Above Mean	$ab_5 = .\mathbf{613}$	0.075	0.471 — 0.774		$P_{M1} = -0.124$	0.101	-0.368 — 0.023
	One-SD below Mean	$ab_7 = .\mathbf{357}$	0.073	0.216 — 0.501		$P_{M1} = -\mathbf{0.171}$	0.108	-0.460 — -0.037

Source: Test results from the R program

Moreover, the predictors have a substantial direct influence on performance conditional on OMP at both standard deviations—$(c_i = 0.689; CI = 0.548 - 0.864)$ at one-SD below the mean and $(c_{ii} = 0.418; CI = 0.027 - 0.557)$ at one-SD above. Similarly, the total effect (direct and indirect) is conclusively different from zero at the deviation, based on the BCA CI. Specifically, $(ab_5 = 0.613; CI = 0.473 - 0.774)$ at one-SD below the mean and$(ab_7 = 0.357; p = 0.073)$.

Further, the table presents the proportion of BIC and BE's mediated effect on the outcome conditional on OMP at both SDs. The ratio is definitively different from zero for one SD above the mean since there is no zero in the percentile CI$(P_{M2} = -0.170; p = 0.108)$. Approximately 17% of the predictors' mediated effect on performance is conditional on the owner-manager perception of future finance availability. Nonetheless, the indices help decipher whether the mediation and moderation effect is substantial.

4.3.3.2 Exploring Moderation and Mediation Effects (Index of Moderated Mediation)

Table 23 shows four different indices of moderated mediation of different pathways. The index quantifies the relationship between the two model predictors and their indirect effect on performance through mediators. One advantage of this test is that evidence of statistically significant interaction between any (study) variable in the model and a moderator is not necessary to establish a moderation mechanism (Hayes, 2015).

Nonetheless, OMP has no substantial conditional influence on the predictors' direct or indirect outcome effects. The bias-corrected and accelerated bootstrap confidence intervals contain a zero for all four pathways. The model estimates shown above can generate model equations as shown below.

Table 23. Indices of Moderated Mediation

Pathway	Index	*p-value*	95% Bootstrapped BCA CI
$(a_{31} + a_{32})b_1$	$im_1 = 0.013$	0.323	-0.008—0.044
$(a_{41} + a_{42})b_2$	$im_2 = -0.003$	0.763	-0.035—0.010
$(a_{31} + a_{32})b_1 + (a_{11} + a_{12})b_3 + (a_{31} + a_{32})b_3$	$im_3 = -0.002$	0.877	-0.035—0.018
$(a_{41} + a_{42})b_2 + (a_{21} + a_{22})b_4 + (a_{41} + a_{42})b_4$	$im_4 = 0.022$	0.357	-0.030—0.065

Source: Test results from the R program

Substituting the terms results in best-fitting OLS equations:

3. BIC and BE's effect on external FR and IAL: Path $(a\theta_{X\to M})$;

$$\boldsymbol{FR} = -4.27 + 0.503BIC - 0.056BE + 0.356BIC * OMP - 0.258BE * OMP + 0.404OMP + 0.797CS$$

$$\boldsymbol{IAL} = 0.009 - 0.009BIC + 0.062BE - 0.009BIC * OMP - 0.041BE * OMP + 0.011OMP + 0.113CS$$

4. BIC and BE's indirect effect conditional on OMP: Path $(a\theta_{X\to M})b$;

$$\boldsymbol{Via\ FR} = [(0.503 - 0.056) + OMP(0.356 - 0.258)][-0.109 + 0.016OMP]$$
$$= (0.447 + 0.098OMP)(-0.109 + 0.016OMP)$$
$$= 0.044 - 0.002OMP$$

$$\boldsymbol{Via\ IAL} = [(-0.009 + 0.062) + OMP(-0.009 - 0.041)][-0.358 + 0.787OMP]$$
$$= (0.053 - 0.05OMP)(-0.358 + 0.787OMP)$$
$$= -0.019 + 0.021OMP$$

$$\boldsymbol{Total\ indirect} = (0.044 - 0.002OMP) + (-0.019 + 0.021OMP)$$
$$= 0.025 + 0.019OMP$$

5. BIC and BE's direct effect conditional on OMP: Path $(cdash\theta_{X\to M})$;

$$= (0.134 + 0.419) + (0.101 + 0.617)OMP$$

$$= 0.553 + 0.718OMP$$

6. The outcome (total effect)

$$\boldsymbol{Perf} = -0.449 + 0.134BIC + 0.419BE + 0.047BIC * OMP - 0.086BE * OMP + 0.4OMP - 0.109FR - 0.358IAL + 0.016FR * OMP + 0.787IAL * OMP$$

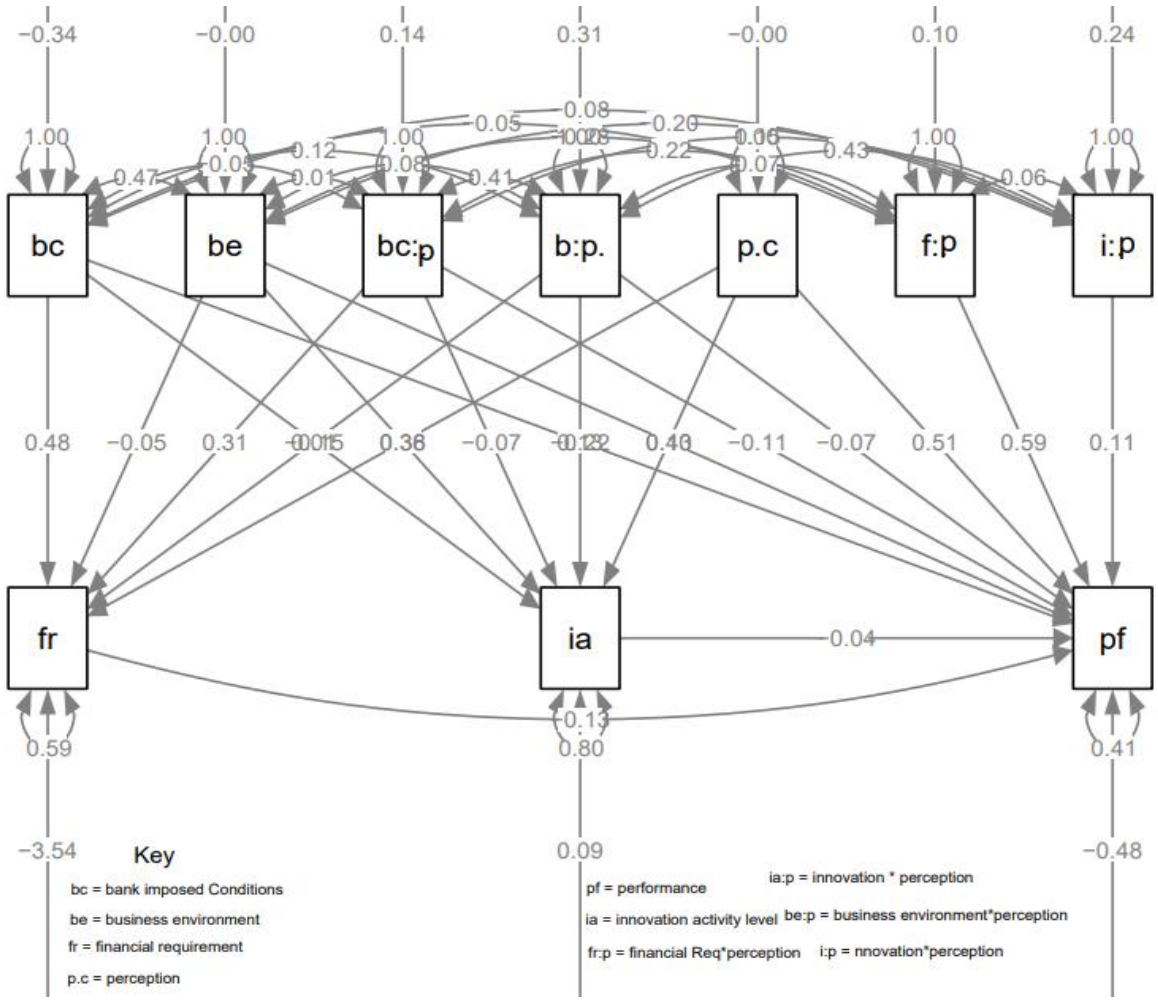

Figure 16. Three-Way Moderated-Mediation Path Analysis with Standardized Coefficients

Sources: R-Studio Output

*The regression coefficients are standardized

4.3.3.3 Model Fit Assessment

Like the mediation model, three indices test how well the model fits the study sample. These indices already explained are; the Comparative fit index (CFI), Tucker–Lewis index (TLI), and Root mean square error of approximation (RMSEA). As shown in Table 24, two indices border

the lower limit cut-off point, mainly the CFI = 0.90 and TLI = 0.905. As explained, values above 0.95 are a good fit; however, those above 0.90 are equally acceptable.

Table 24. Model Fit Test Results

	Index	Statistic
1.	Comparative fit index (CFI)	0.900
2	Tucker–Lewis index (TLI)	0.905
3.	Root mean square error of approximation (RMSEA)	0.070

Sources: R-Studio Output

On the converse, one other index is just below the higher limit, RMSE = 0.070. Nonetheless, empirical evidence places values below 0.08 within an acceptable range. As such, based on the findings in the table, the second model is equally a fit.

Finally, based on moderated mediation indices, the predictors' direct and indirect effect conditional on OMP is not statistically different from zero. Thus, the second hypothesis that:

(H2): The moderating effect of owner-manager of future finance availability on the BIC and BE's effect is robustly different from zero is not supported.

4.3.4 Ownership Type Influence on BIC and BE's Indirect Effect on Performance

The third objective examines the predictors' indirect effect on the outcome variable conditional on ownership type, assuming external FR impacts IAL. The related hypothesis states that ownership type substantially influences BIC and BE's indirect effect on performance. Moreover, ownership strongly influences external financial requirements and innovation activities. As illustrated in statistical framework 6, moderation occurs only on indirect paths (b_1) and (b_2). Like in the mediation model, IAL is assumed to be influenced by the two predictors and external financial requirements. The direct path (c) remains uninfluenced. Still, the model seeks to explore how ownership relates to external financing needs and innovation programs.

In the model, ownership, a categorical variable, has six categories. The 'Entrepreneurs-Owned' category is the referent for the other five types. The moderator was dummy-coded for a more straightforward analysis. Table 25 presents the OLS regression estimates of the predictors' indirect effect on the outcome variable conditional on ownership type. For a better illustration, the table omits a section on the mediators as endogenous variables expounded in the next model.

Regarding path $(\theta_{M1\rightarrow Y})b_1$, it explores how ownership affects external funding requirements. Based on the findings, one-owner firms (male/female) and affiliates perform higher than the referent group. For instance, male-owned enterprises ($b_{31} = 0.019,\ p = 0.850$) and affiliates ($b_{34} = 0.048,\ p = 0.698$); however, the differences are not different from zero shown by the percentile bootstrap CI. On the converse, privately listed firms have significantly superior performance than the referent group ($b_{35} = 0.324,\ CI = 0.062 - 0.586$). That notwithstanding, family-owned ventures have insignificantly lower performance than entrepreneurs-owned firms ($b_{33} = -0.203,\ CI = -1.000 - 0.592$).

Furthermore, individual ownership negatively while family-owned positively moderates the effect of external finance requirements on performance. That is ($b_{42} = -0.082,\ p = 0.477$) and ($b_{43} = 0.235,\ p = 0.633$) for female and family-owned ventures, respectively, compared to the referent group. Nonetheless, the moderation effect is not statistically different based on the percentile bootstrap CI. On the flip side, affiliates ($b_{44} = 0.392,\ CI = 0.195 - 0.588$) and privately listed businesses($b_{45} = 0.914,\ CI = 0.438 - 1.389$), positively and significantly moderate the correlation between finance requirements and performance than the referent group.

For path $(\theta_{M1\rightarrow M2\rightarrow Y})b_2$ examines the role of ownership type on innovation activities. From the findings, all ownership levels are not significantly different from the referent group. Besides, entrepreneur-owned firms perform better than one-owner and privately listed ventures($b_{55} = -1.34,\ p = 0.539$), albeit insignificantly. Nevertheless, family-owned and affiliates engage more in innovation activities than the referent group ($b_{53} = 0.852,\ p = 0.332$) for family-owned. All these factors and their interaction account for 39.6% of the change in performance. However, the moderated mediation tests are necessary to establish whether the ownership level substantially moderates the predictors' indirect effect on the outcome. The next section discusses this test.

Table 25. Ordinary Least Squares Regression Coefficients of BE and BIC's Indirect Effect on the Performance Conditional on Ownership Type

Antecedent	Coefficient (SE_{boot})	$P\ value$	95% Percentile Bootstrap CI
Constant	$i_Y = 0.548(0.288)$	0.058	-0.019—1.116
X_1: Bank-Imposed Cond.	$c_1 = \mathbf{0.179}(0.049)$	0.000	0.082—0.276
X_2: Business Environment	$c_2 = \mathbf{0.408}(0.063)$	0.000	0.284—0.531
W_1: Male-Owned	$b_{31} = 0.019(0.101)$	0.850	-0.180—0.218
W_2: Female-Owned	$b_{32} = 0.147(0.302)$	0.627	-0.448—0.743
W_3: Family-Owned	$b_{33} = -0.203(0.403)$	0.616	-1.000— 0.592
W_4: Affiliate	$b_{34} = 0.048(0.122)$	0.698	-0.194— 0.289
W_5: Privately Listed	$b_{35} = \mathbf{0.324}(0.133)$	0.016	0.062—0.586
$M_1; M_2$: Fin. Req~ Inno. Act	$d_1 = 0.017(0.009)$	0.274	-0.009—0.023
M_1W_1: Fin Req. * Male-Owned	$b_{41} = -0.025(0.069)$	0.717	-0.162—0.112
M_1W_2: Fin Req. * Female-Owned	$b_{42} = -0.082(0.018)$	0.477	-0.023—0.049
M_1W_3: Fin Req. * Family-Owned	$b_{43} = 0.235(0.492)$	0.633	-0.736—1.207
M_1W_4: Fin Req. * Affiliate	$b_{44} = \mathbf{0.392}(0.100)$	0.000	0.195—0.588
M_1W_5: Fin Req. * Privately Listed	$b_{45} = \mathbf{0.914}(0.241)$	0.000	0.438—1.389
M_2W_1: Inno. Act * Male-Owned	$b_{51} = -3.083(3.015)$	0.308	-9.033—2.867
M_2W_2: Inno. Act * Female-Owned	$b_{52} = -0.016(0.297)$	0.958	-0.603—0.571
M_2W_3: Inno. Act * Family-Owned	$b_{53} = 0.852(0.877)$	0.332	-0.878—2.582
M_2W_4: Inno. Act * Affiliate	$b_{54} = 0.508(0.835)$	0.544	-1.140—2.155
M_2W_5: Inno. Act * Privately Listed	$b_{55} = -1.340(2.210)$	0.539	-5.721— 3.003
M_1: Financial Requirement	$b_1 = -\mathbf{0.172}(0.000)$	0.000	-0.263— -0.084
M_2: Innovation-Activity Level	$b_2 = -0.364(0.416)$	0.416	-1.245—0.417
	$R^2 = \mathbf{0.396}$		

Source: Test results from Process Macro

4.3.4.1 Probing the Effect Size and Conditional Indirect Effects

Table 26 shows the predictors' indirect effect size on performance. Unlike continuous, there is no 'direct' moderated mediation index for a conditional process involving categorical variables. Instead, a researcher must evaluate the effect size significance for each level of this variable. While the $'c-path'$ is effect-size for the direct path, for the indirect pathway, the effect size depends on the sections or length.

Table 26. The Predictors' Indirect Effect on Performance Conditional on Ownership

		Bank Conditions			Business Environment	
Ownership Type	*Effect*	SE_{boot}	*95% Boot CI*	*Effect*	SE_{boot}	*95% Boot CI*
Entrepreneurs	0.000	0.004	-.010— 0.008	0.000	0.002	-.004—0.002
Male-Owned	−.009	0.008	-.030— 0.000	−.002	0.004	-.013—0.002
Female-Owned	−.023	0.024	-.067— 0.025	−.006	0.010	-.029—0.009
Family-Owned	0.006	0.010	-.010— 0.024	0.002	0.003	-.004—0.009
Affiliate	0.000	0.000	0.000—0.000	0.000	0.000	0.000—0.000
Private Listing	0.000	0.000	0.000—0.000	0.000	0.000	0.000—0.000

Source: Test results from Process Macro

Regarding effect size, Hayes (2018) states that "practical" or "theoretical" significance are subjective terms that defy precise quantification (p.133). For instance, a small effect in one context might be relatively significant in a different step up. A zero impact has a clear interpretation. An effect size closer to zero is small, and an index further from zero is perceived to be large, while in between lies the medium-sized effect.

The findings in the table explore the effect size separately for each predictor. Other than one-owner (male or female)firms, ownership type moderation of the mediated correlation results in nominal indirect effect sizes. More precisely, BIC and BE's indirect effect on performance is zero or nil for most ownership types. Since BIC and BE have a zero indirect impact on the performance, further analysis of the differences between conditional indirect effects (indices of moderated mediation) is meaningless.

4.3.4.2 Assessment of the Differences among Ownership Types using Kruskal Wallis Test

The findings in the tables above illustrate ownership's impact on the predictors' indirect effect and performance. However, they do not expound on performance differences, if any, among these levels. For instance, while the 'category' may not substantially affect performance, it should not imply an absence of differences between them. Table 27 presents the Kruskal Wallis test results on differences among the levels. The null hypothesis fails to hold as there are no statistically significant performance differences between ownership levels ($p = 0.368$). The insignificance implies the absence of any rationale for further probing. The findings support the zero effect size discussed above.

Table 27. Kruskal Wallis Test Results on Ownership Levels

Null Hypothesis	Sign	Decision
The distribution of performance is not definitively different from zero across ownership levels	0.368	Retain the Null Hypothesis

Source: Test results from SPSS

Interchanging terms result in the following best-fitting OLS equations:

7. The indirect effects (assuming family ownership):

$$= [-0.172(0.439 + 0.115)] + [-0.364(-0.014 + 0.063)] + [-0.364(0.439 + 0.115)\{0.009 + (0.235 + 0.852)family - owned\}] = -0.242 - 0.177family\ owned$$

8. BIC and BE's direct effect:

$$= 0.179BIC + 0.419BE$$

In conclusion, the BIC and BE have a nil indirect effect on performance when ownership acts as the conditioning factor (moderator). Thus, *(H3):* Ownership type substantially influences BIC and BE's indirect effect on performance. Besides, it strongly correlates to external FR, and IAL is unconfirmed.

4.3.5 The Relationship between Ownership Type, the Firm Age, and the Predictor's Indirect Effect on Performance.

The study's fourth object investigates ownership levels and firm age's role in the relationship between the predictors and the outcome. The associated hypothesis is that BE and BIC's effect on performance conditional on both ownership and firm age is not statistically different from zero. The model builds up the previous one by introducing the firm age as a second moderator illustrated by the statistical model Figure 7.

The study's objective assumes that ownership plays a critical role in formal credit access, while financing decisions depend on the prevailing business environment. Besides, firm owners must find credit providers with favorable terms before committing their business to significant financial obligations. Also, these providers of credit consider the general business environment before advancing such facilities. Specifically, the model hypothesizes ownership moderating

the indirect path ($a\theta_{X1;X2\rightarrow M}$), the firm age, indirect path ($\theta_{M\rightarrow Y})b$, while both moderate the direct path ($cdash\theta_{X\rightarrow Y}$).

Moderation occurs on indirect paths (a), (b), and the direct path (c). Appendix (2) presents a summary of the test results. Both moderators are categorical variables with one category as the referent group. These are 'Entrepreneurs-owned' and the 'Above five but under ten years' for ownership level and firm age. Thus, the predictors' impact on the mediators remains like the previous model, with no need for further elaboration. The chosen age group referent group is ideal since the average life span is 3.8 years based on the KNBS report (2016). Also, these firms are assumed to be experiencing increasing growth.

Regarding the first mediator, the pathway ($\theta_{X2\rightarrow M}$), all five ownership levels have a low demand for external financial requirements than the referent group. The difference is not statistically significant for firms under one entrepreneur (male /female) and family-owned businesses. However, with affiliates ($a_{35} = -1.67,\ p = 0.000$) and privately listed firms ($a_{37} = -1.10,\ p = 0.001$), the difference is robust with no zero in the percentile CI. The interaction of these levels and BIC results in higher external finance needs than the referent category.

Specifically, sole-ownership significantly moderates the correlation between BIC and external finance requirements than the referent. For instance, male-owned ($a_{40} = 0.54,\ CI = 0.184 - 0.911$) and female-owned ($a_{42} = 0.841, CI = 0.363 - 1.318$). Also, while the difference is weak for privately listed firms, it is discernible for affiliates ($a_{46} = 1.563,\ CI = 1.240 - 1.886$). Still, three levels robustly moderate the business environment and external finance requirement's association than the referent group. Male ownership has a higher moderation effect ($a_{50} = 0.583,\ CI = 0.172 - 0.994$). Affiliates ($a_{56} = -2.47,\ CI = 3.106 - 1.867$) and privately listed ($a_{58} = -0.629,\ CI = -1.138 - -0.120$) have a lower moderation effect than entrepreneurs-owned ventures.

With the second mediator, path ($\theta_{X2\rightarrow M}$), only two ownership levels have a more substantial influence on the innovation-activity level than the referent group. That is, family ($a_{34} = 0.068,\ CI = 0.009 - 0.127$) and privately listed ($a_{39} = 0.196,\ CI = 0.055 - 0.336$). Their influence is definitively different from zero based on the percentile bootstrap CI. Affiliates have a lower insignificant influence than the referent group. Besides, all ownership levels' moderation of BIC and IAL's relationship is greater than the referent group except for privately

listed. However, these effects are inconsequential; for instance, privately listed ($a_{49} = -0.005$, $p = 0.104$).

Likewise, the ownership type moderation effects on the correlation between the business environment and performance are not substantially different from zero based on CI. Three levels, namely female-owned, family and affiliates, have an inferior moderation effect to the referent group. For example, the family-owned ($a_{55} = -0.004,\ p = 0.917$). Nonetheless, there are two indirect paths (a), already discussed, and (b), next.

Interestingly, for path $(\theta_{M\to Y})$, the inclusion of the firm age in the model alters the ownership level's level effect on performance. For instance, only firms with privately placed shares had a substantially higher performance than the referent group in the previous model. However, besides privately listed firms, family-owned and affiliates' performance significantly differs from the present model's referent groups. These ownership levels result in a lower performance than the referent. Precisely, family-owned ($c_{13} = -0.188,\ p = 0.045$), affiliates ($c_{14} = -0.54,\ p = 0.009$), and those with privately-traded shares ($c_{15} = -1.72,\ p = 0.000$) evidenced by the percentile bootstrap CI.

Moreover, firm age is a crucial determinant of performance based on the test results. In particular, there is a meaningful difference between the referent group and the three age groups. Notable, all three groups have lower performance than the referent group. Specifically, the firms below two years ($b_{21} = -2.21,\ CI = -4.693 - -0.874$), those above two but under five years ($b_{22} = -0.731,\ CI = -1.042 - -0.420$), while those above ten years ($b_{22} = -0.501,\ CI = 0.816 - -0.186$). The differences are substantially different based on the percentile bootstrap CI.

Still, the firm age moderates the association between the second predictor, the mediators, and performance. For instance, the 'over two and under-five years' ($b_{02} = -0.682, CI = -1.048 - -0.316$) and the 'over ten years ($b_{03} = -0.583, CI = -0.382 - -0.333$) substantially moderate BIC and performance's association than the referent. Regarding BE, the three age groups have a lower moderation effect than the referent, but this is statistically different for the 'above two but under five years' category ($b_{32} = -0.537,\ p = 0.004$).

Also, the 'above two but under five years ($b_{42} = 0.411,\ p = 0.000$) and 'over ten years ($b_{43} = 0.381,\ p = 0.00$) significantly moderate the correlation between external FR and performance than the referent. However, the three age groups have a negligible higher

moderation effect on the relationship between IAL and performance than the referent group. Unlike the previous models, both the external FR and IAL significantly mediate the association between the predictors and the outcome variable. In particular, external FR negatively mediates this relationship ($b_6 = -1.04,\ CI = -1.732 - -0.358$) while positively for IAL ($b_7 = 0.200,\ CI = 0.090 - 0.301$).

For the conditional direct path (c), only two ownership levels' moderation effect is definitively different from the referent group. Affiliates strongly moderate BIC's indirect effect ($c_{34} = 0.708,\ p = 0.000$) while privately listed have a lower effect ($c_{13} = -2.12,\ p = 0.000$). Furthermore, sole ownership (male or female) and family ownership considerably moderate BE and performance correlation to the referent group.

That notwithstanding, the private listing has a lower moderation ($c_{45} = -2.78,\ p = 0.005$) and family, a higher effect ($c_{43} = 0.389,\ p = 0.002$). The moderation effect of these two levels is statistically different from zero based on the percentile CI.

These factors and their interactions result in a 38.8% change for external FR and 33.6% for innovation activities. Notably, they result in a significant difference in the outcome variable, 62.7% for performance. Nonetheless, the section below evaluates the conditional effects of the two moderators separately, as discussed next.

4.3.5.1 The predictors' Effect Size on Performance Conditional on Ownership Type (First-Stage Moderation)

Further evaluation of the predictors' effect on the performance is by interrogating the first-stage moderation. In first-stage moderation, ownership interacts with the predictors to influence mediators and the outcome. Table 28 presents the first-stage moderation results exploring the interaction's effect on the performance conditional path (c_{dash}).

Based on the findings, ownership type interaction with BIC positively affects performance for three categories. These are male-owned ($0.645, se = 0.155$), female-owned ($0.938, se = 0.209$), and affiliates ($1.661, se = 0.068$); the effect is substantially different from zero-based on the percentile CI. Also, this effect is highest for affiliates than in the other two categories. However, an interaction with privately listed firms hurts performance, although the effect is weak.

Table 28. Test Results for First-Stage Moderation

	BIC (X_1)			BE (X_2)		
Ownership (W)	*Effect*	SE_{boot}	*95% Perc. CI*	*Effect*	SE_{boot}	*95% Perc. CI*
Entrepreneurs	.097	.134	-.167— 0.362	-.173	.126	-.421— .075
Male	**.645**	.155	.339— 0.951	**.410**	.187	.040— .779
Female	**.938**	.209	.526— 1.350	.525	.461	-.385—1.434
Family	.682	.711	-.72—2.084	.630	.883	-1.113—2.373
Affiliate	**1.661**	.068	1.526—1.795	**-2.659**	.236	-3.126— -.2.193
Privately Listed	-.653	.362	-1.367—0.062	**-.802**	.251	-1.296— -.307

Source: Test results from Process Macro

Still, such an interaction with the business environment favors the performance of male-owned enterprises. The effect $(0.410, se = 0.187)$ is statistically significant, as evidenced by the percentile CI. It is only male ownership whose interaction with the two predictors results in superior performance. On the contrary, BE's interaction with ownership type adversely affects performance for two categories.

For instance, such an interaction hurts more affiliates $(-2.659, se = 0.236)$, the opposite of BIC. Likewise, privately listed firms $(-.802, se = 0.251)$ report a decline in performance. These two effects are definitively different from zero based on the bootstrapped CI. Besides, a similar interaction favors female and family-owned enterprises but not so for entrepreneurs. Nevertheless, these effects are inconsequential.

Figure 17 is a moderation plot of the business environment's effect on performance conditional on both ownership type and firm age. The illustration confirms the test results, that is, firm age positively moderates the correlation between prevailing business environment and performance. Like ownership type (with three levels representing firms with inferior, same, and superior to the referent group), similarly, firm age has three categories (graphs). That is, for young/startups, growing, and mature firms. Finally, the mediators' effect on performance conditional on firm age is also analyzed further—discussed next.

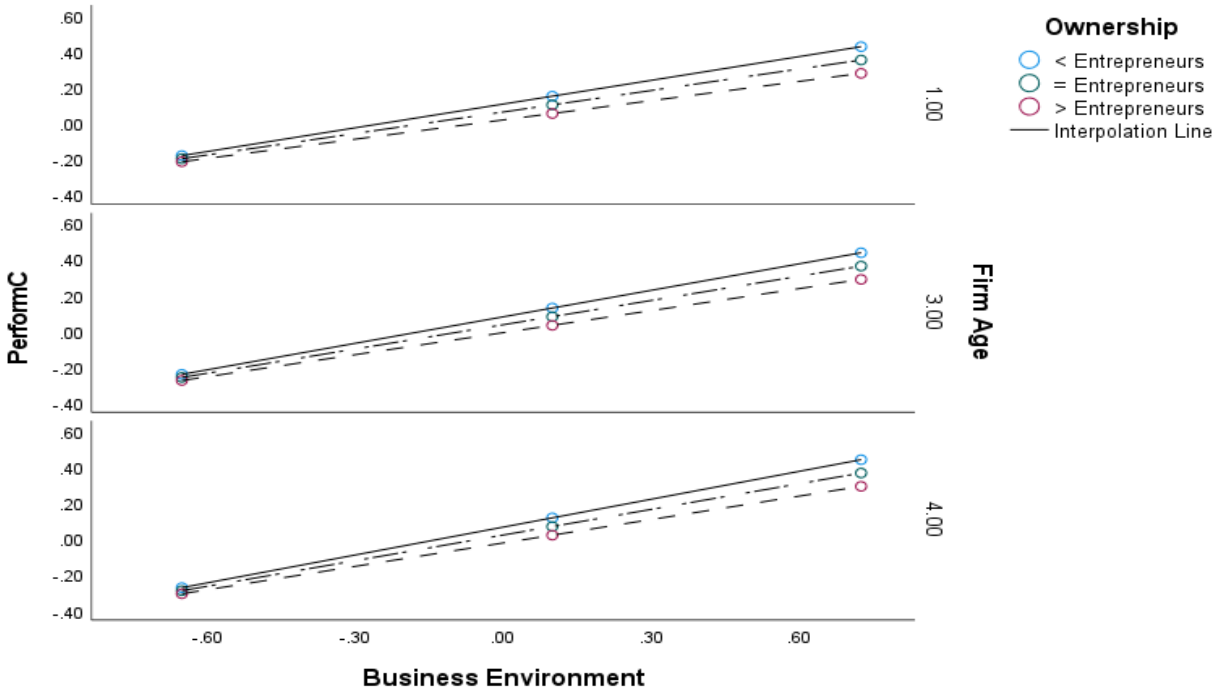

Figure 17. Business Environment's effect on performance conditional on OT and FA
Source: SPSS Output

4.3.5.2 The Mediators' Effect on Performance Conditional on Firm Age (Second-Stage Moderation)

The second-stage moderation occurs on the path—$(\theta_{M\to Y})b$ with the findings illustrated in table 29. The firms fall into three main groups: low, medium, and high, with more elaboration under the tables. The researcher adopts the 'start-up/young,' 'growing,' and 'mature' to replace the three former terms.

Based on the findings, external financial requirement's interaction with age hurts start-ups & young firms' performance $(-0.297, Se = 0.047)$ and those growing $(-0.172, Se = 0.035)$. Furthermore, it negatively influences the correlation between innovation activities and performance for the two groups. That is, start-ups & young ventures $(-1.985, Se = 0.581)$ and growing $(-1.118, Se = 0.362)$. The effects are substantially different from zero based on the percentile CI.

Notwithstanding, firm age has no meaningful moderating effect on the association between the two mediators and mature firms' outcomes. The effect is not statistically different from zero based on the confidence intervals.

Table 29. Test Results for the Second-Stage Moderation

	Financial Req.		(M_1)	Innovation Act		(M_2)
Age (Z)	*Effect Size*	SE_{boot}	*95% Perc. CI*	*Effect Size*	SE_{boot}	*95% Perc. CI*
Low	**-0.297**	.047	-.390— -.204	**-1.985**	0.581	-3.131— -.839
Medium	**-0.172**	.035	-.240— -.103	**-1.118**	0.362	-1.833— -.403
High	-0.046	.042	-.129— .037	-0.251	0.294	-0.831— .328

Source: Test results from Process Macro

*Low = 16th percentile (startups/young—under five years); Medium = 50th percentile (growing—over five but under ten years) and; High = 84th percentile (mature—over ten years)

4.3.5.3 Testing BIC and BE's Direct and Indirect Effects Size Conditional on Ownership Type and Firm Age

The predictors' conditional effect on performance is a summation of the indirect effect (first and second stage moderated-mediation) as well as the direct conditional effects, paths: $a(\theta_{X\to M})$; $(\theta_{M\to Y})b$; and (c_{dash}). As earlier pointed out, there is no direct index of moderated-moderated mediation for categorical moderators. The index confirms whether a second moderator substantially influences a moderated-mediation analysis. For categorical variables, like in the present study, the decision depends on the researcher's opinion of the conditional effect sizes (Hayes, 2018).

Appendix (3) and (4) present the predictors' direct and indirect effects conditional on the two mediators (ownership type and firm age). More precisely, the results show how each ownership type combines with the three firm age levels (startup/young, growing, and mature); and how such combinations influence BIC and BE's conditional effects on performance. We start by interrogating the indirect conditional pathway.

Based on Appendix (4) findings, the two moderators robustly influence BIC's indirect effect (via external FR) on performance for three ownership types. The conditional indirect impact is statistically significant for affiliates, male and female-owned firms in the startup/young and growing life-cycle phases. Bank-imposed requirements indirect conditional effects hurt the performance of these firms. For instance, $(-0.493, Se = 0.095)$ and $(-0.285, Se = 0.065)$ for affiliates at the two life cycle stages.

Still, BIC has a significant indirect conditional effect (via IAL) on the performance of affiliates and privately listed firms again at the two stages. Such indirect conditional effect negatively influences performance substantially based on the percentile CI. For example, for privately listed firms, the effect is $(-0.290, Se = 0.159)$ and $(-0.163, Se = 0.089)$ for these two

stages. Notable, BIC indirect conditional effects, through both mediators, hurts the performance of affiliates.

Moreover, the moderators' influence of BE's indirect effect (via external FR) results in a substantial positive performance for affiliates and privately listed firms but negatively for male-owned. For example, the effects are $(0.679, Se = 0.174)$ for affiliates and $(0.205, Se = 0.082)$ privately listed at a youthful stage. However, such conditional effects via IAL hurts male-owned, entrepreneurs-owned, and privately listed firms. The adverse impact is robust at the two firm life cycle stages based on the CI.

Appendix (3) focuses on the dual moderation of BIC and BE's direct effect on performance. Regarding BIC, such double moderation results in family-owned and affiliate firms' positive performances at all three age levels but hurts privately listed. The effects are definitively different from zero as there is no zero in the percentile CI. These effects are $(0.697, Se = 0.121;\ 0.462, Se = 0.105;\ 0.227, Se = 0.105)$ for family-owned enterprises at the youthful, growing, and mature life cycle stages.

Likewise, BE has a statistically significant indirect effect on all ages for half of the ownership types. Such conditional effect positively influences entrepreneurs' and family-owned venture performance but adversely affects privately listed firms. For entrepreneurs-owned firms, these effects are $(0.614, Se = 0.188;\ 0.462, Se = 0.105;\ 0.311, Se = 0.058)$ at the three stages. Generally, the moderators substantially influence the predictors' indirect effect on performance for most ownership types at different firm age levels. Nevertheless, it is essential to explore if any significant variances exist among surveyed firms based on age.

4.3.5.4 Assessment of the Differences among Age Groups using the Kruskal-Wallis Test

While the regression coefficients suggest that firm age substantially affects the predictors' indirect effect and performance, further probing may reveal if meaningful differences exist between these groups. Table 30 shows that the mean difference between the groups is statistically different from zero ($p = 0.002$). The substantial difference in the means requires additional tests, thus, the pairwise comparison of the differences in means.

Table 31 reveals the existence of discernible differences in the means of these age groups. In particular, the mean of the 'over two years but under five' substantially differs from the 'under two years' group ($p = 0.002$). Likewise, such a difference exists between the 'over five years

but under ten' and the 'under two years' ($p = 0.0038$). These findings confirm those of other scholars flagging age as a crucial determinant of firm performance.

Table 30. Kruskal Wallis Test Results on Age Groups

Null Hypothesis	Sign	Decision
The distribution of performance is the same across age groups	**0.002**	Reject the Null Hypothesis

Source: Test results from SPSS

Table 31. Pairwise Comparison for Means

Age Group Levels	Standard Test Statistic	Adjusted Significance
Over 2 years but under 5 vs Over 5 years less than 10	-1.732	0.500
Over 2 years but under 5 vs Over 10 years	-2.629	0.051
Over 2 years but under 5 vs Under 2 years	3.615	**0.002**
Over 5 years but under 10 vs Over 10 years	-1.284	1.00
Over 5 years but under 10 vs Under 2 years	2.734	**0.038**
Over 10 years vs Under 2 years	1.904	0.341

Source: Test results from SPSS

Replacing the terms gives the best-fitting OLS equations. The equations consider an affiliate in the 'over ten years' category, selected randomly (compared to the referent).

9. The indirect effect (for instance, via external FR) of BIC and BE on the performance

$$= (0.098 + 0.890 + 1.563Affiliate)(-1.04 + 0.381Agegroup)$$

$$= (0.988 + 1.563Affiliate)(-1.04 + 0.381Agegroup)$$

10. BICs and BE direct impact conditional on ownership type and age group

$$= [(0.196 + 0.639) + (0.708 - 1.6)Affiliate] + [-1.06 + (-0.583 - 0.278)Age\ group$$

$$= (0.835 - 0.892Affiliate)(-1.06 - 0.305Age\ group)$$

To conclude, both the ownership type and the firm age substantially condition the predictors' indirect effect on performance. Thus, *(H4):* BIC and BE's impact on performance conditional

on both ownership type and firm age is not statistically different from zero is confirmed. Therefore, BE and BIC's indirect effect on performance conditional on both ownership and firm age is not substantially different from zero. Table 32 summarizes the objectives, the hypothesis that guided the study, and their outcomes. Only one of the four hypotheses is not supported. The following section discusses the findings while linking them to the results of existing related studies.

Table 32. Summary of the Study Objectives, Hypotheses, and Decision

Objective	Hypotheses	Decision
	H1: Bank-imposed conditions and the business environment do not directly affect the two mediators substantially, but rather performance. The five associated sub hypotheses are;	
	H1 (a): Bank-imposed conditions and the business environment have no meaningful effect on external financial requirements, either separately or jointly fails to hold. Bank-imposed conditions positively influence external financial requirements	Rejected
	H1 (b): Bank-imposed conditions and the business environment have no meaningful effect on the innovation-activity level, either separately or jointly, which is not supported. The business environment has a positive impact on innovation	Rejected
1. Establish the bank imposed conditions (BIC) and business environment's (BE) direct effect on the performance and mediated by external finance requirement (FR) and innovation-activity level (IAL) on the target firms.	*H1(c):* Bank-imposed conditions and the business environment jointly have a strong influence on the innovation-activity level through external financial requirements is not supported.	Rejected
	H1 (d): Bank-imposed conditions and the business environment have a direct,	**Supported**

	meaningful effect on firm performance is confirmed. Both factors positively impact performance.	
	H1 (e): Bank-imposed conditions and the business environment's direct and mediated effects on the firm performance are definitively different from zero is confirmed.	**Supported**
2. Explore the owner manager's perception (OMP) of future finance availability's effect on the BIC and BEs' influence on performance.	*H2:* The moderating effect of owner-manager perception of future finance availability on BIC and BE's (mediated) effect is robustly different from zero	Rejected
3. Examines the BIC and BE's indirect effect on firm performance conditional on ownership type	*H3:* Ownership type substantially moderates positively BIC and BE's indirect (mediated) effect on performance. Besides, it strongly correlates to external FR and IAL.	Rejected
4. Investigate ownership type and firm age's role in the relationship between the predictors (BIC & BE) and the outcome variable	*H4:* BIC and BE's (mediated) effect on performance conditional on simultaneous moderation by both ownership type and firm age is not statistically different from zero.	**Supported**

Source: Author's work

4.4 Discussion of the Research Findings

The previous sections offered test results that either support or reject the study hypotheses. The following section provides an in-depth analysis of these findings while correlating to conclusions of related studies in other markets.

4.4.1 An Overview of Qualitative results

Domestic firms prefer bank financing to other external sources for funding. The banks' pricing of loans and related costs over the study period boosted credit flow to SMEs in the country. On the contrary, non-price conditions like guarantee requirements, facility size, and maturity period hurt the flow. Further, local SMEs seeking to raise funds through the NSE face significant impediments. Whereas the Kenyan CMA is developing policies that would allow SMEs to raise capital at the NSE publicly, the stringent requirements have locked most from doing so privately (CMA-KASNEN Report, 2020).

However, the situation resonates with cases in maturing or developed economies. For instance, the OECD (2015) report titled “New Approaches to SME and Entrepreneurship Financing: Broadening the Range of Instruments” is quite insightful. It finds bank lending as the most typical external finance source for many SMEs and entrepreneurs. Firms must, then, strengthen their capital structure and avoid overreliance on debt.

Interestingly, even in such developed economies, the report finds that while bank financing continues to be critical for the SME sector, credit constraints may become “the new normal” for entrepreneurs and SMEs. It recommends broadening the range of financing instruments availed to SMEs and entrepreneurs. Kenyan SME firms also adopted some of these instruments on a minimal scale; they include equity financing like venture capital, leveraged buy-outs, and restructuring & reorganization (Bartlett, 1995).

Domestic firms have been receptive to asset financing but not nothing much about hybrid or alternative debt instruments. Still, local start-ups with high growth potential or gazelle firms facing substantial financial constraints can raise enough funds through these instruments; most opt not to. The OECD’s report offers a probable explanation, fear of equity dilution. Technology has revolutionized business operations regardless of firm size in many ways, like sourcing for finances.

For instance, the Global Partnership for Financial Inclusion (2020) titled “Promoting Digital and Innovative SME Financing” succulently summarizes the situation. The report states that recent advancements in innovative business models and digital technologies are a game-changer that can help close the SMEs' finance gap by enabling smaller firms to tap alternative funding sources based on the data generated by their digital footprint.

These innovative instruments include but are not limited to crowdfunding and initial coin offer (ICO). Firms should seek to exploit the advantages posed by the country's over 80 percent mobile penetration rate. These forms of firm financing have gained traction in developed economies (Agrawal, Catalini, and Goldfarb, 2014; Mollick, 2014) but not locally. However, relevant institutions must formulate the necessary policy framework to make the process a reality.

Be as it may, local firms introduced more service (intangible product) innovations than the other types. Those that engaged in innovative activities focused more on in-house R&D, acquisitions (machinery, equipment, software, etc., to enhance their innovation activities), and

training their workforce engaged in innovation activities in-house. Further, those that skipped such activities cited uncertainties related to the market's reaction to their innovations. Still, some firms opined that the prevailing market trends never necessitated the need to introduce innovations. Finally, the lack of good innovative ideas also slowed down such activities.

4.4.2 Bank Imposed Conditions and Business Environment's Direct and Indirect Effect on Performance

The first study objective focused on the predictors' direct and indirect effect on the outcome variable. The two predictors have a direct, significant, and positive correlation with firm performance. BICs act as a measure of credit access and financial discipline imposed on the borrower by credit providers. On the converse, the business environment proxies the economic soundness of the country at that moment. Based on the findings, a positive change in these factors has a similar effect on performance and vice-versa. The impact of each element on performance is examinable separately.

For instance, banks tightening credit requirements, like covenant agreements, or collateral, place greater responsibility on the borrowing enterprises. Such businesses must make prudent use of granted funds and those they generate. The findings resonate with previous studies like Lee (2019) and; Agarwal and Ann Elston's (2001) study. They conclude that bank-influenced firms gain from increased access to capital in the German market. Besides, imposed conditions are dependent on the bank's lending behavior (Vo, 2018). However, as a measure of formal finance access, it results in higher external financial needs

Nevertheless, do stringent bank-imposed conditions mean businesses are entirely cut off from external finance and perform poorly? That may not be the case since these firms may explore other external financing options like those previously discussed. Casey and O'Toole's (2014) analysis of the European market supports the advanced argument. They conclude that firm size and age determine access to bank financing. Firms unable to secure such formal finance exercise other options like non-bank or trade credit.

Likewise, the business environment has a strong influence on performance. Table 4.2 shows that the last four constructs on the economy, credit history, profitability, and capital adequacy, had a fair score. The findings are not off the mark regarding related studies in other economies.

Commander and Svejnar (2011) find that few business environment constraints affect performance in the American market. Thus, based on their findings, it may be argued that not all constructs in the present study affect performance.

The predictors directly influence the mediators, by which they act to affect performance indirectly. The test results reveal a robust association between bank-imposed conditions and external finance requirements. Stringent conditions imposed by banks may significantly cut down on the number of business loan applications. Farinha and Félix (2015) offer a probable explanation. Credit supply depends mainly on the enterprises' ability to generate cash flows and reimburse their debt and collateral. Higher credit constraints lead to increased external funding requirements with adverse effects on performance (Jin, Zhao, & Kumbhakar, 2019; Y. A. Li et al., 2018).

Also, the business environment relates positively to innovation activities. Businesses are continually adapting to changes in their surroundings to stay competitive. One strategy is technology adoption and being innovative in their operations. Empirical studies suggest that firms can remain competitive by being innovative (Distanont & Khongmalai, 2018). Still, firm age and size are significant determinants of innovation implementation (Hansen, 1992; Symeonidis, 1996).

It is worth mentioning the positive correlation between external finance requirements and innovation activities, although weak. Banks lower collateral requirements and trade-off higher interest rates for firms engaging in innovative processes. Besides, innovative businesses have a lower probability of being credit denied than their non-innovative competitors (Bellucci, Favaretto, & Giombini, 2014).

In conclusion, BIC and BE have a negatively significant indirect (via external finance requirements) effect on the performance of about 20%. Heightened requirements by formal credit providers in a dynamic business environment hurt business operations and performance (Brown & Earle, 2000; Nickell, 1996). Nonetheless, banks are not charitable organizations and must mitigate against possible risks.

4.4.3 The Owner Manager's Perception of Future Finance Availability's Effect on the BIC and BEs' Indirect Influence on Performance

The second objective builds upon the first one by introducing owner-manager perception of future finance availability. Perception can substantially influence several decisions regarding

business operations. Existing literature suggests that factors like gender influence owner-manager perception of finance availability (Caleb et al., 2012). The test results confirmed a significant positive association between the interactions and performance.

For instance, increased bank requirements interaction with a less positive perception results in higher external finance requirements. Moreover, the attitude significantly influences external financing sources (Fairouz & Bouchra, 2018). Carter and Van Auken (2005) advise exploring different funding alternatives rather than only using what is readily available or familiar to owner-managers.

On the contrary, an interaction between the business environment and perception results in lower external finance requirements. After scanning the prevailing business environment, firm owners or managers adjust their external finance needs based on their general perceptions. Unfortunately, while it may be realistic for firms to adapt their appetites for external funding, a drastic downward revision may influence operations like innovation-related programs.

Likewise, such an interaction inversely relates to innovation programs. Entrepreneurs and managers uncertain of future financing in a not-so-stable business environment may opt to have their firms scale down or postpone capital-intensive innovation programs altogether. Perception and attitudes have a psychological effect on investment decisions. Extensive literature exists on such behavioral investment decisions (De Bondt & Thaler, 1995).

Moreover, an interaction between external finance requirements and perception positively affects performance (about 17%). As Tsuruta (2017) notes, increased external funding requirements indicate profitable investment opportunities available to the firm (Tsuruta, 2015). The growth in financial requirements augmented by a positive perception of finance availability allows the firm to exploit promising investment options before its competitors.

4.4.4 Ownership Type Influence on BIC and BE's Indirect Effect on Performance

The objective purposed to examine the predictor's indirect effect on firm performance conditional on ownership type, assuming external FR impacts IAL. Moreover, it hypothesized that ownership strongly influences external financial needs and innovation activities. By and large, ownership type does not substantially affect BIC and BE's indirect effect on performance. Besides, it has no meaningful impact on external financial requirements and innovation activities, evidenced by non-significant differences between the referent category and other ownership forms.

However, the absence of statistically significant differences does not infer that domestic firms are non-innovative. Also, focusing on a specific type of ownership rather than comparison may crystallize financial requirements and innovation activity levels, not within the present study's context. Based on the results, only firms with privately traded shares have superior performance than entrepreneurs-owned. Moreover, ownership makes critical decisions like capital structure. Focusing on the Malaysian market, Tan, Chng, and Tong (2002) note that issue size (for firms raising funds through the stock exchange) reflects investment opportunities on the firms' better performance. Liu (2012) notes that whereas a dispersed ownership structure and insufficient R&D infrastructure affects SMEs' performance, equity markets should have no financing limitation for firms taking that route.

Moreover, external financial requirement interaction with two ownership forms robustly differed from the referent group. Privately listed ownership substantially moderates the association between external finance needs and performance. Besides, such an interaction with affiliates also results in superior performance than the referent. Other researchers like Ma, Yao, and Xi (2006) confirm the affiliates' findings (Chung & Chan, 2012). On the contrary, such differences have no meaningful effect in the final model. Studies find a robust correlation between ownership and performance (Choi, Lee, and Williams, 2011; Rong, Wu, and Boeing, 2017), but these studies focus on one ownership type.

Still, the K-S test established no significant difference performance-wise among the groups based on ownership type. Kenourgios, Savvakis, and Papageorgiou (2020) offer a probable explanation for the lack of would-be difference. They find that the capital structure determinants effects do not differ significantly across firm sizes (micro, small and medium enterprise). In conclusion, BIC and BE have a nil effect on performance when external financial needs interact with ownership type. Ownership has no significant moderation effect on the relationship between funding needs and innovation activity level. Thus, there is a need to delink ownership type from innovation activities and external financial requirements.

4.4.5 BIC and BE's Direct and Indirect Effects Conditional on Ownership Type and Firm Age

The study's final objective explored the BIC and BE's effects conditional on ownership type and firm age's dual influence. The findings, ownership, and age substantially moderate the predictors' influence on performance directly and indirectly. Besides, the moderators have a

substantial effect on the outcome even when acting as independent factors. Previous studies have used ownership and firm age as moderators.

Like the present study, Rafiq, Salim, and Smyth (2016) find that firm age moderates the correlation between R&D and Chinese and American mining companies' financial performance. Besides, Ardito, Petruzzelli, and Albino (2021) establish that firm age negatively moderates specific aspects of innovation activities; however, firms are not categorized age-wise, unlike the current study. On size, larger firms present a greater capacity to innovate by utilizing both nascent and mature knowledge. On the converse, smaller ventures develop more valuable innovative solutions by building upon knowledge with a moderate maturity level (Messeni Petruzzelli et al., 2018). On a similar note, Hansen (1992) concludes that firm age and firm age are inversely related to innovation activities.

Research shows that young firms have more considerable performance benefits from innovation activities at high age quantiles but a similar decline at lower quantiles. Investments in R&D by young firms are significantly riskier than those of more mature enterprises (Coad et al., 2016). As an independent factor, Firm age substantially influences financial performance (Coad, Holm, Krafft, & Quatraro, 2018; Coad et al., 2013). Evidence shows that mature firms perform better than younger ventures.

Family-controlled firms outperform nonfamily businesses in different legal markets (Maury, 2006; Ud, Muhammad, Jamal, & Yar, 2021). However, Mohammad (2013) breaks down the ownership type effects on performance. The study finds that individual and family ownership relate negatively to performance. Also, a more diffused ownership structure results in higher firm profitability (Jonchi, 2011).

Furthermore, for firms where entrepreneurs act as owner-managers, this influences the degree of innovation positively. The relationship is more robust in less competitive environments, but the opposite holds for firms in highly competitive environments (Velu & Jacob, 2016). Whereas ownership has no meaningful effect on the innovation level, it positively affects sales growth. Notwithstanding, innovation positively affects firm performance (Dung, Hoai, & S., 2018). These findings are consistent with the results of the present study.

4.4.6 New Scientific Findings

Based on the analysis and discussion in the previous chapters, the researcher draws the following new findings:

1. Bank imposed conditions and the business environment have a substantial direct effect on performance. However, their effect becomes negative (inverse correlation) when considering a firm's external financial need particularly for young/startups and growing firms.

2. Bank-imposed conditions tend to increase (worsen) the need for external funding, especially for firms unable to meet the set terms. Besides, the prevailing business environment influences innovation activities amongst firms. That is, a competitive business atmosphere nudges firms to find strategies for surviving like being innovative.

3. Owner-manager perception of finance availability positively influences the correlation between bank imposed conditions and the financial requirements of an enterprise. On the converse, OMP results in an inverse relationship between the business environment and innovation activities.

4. Firm Ownership type affects bank imposed conditions and the business environment's direct and indirect effect on performance. The argument holds for single-owned firms (both male and female-owned), affiliates, and privately listed. Nonetheless, the nature of the effect depends on the ownership considered.

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study sought to explore the bank-imposed condition and the business environment's direct and indirect effect on firm performance. The external financial requirements and innovation-activity level offer the indirect pathway. Still, the researcher examined the predictors' direct and indirect effects on performance conditional on the owner-manager perception of future finance availability, ownership type, and firm age. The study presents two sets of descriptive statistics: raw data and mean-centered. Mean-centering is a critical component of structural equation modeling and conditional path analysis based on existing literature.

Nonetheless, ownership type and firm age are not mean-centered as they are categorical variables. While some scholars argue that a categorical variable is a continuous factor with more than five levels, others hold a conservative view. The researcher opted for the conservative approach treating ownership type (with six levels) as a categorical moderator. Preliminary findings reveal no substantial performance differences among sampled firms based on ownership type. On the converse, the opposite is true for firm age. R statistical program and Process Macro tested the significance of the predictors' direct, indirect, and conditional effects on the outcome variable.

Bank-imposed conditions and the business environment have a robust, positive, and direct influence on performance. In such a situation, bank conditions act as a deterrent to financial indiscipline among firms granted formal credit facilities. Similarly, BICs, viewed as a measure of formal financial access, enhance funding requirements. Higher unfulfilled financial needs negatively impact performance. Also, superior performance occurs when firms exploit opportunities in the prevailing business environment by being proactive rather than passive or reactive. Firms can introduce or alter their innovation activities as a competitive strategy regardless of the existing business environment.

Moreover, findings establish a negative correlation between innovation activities and performance, albeit inconsequential. The two predictors have a substantial indirect effect on performance. In particular, external finance requirements and innovation activities mediate about 20% of BE and BIC's adverse indirect effects on performance. That notwithstanding, owner-manager perception of future finance availability's interaction with the prevailing

business environment significantly lowers external finance requirements while hurting innovation activities on the other hand.

Furthermore, ownership type alone has no meaningful influence on predictors. It has little effect on firm requirements for external cash or innovation activities. Nonetheless, consistent with existing empirical literature, firm age relates strongly to innovation activities and performance. Still, ownership type and firm age robustly moderate BE and BIC's indirect effect on performance. The analysis illustrates how ownership type combination with different firm age levels influences the predictors' impact on performance.

Be as it may, loan pricing and associated costs allowed boosted credit flow to SMEs than non-pricing conditions like collaterals, facility size, and maturity. Owner-manager perception of future finance uncertainties makes the firms place their faith in internally generated revenues. Besides, domestic firms introduce more service innovations than any of the other categories. These firms invest more in in-house R&D, internal innovation-related training of the workforce, software acquisition, and equipment to boost innovativeness. However, those that shunned innovativeness were primarily due to uncertainty about innovation acceptability by the market, low innovation demands, and great ideas' unavailability.

Numerous enterprises scaled down their operations or closed shop altogether due to the Covid pandemic. Most formal financial institutions agreed to restructure loan facilities for firms advanced credit. However, with the unfavorable pandemic effects expected to take time before clearing, accessing formal credit may pose a challenge for specific firms. Due to this, traditional credit providers are introducing additional (revising their lending) conditions to lower cases of non-performing loans.

Firms with insufficient collateral or guarantee and unable to access formal credit may opt for informal financing. All these may have a substantial effect on local firms' financing and business survival. It is expected that government will be keenly monitoring the situation and act accordingly. For instance, the government has been reviewing the listing of defaulting SMEs at credit reference bureaus. The move is meant to stop the blacklisting of enterprises from accessing loans as the economy recovers.

Access to formal credit by domestic firms substantially is a major pillar of this study. Also, such accessibility has a direct influence on Kenya's economy. While the MPC rests the monetary policy based on economic conditions, the Central bank must pursue other options to

enable banks to advance deserving SMEs' credit. The findings show that bank conditions have a substantial effect on the SMEs' access to formal credit and ultimately, performance. As such the Central bank must pursue a monetary policy (MP) that addresses credit availability, whether pursuing a contractionary or expansionary policy.

In the Kenyan case, the Central bank should continuously engage commercial banks to channel funds to SMEs. For banks willing to lend to risky ventures, the CBK should offer them incentives like lower interest rates and collateral than other compliant banks. The study came at an unprecedented time, the Covid pandemic, which has adversely affected most economies across the globe. Could the situation offer the country a perfect opportunity to test the unconventional monetary policy? It combines discount lending, open market operations (OMO), and quantitative easing (QE).

The government through different agencies continuously makes efforts to avail significant funds to the youth, the women, and the less privileged in the economy. These funds are meant to either start or expand existing businesses. These as stated earlier include the Youth fund, Uwezo fund among others. Unfortunately, the success rate of these ventures is low and so is the repayment rate. Several reasons are attributed to the failure such as amounts advanced. Whatever the case, policymakers need to reexamine whether the program meets its intended purpose. The researcher opines that these funds through the CBK, be channeled to commercial or state-owned banks for SMEs lending at rates lower than market rates.

In conclusion, incidences like Covid-19 have a substantial impact on emerging economies like Kenya. Domestic businesses will experience such effects for a considerable length of time. The government's involvement in the domestic financial market through borrowing has crowded out credit to the private sector. Small to medium enterprises with insufficient collateral resources are hardest hit by such government action. The study avers that limited government involvement in domestic borrowing coupled with other remedies highlighted above may result in favorable credit flow to businesses.

5.2 Recommendation

The researcher makes specific recommendations on the present study findings. Whereas lending conditions imposed by banks may limit access to formal credit by small and medium firms, it nevertheless instills financial discipline in borrowing firms evidenced through desirable performance. Domestic small and medium enterprises should maintain a positive

relationship with their bankers over the business life cycle. Research suggests that enterprises have positive benefits when they keep trust with their bankers. For instance, these firms may get substantial financial and professional assistance from their bankers should profitable opportunities arise. Besides, through relationship banking, firms may be subjected to friendlier customized requirements that boost the chances of accessing sought funds.

The business environment is continuously changing so are the effects on firms in different economic sectors. Whereas such turbulence may pose challenges to passive or reactive firms, it offers business opportunities for proactive businesses. Today, technology is the new world order; business processes and products unique yesterday may be obsolete tomorrow, regardless of firm size. Thus firms must remain positive by concentrating on one or a combination of the four innovation types: product, process, organizational, and marketing. Enterprises must be conscious of their age or business life cycle phase. The study's results concur with existing literature that firm age is an essential determinant of innovation, performance, and other processes, like business survival, capital accumulation, & owner-manager perceptions.

Whereas bank-imposed conditions and the business environment have a desirable direct effect on performance, their indirect effect hurts such an outcome. Also, unmet external financial needs substantially hurt performance—addressed by an excellent firm-bank relationship. The owner-manager must take control over their perceptions of future finance availability. Such perceptions regarding bank requirements make a terrible situation (external financial needs) worse. Likewise, perception concerning the prevailing business environment may force them to lower external funding requirements. Sadly, such a revision, while realistic, curtails full exploitation of the innovation-type niche strategy. Ownership type and firm age should inform crucial decisions relating to bank financing, external funding needs, and the adopted plan for prevailing business conditions like innovation.

The government through relevant agencies must develop a (carrot and stick) framework that punishes non-compliant but rewards compliant banks. Kenya, being a free economy, CBK should allow commercial banks flexibility in loan pricing. That is, act tough on banks that may seek CBK's assistance like a loan through higher interest rates and collateral requirements and vice versa. However, caution should be exercised on the issue of non-performing loans (NPLs) with the Central Bank 'walking through them' with concerned banks. Besides, CBK should interrogate thorough each commercial bank's business model (and offer guidance on a case-by-case basis).

5.3 Research Limitations and Future Research Opportunities

The future researcher may consider using structured or semi-structured interviews as a replacement or complementary to the questionnaire. Whereas the researcher had mooted the idea in the first instance, the prevailing global health pandemic at the time made this untenable. Different innovation measurement techniques exist, such as the number of registered intellectual property rights (IPRs), patents, copyrights, and trademarks. The potential researchers may replicate the study by employing such techniques so long as there is the capacity to verify IPRs' existence independently. Future studies may expound on ownership types and firm size considered in the present study. Nevertheless, the findings reflect the small and medium enterprises' performance in Kenya based on the study's factors and objectives.

SUMMARY

The researcher formulated four objectives and related hypotheses to guide the present study. In particular, the study investigates bank-imposed conditions and the business environment's three different effects on firm performance. These are the direct, indirect, and conditional effects, particularly on small and medium-sized firms in Kenya over three years. The indirect effect is through two factors, namely external finance requirements and innovation activity level. Still, BE and BIC's indirect and conditional effects stem from three moderators: ownership type, firm age, and owner-manager perception of future finance availability. Structural equation modeling through the R program and Process Macro Pathway Analysis tests the study's hypotheses.

Be that as it may, the qualitative findings suggest that domestic firms prefer banks as their external financing sources. Loan pricing and related credit facility cost improved finance access during the study period. On the converse, non-pricing requirements like collateral, facility size, or maturity duration significantly hamper such access. Owner-managers perception of future financing was positive regarding internally generated revenues than those sources beyond their control. Further, these firms engage more in service (intangible product) innovations than physical products, processes, organizational or marketing innovations. Those who never engaged in innovative activities were due to low innovation demands in their markets and a lack of good ideas.

Quantitatively, objective one hypothesized that bank-imposed conditions and the business environment's direct and mediated effects on the firm performance are definitively different from zero. The hypothesis assumes a serial arrangement of the mediator with external financial requirements influencing innovation activities. The study tests the theory by exploring the significance of the product of the coefficients test. From the findings, BICs and BE have a positive and substantial direct effect on performance. Moreover, based on the path analysis, the product of the coefficients is statistically significant. Unlike the direct impact, the predictors' indirect effect negatively correlates with performance. More precisely, the mediators account for approximately 20% of BE and BIC's negative influence on performance. Thus, the test results confirmed the first hypothesis.

Objective two hypothesized that the moderating effect of owner-manager perception of future finance availability on the BE and BIC's effect is robustly different from zero. The index of

moderated mediation tests the hypothesis assumptions. Owner-manager perception interaction with the business environment significantly lowers external financial needs but with undesirable effects on innovation activities. Also, these perceptions have no meaningful impact on firm performance. However, the index of the moderated mediation test result is statistically insignificant. Therefore, the findings do not support the second hypothesis; owner-manager perception of future financing is inconsequential in the entire model.

Objective three assumes that ownership type substantially influences BIC and BE's indirect effect on performance. Like in the first model, the mediators are in a serial format. With ownership type acting as a categorical variable, dummy coding resulted in five rather than six categories. Specifically, the 'entrepreneurs owned' category served as the referent group. The selection was arbitrary, at the researcher's discretion, and not based on any empirical support. External financial requirement weakly influences innovation activities. Besides, there are no robust differences in performance based on firm ownership. Neither does ownership influence external financial requirements or innovation activities. That notwithstanding, bootstrapped indirect effects indicate that ownership type has no substantial influence envisioned in the hypothesis.

Objective four assumed that BIC and BE's effect on performance conditional on ownership level and firm age is not statistically different from zero. The hypothesis resulted in a moderated-moderated mediation model, two models in one. The first stage model places ownership type between the predictors and the mediators. In the second-stage model, firm age is between the mediators and performance. Like ownership type, firm age is a categorical variable that resulted in dummy coding. That is, the referent group comprises firms in the above five but less than ten years category.

Also, ownership and firm age dually moderate the predictors' direct path. Significant differences exist in performance based on firm age, as evidenced by the Kruskal Wallis test. The absence of a detailed index of moderated-moderated mediation in models with categorical variables necessitates probing the conditional effects before concluding the significance status. Nevertheless, ownership type and firm age substantially condition BE and BIC's direct and indirect impact on the outcome variable based on the findings. Thus, the fourth and final hypothesis is confirmed.

In conclusion, the researcher singles out three new research findings that contribute to the existing entrepreneurial finance body. The first finding is that bank-imposed conditions and the business environment have a positive direct effect on performance. The context in which small and medium firms interpret or handle the two factors makes the difference. However, BIC and BE account for about 20% of the undesirable indirect effect on performance (external finance requirements and innovation activities). The second finding is that owner-manager perception of future finance availability makes firms lower external financing expectations, negatively impacting pursued innovation strategy (whether a product, process, marketing, or organizational).

The third finding shows that ownership type combination with different firm age levels has a significant conditional influence on BE and BIC's effect on performance. Firm ownership and management make critical business and strategy decisions. However, leadership must be conscious that specific decisions impact firm operations differently based on age. In some cases, the impact is statistically significant, whether desirable or not. That notwithstanding, deductions are made from the qualitative analysis. The researcher parting short is on the study's limitations, future research opportunities, and recommendations.

APPENDICES

Appendix 1: References

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Appendix 2: The OLS Regression Coefficients for the Moderated-Moderated Mediation Model

	Outcome								
	Financial *(M1)* Requirement			Innovation *(M2)* Level			Performance *(Y)*		
Antecedent	Coefficient	*P-value*	95% PCI	Coefficient	*P-value*	95% PCI	Coefficient	*P-value*	95% PCI*
Constant	$i_{m1} = \mathbf{-2.39}$	0.007	-3.351— -1.425	$i_{m2} = \mathbf{-.306}$	0.001	-0.490— -0.122	$i_y = 0.494$	0.168	-0.211—1.199
X_1*: Bank Conditions*	$a_{11} = 0.098$	0.468	-0.167— 0.362	$a_{12} = -.013$	0.366	-0.042—0.016	$c_1 = \mathbf{0.196}$	0.000	0.090— 0.301
X_2*: Business Environ.*	$a_{21} = \mathbf{0.890}$	0.000	0.440— 1.340	$a_{22} = \mathbf{0.042}$	0.012	0.010— 0.074	$c_2 = \mathbf{0.639}$	0.001	0.251— 1.203
W_1*: Male-Owned*	$a_{30} = -.058$	0.739	-0.401— 0.285	$i_{32} = 0.012$	0.562	-0.029—0.053	$b_{11} = -.092$	0.284	-0.261— 0.077
W_2*: Female-Owned*	$a_{31} = -.078$	0.735	-0.375— 0.530	$a_{34} = 0.038$	0.293	-0.033—0.110	$b_{12} = 0.009$	0.959	-0.328— 0.345
W_3*: Family-Owned*	$a_{33} = -.346$	0.509	-1.377— 0.685	$i_{36} = \mathbf{0.068}$	0.025	0.009—0.127	$b_{13} = \mathbf{-.188}$	0.045	-0.373— -0.003
W_4*: Affiliates*	$a_{35} = \mathbf{-1.67}$	0.000	-2.013— -1.331	$a_{38} = -.400$	0.169	-0.970—0.171	$b_{14} = \mathbf{-.540}$	0.009	-0.941— -0.136
W_5*: Privately Listed*	$a_{37} = \mathbf{-1.10}$	0.001	-1.771— -0.436	$a_{39} = \mathbf{0.196}$	0.007	0.055—0.336	$b_{15} = \mathbf{-1.72}$	0.000	-2.111— -1.321
X_1W_1*: BIC * Male*	$a_{40} = \mathbf{0.547}$	0.003	0.184— 0.911	$a_{41} = 0.025$	0.258	-0.019—0.069	$c_{31} = -.137$	0.111	-0.306 — 0.032
X_1W_2*: BIC * Female*	$a_{42} = \mathbf{0.841}$	0.001	0.363— 1.318	$a_{43} = 0.002$	0.963	-0.071—0.075	$c_{32} = -.154$	0.283	-0.437—0.129
X_1W_3*: BIC * Family*	$a_{44} = 0.585$	0.419	-0.828— 2.007	$a_{45} = 0.025$	0.445	-0.040—0.091	$c_{33} = 0.247$	0.019	-0.041—0.453
X_1W_4*: BIC * Affiliates*	$a_{46} = \mathbf{1.563}$	0.000	1.240— 1.886	$a_{47} = 0.284$	0.198	-0.150—0.718	$c_{34} = \mathbf{0.708}$	0.000	0.390— 1.026
X_1W_5*: BIC * P/Listed*	$a_{48} = -.750$	0.061	-1.535— 0.035	$a_{49} = -.005$	0.104	-0.011—0.001	$c_{35} = \mathbf{-2.12}$	0.000	-2.627— -1.619
X_2W_1*: BE * Male*	$a_{50} = \mathbf{0.583}$	0.006	0.172— 0.994	$a_{51} = 0.055$	0.083	-0.07—0.117	$c_{41} = 0.045$	0.696	-0.181— 0.271
X_2W_2*: BE * Female*	$a_{52} = 0.698$	0.137	-0.224— 1.620	$a_{53} = -.021$	0.539	-0.090—0.047	$c_{42} = 0.065$	0.779	-0.393— 0.524
X_2W_3*: BE * Family*	$a_{54} = 0.803$	0.370	-0.961— 2.567	$a_{55} = -.004$	0.917	-0.080—0.072	$c_{43} = \mathbf{0.389}$	0.002	0.140— 0.635
X_2W_4*: BE * Affiliates*	$a_{56} = \mathbf{-2.47}$	0.000	-3.106— -1.867	$a_{57} = -.604$	0.241	-1.615—0.408	$c_{44} = -1.60$	0.000	-2.202— 0.999
X_2W_5*: BE * P/Listed*	$a_{58} = \mathbf{-.629}$	0.016	-1.138— -0.120	$a_{59} = 0.106$	0.051	-0.000—0.212	$c_{45} = \mathbf{-2.78}$	0.005	-4.693— -0.874

Z_1: *Under two years*							$b_{21} = -\mathbf{2.21}$	0.028	-4.181— -0.246
Z_2: *Two-five years*							$b_{22} = -.\mathbf{731}$	0.000	-1.042— -0.420
Z_3: *Over ten years*							$b_{23} = -.\mathbf{501}$	0.002	-0.816— -0.186
X_1Z_1: *BE * >2 years*							$b_{01} = -.129$	0.355	-0.400—0.144
X_1Z_2: *BE * >2-5 years*							$b_{02} = -.\mathbf{682}$	0.000	-1.048— -0.316
X_1Z_3: *BE* >10 years*							$b_{03} = -.\mathbf{583}$	0.000	-0.832— -0.333
X_2Z_1: *BE * >2 years*							$b_{31} = -.412$	0.707	-2.598—1.764
X_2Z_2: *BE * 2-5 years*							$b_{32} = -.\mathbf{537}$	0.004	-0.902— -0.172
X_2Z_3: *BE* >10 years*							$b_{33} = -.278$	0.149	-0.657— 0.635
M_1Z_1: *FR * >2 years*							$b_{41} = -1.28$	0.095	-2.791— 0.227
M_1Z_2: *FR* >2-5 years*							$b_{42} = \mathbf{0.411}$	0.000	0.213 — 0.609
M_1Z_3: *FR* >10 years*							$b_{43} = \mathbf{0.381}$	0.000	0.216— 0.547
M_2Z_1: *IAL * >2 years*							$b_{51} = 0.269$	0.895	-3.757— 4.294
M_2Z_2: *IAL * >2 years*							$b_{52} = 0.807$	0.635	-2.538— 4.151
M_2Z_3: *IAL * >2 years*							$b_{53} = 1.440$	0.351	-1.599— 4.479
M_1: *Finance Req.*							$b_6 = -\mathbf{1.04}$	0.003	-1.732— -0.358
M_2: *Innovation Act*							$b_7 = \mathbf{0.200}$	0.000	0.090 — 0.301
			$R^2_{M1} = 0.388$			$R^2_{M2} = 0.336$			$R^2_Y = \mathbf{0.627}$

Source: Test results from Process Macro

Appendix 3: BIC and BE's Direct Effect on the Outcome Conditional on Ownership Type and Firm Age

		Predictor		BIC (X_1)			BE (X_2)
Ownership	Age	Effect	SE_{boot}	95% PCI	Effect	SE_{boot}	95% PCI
Entrepreneur	Low	**.451**	.082	.289—0.612	**.614**	.188	.242—0.986
	Medium	**-.215**	.055	.108—0.323	**.462**	.105	.255—0.670
	High	-.020	.055	-.128—0.088	**.311**	.058	.196—0.425
Male	Low	**.314**	.057	.200—0.427	**.514**	.104	.308—0.719
	Medium	.078	.062	-.044—0.200	**.362**	.087	.190—0.534
	High	-.157	.090	-.335—0.021	.210	.145	-.076—0.497
Female	Low	**.279**	.139	.022—0.572	.423	.233	-.038—0.884
	Medium	.061	.139	-.213—0.336	.271	.218	-.159—0.702
	High	-.174	.152	-.473—0.125	.120	.239	-.353—0.592
Family	Low	**.697**	.121	.459—0.936	**.958**	.237	.491—1.427
	Medium	**.462**	.105	.255—0.669	**.807**	.184	.445—1.1170
	High	**.227**	.105	.019—0.434	**.656**	.167	.325—0.986
Affiliate	Low	**1.159**	.167	.830—1.487	-.633	.458	-1.538—0.271
	Medium	**.923**	.151	.625—1.222	**-.785**	.401	-1.576—0.006
	High	**.688**	.147	.397—0.979	**-.937**	.358	-1.643— -.23
Private List.	Low	**-1.672**	.223	-2.11— -1.23	**-.734**	.191	-1.111— -.357
	Medium	**-1.908**	.228	-2.36— -1.46	**-.886**	.188	-1.257— -.515
	High	**-2.143**	.241	-2.62— -1.67	**-1.038**	.225	-1.483— -.593

Source: Test results from Process Macro

*Low = 16th percentile (under five years); Medium = 50th percentile (Over five but under ten years) and; High = 84th percentile (Over ten years)

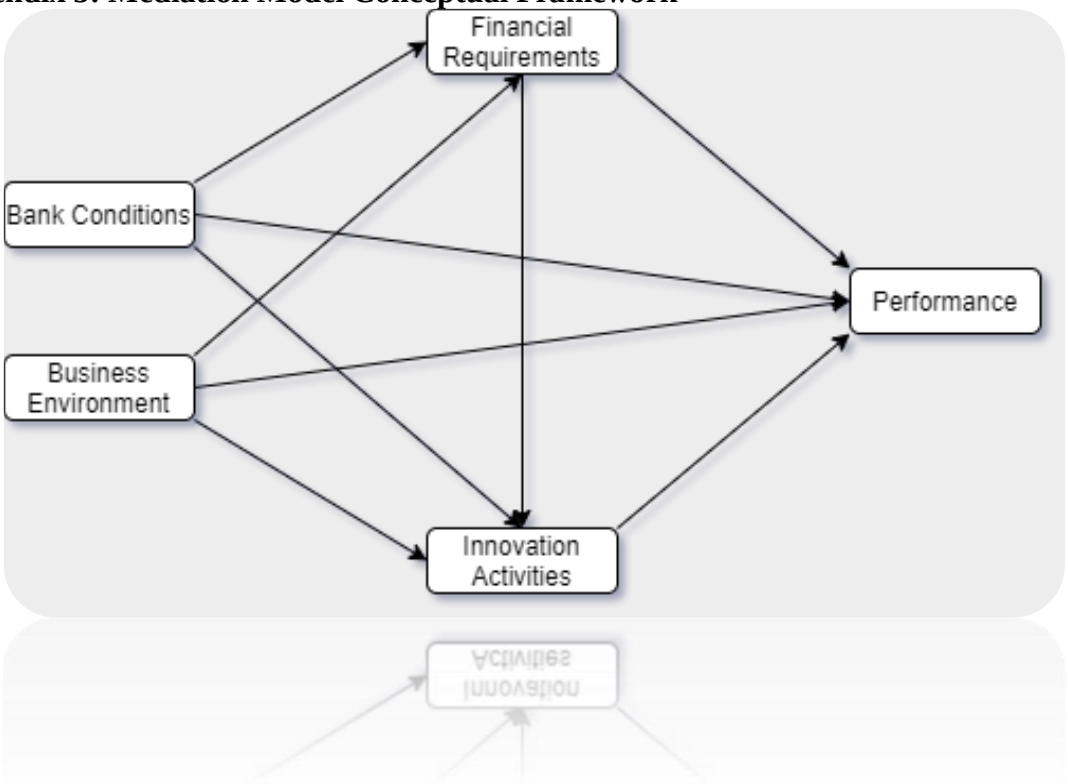
Appendix 4: BIC and BE's Indirect Effect on the Outcome Conditional on Ownership Type and Firm Age

			via FR (M1)			IAL (M2)		
	Ownership	Age	Effect	SE_{boot}	95% PCI	Effect	SE_{boot}	95% PCI
BIC	*Entrepreneur*	Low	-.029	.042	-.115— 0.051	.026	.032	-.033—0.094
		Medium	-.017	.024	-.064—0.030	.015	.018	-.020—0.053
		High	-.004	.009	-.024—0.015	.003	.007	-.011—0.019
	Male	Low	**-.192**	.065	-.324— -.092	-.024	.033	-.101—0.034
		Medium	**-.111**	.040	-.201— -.049	-.013	.019	-.057—0.020
		High	-.030	.030	-.090—0.033	-.003	.007	-.019—0.010
	Female	Low	**-.279**	.075	-.448— -.157	.023	.060	-.101—0.147
		Medium	**-.141**	.047	-.263— -.081	.013	.034	-.061—0.082
		High	-.043	.043	-.128—0.047	.003	.012	-.024—0.028
	Family	Low	-.203	.131	-.452—0.032	-.024	.182	-.512—0.060
		Medium	-.117	.078	-.267—0.018	-.013	.105	-.217—0.035
		High	-.031	.040	-.121—0.035	-.003	.037	-.061—0.015
	Affiliate	Low	**-.493**	.095	-.701— -.329	**-.537**	.295	-1.25— -.106
		Medium	**-.285**	.065	-.416— -.162	**-.303**	.173	-.729— -.055
		High	-.077	.072	-.210—0.082	-.068	.096	-.301—0.096
	Private List.	Low	.194	.128	-.027—0.473	**-.290**	.159	-.661— -.041
		Medium	.112	.074	-.014—0.274	**-.163**	.089	-.372— -.022
		High	.030	.036	-.036—0.111	-.037	.048	-.139—0.057
BE	*Entrepreneur*	Low	.044	.032	-.024—0.103	**-.096**	.050	-.206— -.010
		Medium	.029	.022	-.015—0.072	**-.050**	.026	-.105— -.004
		High	.014	.014	-.007—0.049	-.004	.017	-.037—0.033
	Male	Low	**-.105**	.058	-.231— -.006	**-.223**	.091	-.416— -.064
		Medium	**-.069**	.039	-.158— -.005	**-.116**	.050	-.220— -.027
		High	-.034	.027	-.096—0.005	-.008	.037	-.082—0.068
	Female	Low	-.134	.104	-.296—0.112	-.047	.089	-.237—0.126
		Medium	-.089	.068	-.195—0.069	-.024	.047	-.125—0.064
		High	-.043	.039	-.118—0.032	-.002	.015	-.037—0.027
	Family	Low	-.161	.120	-.375—0.089	-.087	.093	-.251—0.122
		Medium	-.106	.079	-.241—0.059	-.045	.049	-.132—0.062
		High	-.052	.047	-.147—0.033	-.003	.018	-.040—0.037
	Affiliate	Low	**.679**	.174	.342— 1.039	1.298	.752	.147—3.050
		Medium	**.449**	.113	.230— 0.670	.673	.404	.057—1.630

	High	.220	.118	-.028—0.438	.048	.229	-.422—0.539
Private List.	Low	**.205**	.082	.037—0.251	**-.341**	.138	-.629— -.088
	Medium	**.135**	.054	.037—0.251	**-.177**	.073	-.327— -.041
	High	.066	.043	-.007—0.158	-.013	.055	-.133—0.109

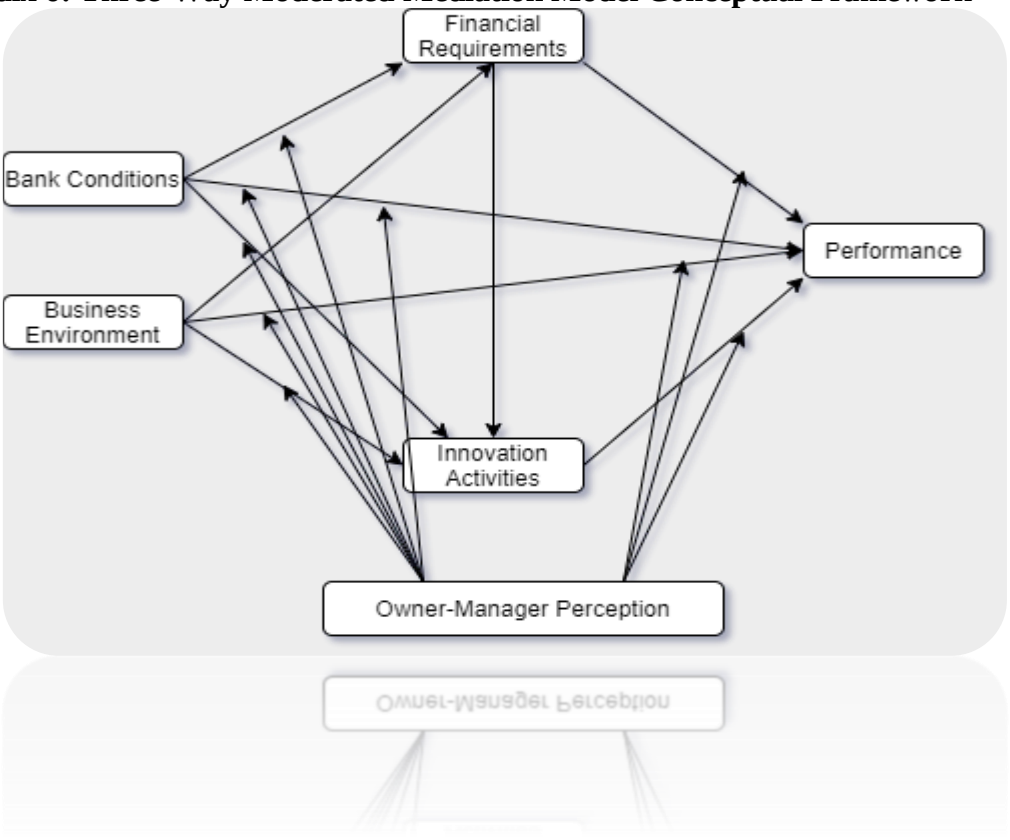
Source: Test results from Process Macro

Appendix 5: Mediation Model Conceptual Framework



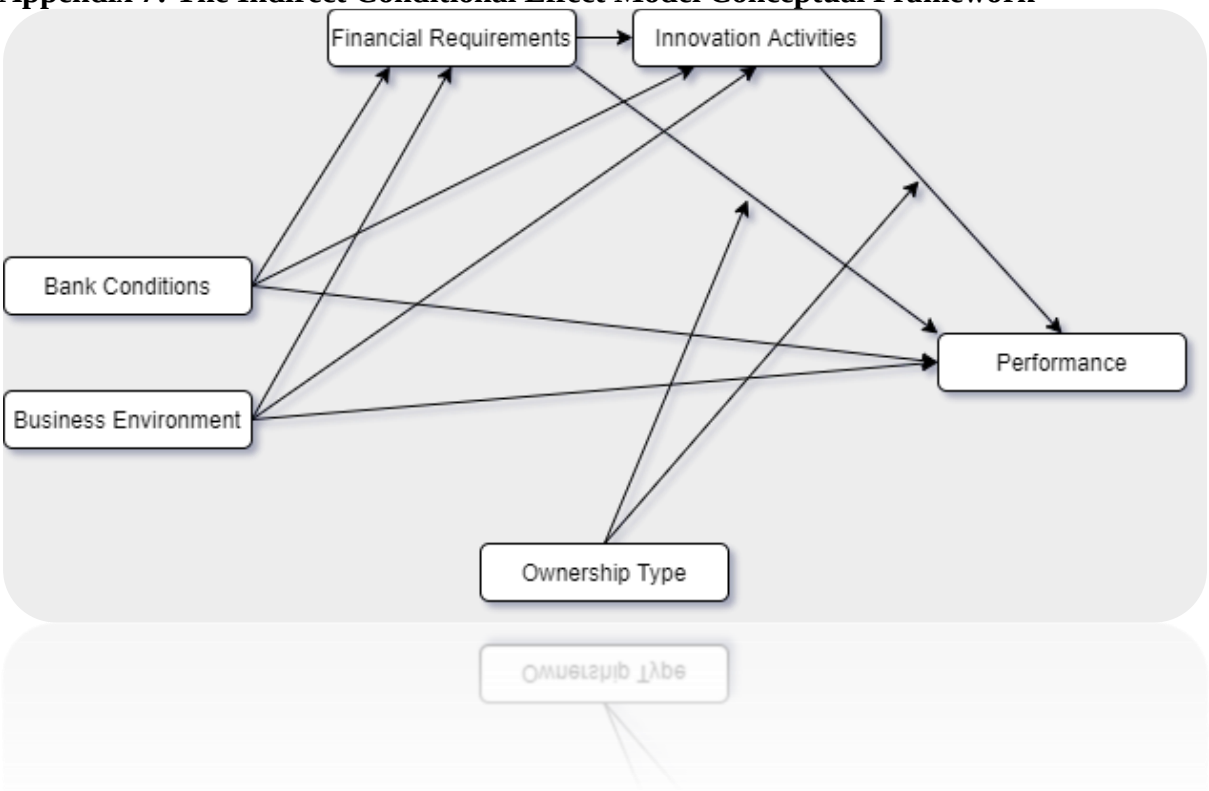
Source: Author, 2021|

Appendix 6: Three-Way Moderated Mediation Model Conceptual Framework



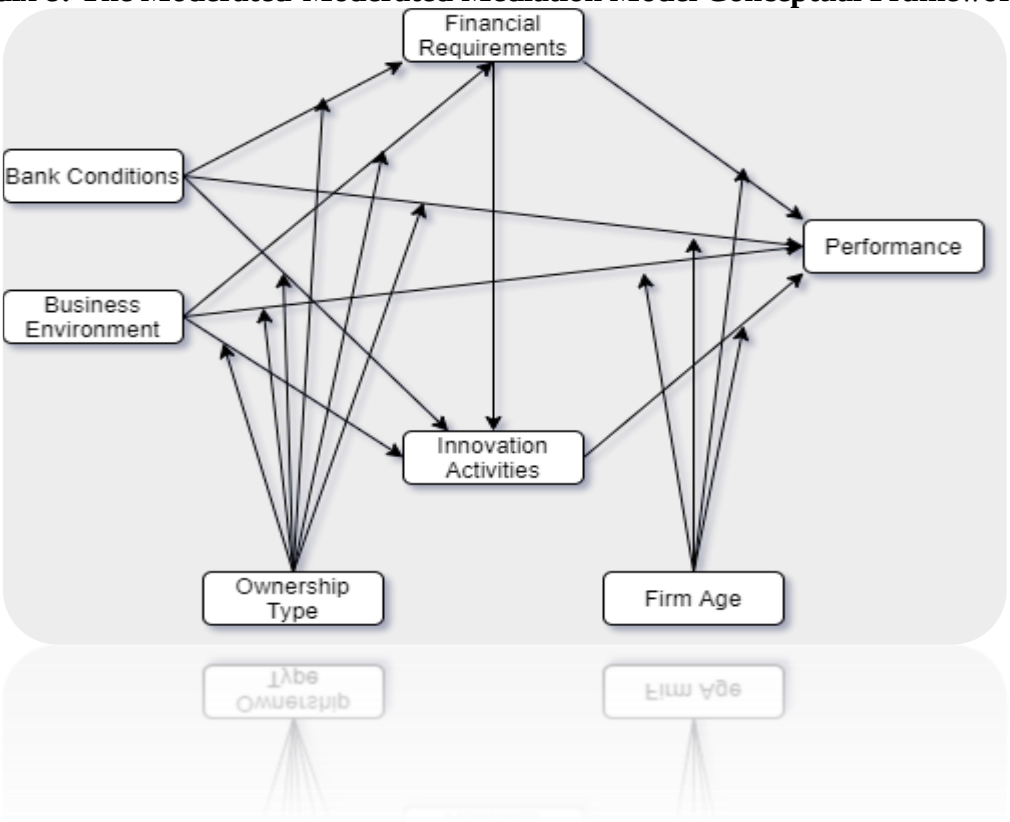
Source: Author, 2021

Appendix 7: The Indirect Conditional Effect Model Conceptual Framework



Source: Author, 2021

Appendix 8: The Moderated-Moderated Mediation Model Conceptual Framework



Source: Author, 2021

Appendix 9: Cover Letter for the Questionnaire

Dear Sir/Madam,
Hello!

I am Edmund Mallinguh, a fourth-year Ph.D. Candidate at The Hungarian University of Agriculture and Life Sciences, Hungary. I humbly request your participation in filling out this questionnaire, which will help fulfill the university's Ph.D. dissertation requirements. The survey explores how bank-imposed conditions and the business environment influence firm's financing aspects, innovation activities, if any, and ultimately performance.

The questionnaire should not take longer than 10-15 minutes to complete. The research is entirely anonymous and does not require personal or company details. Please note that the study covers the entire country, emphasizing the online information collection due to the Covid-19 pandemic.

Your responses will remain confidential and used for academic purposes only, while participation is entirely voluntary. Should there be a need for further clarification, please do not hesitate to reach out on any contact details shown below.
Thank you in advance for your contribution and time.

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Doctoral School of Economics and Regional Sciences,
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Appendix 10: The Questionnaire

Instructions
The survey is entirely voluntary and anonymous. Please answer all the questions truthfully or to the ability of your knowledge. However, in part (v), answer only those relevant to your firm. Thank you
PART I: Demographics Part: Firm characteristics (FC)

FC1. How many persons have the company employed full-time or part-time?

- ☐ From 1 employee to 10 employees
- ☐ From 11 employees to 49 employees
- ☐ From 50 employees to 99 employees
- ☐ Over 100

FC2. In which year was the firm registered?

- ☐ More than ten years
- ☐ Five years or more but less than ten years
- ☐ Two years or more but less than five years
- ☐ Less than two years

FC3. Who are the owners of the firm?

- ☐ Shareholders, as your company is (privately) listed on the stock market
- ☐ Family or entrepreneurs (more than one owner)
- ☐ Other firms or business associates
- ☐ Only one owner (male)
- ☐ Only one owner (female)
- ☐ Others (venture capitalists, business angels)

FC4. In which year was the firm registered?

- ☐ More than ten years
- ☐ Five years or more but less than ten years
- ☐ Two years or more but less than five years
- ☐ Less than two years

FC4. What is the primary sector of the company?

- ☐ Agricultural
- ☐ Automobiles & Accessories
- ☐ Commercial & Services
- ☐ Construction & Allied
- ☐ Energy & Petroleum
- ☐ Insurance
- ☐ Investment
- ☐ Manufacturing & Allied
- ☐ Technology & Telecommunication

FC5. In which region of the country is the company located

- ☐ Central
- ☐ Coast
- ☐ Eastern
- ☐ Nairobi
- ☐ Nyanza
- ☐ North Eastern
- ☐ Rift Valley
- ☐ Western

PART II: About Firm Financing (FF)

FF1. What type of external financing would you prefer most if the firm needs external funding to realize its growth ambitions?

- ☐ Bank loan
- ☐ A loan from other sources (e.g., trade credit, a related company, shareholder)
- ☐ Equity investment
- ☐ A loan from family and friends
- ☐ Innovative sources (crowdfunding, technology-based like block-chain, Initial Coin offer
- ☐ Do not Know

FF2. Concerning the financing structure of the firm, you can use internal funds and external financing. Could you please indicate whether the firm used them OR NOT

during the past 36 months for each of the following funding sources? Select those relevant to the firm

- ☐ Internal funds
- ☐ Bank overdraft, credit line
- ☐ Bank loan (excluding overdraft)
- ☐ Trade credit
- ☐ Leasing or hire-purchase or factoring
- ☐ Debt securities issued
- ☐ Equity issuance or external equity investors
- ☐ Other (from the parent company, family, among others.)

FF3. Please indicate whether the firm's financial needs increased, remained unchanged, or decreased over the past 12-36 months for each indicator below?

	Increased	Remained unchanged	Decreased	Instrument Does not Apply	Do not know
FR1. Bank loan					
FR2. Trade credit					
FR3. Equity investment					
FR4. Debt securities issuance					
FR5. Other financings (family, leasing, factoring, etc.)					

FF4. For each of the following ways of external financing, could you please indicate whether the firm applied for them or not over the past 12-36 months? (Other external

financing sources exclude bank loans and trade credit but rather loans from other lenders, credit lines, overdrafts, equity or debt issuance, leasing, factoring, etc.)

	Applied	Did not apply for fear of rejection	Did not apply due to internal funds sufficiency	Did not apply for other reasons
AF1. Bank loan (new or renewal)				
AF2. Trade credit				
AF3. Other external financings				

FF5. Regarding the bank financing available to your firm terms and conditions, could you please specify whether there was an increase, remained unchanged, or decreased in the past 12-36 months for each of the following items?

	Increased	Remained unchanged	Decreased	Do not
BIC1. Level of interest rates				
BIC2. Level of the cost of financing other than interest rates [charges, fees, commissions].				
BIC3. Available size of loan or credit line				
BIC4. Loan maturity duration				
BIC5. Collateral requirements				
BIC6. Other, e.g., loan covenants, required guarantees, information requirements, procedures, the time needed for loan approval				

FF6. In your own opinion, if the firm wants to get a loan from a financial institution, how important are the following factors? Please note that we want to hear your view, NOT the lenders. Degree of importance: (1)—Not critical (2)—Low (3)—Medium (4)—High)

	Not important (1)	Low (2)	Medium (3)	High (4)
BC1. The convenient location of financial institution				
BC2. Quick disbursement of the loan (fast processing of loan application)				
BC3. Low interest rate/cost of borrowing				
BC4. Convenient repayment period				
BC5. Absence of requirement for an immovable property as collateral				
BC6. Availability of other financial services from the same financial institution				

FF7. For each of the following sources of financing available to the company, please specify whether you think there will be an improvement, deterioration, or remain unchanged over the next 12 months?

	Will Improve	Will Remain unchanged	Will Deteriorate	Do not Know	Instrument not applicable
OMP1. Internal funds, like from the sale of assets and retained earnings					
OMP2. Bank loans					

OMP3. Equity investments in the firm					
OMP4. Trade credit					
OMP5. Debt securities issued					
OMP6. Others (for example, a loan from a related company or shareholders, excluding trade credit, a loan from friends and family, factoring, and leasing)					

PART III: About the Business Environment (BE)

BE8. The external financing availability depends on many factors, partly related to the general economic situation, lenders' attitudes, and your firm-specific situation. For each element below, indicate whether they have improved, remained unchanged, or deteriorated over 12-36 months?

	Improved	Remain unchanged	Deteriorated	Do not Know	Instrument not applicable
BE1. General economic outlook					
BE**2.** Public financial support access and guarantees					
BE3. Your firm-specific outlook regarding the business plan or sales and profitability					
BE4. The firm's capital					

BE5. The firm's credit history					
BE6. The willingness of banks to offer credit facilities.					
BE7. The willingness of business partners to avail of trade credit					
BE8. The willingness of investors to take up equity or debt instruments issued by the firm					

PART IV: About Innovation (IAL)

IAL1. In the last 36 months, did your enterprise introduce any of the following? Select all that apply, and if not, skip the question

	Tick
IAL1. Goods innovations: New or significantly improved goods (exclude the simple resale of new products and changes of a solely aesthetic nature)	
IAL2. Service innovations: New or significantly improved services	
IAL3. New or significantly improved methods of manufacturing for producing goods or services	
IAL4. New or significantly improved logistics, delivery, or distribution methods for your inputs, goods/services	
IAL5. New or significantly improved supporting activities for your processes, such as maintenance systems or operations for purchasing, accounting, or computing	

IAL6. New business practices for organizing procedures (i.e., first-time supply chain management use, business re-engineering, knowledge management, lean production, quality management, among others).	
IAL7. New approaches to organizing work responsibilities and decision making (i.e., first-time use of a new system of employee responsibilities, teamwork, decentralization, integration or de-integration of departments, education/training systems, among others).	
IAL8. New approaches to organizing external relations with other enterprises or public organizations (i.e., first-time use of alliances, partnerships, outsourcing, or sub-contracting, among others).	
IAL9. Significant changes to the aesthetic design or packaging of a good or service (exclude changes that alter the product's functional or user characteristics – these are product innovations)	
IAL10. New media or techniques for product promotion (i.e., first-time use of a new advertising media, an original brand image, introduction of loyalty cards).	
IAL11. New methods for product placement or sales channels (i.e., first-time use of franchising or distribution licenses, direct selling, exclusive retailing, new concepts for product presentation, among others).	
IAL12. New methods of pricing goods or services (i.e., first-time use of variable pricing by demand, discount systems, among others).	

IAL2. During the last 36 months, was your firm engaged in any of the following innovation activities?

- ☐ **In-house R&D**: Research and Development activities performed to create new knowledge or to solve scientific or technical problems (including software developed in-house that meets this requirement)
- ☐ **External R&**D: Your firm contracted out R&D to other enterprises or public or private research organizations
- ☐ **Acquisition of machinery, equipment, software & buildings**: Purchase of advanced machinery, hardware, software, and buildings used significantly improved or new products or processes

- ☐ **Acquisition of existing know-how from other enterprises or organizations**: Purchase of copyrighted works, existing know-how, patented and non-patented inventions, among others. from other organizations or enterprises for the development of significantly improved or new processes and process
- ☐ **Training for innovative activities**: Contracted out or in-house training for your workforce for the introduction or development of greatly enhanced or new methods and products
- ☐ **Market introduction of innovations**: Contracted out or in-house activities for the market introduction of significantly improved or new goods or services, plus market research or advertisement launch
- ☐ **Design**: Contracted out or in-house activities to change the appearance, shape, or goods or services' usability
- ☐ **Others**: contracted out or in-house activities to execute significantly improved or new processes and products like feasibility studies, tests, industrial engineering, tooling up, among others.

IAL3. What was the main reason for your enterprise not to conduct innovation activities for the last 36 months?

- ☐ Low demand for innovations in your market
- ☐ No need to innovate due to previous innovations
- ☐ No need to innovate due to very little competition in your enterprise's market
- ☐ Lack of good ideas for innovation

IAL4. How significant to your enterprise were the following barriers to innovation? Degree of importance: (1)—Not important (2)—Low (3)—Medium (4)—High)

	Not important (1)	Low (2)	Medium (3)	High (4)
BI1. Lack of internal finance for innovation				
BI2. Lack of credit or private equity				

BI3. Lack of skilled employees within your enterprise				
BI4. Difficulties in obtaining government grants or subsidies for innovation				
BI5. Lack of collaboration partners				
BI6. Uncertain market demand for your ideas for innovations				
BI7. Too much competition in your market				

PART V: About Firm Performance (FP)

FP1. The following factors are relevant to your firm's income generation activities. Please indicate whether the following factors have decreased, remained unchanged, or increased over the past 12-36 months in your company?

	Increased	Remained unchanged	Decreased	Do not Know
FP1. Labor costs and production costs				
FP2. Investment cost in new equipment and facilities				
FP3. Firm output capacity				
FP4. The number of workers				
FP5. Sales turnover				

FP6. Profitability				
FP7. Assets growth compared to debts				

Any additional information?

Thank you for participating in the study

Appendix11: Acknowledgment

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