CERTIFICATION

We declare that this dissertation titled "Financing Options, Innovation and Firm Performance in Cross River State, Nigeria" is an original work written by **Eke, Ihuoma Chikulirim (Reg. No.: ECS/Ph.D/15/002)** under our supervision. It has been examined and found to have met the requirements of University of Calabar. We therefore recommend the work for the award of Doctor of Philosophy (Ph.D) degree in Development Economics.

1 Prof. Friday S. Ebong
(Chief Supervisor)
Qualification: B. Sc, Stat., M. Sc. Ph.D)
Status: Professor of Economics
Signature.....
Date.....14/01/22.....

2 Prof. Uchechi. R. Ogbuagu
(Supervisor)
Qualification: B. Sc, Stat., M. Sc. Ph.D)
Status: Professor of Economics
Signature.....
Date.....14/01/22.....

3 Assoc. Prof Ebi, Bassey Okon
(Head of Department)
Qualification: B.Sc., M.Sc., Ph.D
Status: Associate Professor
Signature.....
Date.....14/01/2022

4. Dr. Aniefiok U. Akpan
(Graduate School Representative)
Qualification: B.Sc., M.Sc., Ph.D
Status: Senior Lecturer
Signature.....
Date.....14/1/22

5 Prof. Emmanuel A. Onwioduokit
(External Examiner)
Qualification/Status: B.Sc., M.Sc., Ph.D
Status: Professor of Economics
Signature.....
Date.....14/1/22.....

DECLARATION

I, Eke, Ihuoma Chikulirim registration number ECS/Ph.D/15/002, hereby certify that this dissertation on "Financing Options, Innovation and Firm Performance in Cross River State, Nigeria" is original and has been written by me. It is a record of my research work and has not been presented before in any previous publication.

Name: Eke, Ihuoma Chikulirim (Student/Candidate)

Signature.....

Date: 7/02/22

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ABSTRACT

Financing options of firms (MSMEs) are conscious decisions that are made concerning how it finances its activities which can beneficial or mar the firms' outcomes (performance). Specifically, this study aimed at finding out the impact of financing options (internal, external and debt-equity financing) on firm performance measured by productivity and profitability, determine the effect of financing options on innovation of firms, and examine the effect of financing options and innovation on firm performance in Cross River State, Nigeria. Logit regression model and multiple regression analysis were used for empirical investigation of these objectives. The study used primary survey data collected from Micro Small and Medium Enterprises (MSMEs) in Calabar, Cross River State in a survey conducted between December 2021 and January, 2022. A non-probability sampling technique was adopted in selecting firms included in the study. The survey was conducted face-to-face using a questionnaire and data was collected from 142 MSMEs covering sectors such as trade, manufacturing, services, agriculture, education and health. However, data from 134 firms with complete information and who were eligible was coded and analysed. The study specified and estimated ten equations based on its specific objectives and hypotheses as follows: effect of financing options on firm performance estimated four equations; effect of financing options on innovation had three equations, and the effect of financing options and innovation of firm productivity had three models. The study found that among the financing choices examined, internal financing had a significant negative effect on firm productivity in Cross River State, Nigeria. The result showed that an increase in internal finance of the firm by one per cent results in a 25 per cent decrease in firm's productivity. Secondly, the study discovered that debt-equity financing had a significantly positive effect on productivity and profitability of firms in Cross River State, Nigeria. Specifically, debt-equity financing improved firm productivity and profitability by 12 per cent and 21 per cent, respectively. Thus, debt-equity financing as against internal or external financing has shown to produce more robust result in its impact on firm performance. It was also discovered that internal financing had a negative but significant effect on innovation proxy by expenditure on research and development (R&D) in firms in Cross River State, Nigeria. Furthermore, the empirical investigation revealed that internal financing together with innovation (proxy by expenditure on research and development) had a significant positive effect on firm profitability. One of the discoveries in this study is the strong significant and positive effect of capacity utilization, which was a control variable, on probability of the firm to adopt innovation and on firm productivity. Based on these findings, the study recommends that: government through SMEDAN should make available cheap and accessible alternative financing channels for use by MSMEs and Managers of firms should make financing decisions in such a manner as to spread the risk and minimize cost of funds such that their productivity and profitability is not adversely affected

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FINANCING OPTIONS, INNOVATION AND FIRM PERFORMANCE IN CROSS RIVER STATE, NIGERIA

BY

EKE, IHUOMA CHIKULIRIM
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CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Financing and innovation are factors necessary for productivity and growth of firms and by extension the growth of national economies. The differences in economic progress between the rich and poor economies can be attributed to the conditions associated with the financing of productive activities and the level of innovation of firms which have implications on the performance of firms in these economies.

Globally, and in particular, in developing and emerging economies, firms, especially (MSMEs) known as enterprises which are micro, small and medium are acknowledged not only as avenues for creating jobs for majority of the labour force, but as important drivers of economic diversification and growth, youth and female empowerment and a channel for the supply of goods and services to the extreme poor. Gerlach-Kristen, O'Connell and O'Toole (2015) believed that SMEs contributed about 50 per cent of world gross domestic product (GDP) and sixty per cent of global employment, while Deijl, Kok and Essen (2013) found that in emerging economies, MSMEs created two thirds of jobs and 80 per cent of those in low-income countries. In the world over, micro, Small and Medium Enterprises assume very significant roles at moving socio-economic transformation, which includes industrialization of many countries. MSMEs being ingrained, presents an important platform which boosts technological, entrepreneurial and technical capacities amongst vital segments of the populace. Some opportunities are also offered by MSMEs which drive jobs and the creation of wealth well as re-distribution of income within the society. It is also through MSMEs that economies move

from agriculture-based economies to modern or advanced ones, giving opportunities for a value chain linkage that bring about sustainable livelihoods for the bottom-of-the-pyramid citizenry. Most advancement in new products and improved or new processes are by products of MSMEs providing most of the employment opportunities however it also shows the overall performance of any economy. (NBS, 2017)

In fact, the World Bank (2013) acknowledged MSMEs to form over 95 per cent of businesses in Africa. In South Africa alone, it contributed 57 per cent towards GDP and created over 61 per cent of jobs (Aboh & Quartey, 2010).Also, Milanzi (2012) found in his study that SMEs contribute towards a nation's total export production. This view was also held by Damoah (2011) who found that SMEs enjoy between 10 per cent and 40 per cent of their sales revenues from exports. In Nigeria, micro, small and medium enterprises (MSMEs) constitute about 90 per cent of all enterprises in the agricultural and industrial sub-sectors and together with SMEs in other sectors contribute about 50 per cent of the nation's GDP (Evbuomwan, Ikpi, Okoruwai & Akinyosoye, 2013). Micro firms constitute about 99.8 per cent of the 41,543,028 MSMEs in Nigeria as at 2017 of which 0.2 per cent are small and medium-sized firms (National Bureau of Statistics 2017)

The important roles of firms, especially its contribution to output growth and national development notwithstanding, the economic climate, and in particular the business environment shapes their operations and determines how well they perform these roles. Infrastructure, regulatory policy framework, financing and innovation are among such factors within the business environment that has been identified as the leading challenges faced by micro, small and medium-scale enterprises. These challenges form the focus of

ongoing debate by government and policy makers given the indispensable place of MSMEs in employment generation, national productivity and growth and development. World Bank enterprise Survey (2014) reveal that SMEs from 71 per cent of countries cited financing and infrastructure which are linked to innovation, as the biggest obstacles faced. Africa had the highest percentage of SMEs that encounter this challenge i.e 21.4 per cent when compared to 18.1 per cent in East Asia and Pacific region, 15.3 per cent in The Caribbean and Latin America and 14.2 per cent in Central Asia and Europe.

The funding pattern shows that about 70 per cent of the world's firms, that is about 420-510 million micro, small and medium enterprises do not utilize external financing obtained from financial institutions, and another 15 per cent are underfinanced (World Bank, 2018). Evidence from this survey for Nigeria (World Enterprise Survey) showed that more small firms (34.3 per cent) revealed that the challenge of accessing finance is a major constraint when contrasted with 6.9 per cent of firms that are large in 2014. This agrees with data from the same survey in 2007 which found 59.3 per cent for small firms and 13.2 per cent for large firms with finance as a constraint. A similar study earlier by Ekpenyong and Nyong (1992) had identified cost of capital via high interest rate as one major obstacle to the survival of small firms in Nigeria. Analysis based on those firms involved in export activity and non-export firms is that 14 per cent of export firms and about 40 per cent of firms in the latter category reported finance as a constraint.

The level of the financial development of any economy is a key factor which could determine the financing of firms. As noted by Mallick and Yang (2012), the sources of finance of firms are by-products of the state of a nation's level of financial development since countries with developed financial system can easily ease external financing with

bank loans given that information asymmetry exists between firms and banks. Firms, especially micro and small firms find it difficult to access capital for short term financing needs and long-term investment whether from formal or informal sources. This is so due to the high rate of interest and numerous unfavourable conditions and discriminatory policies by lending agencies and banks (Croce & Guerini, 2012; Ogechukwu, Akinlo & Goldman, 2015)

In 1986, Nigeria adopted the economic reform programme which marked a shift from an economy dominated by planned large scale and capital-intensive industrialization strategy which was heavily dependent on import substitution to that of export promotion driven by small scale local industries. These MSMEs, in addition to generating employment and promoting export were meant to reduce rural-urban migration, engender competitiveness and enhance growth and development of rural areas. In recognition of the vital role of finance in enhancing the performance of SMEs, the government set up various initiatives such as the then Central Bank of Nigeria credit guideline which stipulates 20 per cent target lending to MSMEs by deposit money banks (CBN, 1995), Small and Medium Industries Equity Investment Scheme (SMIEIS) in 1999, Bank of Industry in 2000, Small and Medium Enterprises Development Agency (SMEDA) in 2003 and Entrepreneurship Development Centres (EDC) in 2014, all of which were meant to increase SMEs access to finance and enhance performance.Other strategies put in place were the implementation of other several programmes which includes the National/State Councils on MSMEs, Entrepreneurship Development Programmes (Youth/Women/General),One Local Government One Product (OLOP), National MSMEs Policy, Conditional Grant Scheme (CGS),YOU-WIN and GEMS

Project amongst others. These strategies were complemented with many access-to-credit schemes of Development Finance Institutions (DFIs) and the Central Bank of Nigeria (CBN).

However, in spite of these initiatives targeted at MSMEs improved performance, discrimination against SMEs by formal financial institutions still exist due to inability to back up their credit proposal with collateral and the long gestation period of investments in these enterprises when compared with trading activities. Thus, majority of these enterprises face daunting challenges in financing and the uptake of innovative processes and products which may have far reaching implications for their growth and performance. This discrimination in financing may affect the ability of these firms to acquire, adopt and adapt new technology and production processes with adverse effect on their performance and competitiveness at international level. Innovation is critical element for firm performance and growth. In the Schumpeterian theory of creative destruction, innovation is identified as the engine of that process where innovative firms and entrepreneurs are seen as the drivers of change, leading to productive and allocative efficiency and enhanced productivity and performance (Schumpeter, 1942).

Firm level innovation requires that the firm transforms its innovation inputs as innovation outputs or its knowledge capital, resulting in how new products and processes are introduced, results in improved quality, changes in the way markets or organisations function and how patents of intellectual property is obtained (Cirera & Muzi, 2016). Firms put money into the acquisition of intellectual capital and inputs that enhances productivity so as to raise their competency to have improved outcomes, enhance

productivity and performance and ultimately enhance profitability or enlarge market share.

For firms to innovate, the deployment of both tangible and intangible assets is required. Tangible inputs include technology and equipment, and production facilities such as buildings, the intangible assets required include human capital, scientific and creative capital and, the core among these assets which is managerial and organizational capital. In aligning these inputs for the required outcome, firms undertake intermediary innovative activities such as training to enhance human capital, finance research and development, copyrights, licenses and patents, use of information and communication technology, adoption of new and improved business models, building large and active networks and alliances and equipment which makes for improvement in scientific or innovative capital. The impact of financing choices and innovation in firms, on firm performance may however be uncertain and requires empirical studies such as this to verify.

1.2 Statement of the problem

Firms make calculated and conscious decisions concerning their financing and these choices vary depending on the firm specific factors and economic dynamics. The better these decisions, the more productive the firms, all things being equal. The financing options of firms include debt or equity financing, internal funds, trade financing as well as informal finance (friends and family funds) etc. The theories of financial (capital) structure have come to different predictions and conclusions as per how financing options affect the output of firms. For instance, Modigliani and Miller's (1958) "irrelevance theory" concluded that the structure of a firm's capital does not

affect firm performance. Jensen and Meckling (1976) Theory of Agency cost contrary-wise held that high debt levels in firms result in higher productivity as high levels of debts reduces the cost of equity of agents which in in the other way round the value of the firm is improved, given that managers act, as a matter of constraint, in the best interest of shareholders.

Firms, especially start-up firms in Nigeria as well as in other developing nations, obtain their initial capital and financing for other needs from internal sources such as personal savings, gifts or loans from friends and relations or loans from local money lenders at very high interest rates, sometimes as high as between 100-120 per cent per annum. This raised cost of capital and the associated hindrances to formal financing sources for start-ups partly explain the high rate of mortality of firms at infancy (Aryeetey, 2008; Ogechukwu, Akinlo & Goldman 2015). Consequently, ensuring that the firms survive in the long-term is the reason why small enterprises in Nigeria should increase their productivity and innovative capacity which is an essential aspect for the firms. This is because increased productivity will lead to the competitiveness in micro, small and medium-sized companies in both local and international markets. Furthermore, new inventions in these companies is now a pivot point in the new plans on how enterprises are developed (Love and Roper, 2015; OECD, 2018). In most instances, uncertainty about acceptance and sustainability of innovation as well as the cost of innovation, result in business risks which has implications for its functioning and performance. These risks are made worse in the face of lean financial resource availability and limited access to financial products.

Obtaining financing, it appears, gives businesses greater leverage to weather the uncertainties of innovation, making the ability to access external capital a vital aspect in a firm's decision to innovate. Furthermore, access to external capital in emerging countries is plagued with stumbling blocks, particularly for small businesses. (European Commission, 2016). If these issues are taken into account, it is necessary to analyze how such characteristics contribute to firm innovation. The result of the 2007 and 2014 enterprise survey of the World Bank in Nigeria showed that a large percentage of micro and small-sized businesses revealed that obtaining finance is a key constraint when comparing it with average and big companies. The enterprise survey classified enterprises into four categories based on the number of employees: micro (1-4 employees), small (5-19 employees), medium (20-99 employees), and big (100 employees and above).

The 2007 survey result showed 59.3 per cent, 37.1 per cent and 13.2 per cent of small, medium and large firms, respectively reported availability of finance as a constrain while in 2014, 34.3, 31.4 and 6.9 per cent of small, medium and large firms, respectively reported access to finance as a major constraint. (World Bank Enterprise survey, 2007 & 2014). This point to the fact that financing may be a major constraint for the optimal performance of firms in Nigeria. In Nigeria also, MSMEs are defined in terms of no of employees by Bank of Industry (BOI) and SMEDAN is categorized thus: micro ($1 \leq$ 10,9 employees), small ($11 \leq 50,49$ employees) and medium ($51 \leq 200,199$ employees). These firms are also reporting finance as a major constraint.

Financing options of firms are affected by the level or extent of development of the financial system, (money and capital markets), quality of regulatory and legal

institutions and the firms industrial/production affiliations. In a developing country such as Nigeria with underdeveloped financial markets and weak institutional arrangements, firms are likely to face limited financing choices. Firms with such limited choices are bound to be adversely affected as they sometimes are unable to exploit new business and investment opportunities to expand their operations. Firms confronted with such constraint with external financing often times resort to internal sources (Rahaman, 2011).

Innovation, which entails turning opportunities into ideas and also putting those ideas into practice widely promoting birthing of either better production processes or a fresh and improved product, empowers employees and managers with new knowledge, skills and strategies. This enables the firm to improve its overall competitiveness and performance. However, most firms in developing countries and in Nigeria in particular, are confronted with challenges in their effort to innovate, some of which include: lack of capital for investment, infrastructural deficit, poor education and training system, poor technical know-how and skill acquisition as well as poor managerial capability and technology utilization. In Nigeria, the science, technology and innovation policy, which was approved and launched in 2012, seeks to develop and utilize science, technology and innovation (STI) building sustainable, large, diversified, strong, and developed economy which ensures high standard of living and good quality of life for citizens (FMST, STI policy, 2012). This lofty policy objective notwithstanding, firms are still being dominated by primary processing and rely heavily on imported technology.

Across sub-Saharan Africa, SMEs are seen as agents of innovation which contribute significantly to economic growth and development with supporting empirical evidence from countries such as Nigeria (Obi, Ibidunmi, Tolulope, Olokundun,

Amaihian,Borishade & Fred, 2018; Adelekan, Arogundade &Dansu, 2016), South Africa (Fiseha & Oyelana, 2017) and Ghana (Opoku-Mensah &Agbekporum, 2015). Enhanced performance of firms is important for Nigeria's diversification and industrialization drive and for achieving the economic recovery and growth plan as well as the United Nations sustainable development goals (SDGs) by the year 2030.

However, the performance of these firms is challenged by a host of factors which tend to hinder their potential and limit their contribution to national growth and development. These factors include limited financing choices, globalization, poor spending on research and development, limited technology, poor financing, regulatory and legal environment and the level of informality (Beck, Demirguc-Kunt, Laeven & Levine, 2008; Nafula, 2017). Thus, for a firm to realize its goals, the economy must broaden its financial options and adopt strategies to enhance innovation. In the face of global competitiveness, firms are required to adopt innovative processes and have a wide range of financing choices, from which they can meet their funding needs in order to remain relevant, grow their profit and market share and contribute to national development (Kiraka, 2009; Mensah & Acquah, 2015).

Financing constraint impedes good business initiative since it hinders the growth, productivity and development of firms and can lead to business failure, (Beck, Dermirguc-Kunt & Maksimovic, 2018). The primary enhancers of firms' performance and productivity are their ability to adopt innovation and the wide financing options available as these factors are considered vital factors for firms' existence and survival. Specifically, innovation is considered a major factor that enhances productivity which enables a firm to be competitive both locally and internationally. Innovation allows a

firm to carve a niche in terms product, process, marketing and managerial know-how and serves as a distinguishing factor.

Empirical literature points to the existence of either a positive or negative association between financing choices and firms' performance which confirms that there are financing gaps (Mathenge & Nikolaidou, 2018; Mwangi, 2014). The financial system in any nation which is meant to fill this gap determines the options available to firms but is in turn confronted with a number of challenges in the attempt to play this role. Some of the problems faced by the financial system include costs, benefit and accessibility of funds (Myers, 1984), institutional framework (Beck et al, 2008), as well as legal and regulatory environment (Allen, Chakrabarti, De, Qian & Qian, 2012).

Previous studies which investigated the effect of financing options on firm performance had either been at the continental level for a cross section of countries in Africa (Fowowe, 2017; World Bank, 2012) or undertaken mainly in Eurozone countries (Casey & O'Toole, 2013). Some country level studies which found that finance had positive relationship on firm performance include: Rotich, Lagat and Kogei (2015) for Kenya and Opoku-Mensah and Agbekporum (2015) for Ghana; while Li, Lu and Yang (2013) for China and White, Maru, Boit and Rose (2015) for Kenya found that financing had a negative effect on firm performance. On the other hand, Adegboye and Iweriebor (2018) found that financing choice (external or internal) had no effect on firm productivity growth. The study by Nwosu and Orji (2016) for Nigeria, with a gender perspective found that firms with credit constraint had significantly lower performance contrary to firms that are not constrained by credit and this effect is more pronounced in women-owned enterprises.

In recognition of the role of MSMEs in national development, the government introduced various financing strategies over time in Nigeria. Some of these financing schemes include: Credit Guarantee Scheme for Small and Medium Enterprises (SMECGS), Equity Investment Scheme for Small and Medium Enterprises (SMEEIS), Support Facility for Real Sector (RSSF), Refinancing/Restructuring Facilities to Small and Medium Enterprises/Manufacturing (RRF), Textile Sector Intervention Fund (TSIF) Micro Small and Medium Enterprises Development Fund (MSMEDF), and the setting up of the Entrepreneurship Development Centres in the six geo-political zones of the country. The introduction of these initiatives notwithstanding, the challenges of financing of SMEs in Nigeria remain enormous as they lack access to sustainable financing due to poor record keeping and lack of information on the sources and availability of financing (Nwosu & Ochu, 2017), stringent collateral demand, high cost of funds and structure of the financial system (Okoroafor, 2020).

A little is known about the effects of innovation on firm performance in developing economies such as Nigeria. The existing studies majorly, are limited to developed countries, across countries or for a specific industry. The few atypical studies based on cross-country analysis in Latin America include: Turriago, 2003; Hall & Maffioli, 2008. Others investigated the innovation-productivity nexus (Crespi & Zuniga, 2012; Crespi, Arias-Ortiz, Tacsir, Fernando & Pluvia, 2014). The study by Cirera, Muzi, (2016) analyzed the innovation-productivity relationship while making use of big sample, with countries from continents such as: Eastern and Central Europe and the Middle East, South Asia and Sub-Saharan Africa. Related study was undertaken for developing countries (Bazine & Svensson, 2013). A few studies in Africa which are related include

those by Adegboye and Iweriebor (2018) for Nigeria which investigated the nexus between access to finance, innovation and firm sales productivity and Goedhuys, Mohnen and Taha (2008) which examined the effect of corruption and innovation on firm employment growth in Tanzania. The scanty research evidence has reduced the power of policy makers to formulate good and relevant policies on financial options and innovation for enhanced firm performance. These challenges have made the following research questions pertinent:

i what is the effect of financing options on firm performance (profitability and productivity) in Cross River State?

ii how do financing options affect the innovation of firms in Cross River State?

iii what effect does financing options and innovation have on firms' performance in Cross River State, Nigeria?

1.3 Objectives of the study

This study has as its overall aim to investigate the causal link among financing options, innovation and firm performance in Cross River State, Nigeria. The specific objectives were to:

i establish the impact of financing options on the performance of firm in Cross River State.

ii analyse the effect of financing options on innovation of firms in Cross River State.

iii examine the effect of financing options and innovation on firm performance in Cross River State.

1.4 Research hypotheses

The following research hypotheses, which were stated in their null forms, were tested in this study. Hypotheses one to four addressed objective one, hypotheses five, six and seven addressed objective two and hypotheses eight, nine and ten addressed objective three.

i internal and external financing option have no significant impact on productivity of firms in Cross River State, Nigeria.

ii Debt-equity financing does not have a significant impact on firms' productivity in Cross River State, Nigeria.

iii Internal and external financing option have no significant impact on firms' profitability in Cross River State, Nigeria.

iv Debt-equity ratio has no significant impact on profit of firms in Cross River State, Nigeria.

v Internal and external financing and debt-equity financing do not have significant impact on product innovation of firms in Cross River State, Nigeria.

vi Internal and external financing and debt-equity financing do not have a significant impact on process innovation of firms in Cross River State, Nigeria.

vii Internal, external and debt-equity financing have no significant impact of expenditure on research and development of firms in Cross River State, Nigeria.

viii Internal and external financing, debt-equity ratio and product innovation have no significant impact on firm productivity in Cross River State, Nigeria

ix Internal and external financing, debt-equity ratio and process innovation have no significant impact on firm productivity in Cross River State, Nigeria

x Internal and external financing, debt-equity ratio and expenditure on research and development have no significant effect on productivity of firms in Cross River State, Nigeria.

1.5 Significance of the study

This study shed light on the financing options faced by Micro, Small and Medium scale firms and its effect on firm performance in a developing country such as Nigeria specifically Cross River state. The managers and owners of these firms can assess from the result how these options influence the performance of these firms in actual practice. Thus, whenever there is need to raise funds for these firms, the appropriate combination of capital structure would be applied.

The sources of funds i.e banks, venture and investment capitalist as well as government funding agencies would find the result of this study useful since it shed light on financing options of firms. These investors and venture capitalist would be able to assess firms' performance and make projections on the future earnings of these firms which could guide their decisions to invest.

The result of this study would also be useful to regulatory agencies in the financial, science and technology and business sectors, state and federal governments as well as the organized private sector i.e National and States Associations of Chambers of Commerce as well as manufacturers. The governments and regulatory agencies as policy makers would appreciate the role of financing options and innovation in improving firm output and performance. It would enable them to know the best policies to take in financing SMEs in Nigeria and the type of innovation which best improves performance. This would help in making policies on the most effective policy options

Financing options, innovation and firm performance are not only beneficial to policy makers and managers of firms, but also to consumers of the products of these firms. Thus, the result of this study could be utilized by governments and private firm managers in investments decisions affecting sectors with the hope of expanding the scale of their businesses.

1.6 Scope of the study

The study was conducted using a survey design in Calabar Municipality in Cross River State between December 2021 and January, 2022. Calabar Municipality is one of the seven Local Government Areas in the Southern Senatorial district of the state. According to the United Nations population projection, Calabar Municipality has a projected population of 631, 000 as at 2021. The Municipality houses the seat of government and is the centre of commercial activities in the state. Cross River State is located in the South-South geopolitical zone with a population of over 2.8 million people. The state is mainly agrarian with about 75% of the population engaged in subsistence farming and over 70 percent of the population living below $1 per day (CRSEEDS, 2007). The state has 18 local government areas and according to the NBS/SMEDAN survey of MSMEs in 2017, the state 1,456 MSMEs which constitute about 2 per cent of total MSMEs in Nigeria. The study covered 134 MSMEs in Calabar Municipality and is limited to sectors such as trade, manufacturing, services, agriculture, education and health.

This investigation on the performance of MSMEs is apt given current attention in this sub-sector which has witnessed the launch of the National Policy on Science, Technology and Innovation, National as well as States Councils overseeing MSMEs, project to establish One Product in each Local Government (OLOP), the Conditional Grant Scheme (CGS) for smalll businesses, as well as the drive towards diversification and industrialization with the

strengthening of institutions such as the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and the adoption of measures to ease access to finance by firms in the country. The Cross River State government has also increased her attention at developing alternative sources of income for the state after the ceding of her oil wells to Akwa Ibom State and the informal sector is one those sectors that have given priority with the setting up of agencies such as Small Medium Enterprises Development Agency (SMEDA), Bureau for Public-Private Partnership (BPPP) and the launch of a state Industrial Policy in collaboration with United Nations Industrial Development Organisation (UNIDO) recently as a roadmap for industrializing the state.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Conceptual literature

2.1.1 The Innovation Concept

The term innovation is seen as a vital aspect in a company's development and productivity. The phrase innovare comes from the Latin word innovare, which means 'to create something new.' Joseph Schumpeter, a German economist and political scientist, defined innovation as "the introduction of a product that is new to consumers or of higher quality than existing products, new methods of production, the opening of new markets, the use of new sources of supply, and new forms of competition, that lead to the restructuring of an industry" in one of the earliest formulations of the concept (Schumpeter, 1934). According to him, innovation is a process of "creative destruction," or an act of "industrial mutation," in which new methods drive out (or "destroy") old ones. This process is fueled by innovation, and understanding "how other nations attain affluence and underpin economic growth and progress" is crucial.

According to Vyas (2009), Schumpeter's definition prompted the five contributions to innovation, which include the creation of new products or significant improvements on existing products, the use of a modern industrial method, the opening of a new market, advancement in raw-material sources that include other new inputs, and modern industrial procedures. The UK Department of Trade and Industry (2007) defines innovation as "the process of transforming opportunities into newer, better ideas and then extensively implementing these new ideas."

The Organisation for Economic Co-operation and Development's documentation about the concept was also frequently utilized and studied (OECD). "A new or enhanced product or process (or combination thereof) that varies substantially from the unit's prior products or processes and

has been made accessible to prospective consumers (product) or brought into use by the unit (process)," according to the Oslo OECD Innovation handbook (2018). The handbook considers innovation to be both an action and a result of that activity. It defines innovation activities as all commercial, developmental, and financial actions carried out by businesses in order to produce an inventive output.

In contrast to the 2005 edition of the same handbook, which had four classifications namely: marketing innovation, process innovation, organizational innovation and product innovation, and the updated Oslo manual in 2018 categorizes the concept into two which are: process and product innovation. The business process innovation, according to the manual, is the birthing of a novel or better business method for a single or group business activities which is consequentially different from the firm's former business methods which had been initiated for use in the organisation, whereas the innovation of a product entails the development of a novel or better product or service with a marked difference from the former one and is new to the market.

In another definition, the Innovation Union, an initiative of European Union's seven flagship initiatives aimed at achieving smart, sustainable, and inclusive growth through the Europe 2020 strategy, defined innovation as "change that accelerates and improves how new products, industrial processes, and services are conceived, developed, produced, and managed."

Drucker (1985) saw innovation as a fundamental pre-requisite for entrepreneurial growth and a tool for business owners, according to certain definitions of the idea proposed by famous academics in the area. Forsman (2010) defines innovation as "the creation and execution of new or enhanced processes, products/services, manufacturing techniques, or single acts targeted at boosting an enterprise's competitiveness."

The Enterprise Survey used five components to describe innovation: product, technique or process, organizational, usage of foreign-licensed technology, and research and development investment (R&D). The process as well as product dimensions were used in this research to follow the Oslo manual's (2018) definition of innovation. In this research, product innovation is defined as the launch of a new or considerably enhanced product or service by a firm/establishment in the previous three years, as defined by the enterprise survey. On the other hand, process innovation assesses if the firm/establishment has implemented any new and/or substantially improved processes during the last three years. These include techniques of providing services or producing goods; input distribution methods, logistics, or product or service delivery; and process support activities.

Firms are seen as the primary movers and wheels that propel the innovation process; nevertheless, for innovation to flourish in any business, excellent supporting institutions for knowledge creation and dissemination are essential. A framework for innovation systems was created to ensure that all participants in the innovation framework are appropriately integrated. "This approach is founded on the concept that, in essence, corporations create and execute innovations in isolation, necessitating the input and participation of other system players" (Miika & Varis, 2010).

In this research, product innovation is elucidated to mean an establishment's development of new goods or services into the market over a period of time, or products or services that have seen major upgrades in capabilities, user friendliness, components, or sub-systems. Process innovation refers to new (current) or improved methods, such as the introduction of new methods of manufacturing products or providing services by an establishment during the reference period; logistics, delivery, or distribution methods for inputs, products, services, or supporting activities.

Organizational innovation is the process of changing an organization's organizational structure by forming, dissolving, or combining departments. Expenditure on R&D refers to the actual amount spent on R&D, i.e. how much money was spent on R&D in-house or via outside contractors. R&D refers to particular sorts of activities that a commercial firm selects to engage in whose main aim is to make a invention that may lead to the enhancement of current goods, services, or procedures or the creation of a new product, service, or method. While internet browsing or market research surveys are not considered R&D, research and development may be compared to a laboratory study of a novel chemical compound used in the creation of paint.

2.1.2 Financing possibilities

A company's financing choice or option is a deliberate and purposeful decision about how it funds its operations (Mallick & Yang 2011). Financing alternatives are dependent on a variety of elements and vary according to the country's financial and legal growth and the business climate. Internal and external alternatives of financing may be categorized as official or informal, short term or long term, conventional and contemporary, or innovative. Commercial banks, equity and debt, trade credit, business angels, government agencies, and venture capitalists are all conventional sources of funding (Fatoki, 2014). Modern or innovative financing options, on the other hand, include crowd funding, which is a new form of finance in which entrepreneurs and investors are connected through the internet. Large entrepreneurs may get cash via an open invitation on the internet to finance enterprises through small offers from a large number of investors, particularly high-net-worth people and private start-up organizations (Golic, 2014; Fatoki, 2014). Internal sources of funding include the owner/savings, manager's retained profits, financial assistance from family and friends/associates, and trade credit, while external sources include banks, other commercial institutions, and the securities market.

Internal (personal savings and re-invested savings) and external (credit funding, family sources, cooperative/esusu, grants, and others) sources are employed in this research. The former refers to the percentage of investment and working capital supported by owners' contributions or savings re-invested, whilst the latter refers to the percentage of investment and operating capital funded by external sources such as banks and other sources.

2.1.3 Productivity of the firm

Firm performance refers to an organization's outputs or outcomes as compared to its expected output. It might refer to the business's work outputs, employee performance, the smooth operation of multiple firm divisions, and product and service manufacture. The literature uses a variety of different metrics of corporate success, which might be quantitative or qualitative, financial or non-financial, and quantitative or qualitative. Depending on whether the unit of analysis is at the company level at a certain moment in time or at an aggregate level across time, these measurements vary. While most firm level analyses use measures such as amount of goods sold (sales), productivity, employment, export performance, capacity utilization, and firm's purchases of fixed assets and profitability, the corporate finance literature uses returns on: assets, equity, or investments as indices of the performance of firms.

Even though each of these metrics has merits and disadvantages, experts agree that a hybrid measure that combines financial and non-financial factors is the best option. To compare the results of the two metrics, we employ two outcome measures: productivity and profitability. Economic profit is what motivates entrepreneurs to start a company, i.e. profitability is a primary goal, even though the numbers may be manipulated, and productivity is a secondary goal since businesses also want to expand production at a low cost. Survival, cost reduction, and breaking even are the short-term goals of micro, small, and medium-sized businesses.

2.2 Review of the Literature

2.2.1 The impact of different financing solutions on a company's performance

The relationship between finance and economic growth has for many decades, been the focus of continuous dispute amidst economists and analysts of public policy (Becks et al, 2012, Favarra, 2003; Levine, 2005). Many academics have proposed that one way for finance to influence economic development is via corporate productivity or performance (Gatti & Love, 2008; Chen, 2010). This necessitates research into the mechanism by which finance increases company performance or productivity, since finance is seen as a critical link between business operations and general economic development (Chen, 2010; Becks et al, 2012).

The theoretical argument given by Gatti and Love (2008) that finance has impacts on the development of the economy through its influence on the productivity of micro units was examined using economic models developed by the researchers in their study. Those who believe that technical innovation is an essential component of economic development stemming from company-level productivity as a consequence of the business getting access to external capital are examples of such models (Chen & Guariglia, 2013). It was revealed that the availability of genuine services offered by the financial sector to the companies reduces the expenses associated with information distribution and financial transactions in terms of obtaining external funding in these models (Gatti & Love, 2008). In this way, the financial system serves as an important intermediary, supplying much-needed capital to innovative firms and so making long-term projects with high returns more appealing to firms that would not otherwise invest in such projects (Levine. 1991; Bencivenga, Smith& Starr,1995; Ayyaggari, Demirguc-kunt & Maksimovi,2007; Gatti & Love, 2008; Chen, 2010).

Mathenge and Nikolaidou (2018) investigated the impact of business financing decisions on total factor productivity as a proxy for firm performance in Africa. The research analyzed firm-level data from twenty-six African nations from 2005 to 2013, as well as a parametric static linear model and a non-parametric cumulative distributive function and probability density function. The explanatory and explained variables were total factor productivity and five financing options: bank loan, equity, internal funds, hybrid and other forms of finance, and total factor productivity. Firms with a higher share of investment backed by bank money were shown to be more productive than those with alternative sources of funding. Small and medium-sized businesses had a greater variance in productivity by source of capital than big businesses. This research primarily looked at manufacturing companies, therefore it didn't look at how financing decisions differed by industry and how it affected business performance.

Regasa, Fielding, and Roberts (2017) studied the link between funding and company development in Ethiopia in separate research in Africa. The research used a fractional logit model to evaluate access to financing, which was defined as a percentage or all of a firm's working capital coming from internal sources, as well as sales and employment growth. The research found a negative and substantial association between external financing and business growth, with companies that used external financing growing slower than those that used internal capital. However, the interaction impact of innovation and finance decisions on company performance was not examined in this research.

For the years 1970–86, Agarwal and Elston (2000) investigated how banks influence the financing decisions of businesses with regard to their financing and hence performance in Germany, using 100 big listed and unlisted German enterprises. A bank influenced business is defined as one in which a finance company controls above fifty percent stake and no one else does,

or one in which a banker or related professional presides over the board supervising it. Panel fixed effects regression as applied in the investigation and the proxies for firm financing options and profitability included: net interest divided by sales ratio and interest payments divided by debt ratio. The research discovered a negative relation between that debt and profitability, but no result in favour of the claim of a bank relationships-profitability or growth relationship

To study SMEs funding, Kuntchev, Ramalho, Rodrguez-Meza, and Yang (2012) utilized data from the Enterprise Survey produced by World Bank, including thirteen thousand, six hundred and eighty-five enterprises from thirty-eight counties within sub-Saharan African. The authors discovered a clear link between a company's size and its credit accessibility, with small-scale companies having a higher propensity to be credit 'restricted,' illustrating the challenges experienced by owners of small firms in obtaining commercial loans. They also discovered that this category of firms in Sub-Saharan Africa region received external funding to the tune of 27.8 percent informal financing, 6.3 percent equity, 17.4 percent semi-formal financing and 48.5 percent formal foreign loans,

Allen, Chakrabarti, De, Qian, and Qian (2012) looked studied the funding of 854 listed small and medium-sized private companies in India from 1995 to 2004. The research also performed a survey of 212 companies in the software, engineering, packaging, and chemical sectors to supplement the findings from secondary sources. Large manufacturing companies depend on equity financing the least, whereas tiny, non-manufacturing companies rely on equity financing the most. On the other hand, Indian businesses, especially major businesses, depend heavily on debt funding (bank loans and bonds). When stock and loan funding were merged, it found that listed Indian companies had a comparable reliance on external market and bank

financing. Alternative forms of finance, such as trade credits and internal financing, were deemed to be the most significant routes for SME funding in India, according to the poll.

Mwangi (2014) used secondary panel data from 2006 to 2012 to explore the impact of funding choices has on non-financial enterprises performance with focus on Nairobi stock market listed firms. The approach used was stepwise feasible generalized least square regression. Debt-equity ratios, total current liabilities to total current assets ratios, and dividend payout ratios were used to evaluate financing choices, while returns on assets (ROA) and returns on equity (ROE) were used to evaluate corporate performance (ROE). The research found an inverse association between the measures of financial leverage and performance. Even though the relationship was substantial for asset returns, it was inconsequential for equity returns. This research relied on secondary data and was primarily concerned with the financial performance of companies listed on Kenya's stock market. Quoted companies are often bigger than unquoted companies, and thus are less likely to encounter the financial restraints that tiny unquoted companies have.

Rahaman (2011) used a sample of listed and unquoted enterprises in the United Kingdom business sector from 1991 to 2001 to examine the influence of capital structure on company output growth. Internal finance (return on shareholders' money. retained profits, profit margin and return on total assets) and external financing (access to bank credit) were used to assess financing structure, while sales and employment growth were used to measure company growth. When organizations faced external funding constraints, the research found that they tended to depend more on internal capital to finance expansion. Internal financing's impact on business growth, on the other hand, reduced as the access to external bank credit grew. When the external funding limitation was lifted, the company starts to rely less on internal finances and more on external financing to support its expansion.

Mensah (2004) investigated the efficiency of financing programs for small and medium-scale companies in Ghana, with an emphasis on equity and loan financing. The goal of the research was to see whether such programs helped SMEs achieve their financing requirements and if they were sustainable in terms of improving business profitability, investment, or the supply of money for future projects. The study discovered that a lack of long-term loans, combined with high interest rates, had a negative impact on SMEs' development and profitability, and suggested that other financing options, such as seed money, leasing, venture capital, and investment funding, be developed as a way to improve SMEs' profitability and performance in Ghana.

Rupeika-Apoga (2014) reviewed alternative financing, which is a source of external financing such as business angels, government support financing schemes, venture capital, and seed funding, as it affects the performance of SMEs in Lithuania, Latvia, and Estonia in a similar study on financing of SMEs in the Baltic States. The research discovered that the availability of these new and creative forms of funding was highly dependent on the organization's stage of growth, and that the larger and more well-known the firm was, the more financing options it had. Funding derived from venture capital, business angels, seed grants and assistance programs from government, were determined to be more readily available and accessible than bank loans for young businesses. In terms of particular nation examples, Estonia came out on top, with more local venture capitalists, investments and angel investors than the other countries in the Baltic region, which could be described partly by the strides of firms like Skype and Micro Task. As a result, according to this report, these nations should adopt regulatory business reforms such as eliminating administrative barriers and expanding financing options, and lobbying for unhindered entry into foreign markets as a means to enhance SMEs' performance in the Baltic area.

Rajan and Zingales (1998) performed a study of 41 enterprises in 41 countries from 1980 to 1990 to see whether sectors that rely on external finance had significantly higher growth rates in countries with more developed financial markets. This research also used regression analysis, and the results demonstrated that the development financial framework has a significant impact on the pace of economic growth, in part by lowering the cost of external funding for financially reliant enterprises.

Ayyagari, Demirgüç-Kunt, and Maksimovic (2008) employed 2,400 Chinese enterprises in research to explore the influence of formal and informal funding patterns on company performance in eighteen cities covering five regions in China from 1999 to 2002. Company-level financing patterns in China were compared to those in other developing economies including Russia, Bangladesh, Brazil, Nigeria, India and Indonesia and the impact of financing decisions on firm performance was investigated using regression and selection models. Internal financing included "retained earnings or loans from family and friends, as well as external financial sources like equity, local commercial banks, foreign owned commercial banks, trade credit (supplier or customer credit), investment funds, or special development financing, as well as informal sources like moneylenders or informal banks". Three measures were used to assess firm performance: sales growth, labor productivity growth, and re-investment rate. According to the findings, China's usage of formal funding channels may be compared to that of other emerging nations. They also observed that financing differs across enterprises and areas in China, and that funding from the official financial system, such as bank financing, is connected with quicker company development, but funding from other sources, such as informal sources, is not.

Beck, Liping, and Yang (2015) used a household survey performed in 2009 in two thousand families in three provinces of nine counties in which twenty seven percent operate micro

firms, to evaluate influence of informal and official funding sources on the development of microenterprises in rural China. Better usage of informal financing, particularly funds gotten from friends and family, was linked to rising growth in sales growth for these group of enterprises. Formal financing, however, was not linked to stronger growth in firm sales. This is in agreement with the level of inefficiency of Chinese bank loans. These results not only support the necessity of financing for entrepreneurs and business success, it also highlight the critical part of informal financial service providers when official financial institutions are ineffective or absent.

Other research, on the other hand, have employed secondary data to evaluate the impact of capital structure on the performance of organizations, the majority of which are publicly traded. Some of these researches are discussed in detail. Adekunle (2009), for example, proxy debt ratio as capital structure and utilized returns on equity and asset as metrices for company performance in one of his studies on the influence of funding types on firm production. Using the ordinary least square technique, the ratio of debt had a substantial inverse influence on the firm's performance using financial measures. The research did not however extend its analysis to explore the mediating effect of internal cash flow that are accessible.

Nwaolisa and Chijindu (2016) used the econometric techniques to investigate the impact of capital structure on the output of agricultural and healthcare firms listed on the Stock Exchange in Nigeria for a twenty-one (21) year period from 1993 to 2013. They used fifteen listed businesses in agriculture and healthcare Measures of financial structure were short term debt to total equity, total debt to total assets ratios and total debt to total equity, and business performance proxy were returns on equity and assets, profits before tax and per share. The financial structure of agricultural enterprises had a considerable influence on only earnings per share among the outcome variables.

Financial structure has a considerable influence on profits per share and profit before taxes for healthcare companies, but not on return on equity or return on assets.

In another research conducted by Maina and Kondongo (2013) for Nairobi, Kenya which examined the effect of debt-equity ratio on output of enterprises listed on the Securities Exchange (NSE). The sample was produced by a statistic of all businesses published at the Nairobi Securities Exchange from 2002 to 2011, and a causal research approach was used. The association between the structure of capital (DE) and the other metrices of productivity was shown to be negative and significant in this research. The outcome in addition revealed that corporations on the list of NSE utilised transitory borrowing more often than longer-term commitments. The interaction impact of financial leverage and working capital management, as well as other financing choices such as dividend policy, were not considered in this research.

Bassey, Arene, and Okpukpara (2014) "used data from the financial statements of twenty-eight (28) agro-allied enterprises that were listed on the Nigeria Stock Exchange (NSE) from 2005 to 2010 to investigate the drivers of financial structure of agro-listed firms in Nigeria. Ordinary Least Squares was the primary technique for data analysis (OLS). Because strong tangible assets lower the degree of loan loss experienced by debt providers if the businesses fail, they employ more short-term borrowing". Short-term borrowing were used more often by agro-listed companies with high taxes. Firms that are very lucrative do not rely on short-term borrowing. Highly successful businesses employ less long-term loans, but huge businesses rely on long-term debt to fund their operations since they have a lot of physical assets to use as security.

In research conducted in Egypt by Ebaid (2009), in which the influence of financing structure decision on company performance was explored. ROE, ROA, and gross profit margin were used to assess the firm's performance. The "short-term debt-to-asset ratio, long-term debt-to-

asset ratio, and total debt-to-total-assets ratios were used to assess capital structure and the link between leverage and performance is estimated using multiple regression analysis". According to the findings, capital structure has little or no impact on a company's success.

The link between "capital structure and performance of enterprises listed on the Tehran Stock Exchange, Iran, was investigated by Saeedi and Mahmoodi (2011). Return on equity, return on assets, earnings per share, and Tobin's Q were used to assess performance, while short-term debt, long-term debt, and total debt ratios were used to assess capital structure. The panel data approach was used to analyze the data". According to the study's results, there is a positive association between market performance measurements and capital structure. Return on assets was shown to be favorably connected to capital structure, and there is a link between return on equity and capital structure.

Using regression analysis, Abor (2005) evaluated capital structure and its influence on profitability of businesses listed on the Ghana Stock Exchange. He used two measures to assess capital structure: short-term debt to total assets and total debt to total assets. Profitable businesses primary source of funding was debt. This conclusion contradicts Rajan and Zangales' (1998) findings, which revealed that highly profitable and performing companies had lower debt levels in their capital structure. These two studies show that the usage of alternative financing options, such as short-term debt and long-term debt, may cause a difference in performance in terms of return on equity.

With the use of an econometric model, Girma and Vencappa (2014) investigated the impact of funding sources on firm-level productivity development in Indian manufacturing enterprises. The percentage of bank and non-bank loans, state financing, and internal funds to the firm's total finance was used to build financing sources, while total factor productivity was utilized to quantify

productivity growth. In comparison to retained profits, bank and nonbank had a beneficial influence on business productivity development, according to the research. In the finance-growth connection, firm size was also shown to be a mediating element. In addition, it was shown that access to bank loans (non-bank funding) is disproportionately helpful to smaller (larger) businesses. However, the research did not look into the interaction of finance selection factors and their impact on company performance.

2.2.2 How innovation affects a company's performance.

Using the instrumental variable GMM technique and the Tobit model, Tran, Hien Thu, and Santarelli, Enrico (2013) explored what drives innovation and how it impacts firm performance in the Vietnamese economy. Innovative activities such as research and development are among the characteristics that stimulate business profitability and growth in firm sales, according to the findings of the study, and thus tends to boost the firm's tendency to survive. It was also revealed that private companies involved in creative activities outperformed their counterparts substantially. Exporting and diversified enterprises, as well as highly indebted firms, were shown to be more inventive than their peers in terms of propensity to innovate. Diversified enterprises, on the other hand, had better potential in terms of turning innovation into increased profitability and company expansion.

Vonortas and Xue (1997) found that factors such as "economic incentives, internal resources, and technical and organizational competencies that a firm has developed or accumulated over time, as well as a firm's linkage to external sources of expertise for learning about new technological development" were responsible for these firms' adoption of process innovation in a developed country setting.

In the context of new product creation, Danneels and Kleinschmidt (2001) suggested "it consists of bringing together two fundamental components: markets and technology." Accordingly, they opined, product innovation needs "competences in technology (allowing the business to manufacture the product) and consumer relations". This research shows that a firm's competency or consumer demands will not be enough to motivate it to innovate. When an organization that is technically competent is able to detect and thus react to client needs through inventions and/or product or process enhancement will innovation arise.

Adegbite (2012) found that factors such as product innovations, , total capital invested, years of experience and a large domestic market for the products were responsible for the strong and sustainability of local textile firms in southwest of Nigeria in a study using primary data collected from weavers in the region. "Payment of tax, sale of goods in regional market, fierce local competition, trade liberalization, and expense of R&D," according to the author, are all major limits to the region's textile industry's success.

Rajapathirana and Hui (2018) investigated the association between innovation capacity, innovation type, and company performance in Sri Lanka. A logistic regression model was utilized in this investigation. It has been observed that a company's capacity to innovate in the insurance sector has a significant beneficial influence on the product, marketing, and overall success of the company. Furthermore, innovation activities have a large and favorable influence on innovation performance. This implies that every effort directed at boosting a firm's innovation capacity leads to improved innovation performance.

There was a favorable association between the influence of innovation activities on business performance in two distinct surveys conducted by Neely and Hii (1998) and Love and Roper (2015). This conclusion may be particularly relevant given that creative businesses offer

products and services that are more likely to suit customers' likes and preferences, operate at reduced costs, and improve economic efficiency. In a separate review of the literature, Vivarelli (2012) found that in new micro-econometric research showed a favourable relationship between employment and technology, measured by Research and Development, as well as product innovation, particularly if the emphasis is on high technology industries. The research also revealed that there is substantial evidence supporting the skill-biased theory across various economic sectors and forms of innovation in OECD nations.

Bazine and Svensson (2013) studied the relationship between innovation represented by R&D and financial development, with a focus on the profitability and productivity of R&D expenditures, using manufacturing company level data from over 12,500 enterprises and developing nation specific features. They discovered a link between the likelihood of a company participating in R&D, its size, and its financial growth. The conclusion of using an R&D index revealed that small businesses were more productive than bigger businesses.

Harrison, Jarmin, and Miranda (2008) employed a dataset of similar enterprises from nations like France, Republic of Germany, Spain, as well as the United Kingdom in research on the influence of innovation on employment based on micro-econometric analysis. Product innovation, was shown to have a favourable relationship with employment, but process innovation had a negative impact. They observed, however, that innovation of the product had a higher favourable effect in creating employment than innovation of the process type does in supplanting employment, with the overall impact that innovation has on employment being favourable. While Hall and Maffioli (2008) used similar technique to Harrison et al (2008), they found that product innovation had a reduced but favourable influence on employment in Italy, but that process innovation had no such impact. Based on the little research available, it may be concluded that

innovation has a favorable impact on business employment. However, further research is needed to see whether this hypothesis holds true in the context of underdeveloped countries with little technical know-how.

In a review of empirical research on the connection between innovation and business productivity, Hall, Lotti, and Mairess (2014) discovered that "product innovation has a positive influence on firm productivity, while process innovation has an equivocal effect". They noted the disadvantage of process innovation as its inability to be quantified in surveys other than via the use of dichotomous variables that indicate if the company engaged in process innovation or did not. Generally, their findings propose that innovation has beneficial effect on company productivity.

Goedhuys, Mohen, and Taha (2008) investigated whether variables are responsible for company productivity increase in Tanzania. The authors found that there is no relationship between business productivity and factors such as "product and process innovation", technology, research and development, licensing, and staff education. The conclusion was drawn from the fact that businesses in Tanzania were attempting to transform knowledge inputs to real productivity gains. This might be due to a bad and unstable business climate, as well as other economic, social, and legal reasons that limit corporate output.

The research reveals that a variety of small and medium-sized businesses use technological innovation at varying scales, and that innovation adoption is likely to have a favorable influence on their performance, making it an essential factor of their success (Hoffman, Parejo, Bessant, & Perren, 1998). However, their capacity to deploy technology, resource availability, and the operational business climate all play a role in their performance (Burrone & Jaiya 2005). Manufacturing sector innovation, as stated by Becheikh, Landry, and Amara (2006), is a

complicated process driven by a variety of variables. As a result, they asked, "What pushes manufacturing SMEs to develop technologically?" They recognized some of the drivers of creativity as in-house technically trained and motivated entrepreneurs or managers with new ideas, technically proficient personnel, and market demand for the innovated goods.

According to King and Levine (1993), financial development of the economy has a favorable influence on productivity and growth of productive units as well as the economy as a whole by boosting the possibility of a firm's capacity to innovate. This might happen when well-developed financial markets mobilize cash to support efficient investment endeavors, resulting in a diverse risk profile for creative operations. In addition, a well-developed financial market provides simple and inexpensive funding to companies working on new ideas as needed (Bencivenga et al., 1995). Thus, whether at the micro or macro level of study, finance and financial sector development facilitate creative activities and contribute to business or economy-wide growth and development.

Adegboye and Iweriebor (2018) used data from the enterprise survey of the World Bank to evaluate influence of financial access on company innovation and productivity in Nigeria. Product, process, and organizational innovation were examined, in addition to expenditure on research and development (R&D), foreign licensed technology, and productivity was quantified using sales per worker. The logit regression model was used in this study. The research discovered that access to bank credit has a favorable influence on all forms of innovation, and that internal and external finance sources increased innovation funding). However, external sources of funding had a substantial impact on investments in the development of new products and the usage of technology that is foreign licensed, according to the research.

In their research on financing choices for Small and Medium Enterprises, Gbandi and Amissah (2014) looked at the financing of SMEs in Nigeria and the different financing alternatives accessible to them, including debt financing from commercial banks, microfinance institutions, and other sources. The research also looked at the function of equity finance, concluding that SMEs in Nigeria are critical to the country's economic progress.

2.3 Theoretical foundation

2.3.1 Function of Knowledge Production (KPF)

The Knowledge Production Function was first brought into economics by Griliches (1979). A KPF depicts the connection between knowledge inputs and knowledge outputs, similar to how conventional production functions define the input-output factors relationship. Griliches studied the link between technical knowledge, often known as innovation, and historical and current levels of research and development, as well as expenditures. As a result, the current level of innovation (output) and various innovation inputs have a relationship. Knowledge is important for production activity, and managers' knowledge improves their innovative capacity and allows them to introduce new activities. As a result, the larger a company's reservoir of knowledge is, the more likely it is to innovate (Farrace & Mazzotta, 2010). A firm's knowledge stock may be built up via information, relationships with other enterprises in its network or industry (technology spillovers), and worker education, training, and experience.

The determinants of innovation propensity are therefore linked to a variety of knowledge-creating elements, which might include entrepreneur or manager-specific, firm-specific, and industry-specific characteristics. Human capital is in charge of generating new knowledge inside the organization, and the more this is done, the greater the firm's propensity for innovation (Tavassolli, 2014). Czarnitzki, Kraft, and Thorwarth (2009) added company size as a predictor of

firm (production unit) innovation to Griliches' (1979) Knowledge Production Factor (using number of patents as a measure)

2.3.2 Schumpeter's "creative destruction" thesis

Joseph Schumpeter, a well-known economist of the twentieth century, proposed this hypothesis (Schumpeter, 1911). The theory is an endogenous growth model based on innovation that highlights the relevance of entrepreneurial development and innovative activities in boosting economic growth. "Economies and markets are in a constant state of change," according to the idea. The business founder and owner symbolize a force within the economy that accounts for change and progress in such a dynamic economy. The entrepreneur, according to Schumpeter, is "an agent of invention and a pivot of change" (Schumpeter, 1911, 1934). "In a dynamic world, creativity and entrepreneurship are critical for economic progress," he says (Schumpeter, 1942). The art of starting and owning a business is all about innovation, and entrepreneurs' job entails the creation of novel mixture of production components that result in discontinuous and dramatic change, which is the foundation of economic progress

"Creative destruction produces wealth by disrupting current businesses by the introduction of new goods or services, transferring resources from old market structures to new ones while facilitating the creation of new enterprises," according to Wikipedia (Schumpeter, 1942). Entrepreneurs may employ innovation to create a range of goods or services for their company, resulting in increased growth and productivity.

This examination of the crucial role of funding (resources) and invention in the performance of enterprises that might contribute to economic development is based on Schumpeter's theory of innovation and entrepreneurship. For economic development to occur, entrepreneurs who are ready to innovate must be accessible, which leads to the process of creative

destruction, which produces value for both the business and the economy as a whole. (1934, Schumpeter). The theory has been criticized because it assumes that firms do not have to be self-destructive or that new firms must emerge before growth and development can occur, but rather that growth and development can occur through a continuous effort to improve and apply knowledge and skill for better performance. The problem of self-destructive enterprises is also expected to have a detrimental impact on the economy. This negative impact may include structural unemployment, which arises when inefficient enterprises collapse and persons who become jobless do not have the skills required for work in other firms. Regardless, this hypothesis sheds light on the impact of funding and innovation on company success.

2.3.3 Theory of Pecking Order

The corporate finance theory is the most widely used theory for studying the finances of businesses, particularly SMEs. Myers and Majluf (1984) proposed a "pecking order" capital structure theory in which corporations employ internal money first, then debt, and finally equity if a project needed additional finance. As a result, companies that are very lucrative and produce enough cash flows will need less debt. According to Ohanga (2005), if a borrower is confronted with a cost of loan that is higher than the genuine risk-adjusted cost, the borrower will be motivated to seek out alternate sources of financing. When information asymmetry and moral hazard are present, bank lending theory indicates that enterprises would finance themselves first from retained profits and subsequently from bank loans rather than issuing shares. The pecking order theory/hypothesis is what it's called.

According to the notion, the debt-to-equity ratio should reflect the cumulative outcome of hierarchical financing choices made over time. Although SMEs do not issue stock, this idea holds true because if their retained profits are insufficient to finance them, debt is the next best choice.

Myers (1984) expands on this idea by claiming that enterprises would satisfy their investment and finance needs in a step-wise order, with internal funds coming first,followed by external loan coming second, and then external equity coming at the rear. In terms of providing funding for significant and sustainable growth among SMEs, the effect of all current loan programmes has been little. These credit programmes are linked to banks either straight or throght an intermediary. As a result of their nature and position in the economy, banks continue to be the most well-known formal source of credit for businesses. It's distressing to learn that, despite having partnerships with banks, the majority of Nigerian businesses have no access to credit, according to a 2007 World Bank study. When it comes to defining the number of components that influence financing expenses, the concept contains a lot of flaws. It provides no quantitative information on how information flow affects financing costs.

2.3.4 Theory of Irrelevance

Modigiliani and Miller proposed this hypothesis in 1958. According to the idea, company owners are indifferent with their capital structure because the debt-to-equity ratio has no effect on the firm's value. According to the irrelevance argument, a firm's financial strategy has no impact on its performance. This means that a change in a corporation's debt to equity ratio has no effect on its cost of capital or value, which is based on the assumption that these are the only two forms of financing accessible to the firm. This indicates that a company's financing choices have no impact on its cost of capital, value, or genuine operations (Yazdanfar & Ohman, 2015). This statement seems to imply that a company does not keep profits and pays out all whole earnings as dividends, as well as not paying corporation taxes. It also assumes ideal capital markets, the absence of agency costs, moral hazard, and information asymmetry.

As a result, one presumes that management works in the best interests of shareholders, when common stock serves as a source of funding in addition to debt (Modigiliani & Miller, 1958). However, this theory has been critiqued for making unreasonable assumptions, with the claim that changing the assumptions might provide data demonstrating that a firm's financial structure does important (Stiglitz, 1988).

2.3.5 Theory of Agency

Jensen and Meckling (1976) claimed that, according to the irrelevance hypothesis, a business may be managed by someone other than the owners, and that the managers may have a different interest than the owners, which may not always maximize the firm's value, as seen by a corporation's financing choices. In the face of this situation, the business is governed by a contractual agreement between the firm's owner(s), known as the principal(s), and the manager(s), known as the agent(s), giving birth to the principal-agent relationship.

This system comes with agency costs, which emerge because managers, particularly if they are both utility maximizers, may not always operate in the principal's best interests. When a manager's ownership stake in the company is minimal, he has less motivation to grow the company's value, which may lead to poor performance. Managers may also redirect company resources for personal benefit, which may be in odds with the owners' objectives. As a result, principals must invest monitoring fees to guarantee that agents do not stray from the primary business. At the same time, agents may bind themselves to the company, ensuring that they do not take any actions that would hurt principals or that they are adequately rewarded. Theoretically, when businesses are governed by their owners, they will act differently than when there is outside management, such as from stock holders or debtors. The presence of different interests between owner/managers and shareholders causes agency costs in such scenarios.

2.3.6 The notion of trade-offs

The trade-off theory, according to Myers (1984), differs from the irrelevance theory in that it introduces the concept of taxes, which make debt more appealing since interest payments are tax deductible, based on the premise that there are costs and advantages to borrowing to fund investments. According to the idea, a company would assess whether to employ debt or equity in its financial structure in order to find the best combination that optimizes the firm's value. High-performing companies are expected to take on more debt, up to the point when more borrowing raises the risk of financial catastrophe.

2.3.7 The theory of endogenous growth

This idea was initially proposed by Paul Romer in 1986, with additions from economists such as Robert Lucas. The long-run economic growth rate or performance is dictated by internal factors in the system, according to the endogenous growth hypothesis. This is assessed by the rate of increase in production per person, which is determined by the rate of increase in total factor productivity (TFP), which is driven by the pace of technical advancement.

The endogenous growth hypothesis proposed several relationships via which economic factors such as the innovation mechanism, which can take the form of new products, processes, and markets, might influence the rate of technical development, i.e., the long run rate of economic growth. The Paul Romer (1986, 1990) type endogenous growth model is a "innovation-based growth theory that recognized intellectual capital as a source of technological progress by distinguishing physical and human capital accumulated through schooling and saving from intellectual capital accumulated through innovation". He said that technical development (innovation) is the result of a company's deliberate and profit-maximizing actions.

The endogenous theory is a modification and extension of the neoclassical paradigm that has been applied to business level research, allowing for empirical study of technology advances while accounting for scale economics (Ndebbio & Essia, 1996; Ubi, Eke & Oduneka, 2011). The unconstrained formal neoclassical production function may therefore be proven using the Cobb-Douglas production function after different adjustments. The Cobb-Douglas Production function is expressed as follows:

$Y = AKb\ Lc\ Y = AKb\ Lc\ Y = AKb\ L$ (2.1)

where Y denotes output (i.e productivity and profitability)

A = Technology or efficiency parameter

K denote capital input (financing options; internal and external)

L reprsents labor input (firm size which is number of workers in the firm) Weights b and c are such that $b + c = 1, > 1$ or -1. (displaying constant, increasing or decreasing returns to scale respectively)

where:

Y denotes output.

A denotes the efficiency parameter.

K denotes capital.

L denotes labor.

Because of the adaption of technology and technological advancement in contemporary times, manufacturing processes are characterized by growing returns to scale, and strategies to support these phenomena are being considered. The following is a modified C-D framework:

$Yt = AKtb\ Ltc\ Yt = AKtb\ Ltc\ Yt = AKt$ (2.2)

where b + c is more than one (increasing returns to scale)

The addition of an exponential element (e) to equation (2) allows for the inclusion of additional direct and indirect components, yielding the following equation:

Ut = Aknt Lt1-netv+s Yt = Aknt Ltl-netv+s Yt = Aknt Ltl-netv (2.3)

Equation (2.3) may be stated in log-linear form as follows:

Log Yt = Log A + nlog Kt + (1-n) log Lt + vlog et + slog et + vlog et + slog et + vlog et + slog et + vlog et + slog et (2.4)

In equations (2.3) and (2.4), v is the rate of embedded technology, and s is the rate of production growth owing to the effect of variables that encourage technology--changing capacities (social overhead capital, such as electric power expenditure) (2.4). The incorrect word is U. The constant returns to factors of production and the returns attributable to technology are separated in equations (3) and (4). Despite its analytical validity, the Cobb-Douglas production function has a flaw in that it makes unrealistic assumptions, such as assuming a deterministic production function, which has been questioned.

2.3.8 The firm's theory

Profit is recognized as the traditional goal of the company in the neoclassical theory of the enterprise. The proponents of the frictional hypothesis of economic profitability believe that such as Prof.. G.J. Stigler, there occur occasional shocks or disequilibrium in the economy due to changes that is not anticipated in the product demand or cost conditions. These shocks bring about positive or negative profits for the firm. Profit can be derived as the surplus of total revenue over all costs paid by the firm and it is this unanticipated disequilibrium that either increase or decrease and thus the profit to either increase or decrease for a particular firm or industry.

TABLE I

Summary of literature review

S/N	AUTHOR/YEAR	TITLE	METHODOLOGY	FINDINGS AND CONCLUSION
1	Mathenge and Nikolaidou (2018)	The effect of firm financing choices on firm performance proxy by total factor productivity in Africa	Non-parametric cumulative distributive function and probability density function as well as a parametric static linear model.	The result showed that firms with a larger proportion of investment financed by bank funds were more productive than firms using other sources of finance. The difference in productivity of firms by sources of finance was more pronounced in small and medium scale firms than in large firms.
2	Regasa, Fielding and Roberts (2017)	The relationship between financing and the growth of firms in Ethiopia	Fractional logit model	The study's findings demonstrated a negative and substantial association between external financing and firm growth and firms with external financing grew more slowly than those utilizing internal funds.
3	Agarwal and Elston (2000)	Explored the impact of bank-influence on the financing choices and performance of the firm in Germany	Panel fixed effects regression	The study discovered that debt has a negative impact on profitability, but there was no evidence to support the claim that bank relationships had an impact on profitability or growth.
4	Kuntchev, Ramalho, Rodríguez-Meza and Yang (2012)	SMEs financing.	Descriptive method	The authors discovered a clear link between a company's size and its access to credit, with smaller companies being more likely to be credit 'restricted,' illustrating the challenges experienced by small business owners in obtaining loans from commercial sources. They also discovered that of the small businesses in Sub-Saharan Africa that received external financing, 6.3 percent received equity, 48.5 percent received formal external debt, 17.4 percent received semi-formal financing, and 27.8 percent received informal financing.
5	Allen, Chakrabarti, De, Qian and Qian (2012)	Financing of small and medium scale private firms in India	OLS	The survey found that alternative sources of financing i.e trade credits and internal financing were the most important avenues through which funds were sourced for SME funding in India.
6	Mwangi (2014)	The effect of financing decisions on performance of non-financial companies listed on the Nairobi stock exchange in Kenya	The stepwise feasible generalized least square regression method	The result of the study revealed that there was a negative relationship between financial leverage and performance indicators but while the relationship was significant for returns of assets, it was insignificant for returns on equity. Quoted firms are more often than not larger than unquoted firms and are less likely to experience the kind of financial constraints that small unquoted firms face.

Source: Compiled from literature review by Author, 2022

2.5 The Research Gap

At the company level, the impact of innovation and financing alternatives on business productivity has been studied using panel data sets that contain cross sectional as well as time series dimensions, with mixed findings (King and Levine, 1993; Adegboye and Iweriebor, 2018). Unlike this research, King and Levine (1993) employed time series data, while Adegboye and Iweriebor (2018) used firm level data and the focus was on the influence financing access and innovation on business productivity rather than investigating the effect of hybrid financing options on firm performance. This research employs a third financing option, a hybrid measure that combines the debt-equity ratio with the external-to-internal financing option ratio. This research in adding to the empirical literature, examined the impact of debt-equity ratios and innovation on business success based on the pecking order hypothesis and endogenous growth framework. Finance theory is expanded by exploring the influence of the ratio of various financing alternatives on business performance, in addition to addressing the question of the direct effect of these financing options. The research adds to finance theory by demonstrating the impact of innovation (both product and process innovation) on the link between financing alternatives and business performance in Nigeria.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research design

The study used a survey research approach to analyze the features, incidence, distribution, and interrelationships between the variables of interest in Cross River State's Micro, Small, and Medium Enterprises (MSMEs). A non-probability or purposive sampling technique was adopted in which firms included in the study were selected deliberately based on pre-determined criteria. The firms were identified as those with a legal status, had at least one employee and had been operational for a minimum of one year. The survey was conducted between December 2021 and January 2022. Data was collected by Research Assistants, coded and entered using excel spreadsheets. Thereafter, data analysis was undertaken using STATA 14. A multiple regression analysis predicated on the ordinary least squares (OLS) framework as well as logistic regressions where the econometric modelling techniques was used for data analysis.

The proposal for the research was approved by committees in Department of Economics and Faculty of Social Sciences, University of Calabar and firms provided consent to voluntarily participate in the study by filling the consent form. Participants were also told they could withdraw participation at any time of the interview, the confidentiality of information given and the benefits of the research to society.

3.2 Model specification

The equation for this study is anchored on endogenous growth theory, theory of the firm and the pecking order theory. The endogenous growth theory as adapted

provides the justification for investigating the factors that engender firm performance as well as the role of innovation in enhancing firm performance while the pecking order theory forms the basis for the inclusion of internal, external and debt-equity financing in influencing the performance of firms. In the adapted endogenous growth theory applied in this study, technological development is an endogenous factor which pertains to whether the firm adopts product or process innovation. The adoption of innovation is in turn a function of the financing option, be it from internal, external or debt-equity sources, The foregoing explanation gives impetus to the specification of the equations estimated. The study obtained equations for estimating the following:

i. impact of financing options on firm productivity and profit
ii. Effect of financing options on product and process innovation
iii. Effect of financing options and innovation on firm performance

3.2.1 Impact of financing options on firm performance

Consistent with studies like Regasa, Fielding and Roberts (2017), Mathenge and Nikolaidou (2018) and Onubedo and Yusuf (2018), the effect of financing options on firm performance is modelled using eight (4) modified equations. The data have cross sectional dimension only, thus ordinary least square estimation method was applied to estimate the effect of or the relationship between financing options on both productivity of the firm and profit. Investigating the impact of financing options and identifying the firm's specific factors on firm performance, equation 2.4 can be expressed explicitly to become: Effect of financing options on firm productivity

$$logPROD_i = f(FINT_i, FENT_i, FAGE_i, FSIZE_i, logACORRP_i, POUT_i, CAPU_i, log4SECU_i) \quad (3.1)$$

$$logPROD_i = f(DEQR_i, FAGE_i, FSIZE_i, logACORRP_i, POUT_i, CAPU_i, logASECU_i) \quad (3.2)$$

Effect of financing options on firm profitability

$$logPRFT_i = f(FINT_i, FENT_i, FAGE_i, FSIZE_i, logACORRP_i, POUT_i, CAPU_i, logASECU_i) \quad (3.3)$$

$$logPRFT_i = f(DEQR_i, FAGE_i, FSIZE_i, logACORRP_i, POUT_i, CAPU_i, logASECU_i) \quad (3.4)$$

Where:

$logPROD_i$	=	Log of productivity of ith firm
$logPFT_i$	=	Log of profitability of ith firm
$FINT_i$	=	Internal financing for ith firm
$FENT_i$	=	External financing for ith firm
$DEQR_i$	=	Debt to equity ratio of the ith firm
$FAGE_i$	=	Age of ith firm
$FSIZE_i$	=	Firm size firm which is the number of employees
$logACORRP_i$	=	log of amount spent on informal payments (Corruption index)
$POUT_i$	=	Power outage in firm
$CAPU_i$	=	Capacity utilization of the ith firm
$loASECU_i$	=	log of expenditure on security of the ith firm

Where: $PROD_i$ and $PRFT_i$ are the dependent variable denoting performance of i^{th} firm, i denotes the observation thus i = 1,.....134

3.2.2 The effect of financing options on product and process innovation

The growth and survival of MSMEs in developing countries is a critical factor that affect the ability of these firms to contribute to national development. Innovation is critical if MSMEs must fulfil this objective. This study thus examines whether financing options has implications for firms' probability to innovate.

Thus, following Segarra and Terruel (2009) and Adegboye and Iweriebor (2018), to capture the probability of a firm to innovate, a logistic regression is specified. The study assumes that probability to innovate depends on financing options (internal, external and debt-equity financing) in the baseline model and on other specific characteristics of the firms that promote innovation or enhances access to finance through these financing options. The model is thus specified as:

Pr (innov = 1) = f (FINT, FENT, DEQR, FAGE, FSIZE, POUT, CAPU) (3.5)

where:

Pr (innov = 1) = Probability of the firm to innovate

FINT, FENT, DEQR, FAGE, FSIZE, POUT and CAPU are as earlier defined

Three innovation types are applied based on the World Bank categorization to the study and data collected in the survey and these are; product innovation, process innovation and expenditure of Research and Development (R&D)

3.2.3 Effect of financing options and innovation on firm performance

To test the effect of product and process innovation on the relationship between financing options and firm productivity, we include the innovation variable in the model to examine if its inclusion had any significant effect on the financing options variables as regressed previously. Thus, two models are estimated with each having the product and process innovation variable and regressed on firm productivity as the dependent variable. The models include:

$$logPROD_i = f(FINT_i, FENT_i, DEQR_i, PDIN_i, FAGE_i, FSIZE_i, logACORRP_i, POUT_i, CAPU_i, logASECU_i) \quad (3.6)$$

$logPROD_i = f(FINT_i, FENT_i, DEQR_i, PRIN_i, FAGE_i, FSIZE_i, logACORRP_i, POUT_i, CAPU_i, logASECU_i)$ (3.7)

3.3 Description and measurement of variables

Financial and non-financial measures of firm success are recognized in corporate finance literature. It is noted that while each of these measures has its advantages as well as draw backs, the consensus (among researchers) is that a hybrid measure which is a combination of financial and measures which are not financial ie non-financial measures be accepted. We use two outcome measures which are firm productivity and profitability which mirrors a hybrid measure of firm performance and this enables the study to ascertain which responds more to a firm's financing option. Economic profit has been recognized as the preferred measure of firm performance given that firms seek profitability as a major objective, without the sustainability of the firm will be jeopardized. The choice of variables used in this study was influenced by theoretical underpinnings and previous empirical investigations on the effect of financing options on firm performance.

3.3.1 Dependent variables: productivity and profitability

This study applied two measures of firm performance were used including firm productivity (PROD) and profit (PRFT). The factors that established profit as a key firm performance indicator are numerous and have been outlined by various authors who have used it in their empirical investigation such as Regasa et al, 2017. Some of these factors include: the applicability of profit to almost all firms, the appeal of profit data to managers, investors and entrepreneurs (Davidsson, Achtenhagen & Naldi, 2010), as well as the relevance of profit to the existence and survival of the

firms (Barkham, Gudgin, & Hart, 1996). It has also been argued that a rise in profit leads to firm's employment and assets growth, with the potential to increase a firms' market share and hence ability to reward investors and explore other avenues for investment. (Flamholtz & Randle, 1990). Despite these attributes of profit as a measure of firm performance, some researchers argue that data on firm profit are not easily and readily available and is considered sensitive by some firms and so do not easily volunteer such information.

Also, in order to measure the productivity, sustainability and survival of firms over time, productivity is used as a measure of firm performance. Productivity measures the efficiency of the firm and the ease with which factor inputs are converted into output. It is measured using the ratio of firm sales to employment, derived as:

$$PROD_i = SALES_i / EMPLOYMENT_i \quad (3.8)$$

In the same vein, the firm's profit is derived as:

$$P = TR-C \quad (3.9)$$

where

P = Profit

TR = Total revenue which is the total quantity of product or service sold multiplied by price at which the product or service is sold

C = Cost which include cost of wages salaries, rent, interest and cost of raw materials

At the micro firm level, productivity is essential for the growth, sustainability and long- term survival of the firm. A higher productivity translates into higher

growth for the firm, which in turn gives the firm access to more resources (including financial resources), which makes for higher productivity (Moschella & Tamagni, 2019, Arulraj & Annanalai, 2020). The literature also recognizes thata firm that is more productive, is likely going to survive better in adverse conditions (Syverson, 2011, Eniola, 2014), make long term sustainable profit (Foreman-Peck, Makepeace & Morgan, 2006), pay back debt (Li, Liao & Zhao, 2018) and avoid failure and bankruptcy (Bryan, Fernando & Arindam, 2013).

3.3.2 Independent variables

Financing choices: Internal (FINT), External (FENT) and Debt-equity financing (DEQR)

Three measures of financing options namely: internal financing (FINT), external financing (FENT) and Debt-Equity financing (DEQR) are used in this study. In deciding on the financing choice variables, the study modifies the variables used by other researchers such as Regasa et al (2017) and Mathenge and Nikolaidou (2018) who used working capital or fixed capital (investment) only as measures of financing choices. The three measures of financing choices used in this study combines both working capital and fixed capital in each category thus:

i) Internal financing ($FINT_I$) is that proportion of the firm's working capital and fixed capital financed from internal sources. It is based on the response to the question which asked for an estimate of the proportion of the establishment's working capital and fixed capital that was financed frominternal funds/retained earnings and owners' contribution or issue of new equity

ii) External financing ($FENT_I$) is that proportion of the firm's working capital and fixed capital financed through external sources. It is based on the response to the question which asked for an estimate of the proportion of the establishment's working capital and fixed capital that was financed from borrowing from non-bank financial institutions, private commercial banks, state-owned banks and government agencies, family and friends, and internal sources e.g moneylenders

iii) Debt-to-Equity financing ($DEQR_I$) is that proportion of the firm's external financing to its internal financing sources. This financing option is used separately given that firms use a combination of internal and external financing in their investment and working capital decisions as enunciated by the pecking order theory

iv) Product and Process innovation: This was adopted as innovation variables in finding the impact of financing options and the firm performance. In line with Okumu et al (2019) who in investigating the interaction effect between innovation and firm specific variables on employment growth, this study is finding out if innovation actually has any effect on financing options and firm performance. The study used two types of innovation; product ($PDIN_I$) and process ($PRIN_I$) of firms in line with the numerous studies that have investigated the role of innovation in firm growth i.e Adegboye and Iweriebor (2018), Karabulut (2015) and King and Levine (1993).

v) Research and Development: this is the actual amount of money used in R&D whether in – house or contracted out to other companies.

3.3.3 Control variables

Other variables, backed by theory and empirical investigation, and have been found to affect firm performance have been included either as control variables or moderating variables. These variables include:

i) The size of firm (FSIZE) measured by total number of initial employees in a firm. In the moderating equation, the study used small firm (FSMALL) to find out if small firms are disadvantaged in financing opportunities which will adversely affect firm performance. It is believed that medium and large firms have greater opportunities to access quick credit at a lower interest rate as a result of their high bargaining power, which could impact positively on growth (Emmanuel and Anga, 2020; Okafor, 2017).

ii) The age of firm (FAGE) is the age of the firm i (in years), obtained by subtracting the reported year of establishment from the survey year. Existing research evidence in the literature suggest that young firms grow faster even though it may be more difficult for them to secure external funding Coad et al. (2014) and Haltiwanger et al. (2013). On the other hand, some researchers believe that older firms, which are more established and have survived several challenges, may be more productive than younger firms that are still bugged by development problems (Mathenge & Nikolaidou, 2018)

iii) Power outage ($POUT_I$) is the number of times in a typical month that the firm experienced power outage. Thus, firms that experienced frequent electricity outages are likely to experience a decline in both sales and employment growth than those who have regular electricity supply (Okafor, 2017)

iv) Security ($SECU_I$): this is the percentage of total amount spent on securing an enterprise premises. This is a cost to the firm which negatively impacts on the performance firm. Thus, all forms of insecurity including political instability, terrorism and theft will trigger expending more of sales revenue when compared to firms in relatively more secure environment. (Adewuyi & Emmanuel, 2019)

v) Corruption ($CORRP_I$) measured by informal gifts/payments expected or requested for an electricity, water connection and related government services. These informal gifts, especially for essential services such as electricity and water connection, reduces the funds available for investment in more productive ventures, with resulting negative effect of growth of the firm.

vi) Capacity Utilization: This measures the output actually produced relative to the maximum amount that could be produced by the firm. Table 2 shows the measurement andoperational definition of terms.

TABLE 2

Operationalization and measurement of variables

Type	Variable	Operationalization	Measurement	Hypothesized direction
Dependent Variable	Firm Performance	Productivity (PROD)	Total sales revenue divided the number of employees	
		Profitability (PRFT)	Total sales revenue minus total cost of production of the firm	
Independent Variables	Firm financing choices	Internal financing (FINT)	Personal funds + retained earnings	Positive
		External financing (FENT)	Loan + family funds + cooperative/Esusu + Grants + money lenders + Funds from Friends	Positive
		Debt-equity financing (DEQR)	The ratio of external financing to internal financing of the firm	Positive
	Firm innovation	Product innovation (PDIN)	Dummy with value 1 if the firm introduced any new or significantly improved product or service and 0 otherwise	Positive
		Process innovation (PRIN)	Dummy with value 1 if any new or significantly improved process was introduced by this establishment and 0 otherwise	Positive
		Expenditure on Research and Development (R&D)	Firm's actual expenditure on research and development	
	Firm Characteristics	Size of firm (FSIZE)	The number of employees in firm	Positive
		Age of firm (FAGE)	The firm age *is* constructed by subtracting the reported year of establishment from the 2022	Positive
		Sector of firm (MANU) = manufacturing	Dummy with value 1 if firm is in manufacturing sector and 0 otherwise	Positive/Negative
Control Variables		Corruption (logACORRP)	Log of the total amount spent by the firm for informal gifts/payments for an electricity, water connection and 0 other essential government services	Negative
		Power outage (POUT)	The number of times in a typical month that the firm experienced power outage	Negative
		Security (logASECU)	Log of the total amount spent on securing enterprise premises	Negative
		Capacity utilization (CAPU)	Percentage of actual production to maximum possible production	Positive

Source: Author compilation from survey, 2022

3.4 Data: an overview

The population for this study was drawn from MSMEs in Calabar, Cross River State in a survey conducted between December 2021 and January, 2022.The survey was conducted face-to-face using a questionnaire. Sources of firm finance, gender participation, annual sales, input/labor costs, workforce composition, bribery, licensing, infrastructure, trade, crime, capacity utilization, competition, land and permits, taxation, informality, business-government relations, innovation and technology, performance measures, and registration are among the topics covered in the survey. The questionnaire also analyzed the survey respondents' views on the barriers to company growth and success. The whole population of the study comprising MSMEs in sectors such as Trade (wholesale, retail, motor/motor cycle and phone repairs), manufacturing sectors including; construction, services, transport, storage and communication sectors; Services (food vendor, entertainment, water supply, accommodation); Agriculture, forestry, fishing and hunting; Education; human health and works; and mining, quarrying and construction. The overall number of MSMEs that were used in the study and their percentage contribution is outlines in Table 3

TABLE 3

Total number of firms by sector included in the study

Sector	Number of firms	% of total
Trade	41	30.6
Manufacturing	18	13.4
Services	40	29.9
Agriculture	20	14.9
Education	3	2.2
Health	12	9.0
Total	134	100.0

Source: Author's computation, 2022

3.5 Model estimation procedure

The study computed relevant ratios based on the field survey data collected in Calabar Municipality of Cross River State from firms as outline in Table 3.2. The primary data consist of cross-sections. The descriptive and inferential statistics of study are derived from the cross-sectional data obtained. Descriptive statistics used include the mean, median, and standard deviation. Inferential statistics used include correlation and regressions. STATA 14.0 software was used for the analysis of the cross-sectional data. The study summarized and profiled the status of internal financing, external financing and debt-equity financing and firm performance in Nigeria using descriptive statistics, correlational analysis, ordinary least squares and logit regression after conducting some pre-estimation tests. The models to be estimated are as follows:

3.5.1 Effect of financing options on firm performance

a. Effect of financing options on firm productivity

The effect of financing options on firm productivity was estimated for two measures of firm financing options (internal and external financing, and debt-equity financing) thus:

$$logPROD_i = \beta_o + \beta_1 FINT_i + \beta_2 FENT_i + \beta_3 FAGE_i + \beta_4 FSIZE_i + \beta_5 logACORRP_i + \beta_6 POUT_i + \beta_7 CAPU_i + \beta_8 logASECU_i + U_i \quad (3.10)$$

$$logPROD_i = \beta_o + \beta_1 DEQR_i + \beta_2 FAGE_i + \beta_3 FSIZE_i + \beta_4 logACORRP_i + \beta_5 POUT_i + \beta_6 CAPU_i + \beta_7 logASECU_i \quad (3.11)$$

b. Effect of financing options on firm profitability

The effect of financing options on firm profit was estimated for two measures of financing options namely internal and external financing, and debt-equity financing. The equations are stated as:

$$logPRFT_i = \beta_o + \beta_1 FINT_i + \beta_2 FENT_i + \beta_3 FAGE_i + \beta_4 FSIZE_i + \beta_5 logACORRP_i + \beta_6 POUT_i + \beta_7 CAPU_i + \beta_8 logASECU_i + U_i \quad (3.12)$$

$$logPRFT_i = \beta_o + \beta_1 DEQR_i + \beta_2 FAGE_i + \beta_3 FSIZE_i + \beta_4 logACORRP_i + \beta_5 POUT_i + \beta_6 CAPU_i + \beta_7 logASECU_i \quad (3.13)$$

Where:

$logPROD_i$	=	Log of productivity of ith firm
$logPRFT_i$	=	Log of profitability of ith firm
$FINT_i$	=	Internal financing for ith firm
$FENT_i$	=	External financing for ith firm
$DEQR_i$	=	Debt-equity ratio of the ith firm
$FAGE_i$	=	Age of ith firm
$FSIZE_i$	=	Size of firm measured by number of employees
$logACORRP_i$	=	log of amount spent on informal payments (Corruption index)
$POUT_i$	=	Power outage in firm
$CAPU_i$	=	Capacity utilization of the ith firm
$loASECU_i$	=	log of expenditure on security of the ith firm

Where: $PROD_i$ and $PRFT_i$ are the dependent variable denoting performance of i^{th} firm, *i* denotes the observation thus i = 1,.....134

3.5.2 Effect of financing options on product and process innovation

The effect of financing options on innovation was estimated for three measures of innovation namely: product innovation, process innovation and firms' expenditure on research and development using each of the financing choices. In the first set of regressions, a sector fixed effect is included while the sector fixed effect is excluded in the second set of regression estimates

$$\Pr(innov = 1) = \beta_o + \beta_1 FINT_i + \beta_1 FENT_i + \beta_2 DEQR_i + \beta_3 FAGE_i + \beta_4 FSIZE_i + \beta_5 POUT_i + \beta_6 CAPU_i \quad (3.14)$$

where:

Pr (innov = 1) = Probability of the firm to innovate and FINT, FENT, DEQR, FAGE, FSIZE, POUT and CAPU are as defined earlier.

3.5.3 The effect of financing options and innovation on firm productivity

To test for the effect of financing options (internal, external and debt-equity financing) and innovation on firm productivity, two models are estimated with each having the product and process innovation variable and regressed on firm productivity as the dependent variable. The models include:

$$logPROD_i = \beta_o + \beta_1 FINT_i + \beta_2 FENT_i + \beta_3 DEQR_i + \beta_4 PDIN_i + \beta_5 FAGE_i + \beta_6 FSIZE_i + \beta_7 logACORRP_i + \beta_8 POUT_i + \beta_9 CAPU_i + \beta_{10} logASECU_i + U_i \quad (3.15)$$

$$logPROD_i = \beta_o + \beta_1 FINT_i + \beta_2 FENT_i + \beta_3 DEQR_i + \beta_4 PRIN_i + \beta_5 FAGE_i + \beta_6 FSIZE_i + \beta_7 logACORRP_i + \beta_8 POUT_i + \beta_9 CAPU_i + \beta_{10} logASECU_i + U_i \quad (3.16)$$

3.6. Method

This study is based on the use of several pre-estimation and post estimation econometric tests and methods which include summary/descriptive statistics. Pairwise correlation matrix, Variance Inflation Factor, for multicollinearity, Breusch Pagan/Cook-Weisberg test for heteroskedasticity and Ramsey test for model specification. These tests are discussed as follows:

3.6.1 Descriptive statistics and Pearson pair wise correlation matrix

The descriptive statistics is used in this study to show the characteristics of the study variables. The summary statistics considered in this study include the maximum and minimum values, mean and standard deviation of the variables.

However, the pairwise correlation matrix shows the degree and direction of association between the study variables. This is used to check the correlation between the variables and to determine whether such correlation are perfect or not.IT is recommended that variables with coefficient above 50 percent be dropped as the have the tendency to cause multicollinearity among study variables.

3.6.2 Variance Inflation Factor (VIF)

This is used to measure the amount of multicollinearity in the variables of the studyThis is the ratio of overall model variance to the variance of a model with only that single independent variable. It is recommended that the VIF of greater than 10 indicate multicollinearity.

3.6.3 Breusch-Pagan/Cook-Weisberg test

The Breusch-Pagan test was used to check for heteroskedasticity in a linear regression model in this investigation. The error terms are assumed to be regularly distributed. The

Breush-Pagan test generates a chi-square distributed statistic. The p-value is the outcome of the chi-squared test, and the null hypothesis is generally rejected when the p-value is less than 0.05. The null hypothesis states that variance is constant.

3.6.4 The Ramsey Reset test

The Ramsey test for model which ie a general specification test for linear regression model was used to test if the model was correctly specified. It tests whether the core variables were excluded if the model has a suitable form and has no measurement error. The null hypothesis is that the model specification is correct and has no omitted variables. If the F-Statistics is significant then the null hypothesis is rejected and we accept that there are omitted variables. If the p-value is low. it shows that the model is mis specified.

3.7 Limitations of the study

This type of survey data, especially one in which sensitive questions are asked, is likely to suffer from both item and survey non-response. These data suffered from both to varying degrees. To deal with the issue of item-non response, a separate response of refusal to respond was included. This sought to differentiate item non response from the fact that the respondent may not know. In the case of survey non response, there were repeated contacts with the firm and if they still declined then a substitute firm with similar characteristics was selected and studied

The survey excluded firms involved in financial intermediation and all public or utilities sectors. Another disadvantage of the survey data is that financing decisions were reported as proportions of financing rather than financial ratios like debt to asset or return on equity, as is customary in the corporate finance literature. While most studies in the literature have used either fixed capital or working capital alone as a financing choice, in

this study, internal, external and debt-equity financing considered both working capital and fixed capital as used by the firm

CHAPTER FOUR

AN OVERVIEW OF THE MICRO, SMALL AND MEDIUM ENTERPRISES SUB-SECTOR IN NIGERIA

4.1 Nigeria's Micro, Small and Medium Enterprises sub-sector

The Micro, Small, and Medium Enterprises (MSMEs) sub-sector provides opportunities for job creation, revenue generating, and distribution, as well as the development of new and creative goods. MSMEs account for more than 90% of all firms worldwide and produce more than half of all jobs (World Bank, 2020). According to a 2017 survey done by the National Bureau of Statistics (NBS) in partnership with the Small and Medium Enterprises Development Agency (SMEDAN), MSMEs generate about 80% of employment in Nigeria, account for 96% of total businesses, and contribute about 50% of the country's GDP. Sole proprietorships make up 73 percent of MSMEs, while private limited liability corporations make up 14 percent. The remaining 13% is made up of partnerships (6%), faith-based organizations (5%), cooperatives (1%), and others (1% each). In Nigeria, just 23% of females own and manage official SME firms. In Nigeria, SME owners are generally between the ages of 20 and 60.

The national policy on MSMEs established criteria for categorizing MSMEs based on the number of workers, total assets, and, for the Bank of Industry, yearly turnover. Micro businesses are defined as those having fewer than nine workers, a total asset base of less than ten million naira (excluding land and buildings), and a revenue of less than twenty million naira. Small businesses were also defined as those having a total workforce of more than ten but less than fifty, as well as those with a total revenue of less than one million dollars.

TABLE 4

National Policy definition of MSMEs in Nigeria

Type of enterprise	Number of employees	Total assets (Million naira)	Annual turnover (Million naira)
Micro	<10	<10	≤ 20
Small	10-49	≥ 10 <100	≤ 100
Medium	50-199	≥100 < 1000	≤ 500

Sources: SMEDAN National Policy on MSMEs and Bank of Industry (BOI), 2015

Assets of more than ten million but less than one hundred million naira, with an annual turnover of 20 to 99 million naira. In a similar spirit, it defined medium businesses as those with 50 to 199 employees, total assets of more than 100 million naira but less than one billion naira, and an annual turnover of at least 500 million naira. (Refer to Table 4)

According to statistics, MSMEs in Nigeria account for a larger proportion of enterprises (99.8%) than in Germany (99.5%), South Africa (99%), the United Kingdom (99%), and the United States of America (99%). (99 per cent). In addition, MSMEs in Nigeria outperformed those in comparable nations in terms of job creation. MSMEs in Nigeria provided 84 percent to employment, compared to 63 percent in Germany, 54 percent in the United Kingdom, 48 percent in the United States, and 29 percent in South Africa. MSMEs in Nigeria contribute roughly 49% of GDP, which is lower than the contributions of MSMEs in other countries such as Germany (54%), South Africa (52%), and the United Kingdom (51%), but greater than the contribution of MSMEs to GDP in the United States (44%).

4.2 Age distribution of MSMEs in the research

The age structure, legal status, gender in management of the firms, financing options used by the firms, primary sources of loans used by firms, sources of firms' start-up capital, firm's sales revenue, payment channels used by firms, institutional barriers to firm's performance, and innovative activities of these firms were all examined in the study.

In terms of business age structure, micro companies (12.4 years) had a greater average age (12.4 years) than small/medium enterprises (0%). Manufacturing small/medium businesses have a greater average age (13.3 years) than micro businesses (5.5years). The average age of small businesses in the services sector was 16 years, whereas micro businesses have an average age of nine years.

TABLE 5

MSMEs contribution to Employment and GDP

Country	% of businesses	GDP (%)	Employment (%)
Germany	99.5	54	63
Nigeria	**99.8**	**49**	**84**
South Africa	99	52	29
United Kingdom	99.7	51	54
United States	99	44	48

Source: Price Water House Coopers (PwC), 2020

In the agriculture industry, small/medium enterprises have a greater average age (19.4 years) than micro firms (10.3 years). In the educational sector, the contrary is true, with micro enterprises having a greater average age (18.3 years) than small/medium firms (zero years). The average age of small/medium businesses in the health sector was 20.5 years, compared to 12.7 years for micro businesses. In the micro enterprises category, the educational sector has the greatest average age (18.3 years) and the manufacturing sector has the lowest (5.5 years). In small/medium businesses, the health sector is in the lead (20.5 years), while the commerce and educational sectors are both at the bottom (0 years). Table 6 also demonstrated that the average age of small/medium businesses was greater than that of micro businesses (17.3 years) across all sectors (11.4 years).

The research also looked at the age structure of the businesses in terms of their legal status. Table 7 shows that the average age of businesses by legal status: the average age of partnerships in the small firm category (18.5 years) is not only greater than that of micro firms (13 years), but also higher than every other average age. Small businesses have an average age of (13.9 years) for sole proprietorships, whereas micro businesses have an average age of (10.4years). The similar tendency can be seen in limited liability companies, with small businesses having a greater average age (15.4 years) than micro businesses (11.7years). Females make up 4.3 percent of MSMEs' senior management.

4.3 Females in top management of MSMEs

Table 8 shows the number of females in management and ownership of enterprises in Cross River State, Nigeria. Micro firms had more females in management and ownership than small/medium-sized firms

TABLE 6

Average age of firms by sector in Cross River State

Sector	Micro firm	Small/medium
Trade	12.4	-
Manufacturing	5.5	13.3
Services	9.0	16.0
Agriculture	10.3	19.4
Education	18.3	-
Human Health	12.7	20.5
Average age	**11.4**	**17.3**

Source: Author's computation using survey data, 2022

TABLE 7

Average age of firms by legal status in Cross River State

Legal status	Micro firm	Small firm
Sole proprietorship	10.4	13.9
Partnership	13.0	18.5
Limited Liability	11.7	15.4
Shareholding (Co-operative)	-	-
Average	**11.7**	**15.9**

Source: Author's computation using survey data, 2022

With 44.3 percent of micro businesses in the commerce sector, followed by 34.4 percent in the service sector, 9.8 percent in the agriculture sector, 4.9 percent in the manufacturing sector, and 3.3 percent each in the educational and health sectors.

Manufacturing and the health sector led the small/medium category with 33.3 percent apiece, followed by the agriculture and services sectors with 16.6 percent each, and the trade and educational sectors with none.

4.4 Legal status of MSMEs in Cross River State

The legal status of businesses in Cross River State is shown in Table 9, which shows the following: The most common business structure is a sole proprietorship (42.9%), followed by a partnership (13.8%), and finally a limited liability corporation (13.8%). (4.8 per cent). Partnership has the largest proportion (24.1%) in the manufacturing industry, followed by limited liability (23.8%), and finally sole proprietorship (23.8%). (7.1 per cent). Limited liability companies (42.9%), sole proprietorships (32.1%), and partnerships account for the biggest percentages in the service industry (13.8 per cent). Partnerships (31%) have the largest proportion in the agriculture industry, followed by sole proprietorship (10.7%) and limited liability (10.7%). (9.5 per cent). Limited liability (4.8%), partnership (3.4%), and sole proprietorship (3.4%) are the most common types of business in the educational sector (1.2 per cent). Finally, in the health-care industry, limited liability has the largest rate (14.3%), followed by partnership (13.8%), and sole proprietorship (13.8%). (6 per cent).

TABLE 8

Females in management and ownership of firms in Nigeria

Sector	Micro	Small/Medium
Trade	27(44.3%)	-
Manufacturing	3(4.9%)	2(33.3%)
Services	21(34.4%)	1(16.6%)
Agriculture	6(9.8%)	1(16.6%)
Education	2(3.3%)	-
Human Health	2(3.3%)	2(33.3%)

Source: Author's computation using survey data, 2022

TABLE 9

Legal status of firms in Cross River State, Nigeria.

Sector	Sole Proprietorship (% in bracket)	Partnership (% in bracket)	Limited Liability (% in bracket)	Shareholding (Co-operative)
Trade	36 (42.9)	4 (13.8)	1 (4.8)	-
Manufacturing	6 (7.1)	7 (24.1)	5 (23.8)	-
Services	27 (32.1)	4 (13.8)	9 (42.9)	-
Agriculture	9 (10.7)	9 (31)	2 (9.5)	-
Education	1 (1.2)	1 (3.4)	1 (4.8)	-
Human Health	5 (6)	4 (13.8)	3 (14.3)	-

Source: Author's computation using survey data, 2022

TABLE 10

Financing options used by firms by sector of firm

Sector	Personal saving (%)	Re-invested saving (%)	Loans (%)	Family Saving (%)	Co-operative/ Esusu (%)	Grants (%)	Others (%)
Trade	37.8	25.6	31	36.7	14.3	14.7	50
Manufacturing	8.2	10.3	15.5	10	21.4	23.5	16.7
Services	33.7	41	23.9	33.3	21.4	20.6	33.3
Agriculture	10.2	15.4	14.1	10	28.6	32.4	-
Education	3.1	5.1	1.4	-	7.1	-	-
Human Health	7.1	2.6	14.1	10	7.1	8.8	-
Mining	-	-	-	-	-	-	-

Source: Author's computation using survey data, 2022

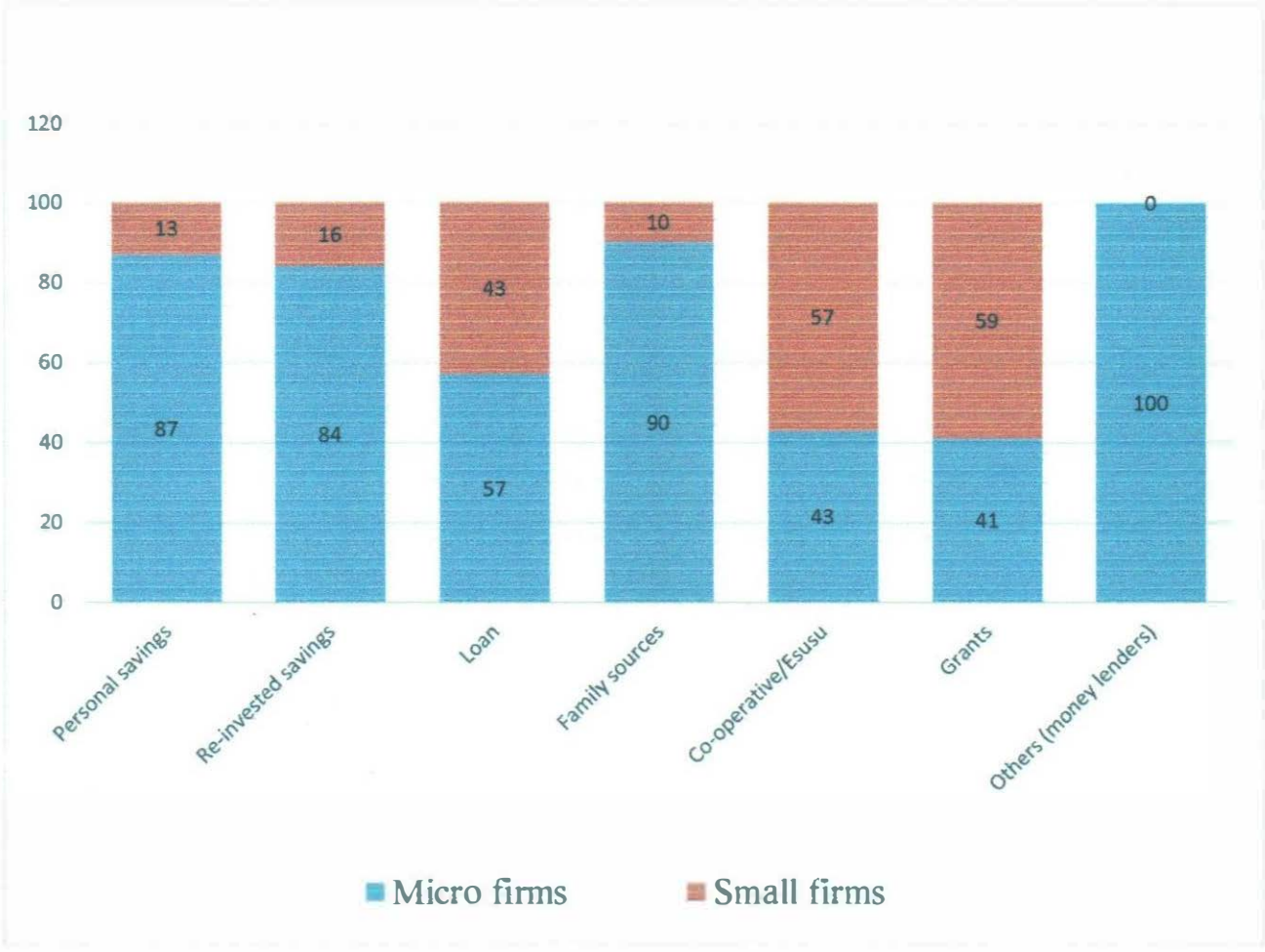

FIG 1: Comparison of financing options of micro and small firms in the study

Source: Computed by author using survey data, 2022

4.5 Firms in Cross River State's Financing Options

The funding alternatives employed by firms by industry are listed in Table 10. According to the data, personal savings accounted for 37.8% of trade financing, 8% of manufacturing financing, 33.7 percent of services financing, 10.2% of agriculture financing, 3% of education financing, and 7% of health financing, with the trade sector having the highest percentage of personal savings as a financial option and the educational sector having the lowest percentage. Trade (25.6%), Manufacturing (10.3%), Services (41%), Agriculture (15.4%), Education (5%), and Health were all included in the re-invested saving financing option (three per cent) The service sector had the largest proportion of re-invested savings (41%) and the health sector had the lowest percentage (2.6%) when using this financing method. In terms of loan options, the commerce sector led with (31%), implying that merchants received the bulk of the loans issued by different banking institutions, whilst the educational sector received the least amount of loans. The trade sector again had the upper hand in the family savings financing option, with 36.7 percent of the option going to this sector, while the manufacturing, agriculture, and health sectors each received 10%. The agriculture industry receives the biggest proportion of co-operative funding (28.6%), followed by the manufacturing and services sectors with 21.4 percent each, the commerce sector with 14.3 percent, and education and health care with 7.1 percent. The agricultural sector had the largest proportion of grants used as a funding option, at 32.4 percent. This was followed by the manufacturing sector (23%), services (20.6%), and commerce (14.7%), with the health sector having the lowest percentage (8.8 per cent). Finally, when it came to alternative financing choices (such as money lenders, friends, and so on), the trade sector led with 50%, followed by services (33.3%), and manufacturing (16.7%). In their productive operations, the agricultural, educational, and health sectors did not use this funding option. In Figure 1, a comparison of funding choices is

made between the study's small and medium-sized businesses. The findings suggest that micro businesses relied more on personal savings, re-invested savings, loans, and family members for funding, while small businesses relied more on co-operatives/Esusu and grants. The findings also revealed that more than three-quarters of micro businesses (87%) utilized personal savings as a source of funding, whereas just 18% of small businesses did so. 84 percent of micro businesses and 16 percent of small businesses used re-invested savings as a source of capital. Loans were used by nearly the same percentage of micro and small businesses, with 57 percent of micro businesses and 43 percent of small businesses opting for this method of financing. When it came to family financing, micro firms (90%) outnumbered small businesses (10%). Small businesses made up 57% of those that used co-operative/Esusu as a funding option, while micro businesses made up 43%. There was a similar pattern in the usage of grants, with more small businesses using it (59 per cent)

TABLE 11

Primary source of loan for firms in Cross River State, Nigeria

Sector	Commercial Bank (%)	Micro Finance Bank (%)	Development Bank (%)	Others (%)
Trade	18.8	32.7	-	60.7
Manufacturing	23	16.3	-	7.1
Services	20.8	20.4	20	14.3
Agriculture	20.8	18.4	80	10.7
Education	-	2	-	3.6
Human Health	16.7	10.2	-	3.6

Source: Author's computation using survey data, 2022

4.6 Primary sources of loans for MSMEs in Cross River State

Table 11 shows the key sources of financing for MSMEs studied in Cross River State. According to the findings, the manufacturing sector receives the bulk of commercial bank loans (23%), followed by loans to agricultural and service sectors (20.8%) apiece and commerce (18.8%), with the health sector receiving the least (16.7%). The commerce sector obtains the most loans from microfinance institutions (32.7 per cent). The services industry comes in second with 20.4%, followed by the agricultural sector (18.4%), manufacturing (16.3%), health (10.2%), and education (10.2%). (2 per cent). Development banks mostly lend to businesses in two sectors: agriculture (80%) and services (20%), according to the report (20 per cent). The commerce sector has the largest proportion of loans from other sources, such as money lenders (60.7%), while the health and educational sectors have the lowest rate (four per cent each). Other industries with a high number of companies employing this source include services (14.3%), agriculture (10.7%), and manufacturing (7%). Online banking is not used as a main source of credit in any of the industries.

Table 12 shows the sources of a firm's start-up funding by industry. The service industry (37.5%) utilized the most personal savings as start-up capital, followed by the commerce sector (35%) and the manufacturing and health sectors, which used 10% and 7.5 percent personal savings, respectively. Loans were used by more businesses in the commerce sector as a source of startup finance (40 per cent). Manufacturing and service companies came in second and third, with 20.8 and 15.1 percent, respectively. The health-care industry was the least likely to utilize a loan as a form of startup finance

TABLE 12

Sources of firm's start-up capital

Sector	Personal savings (%)	Loan (%)	Family saving (%)	Co-operative/ Esusu (%)	Grants (%)	Others (%)
Trade	35	40	29.2	22.2	10	-
Manufacturing	10	20.8	8.3	11.1	23.3	-
Services	37.5	15.1	54.2	11.1	30	50
Agriculture	6.3	17	4.2	44.4	26.7	50
Education	3.8	-	-	11.1	-	-
Human Health	7.5	13.2	4.2	-	10	-

Source: Author's computation using survey data, 2022

with a percentage of 13.22% The services sector (54.2%), agriculture (44.4%), and services (30%) are the most popular sectors for using family savings, co-operatives/Esusu, and grants as start-up capital, followed by trade (29.2%), trade (22.2%), and agriculture (22.2%). (26.7). Agriculture and health (4.2%), manufacturing, service and health (11.1%), and trade and health (4.2%) are the industries that utilize family savings, co-operative/Esusu, and grant as sources of start-up financing the least (10 per cent).

4.7 Estimated sales revenue of MSMEs in Cross River State

Table 13 shows an estimate of the firm's sales revenue. 51.9 percent of enterprises in the trade sector have an estimated sales income of between one and two million naira, followed by 38.3 percent of firms with an estimated sales revenue of less than one million naira. More companies (22.4) in the manufacturing sector reported sales estimates of more than three million dollars. Agriculture (30.6%) had the most enterprises with anticipated sales income of more than three million dollars, followed by manufacturing (30.6%). (22.4 per cent). Education, with 2% of enterprises in this area, has the lowest proportion of firms in this category. With 36.4 percent, the trade sector had the biggest share of enterprises with sales estimated between two and three million dollars, followed by firms in services with 27.3 percent.

4.8 Payment channels for enterprises in Cross River State's financial operations.

The service industry is the most likely to utilize the ATM as a conduit for financial transactions (34.8%), followed by the commerce sector (29.2%), and the agricultural sector (15.7%). The usage of ATMs for financial transactions was lowest in the education sector (1.1 per cent). The service industry continues to lead in the POS category with 32.8 percent, followed by the commerce sector (31.1 percent), agricultural sector (15.1%), and educational sector (15.1%). (0.8 per cent). The commercial sector (24.8%), the service sector (24.2%), and the educational

sector (24.2%) all have a significant presence in online banking (1.5 per cent). When compared to the other sectors, the service sector (28.6%) utilizes e-cheques for transactions more than the commerce, manufacturing, and agriculture sectors (21.4%) each

TABLE 14

Payment channels for financial transactions of firms

Sector	ATM	POS	Internet banking	E - cheque	E - Payment
Trade	29.2	31.1	24.8	21.4	25
Manufacturing	12.4	11.8	16.7	21.4	-
Services	34.8	32.8	24.2	28.6	-
Agriculture	15.7	15.1	18.2	21.4	50
Education	1.1	0.8	1.5	-	-
Human Health	6.7	8.4	13.6	7.15	25

Source: Author's computation using survey data, 2022

TABLE 15

Institutional obstacles to firm performance

Sector	Informal Payment (%)	Power outage (%)	Awareness of NIRSAL Loan (%)
Trade	34.0	31.1	32.4
Manufacturing	14.4	13.1	13
Services	29.9	25.2	27.8
Agriculture	12.4	15.8	16.7
Education	1	2.9	0.9
Human Health	8.2	11.8	9.3

Source: Author's computation using survey data, 2022

The agriculture industry has the greatest rate of electronic payment authorisation (50%) followed by the health and commerce sectors (both 25%). The educational sector had the fewest payment channels for financial transactions in all categories, according to this research, but enterprises in the services sector beat all other sectors on all indices of electronic payment channel usage for transactions.

4.9 Institutional barriers to company performance in Cross River State

Table 15 shows the institutional barriers to firm performance, revealing that the trade sector had the highest percentage (34%) of firms who made informal payments for any government services such as electricity, water, tax, sanitation, or health safety, followed by the service sector (29.9%), and the educational sector had the lowest percentage of firms who made informal payments for any government services such as electricity, water, tax, sanitation, or health safety (one per cent). In terms of power outages, enterprises in the commerce sector had the most (31.1%), followed by firms in the service sector (25.2%) and the agricultural sector (15.8%), while the educational sector had the lowest (3%). Firms in the commerce sector were the most knowledgeable about the NIRSAL loan, with 32.4 percent, followed by the service sector (27.8%), and the educational sector (one percent).

4.10 E-mail/website innovation and business ownership

Table 16 shows the proportion of companies that use innovation and have an e-mail address or a website. The commerce sector has the largest proportion of companies employing both product and process innovation (32.4%), according to the data.

TABLE 16

Firm innovation and ownership of e-mail/website

Sector	product innovation (%)	process innovation (%)	ownership of e-mail and website (%)
Trade	32.4	32.4	30.4
Manufacturing	14.3	12.6	13
Services	25.7	28	31.5
Agriculture	17.1	16.2	10.9
Education	1.9	0.9	2.2
Human Health	8.6	10	12

Source: Author's computation using survey data, 2022

each. Firms in the service sector come in second and third, with 25.7 and 28% for product and process innovation, respectively. The health and educational sectors scored last in both forms of innovation, with 8.6 and 10% and 1.9 and 0.9 percent, respectively.

The service sector scored better in terms of e-mail/website ownership (31.5%), followed by the commerce and manufacturing sectors with 30.4 and 13%, respectively. The health and education sectors, once again, had the worst performances, with 12 and two per cent, respectively (See Table 16)

CHAPTER FIVE

DATA PRESENTATION, ANALYSIS, AND RESULT DISCUSSION

5.1 Descriptive data presentation and analysis

5.1.1 Analysis of descriptive measures

Table 17 shows descriptive statistics for both the dependent and independent variables used in the research. The average log of the firm's productivity was 4.9 units, and the average log of profitability was similarly 4.9 units. The standard deviations for these variables were 0.4 and 1.4, respectively, suggesting little variability. Internal funding was utilized by 63 percent of businesses, while external financing was used by 29 percent. The businesses' debt-to-equity ratio is 47 percent. The debt-to-equity ratio, which ranges from 0 to 4, accounted for 89 percent of the variation in (the use of) financing options. In the course of the year, more than half of the companies created new products or services or considerably upgraded existing operations. Firms had an average of 16 people, with a range of four, with the smallest employing one person and the biggest employing 20.

The businesses were on average 12 years old, with the youngest being two years old and the oldest being 41 years old. Firms reported 13 power outages on average in a normal month, which is about two per day, with the potential of 33 power outages in a month. In terms of security, the enterprises spent an average of 4% of their yearly sales income on safeguarding their company premises, while roughly 3% of the firms reported giving money for informal payments to be connected to electric power, sanitation, and other services. The majority of businesses used up to 77 percent of their resources, and nearly half of the businesses are controlled by women.

5.1.2 Correlation analysis

Before the variables were employed in the regression analysis, a pre-estimation test utilizing the correlation coefficients was performed. This was done to look at the statistical relationship between the variables and to prevent having a strong correlation between them. Variables with coefficients more than 5 per cent should be drooped since they have a potential to generate multicollinearity among the research variables. The coefficient of correlation between dependent variables, such as firm productivity and profitability, may also be used to see whether they represent separate indices of changes in company performance. The estimated correlation coefficients, as shown in Table 18, demonstrate that the correlation between the dependent variables is neither perfect nor zero It merely demonstrates that PROD (productivity) and PRFT (profitability) are linked but separate factors that influence company growth and performance. FENT, DEQR, PRIN, and FENT, DEQR, PRIN, and FENT, DEQR, PRIN, and FENT, DEQR, PRIN, and FENT, DEQ

TABLE 17

Descriptive statistics of study variables

Variable	No. Observations	Mean	Std deviation	Minimum	Maximum
Log PROD	134	4.97	0.41	4.24	6.39
LogPRFT	134	4.95	1.40	0	-6.88
FINT	134	0.48	0.39	0	1.5
FENT	134	0.29	0.35	0	1
DEQR	134	0.46	0.89	0	4
PRIN	134	0.78	0.41	0	1
PDIN	134	0.82	0.37	0	1
FAGE	134	12.32	7.29	2	41
FSIZE	134	6.38	4.22	1	20
CORRP	129	0.75	0.43	0	1
LogACCORP	134	2.88	1.96	0	5.54
LogASECU	134	3.51	1.30	0	-4.77
POUT	134	12.66	7.64	0	33
CAPU	134	0.76	0.17	0	1
SEXFE	134	0.50	0.50	0	1
SECTOR	134	0.30	0.46	0	1

Source: Author's computation using survey data, 2022.

TABLE 18

Pairwise correlation matrix

	PROD	PRFT	FINT	FENT	DEQR	PRIN	PDIN	FAGE	FSIZE	CORRP	ACORRP	ASECU	POUT	CAPU	SEXFE	SECTOR
PROD	1.00															
PRFT	0.36	1.00														
FINT	-0.12	-0.34	1.00													
FENT	0.02	0.01	-0.43	1.00												
DEQR	0.02	-0.03	-0.13	0.47	1.00											
PRIN	0.20	0.21	0.05	0.02	0.01	1.00										
PDIN	0.14	0.17	-0.01	0.07	-0.05	0.52	1.00									
FAGE	0.14	0.27	-0.14	-0.02	-0.17	0.09	0.17	1.00								
FSIZE	0.01	0.39	-0.36	0.12	-0.07	0.15	0.19	0.39	1.00							
CORRP	0.12	0.17	0.20	-0.13	-0.33	0.32	0.26	0.19	0.15	1.00						
ACORRP	0.12	0.27	-0.29	0.01	-0.15	0.15	0.15	0.15	0.44	0.25	1.00					
ASECU	0.56	0.61	-0.32	0.25	0.24	0.21	0.23	0.20	0.30	-0.01	0.14	1.00				
POUT	-0.11	-0.08	0.01	0.37	0.27	0.01	0.10	-0.01	0.11	-0.15	-0.05	0.25	1,00			
CAPU	0.13	0.15	0.14	-0.05	-0.18	0.32	0.20	0.18	0.01	0.44	0.17	-0.09	-0.07	1.00		
SEXFE	-0.14	-0.22	0.22	-0.07	-0.06	-0.12	-0.17	-0.26	-0.43	0.02	-0.23	-0.34	0.02	0.06	1.00	
SECTOR	0.07	-0.09	0.21	0.08	0.15	0.07	0.08	0.01	-0.34	0.11	-0.17	-0.07	0.01	0.12	0.20	1.00

Source: Author's computation using survey data, 2022

FINT and POUT have a negative correlation with PROD, but PDIN, FAGE, SIZE, CORRP, and SECU have a positive association with PROD. PRIN, PDID, FAGE, FSIZE, CORRP, and SECU have positive associations with PRFT, while FINT, FENT, and POUT have negative associations with PRFT. Both PROD and PRFT have the poorest connection with FENT. SECU, which has a positive link with both dependent variables, has the strongest relationship with both PROD and PRFT.

5.2 Econometric Data Presentation and Analysis

5.2.1 Diagnostic procedures

A series of diagnostic tests were conducted in this work to guarantee that the characteristics of traditional linear regression (OLS) estimation were not violated and that a decent model was estimated. They were carried out using the appropriate pre- and post-estimation tests. The pairwise correlation test and the multicollinearity test utilizing the Variance Inflation Factor (VIF) were used as pre-estimation tests, while the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity and the Ramsey Reset test for model specification were used as post-estimation testing.

5.2.1.1 Multicollinearity test result

The Variance Inflation Factors were used to test for multicollinearity (VIF). Table 19 shows that the mean VIF is 1.43, which is less than 10, indicating that the research data do not display the issue of multicollinearity, as indicated by Field (2009). As a result, all variables based on VIF indicators do not display multicollinearity and may be utilized for regression analysis with ease.

5.2.1.2 Heteroskedasticity test result

The null hypothesis of constant homoscedasticity of variances was used to perform the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity.

TABLE 19

Test for multicollinearity

Variable	VIF	1/VIF
FINT	1.70	0.58
FENT	1.57	0.63
LogACCORP	1.51	0.66
FSIZE	1,47	0.68
POUT	1.36	0.73
CAPU	1.31	0.76
FAGE	1.30	0.76
logASECU	1.18	0.84
Mean VIF	**1.43**	

Source: Author's computation, 2022

Corruption, capacity utilization, and security were among the other characteristics that had a positive and substantial impact on company production as a result of the study. The findings found that there is a substantial association between the number of informal payments made by enterprises for power and water connections and the firm's productivity, with each additional naira increasing the firm's output by around 0.07 points. Additionally, when more naira is spent on safeguarding the firm's facilities, productivity rises by 0.07 points. In contrast, power outages had a negative impact on company productivity, with each extra power outage resulting in a 0.01 loss in firm productivity during the research period.

b. The impact of different financing choices on the profitability of a company

Table 22 illustrates the influence of internal and external funding alternatives on business profitability. The findings revealed that four of the four factors of interest had a beneficial impact on the profitability of the company. External funding, business age, firm size, and capacity utilization were among the factors. Internal funding, corruption, power outages, and security, on the other hand, had a negative impact on profitability. Although these correlations are not statistically significant, the results show that external financing benefits business profitability while internal financing decreases firm profitability. Company profitability was positively influenced by firm size and capacity utilization. An increase in the size of the business by one employee resulted in a 0.05-naira profit gain for the enterprises investigated, while a one percent improvement in capacity utilization resulted in a 0.713-naira profit increase for the firms studied.

DEQR, FSIZE, and CAPU demonstrated positive and significant relationships with profitability, according to the regression results of the influence of debt-equity ratio on profitability. Other factors including corruption and company age had a positive but negligible influence on firm profitability, while power outages and security had a negative but small impact. According to these findings, increasing the debt-equity financing option by one percent causes a profit increase of 0.21 naira, increasing the number of employees by one causes a profit increase of 0.71 naira, and

increasing the firm's capacity utilization by one percent causes a profit increase of 0.69 naira. (Refer to Table 23.)

TABLE 20

Effect of internal and external financing on firm productivity

Variable	Co-efficient	Robust standard error	t-statistics	p-value
FINT	-0.25	0.10	-2.33	0.021
FENT	0.04	0.12	0.35	0.724
FAGE	0.01	0.00	0.02	0.986
FSIZE	-0.01	0.01	-1.08	0.280
LogACCORP	0.07	0.01	3.71	0.000
POUT	-0.00	0.00	-0.79	0.433
CAPU	0.33	0.19	1.72	0,.088
logASECU	0.06	0.02	2.62	0.010
constant	4.51	0.18	24.86	0.000

Dependent variable: logPROD

Number of obs = 134 F(8, 125) = 6.99 Prob > F = 0.0000 R-squared = 0.2845

Source: Author's computation, 2022

TABLE 21

Effect of debt-equity financing on firm productivity

Variable	Co-efficient	Robust standard error	t-statistics	p-value
DEQR	0.12	0.04	2.93	0.004
FAGE	0.02	0.00	0.45	0.654
FSIZE	-0.01	0.00	-0.09	0.931
LogACCORP	0.07	0.01	4.91	0.000
POUT	-0.01	0.00	-2.15	0.033
CAPU	0.32	0.17	1.84	0.069
logASECU	0.07	0.02	2.83	0.005
constant	4.26	0.14	28.87	0.000

Dependent variable: logPROD

Number of obs = 134 F(8, 125) = 9.70 Prob > F = 0.0000 R-squared = 0.2876

Source: Author's computation, 2022

TABLE 22

Effect of internal and external financing on firm profitability

Variable	Co-efficient	Robust standard error	t-statistics	p-value
FINT	-0.335	0.425	-0.79	0.433
FENT	0.276	0.449	0.61	0.540
FAGE	0.001	0.015	0.07	0.944
FSIZE	0.055	0.020	2.68	0.008
LogACCORP	-0.006	0.056	-0.11	0.910
POUT	-0.001	0.014	-0.11	0.915
CAPU	0.713	0.325	2.19	0,.030
logASECU	-0.022	0.050	-0.43	0.666
constant	4.231	0.387	10.93	0.000

Dependent variable: logPRFT

Number of obs = 134 F(8, 125) = 1.77 Prob > F = 0.0890 R-squared = 0.064

Source: Author's computation, 2022

TABLE 23

Effect of debt-equity financing on firm profitability

Variable	Co-efficient	Robust standard error	t-statistics	p-value
DEQR	0.211	0.079	2.65	0.009
FAGE	0.034	0.013	0.24	0.807
FSIZE	0.710	0.025	2.74	0.007
LogACCORP	0.003	0.046	0.08	0.939
POUT	-0.04	0.013	-0.35	0.728
CAPU	0.697	0.308	2.26	0.025
logASECU	-0.010	0.049	-0.20	0.838
constant	3.903	0.366	10.64	0.000

Dependent variable: logPRFT

Number of obs = 134 F(8, 125) = 2.75 Prob > F = 0.0109 R-squared = 0.063

Source: Author's computation, 2022

5.3.2 The impact of different types of finance on innovation

Table 24 shows the baseline outcome for the innovation model. It depicts the impact of the three financing choices variables and the three innovation outcomes utilized in the research without taking into account any firm-specific features that may influence innovation. However, the model's robustness is tested by including industry-specific fixed effects. The findings (with industry fixed effects) are given on the left-hand side of the table and are the ones that have been interpreted.

An examination of the results reveals that the output of the model with industry fixed effects and the model without industry fixed effects are almost identical. Internal finance increased the likelihood of MSMEs undertaking product and process innovation, but it had a negative and substantial influence on R&D investment. This demonstrates that the impact of internal finance varies depending on the level of innovation. External finance had a negative impact on the likelihood of a business pursuing product innovation, but a positive impact on the likelihood of pursuing process innovation and R&D spending.

Debt-equity financing had an unambiguous negative impact on MSMEs' likelihood to innovate, particularly when it came to R&D spending. This indicates that a firm's choice to accept funding from external sources rather than internal ones considerably limits its potential to innovate and reduces its research and development spending. As a result, a company's capacity to acquire funding from a creditor or other relevant source will be contingent on the company engaging in less creative activities, which entails taking less risks.

The impact of financing choices on product innovation is shown in Table 25 with the addition of firm-level factors that influence product innovation.

TABLE 24

Results of financing options and innovation baseline

Variables	PDIN	PRIN	EXPRD	PDIN	PRIN	EXPRD
FINT	1.20	0.38	-1.58**	1.33	0.49	1.37**
FENT	-0,02	0.30	0.68	0.15	0.36	0.83
DEQR	-0.42	-0.02	-0.55**	-0.39	-0.002	-0.51**
Constant	1.31**	0.93**	1.30**	1.34	0.94**	1.33***
Sector fixed effect	Yes	Yes	Yes	No	No	No
Wald test	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036

*, ** and *** denotes significance at 10%, 5% and 1% level, respectively.

Source: Author's computation, 2022

presented. Internal finance has a beneficial influence on product innovation, but external financing and debt-equity financing have a negative effect on product innovation; nevertheless, these associations are negligible. The results for the control variables revealed that capacity utilization, firm age, firm size, and power outage all had a beneficial influence on a company's likelihood of pursuing product innovation. Only capacity utilization, with a very high co-efficient, has a substantial influence. According to the findings, companies with extremely high-capacity utilization or that run at full capacity are three times more likely to innovate than companies with low-capacity utilization. Power outages, contrary to expectations, had a positive but small impact, indicating that businesses with more power outages engage in more product innovation than firms with fewer outages.

Table 26 shows the results for process innovation, which show that the co-efficient of the financing alternatives factors differed somewhat from those found in the product innovation equation. While debt-equity financing is detrimental to product innovation, it is beneficial to process innovation. Furthermore, although firm age and power outages had a favorable impact on product innovation, they had a detrimental impact on process innovation. Large businesses are 19% more likely than small organizations to perform process innovation, indicating that company size has a considerable beneficial influence on process innovation. The impact of capacity utilization on process innovation grew as well, with high-capacity-utilization enterprises being 5.5 times more likely than low-capacity-utilization firms to perform process innovation.

The result for research and development (R&D) spending, as shown in Table 27, differed significantly from the result for product and process development.

TABLE 25

Results for product innovation

Variable	1	2	3	1	2	3
FINT	0.09			0.12		
FENT		-0.11			0.17	
DEQR			-0.25			-0.12
FAGE	0.01	0.01	0.008	0.03	0.03	0.02
FSIZE	0.17	0.16	0.17	0.14	0.13	0.14
POUT	0.02	0.02	0.03	0.02	0.02	0.03
SEXFE	-0.84	-0.84	-0.94	-0.79	-0.77	-0.82
CAPU	3.26**	3.29**	3.15**	3.42**	3.42**	3.41**
Sector f.e	Yes	Yes	Yes	No	No	No
Wald test	0.0024	0.0024	0.0024	0.0024	0.0024	0.0024
N	133	133	133	133	133	133
Constant	-2.06	-2.02	-1.78	-2.05	-2.03	-1.87

*, ** and *** denotes significance at 10%, 5% and 1% level, respectively.

Source: Author's computation, 2022

innovation. Internal funding had a considerable negative influence on the likelihood of the business adopting innovation, according to this finding. It was shown that companies that use internal funding are 1.6 times less likely to invest in R&D than those that use alternative finance. Other corporate factors that had a substantial impact on R&D spending were business size, power outage, and capacity utilization. Large businesses are 29% more likely than small firms to spend on research and development, whereas organizations that suffer power outages are 5% less likely than firms that do not experience power outages to spend on research and development. Firms with a greater capacity utilization rate are 6.4 times more likely to spend on research and development than those with a lower capacity utilization rate.

TABLE 26

Results for process innovation

Variable	1	2	3	1	2	3
FINT	0.50			0.54		
FENT		-0.11			0.11	
DEQR			0.15			0.22
FAGE	-0.03	-0.03	-0.03	-0.02	-0.02	-0.01
FSIZE	0.19**	0.17*	0/17*	0.16*	0.14*	0.14*
POUT	-0.02	-0.01	-0.02	-0.01	-0.01	-0.02
SEXFE	-0.63	-0.60	-0.55	-0.57	-0.54	-0.49
CAPU	5.19**	5.47**	5.57**	5.25***	5.57***	5.71***
Sector f.e	Yes	Yes	Yes	No	No	No
Wald test	0.0021	0.0021	0.0021	0.0021	0.0021	0.0021
N	133	133	133	133	133	133
Constant	-3.15**	-3.07**	-3.20**	-3.04**	-2.97**	-3.18**

*, ** and *** denotes significance at 10%, 5% and 1% level, respectively.

Source: Author's computation, 2022

TABLE 27

Results for expenditure on research and development (R&D)

Variable	1	2	3	1	2	3
FINT	-1.62**			-1.61***		
FENT		0.90			1.12	
DEQR			-0.10			-0.001
FAGE	0.02	0.02	0.02	0.03	0.03	0.03
FSIZE	0.27**	0.28**	0.29**	0.23**	0.25***	0.26**
POUT	-0.04	-0.05*	-0.03	-0.04	-0.06*	-0.03
SEXFE	-0.51	-0.52	-0.62	-0.47	-0.48	-0.53
CAPU	6.40***	5.02**	4.88***	6.60***	5.18***	5.02***
Sector f.e	Yes	Yes	Yes	No	No	No
Wald test	0.002	0.002	0.002	0.002	0.002	0.002
N	133	133	133	133	133	133
Constant	-4.66**	-4.57***	-4.41***	-4.48***	-4.47***	-4.30***

*, ** and *** denotes significance at 10%, 5% and 1% level, respectively.

Source: Author's computation, 2022

5.3.2 Financing options and innovation's impact on firm performance

a. Financing options and innovation's impact on firm productivity

Table 28 shows the impact of financing alternatives and product innovation on company performance, revealing that product innovation, in combination with internal financing and debt-equity financing, has a considerable impact on business productivity. Internal finance has a detrimental impact on productivity, but product innovation and debt-equity financing have beneficial impacts. Corruption, security, and capacity utilization were also major factors in the model. External funding, business age, firm size, and power loss all had little effects. While company age had a favorable influence on firm productivity, other unimportant factors had a negative impact. The findings also demonstrated that product innovation had a favorable impact on business productivity, with the adoption of product innovation activities increasing firm output by 14%. Internal finance, debt-equity financing, process innovation, corruption, and security were shown to be highly connected to productivity in the process innovation model, the results of which are reported in Table 29. Only internal finance had a negative influence among the significant factors, but external financing, business size, and power outage have all been determined to be adversely associated to firm productivity. Among the unimportant factors, firm age and capacity utilization had a favorable influence on productivity. Process innovation has a favorable influence on business productivity, and process innovation adoption enhances firm productivity by roughly 21%, according to the findings. Given the importance of internal financing, debt-equity financing, and process innovation in this model, it can be concluded that process innovation may improve company productivity in organizations that employ internal financing or debt-equity financing

TABLE 28

Effect of financing options and product innovation on firm productivity

Variable	Coefficient	Robust standard error	t-statistics	p-value
FINT	-0.29	0.10	2.73	0.00
FENT	-0.10	0.12	0.83	0.40
DEQR	0.12	0.04	2.70	0.00
PDIN	0.14	0.05	2.50	0.01
FAGE	0.00	0.00	0.29	0.77
FSIZE	-0.01	0.01	1.10	0.27
LogACCORP	0.07	0.01	4.47	0.00
LogASECU	0.04	0.02	2.00	0.04
POUT	-0.00	0.00	1.21	0.22
CAPU	0.32	0.17	1.89	0.06
constant	4.45	0.16	27.56	0.00

Source: Author's computation, 2022

TABLE 29

Effect of financing options and process innovation on firm productivity

Variable	Coefficient	Robust standard error	t-statistics	p-value
FINT	-0.30	0.10	2.87	0.00
FENT	-0.09	0.12	0.72	0.47
DEQR	0.10	0.04	2.52	0.01
PRIN	0.21	0.05	3.85	0.00
FAGE	0.00	0.00	0.55	0.58
FSIZE	-0.01	0.00	1.28	0.20
LogACCORP	0.06	0.01	3.95	0.00
LogASECU	0.04	0.02	1.95	0.05
POUT	-0.00	0.00	1.09	0.27
CAPU	0.25	0.16	1.56	0.12
constant	4.48	0.15	29.18	0.00

Source: Author's computation, 2022

TABLE 30

Effect of financing options and Expenditure on research and development (R&D) on firm productivity

Variable	Coefficient	Robust standard error	t-statistics	p-value
FINT	-0.05	0.09	0.56	0.57
FENT	0.13	0.12	1.11	0.26
DEQR	0.08	0.04	1.88	0.06
EXPRD	0.01	0.01	6.45	0.00
FAGE	0.00	0.00	0.35	0.72
FSIZE	-0.02	0.01	2.30	0.02
LogACCORP	0.04	0.01	2.81	0.00
LogASECU	0.03	0.02	1.40	0.16
POUT	-0.00	0.00	1.18	0.24
CAPU	0.20	0.16	1.26	0.21
constant	4.58	0.14	30.86	0.00

Source: Author's computation, 2022

b. Effect of financing alternatives and innovation on Profitability

Table 31 shows the impact of financing options and innovation activities on company profitability for all indicators of financing options and innovation activities. According to the findings, internal finance had a negative influence on product innovation, while external financing and debt-equity financing had a negative impact on product innovation as well, although all of the factors were negligible. In the process innovation column, all three financing methods, namely internal, external, and debt-equity financing, exhibited a positive but minor link with business profitability. In the third scenario, spending on R&D, internal financing, external financing, and debt-equity financing all had a favorable impact on business profit. However, whereas other factors had no influence on profit, spending on research and development (R&D) did. In naira terms, an increased investment on research and development by the business results in a one percent rise in the firm's profit, regardless of the financing type used.

TABLE 31

Effect of financing options and innovation activities on firm profit

Variable	Product innovation		Process innovation		Expenditure of R&D	
	Coefficient	Robust standard error	Coefficient	Robust standard error	Coefficient	Robust standard error
FINT	-0.38	0.40	-0.38	0.40	0.26	0.41
FENT	0.05	0.47	0.05	0.47	0.72	0.47
DEQR	0.18	0.16	0.18	0.17	0.06	0.16
PDIN	-0.04	0.35	-	-	-	-
PRIN	-	-	-0.02	0.34	-	-
EXPRD	-	-	-	-	0.01***	0.03
FAGE	0.00	0.01	0.00	0.01	0.00	0.01
FSIZE	0.05	0.03	0.05	0.03	0.01	0.03
LogACC	0.01	0.08	0.01	0.08	-0.01	0.07
ORP						
LogASE	-0.03	0.10	-0.04	0.10	-0.09	0.09
CU						
POUT	-0.00	0.01	-0.02	0.01	-0.00	0.01
CAPU	0.74	0.79	0.74	0.80	0.33	0.74
constant	4.20***	0.75	4.19***	0.75	4.45***	0.70

Source: Author's computation, 2022

5.4 Discussion of findings

The discussion of findings focuses on the study's primary findings and gives an interpretation of empirical data, as well as a comparison of such findings to earlier empirical findings on financing alternatives, innovation, and company success.

a. The effect of financial options on the success of a company

The study's primary goal was to look at the influence of various financing sources on business performance. In Cross River State, Nigeria, this goal was investigated using four hypotheses: the influence of internal and external financing options on business productivity, debt-equity ratio on firm productivity, internal and external financing option on firm profitability, and debt-equity financing on firm profit. Tables 20, 21, 22, and 23 show the findings of these assumptions.

Internal funding, corruption, and capacity utilization coefficients all had statistically significant effects on productivity. The results showed that increasing the firm's internal finance reduces productivity by 0.25 percent, while increasing corruption (informal gifts or payments for electricity connections), capacity utilization, and security increases productivity by 0.07 percent, 0.33 percent, and 0.66 percent, respectively.

Internal finance has a detrimental impact on business performance, which contradicts previous research that established a favorable association between internal financing and firm performance (Matherge & Nikolaidun, 2018; Regesa Fielding & Roberts, 2017; Onubedo & Yusuf, 2018; Liu, Li & Xu 2018). The fact that in developing nations like Nigeria, where high funding prices, severe collateral demands, and other financial institution conditions make it exceedingly difficult for MSMEs to receive capital from these external sources, supports this conclusion. Furthermore, foreign funding is allocated to politically well-connected enterprises with poor marginal returns on capital, and these firms, in most circumstances, lack the capacity to manage and spend these funds in initiatives that would provide positive results. Furthermore, since internal financing is insufficient to fund investments that will enable the business to compete with its rivals

in both local and export markets, the firm's performance may suffer. The disparities in these research' findings might be attributed to variances in the macroeconomic environments in which enterprises operate in Nigeria and other countries. For example, the macroeconomic climate in Nigeria is unfavorable to SMEs, as they struggle to get financing and suffer from low local patronage owing to consumers' insatiable hunger for imported products, resulting in a lack of local patronage.

The debt-equity financing had a good and substantial influence on business productivity and profit, according to the findings. This means that when the business replaces more of its funding from internal sources with external financing sources, it will perform better in terms of productivity and profitability. This supports the pecking order idea, according to which a company's finance moves from internal to external to equity financing. Internal financing may be substituted for external financing in the second stage in this situation due to the detrimental impact of internal financing on company productivity. When a result, as organizations use a mix of internal and external finance, and as internal financing replaces external financing more often, the firm's productivity and profit tend to increase.

Monthly power outages had a negative and minor influence on company production, according to other findings. The conclusions of research by Emmanuel and Anga (2020), Okafor (2017), and Adewuyi and Emmanuel all point to a negative link between power outages and company performance (2019). Firms that endure frequent power outages are more inclined to produce below capacity or spend a lot of money on alternative energy, which will hurt their development.

The indicator of corruption was shown to be positively connected to production. This was an unexpected result because corruption, which is the payment for electricity/water connections, diverts monies that should be invested back into the company for development and instead puts

them in the hands of people who work in such public utilities, starving the firm of revenue. Bribe money is a drain on the company's revenue and has a negative impact on its productivity.

Firm size and capacity utilization were shown to be positively and substantially connected to firm profitability in the profit equation. This means that as the number of workers and capacity utilization of the companies increased, so did their profits. This demonstrates that there is some amount of efficiency, since it suggests that a greater number of individuals are gainfully employed, resulting in enhanced production and, as a result, higher profit margins for the companies.

b. The impact of different funding options on innovation

Three hypotheses were tested in the second objective, which sought to analyze the effect of financing choices on innovation: internal and external financing and debt-equity ratio have no significant effect on firm product innovation, internal and external financing and debt-equity ratio have no significant effect on process innovation, and internal, external, and debt-equity financing have no significant impact on R&D expenditure. Internal funding, as a consequence, had a considerable negative influence on the likelihood of the business adopting innovation. It was shown that companies that use internal funding are 1.6 times less likely to invest in R&D than those that use alternative finance. Other business factors that had a substantial impact on R&D spending were firm size and capacity utilization. Large businesses are 29% more likely than small firms to spend on research and development, whereas organizations that suffer power outages are 5% less likely than firms that do not experience power outages to spend on research and development. Firms with a greater capacity utilization rate are 6.4 times more likely to spend on research and development than those with a lower capacity utilization rate. Internal finance has a negative impact on a company's capacity to spend money on research and development, as shown by the findings. Capacity utilization was a big component in determining a business's likelihood to innovate in all sorts of invention, but power outages have been found to have a large negative influence on firm productivity.

c. Financing choices and innovation's impact on business performance

This goal is to test three hypotheses: the impact of internal, external, debt-equity financing and product innovation on firm productivity, the impact of internal, external, debt-equity financing and process innovation on firm productivity, and the impact of internal, external debt-equity financing and and R&D expenditure on firm productivity.

Process innovation has a favorable influence on business productivity, and process innovation adoption enhances firm productivity by roughly 21%, according to the findings. Given the importance of internal financing, debt-equity financing, and process innovation in this model, it can be concluded that process innovation may improve company productivity in organizations that employ internal financing or debt-equity financing.

The study found that spending on R&D, internal finance, external financing, and debt-equity financing all had a beneficial impact on corporate earnings. However, whereas other factors had no influence on profit, spending on research and development (R&D) did. In naira terms, an increased investment on research and development by the business results in a one percent rise in the firm's profit, regardless of the financing type used.

5.5 Test of research hypotheses

This research is based on ten hypotheses that were examined using a variety of econometric approaches, including the ordinary least squares methodology, logit regression analysis, and others. The following are the hypotheses:

Hypothesis 1

Ho: In Cross River State, Nigeria, internal and external funding alternatives have no substantial influence on corporate productivity.

Decision

The null hypothesis was rejected and the alternative hypothesis was accepted that internal financing had a substantial influence on business productivity in Cross River State, Nigeria, based on

calculations of the effect of financing decisions on firm productivity using the Ordinary Least Squares method.

Hypothesis 2

In Cross River State, Nigeria, the debt-to-equity ratio has no substantial influence on corporate productivity.

Decision

The study's findings revealed that debt-equity financing had a statistically significant influence on corporate productivity in Nigeria's Cross River State. In Cross River State, Nigeria, the null hypothesis is therefore rejected in favor of the alternative hypothesis that debt-equity financing has a considerable influence on corporate productivity.

Hypothesis 3

In Cross River State, Nigeria, internal and external funding alternatives have no substantial influence on corporate profitability.

Decision

In Cross River State, Nigeria, the research discovered empirical evidence based on OLS estimates to accept the null hypothesis and conclude that internal and external funding alternatives had no substantial influence on company profitability.

Hypothesis 4

Ho: In Cross River State, Nigeria, the debt-to-equity ratio has no substantial influence on corporate profit.

Decision

The research rejected the null hypothesis in favor of the alternative hypothesis, concluding that debt-equity financing had a substantial influence on business profit in Cross River State, Nigeria, based on estimate using the ordinary least squares technique.

Hypothesis 5

Ho: In Cross River State, Nigeria, internal and external funding, as well as the debt-to-equity ratio, had no substantial impact on company product innovation.

Decision

The null hypothesis was accepted in this research using the logit regression equation, therefore we can infer that internal and external funding, as well as the debt-equity ratio, had no significant impact on product innovation in Cross River State, Nigeria

Hypothesis 6

Ho: In Cross River State, Nigeria, internal and external funding, as well as the debt-to-equity ratio, had no substantial impact on company process innovation.

Decision

The null hypothesis was accepted based on the study's results, and it was determined that internal and external funding, as well as the debt-to-equity ratio, had no substantial impact on process innovation in enterprises in Cross River State, Nigeria.

Hypothesis 7

Ho: In Cross River State, Nigeria, internal, external, and debt-equity finance have no substantial influence on corporate spending on research & development.

Decision

The null hypothesis was rejected based on the results of the study, and it was found that the debt-equity ratio had a substantial impact on corporate spending on research and development in Cross River State, Nigeria.

Hypothesis 8

Ho: In Cross River State, Nigeria, internal and external funding, debt-to-equity ratio, and product innovation have no substantial impact on business productivity.

Decision

The null hypothesis was accepted based on the study's results, and it was determined that internal and external finance, debt-to-equity ratio, and product innovation had no significant influence on company productivity in Cross River State, Nigeria.

Hypothesis 9.

Ho: In Cross River State, Nigeria, internal and external funding, debt-to-equity ratio, and process innovation have no substantial impact on business productivity.

Decision

The null hypothesis was accepted based on the study's results, and it was found that internal and external finance, debt-to-equity ratio, and process innovation had no significant influence on company productivity in Cross River State, Nigeria.

Hypothesis 10

Ho: In Cross River State, Nigeria, internal and external funding, debt-to-equity ratio, and R&D spending had no substantial impact on business productivity.

Decision

The null hypothesis was rejected in favor of the alternative hypothesis based on the outcomes of the study, and it was found that internal funding and research and development spending had a substantial impact on company productivity in Cross River State, Nigeria. Table 34 shows a summary of the hypothesis test results.

TABLE 32

Summary of Hypotheses Test

No.	Null Hypothesis	Decision
1	Internal and external financing options have no significant impact on firms' profitability in Cross River State, Nigeria.	**Reject H_o**
2	Debt-equity ratio has no significant impact on firms' productivity in Cross River State, Nigeria.	**Reject H_o**
3	Internal and external financing options have no significant impact on firms' profitability in Cross River State, Nigeria.	**Accept H_o**
4	Debt-equity ratio has no significant impact on profit of firms in Cross River State, Nigeria	**Reject H_o**
5	Internal and external financing and debt-equity ratio have no significant effect on product innovation of firms in Cross River State, Nigeria.	**Accept H_o**
6	Internal and external financing and debt-equity ratio have no significant effect on process innovation of firms in Cross River State, Nigeria.	**Accept H_o**
7	Internal, external and debt-equity financing have no significant impact on expenditure on research and development of firms in Cross River State, Nigeria.	**Reject H_o**
8	Internal and external financing, debt-equity ratio and product innovation have no significant effect on productivity of firms in Cross River State, Nigeria	**Accept H_o**
9	Internal and external financing, debt-equity ratio and process innovation have no significant effect on productivity of firms in Cross River State, Nigeria	**Accept H_o**
10	Internal and external financing, debt-equity ratio and expenditure on research and development have no significant effect on productivity of firms in Cross River State, Nigeria	**Reject H_o**

Source: Author's compilation, 2022

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary

This empirical, policy-oriented study of financing options, innovation, and firm performance in Cross River State, Nigeria, sought to determine the impact of financing options (internal, external, and debt-equity financing) on firm performance, as measured by productivity and profitability, as well as the effect of these financing options on the firm's likelihood to innovate, and the effect of financing options and innovation on firm productivity and profitability. The research also looked at the impact of other company-level factors on business innovation, productivity, and profitability.

The first and third goals were investigated using the Ordinary Least Squares (OLS) econometric approach, while the second objective was estimated and analyzed using the logistic regression technique. In a survey performed between December 2021 and January 2022, MSMEs in Calabar, Cross River State, provided main survey data. Data was obtained from 134 MSMEs in areas such as commerce, manufacturing, services, agriculture, education, and health via a face-to-face survey utilizing a questionnaire.

The following 10 equations were developed and approximated based on the study's particular aims and hypotheses: The impact of financing options on firm performance was estimated using four models; the impact of financing options on innovation was estimated using three models, and the impact of financing options and firm productivity innovation was estimated using three models.

The anchor of this study was the Paul Romer-type endogenous growth theory, which recognizes the role of innovation in generating output growth, and the Myers and Majluf (1984) pecking order theory, which identifies multiple financing sources for SMEs such as internal, external, and equity financing with some modifications. Existing research does not seem to have looked at not just the function of debt-equity financing in improving company performance, but also how the

combination of business innovation and financing choices might affect MSMEs' productivity and profitability.

As a result of the restrictions faced by MSMEs in emerging economies such as Nigeria, such as high financing costs and limited capacity and incentives for innovation, this research demonstrated a gap in financing alternatives, innovation, and company performance.

First, empirical findings revealed that the internal financing alternative reduces corporate productivity. Internal funding and business productivity have a statistically significant and unfavorable association, according to the research. A 1% increase in internal finance translates in a 1% loss in corporate productivity. 0.25 unit increase Firm productivity was also shown to be boosted by corruption, capacity utilization, and security. Corruption (informal gifts or payments for power and water connections), capacity utilization, and security all linked to 0.07, 0.33, and 0.66 percent increases in business production, respectively.

The second goal was to use the logistic regression approach to investigate the impact of funding choices on innovation. Internal funding has a considerable negative influence on the likelihood of a corporation adopting innovation, according to the research. It was shown that companies that use internal funding are 1.6 times less likely to invest in R&D. Internal finance has a negative impact on a company's capacity to spend money on research and development, as shown by the findings. Large businesses are 29% more likely than small firms to spend on research and development, whereas organizations that suffer power outages are 5% less likely than firms that do not experience power outages to spend on research and development. Firms with a greater capacity utilization rate are 6.4 times more likely to spend on research and development than those with a lower capacity utilization rate. Capacity utilization was a big component in determining a business's likelihood to innovate in all sorts of invention, but power outages have been found to have a large negative influence on firm productivity.

The third goal was to look at the impact of financing choices and innovation on business success. Internal finance, debt-equity financing, and process innovation were shown to be significant in the firm productivity model, implying that process innovation adoption in enterprises that employ internal financing or debt-equity financing may boost firm productivity. The study also found that spending on R&D, internal finance, external financing, and debt-equity financing had a beneficial impact on corporate profit. However, whereas other factors had no influence on profit, spending on research and development (R&D) did. In naira terms, an increased investment on research and development by the business results in a one percent rise in the firm's profit, regardless of the financing type used.

6.2 Contribution to the body of knowledge

The first addition to knowledge made by this dissertation is the discovery of the impact of a combination of financing alternatives (debt-equity financing) on company performance in Nigeria's Cross River State. Firms use a range of financing choices to fund investment and working capital, and how these options are integrated for optimum company performance should be of uttermost interest to policymakers and industry actors in the MSME sub-sector. In addition, the research has shown how innovation and other business characteristics influence the link between financing alternatives and firm productivity and profitability. Similarly, in assessing these impacts, the research looked at industry level factors rather than company level variables, as contrast to prior studies that exclusively looked at firm specific factors that affect innovation in Nigeria (Adegboye & Iweriebor, 2018; Abdu & Jibir, 2018)

6.3 Conclusion

In recognition of their importance to poverty reduction, job creation, output growth, and national development, successive governments and private sector participants at all levels have made considerable attempts to improve the performance of MSMEs throughout the years. Despite these efforts, business performance in terms of productivity and profitability has been less than

:ellar. This may be ascribed in part to funding limitations and the slow speed with which :ompanies in the nation implement new goods and processes, which is due to a lack of financing choices, high capital costs, and a dysfunctional and inefficient financial system. Because finance and innovation play such a significant part in a business's productivity and profitability, this research looked at the influence of financing and innovation on firm performance in Cross River State, Nigeria.

The study's findings are of interest to a larger range of stakeholders, including development finance specialists, policymakers, and public sector regulators, in addition to the firm's managers and owners, who are the direct benefactors. Internal finance, among the financing options studied, had a considerable negative impact on company productivity in Cross River State, Nigeria, according to the research. Second, the research found that debt-equity financing had a considerable beneficial impact on company productivity and profitability in Nigeria's Cross River State. As a consequence, debt-equity financing, as opposed to internal or external financing, has been demonstrated to have a more stable influence on business performance. Internal finance was also revealed to have a negative but substantial influence on the innovation proxy of spending on research and development (R&D) in enterprises in Nigeria's Cross River State.

Furthermore, the empirical study revealed that internal financing, in combination with innovation (as measured by R&D spending), had a considerable beneficial impact on business profitability. One of the findings of this research is that capacity utilization, which was used as a control variable, has a highly substantial and positive influence on the likelihood of a business adopting innovation and on firm productivity.

The study concludes that internal financing has a significant impact on firm productivity in Cross River State, Nigeria, and that using a hybrid financing option (a combination of debt and internal financing) has proven to be more beneficial to the firm in terms of increasing productivity and profitability than using only one financing option (internal or external)

6.4 Recommendations

Based on the results, the paper provides the following recommendations:

1. Based on the detrimental effect of internal financing on company productivity, this research advises that the government, via SMEDAN, create alternative financing channels for MSMEs affordable and accessible.

2. Firm managers should make financing choices in such a way that they disperse risk and reduce cost of money so that their productivity and profitability are not harmed.

3. Government entities that finance SMEs, such as the Bank of Industry, NIRSAL, and the Bank of Agriculture, should be well-funded and regularly regulated to ensure that they fulfill their purpose.

4. While capacity usage boosts productivity, power disruptions hurt business performance. In order to boost company productivity, the government should increase power supply and eliminate interruptions.

5. Because spending on R&D improves firm performance, MSMEs and SMEDAN, as well as other relevant government agencies at the state level, should raise their R&D spending or set aside particular research funding for MSMEs in Nigeria.

6.5 Suggestions for future research

This research has opened up new areas for future research, particularly in the context of finance alternatives and corporate performance in Nigeria. The survey also suggested a number of potential research topics, including:

1. A comparative assessment of the impact of financing choices on the performance of enterprises listed on the Nigerian Stock Exchange.

2. The impact of innovation on Nigerian manufacturing enterprises' performance.

3. Nigerian manufacturing enterprises' capacity utilization and performance.

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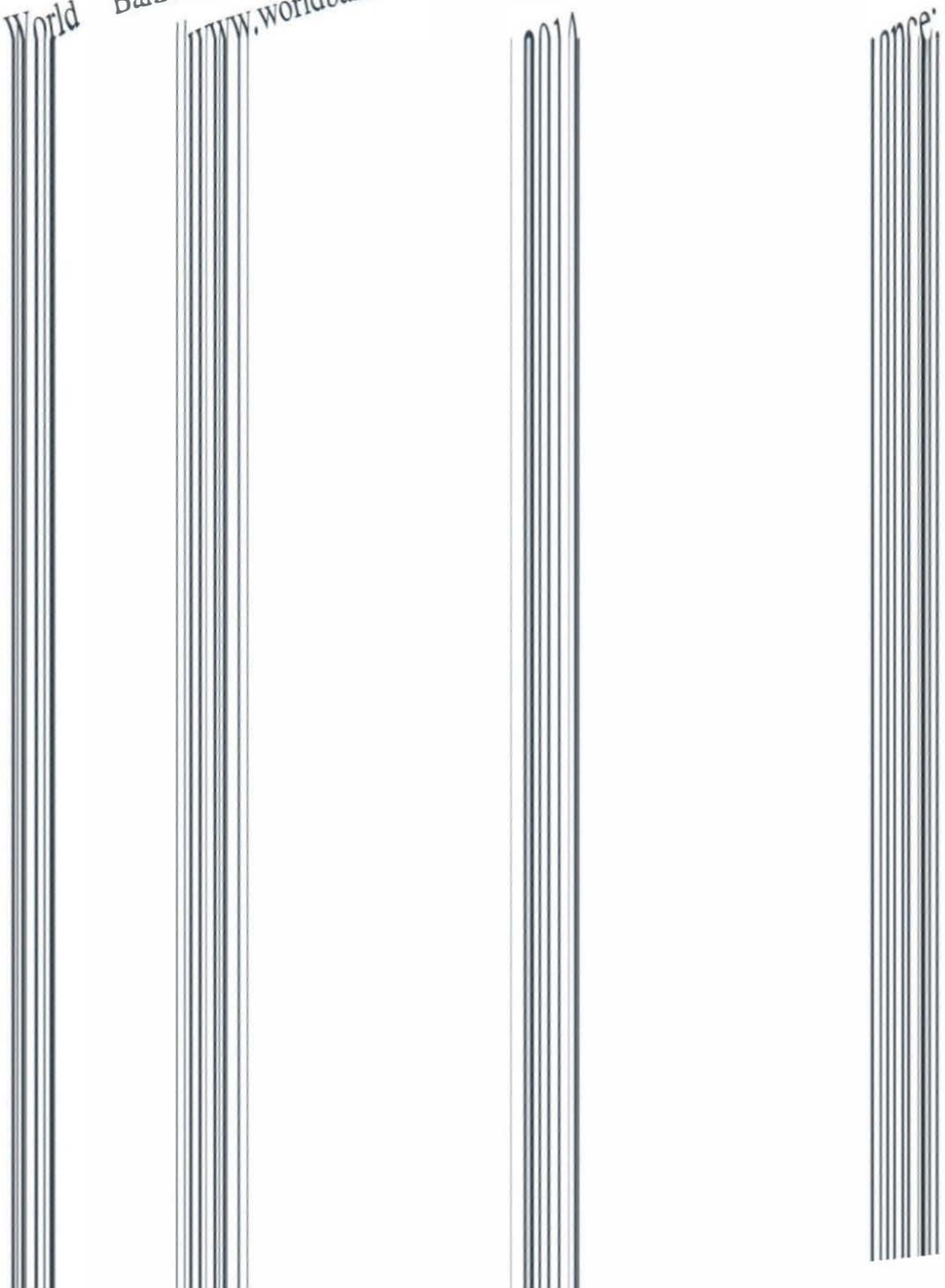

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APPENDIX ONE: SUMMARY OF LITERATURE RE[illegible]

AUTHOR/YEAR	TITLE	METHODOLOGY	FINDINGS AND CONCLUSION
Mathenge and Nikolaidou (2018)	The effect of firm financing choices on firm performance proxy by total factor productivity in Africa	Non-parametric cumulative distributive function and probability density function as well as a parametric static linear model.	The result showed that firms with a larger proportion of investment financed by bank funds were more productive than firms using other sources of finance. The difference in productivity of firms by sources of finance was more pronounced in small and medium scale firms than in large firms.
Regasa, Fielding and Roberts (2017)	The relationship between financing and the growth of firms in Ethiopia	Fractional logit model	The result of the study revealed that there was a negative and significant relationship between external financing and firm growth and firms with external financing grew more slowly than those utilizing internal funds.
Agarwal and Elston (2000)	Explored the impact of bank-influence on the financing choices and performance of the firm in Germany	Panel fixed effects regression	The study found that debt had a negative influence on profitability but no evidence to support the hypothesis that bank relations influence profitability or growth of the firm
Muntchev, Carmalho, Rodríguez-Meza and Ang (2012)	SMEs financing.	Descriptive method	The authors observed a strong correlation between the size of a business and their access to credit, where smaller businesses are more likely to be credit 'constrained' and thus depicting the difficulties faced by small business entrepreneurs in securing loans from commercial sources. On the main sources of external finance for SMEs, they further found that of the small businesses in sub-Saharan Africa that obtained external financing, 6.3 per cent took the form of equity, 48.5 per cent

				was formal external debt, 17.4 per cent from semi-formal financing and 27.8 per cent informal financing.
5	Allen, Chakrabarti, De, Qian and Qian (2012)	Financing of small and medium scale private firms in India	OLS	The survey found that alternative sources of financing i.e trade credits and internal financing were the most important avenues through which funds were sourced for SME funding in India.
6	Mwangi (2014)	The effect of financing decisions on performance of non-financial companies listed on the Nairobi stock exchange in Kenya	The stepwise feasible generalized least square regression method	The result of the study revealed that there was a negative relationship between financial leverage and performance indicators but while the relationship was significant for returns of assets, it was insignificant for returns on equity. Quoted firms are more often than not larger than unquoted firms and are less likely to experience the kind of financial constraints that small unquoted firms face.
7	Rahaman (2010)	The effect of financing structure on firm growth		The study found that when firms faced external financing constraint, they tended to rely more on internal funds to finance growth. However, the effect of internal financing on firm growth decreased with an increase in the firm's access to an external bank credit facility. As the external financing constraint is alleviated, the firm relies less on internal funds and switches to external financing as the primary source of financing for its growth
8	Mensah (2004)	Examined small and medium scale enterprises financing schemes and their effectiveness in Ghana,		The study found that the lack of long-term loans coupled with high interest rates adversely affected the development and profitability of SMEs

9	Rupeika-Apoga (2014)			The study found that availability of these new and innovative sources of financing strongly depended on the development level of the firm, and that the bigger and more well known the firm was, the broader the financing choices available to them. It was discovered that for new firms, alternative resources such as business angels, venture capital funds, different government support programs and seed funding were more available and accessible than bank loans.
10	Rajan and Zingales (1998)			The findings of study revealed that financial development has a substantial supportive influence on the rate of economic growth and this works, at least partly, by reducing the cost of external finance to financially dependent firms.
11	Ayyagari, Demirgüç-Kunt and Maksimovic (2008)	The impact of formal and informal financing patterns on firm performance	Regression and selection models	The result revealed that the use of formal financing channels in China can be compared with other developing countries. They discovered also that financing vary across firms as well as across regions in China and financing from the formal financial system i.e bank financing is associated with faster firm growth, whereas fund raising from alternative channels such as informal sources is not.
12	Beck, Liping and Yang (2015)	Finance and growth for microenterprises: evidence from Rural China investigated the effect of informal and formal financing sources on the 13 growth of microenterprises in rural China	Probit model	The study found that higher use of informal finance, especially funding from friends and family, is associated with higher sales growth for microenterprises with employees, while it has no effect for the self-employed

13	Adekunle (2009)	The impact of capital structure on the performance of firms,	Ordinary Least Squares.	. The result of the study indicated that debt ratio has a significant negative impact on the firm's financial measures of performance.
14	Nwaolisa and Chijindu (2016)	The impact of financial structure on performance of agricultural and healthcare firms	Pooled OLS, fixed, random effect models and the granger causality test.	The analysis for the agricultural firms revealed that financial structure significantly impacts on earnings per share but does not impact on return on equity, return on asset and profit before tax. For healthcare firms, financial structure significantly impacts on earnings per share and profit before tax but does not impact on return on equity and return on assets
15	Maina and Kondongo (2013)	The effect of debt-equity ratio performance of firms listed at the Nairobi Securities exchange.	Causal research design	The study found a significant negative relationship between capital structure (DE) and all measures of performance. The study further found that that firms listed at NSE used more short-term debts than long term.
16	Bassey, Arene and Okpukpara (2014)	The determinants of financial structure of agro-listed firms in Nigeria,	Ordinary Least Squares (OLS).	Highly tangible firms use more short-term debts, as high tangible asset reduced the magnitude of debt loss incurred by debt providers if the firms default. Agro-listed firms with high taxes use more short term debts in their finances. Highly profitable firms do not depend on short-term debts. Highly profitable firms use less long term debts while large sized firms depend on long term debt for their finances because of high tangible assets at their disposal as collaterals.

17	Ebaid (2009)	The impact of choice of capital structure on the performance of firms in Egypt	OLS	The study indicated that capital structure has little or no impact on a firm's performance.
18	Saeedi and Mahmoodi (2011)	The relationship between capital structure and performance of listed firms in the Tehran Stock Exchange, Iran.	The panel data regression	According to the study market measures of performance are positively related to capital structure and whereas ROA is positively related to capital structure, no significant relationship exists between ROE and capital structure.
19	Abor (2005)	The effect of capital structure on profitability of listed firms on the Ghana Stock Exchange	Regression analysis	The study concluded that profitable firms depend more on debt as their main financing option.
20	Girma and Vencappa (2014)	The effect of financing sources on firm level productivity growth of Indian manufacturing firms	Econometric model	The study found that relative to retained earnings, bank and nonbank finances positively affect firm level productivity growth
21	Tran, Hien Thu, Santarelli, Enrico (2013)	The determinants and effects of innovative activities on firm performance in Vietnam.	Two-tiered dynamic type-2 Tobit model and instrumental variable GMM method	The results of the study revealed that research and development, and innovation activities stimulate firms' profitability and growth of sales, and also increase their survival propensity. Private innovative firms significantly outperform their peers It was also discovered that highly-leveraged firms, exporting firms, and diversified firms are more likely to be innovative than their counterparts, but the ability to transform innovative efforts into higher profitability and growth can only be witnessed among diversified firms;
22	Vonortas and Xue (1997)	The process innovations of small firms in the USA,	OLS	The study observed that economic incentives, internal resources, and technical and organizational competencies that a firm has developed or accumulated over time and a

				firm's linkage to external sources of expertise for learning about new technological development were the major forces that influenced these firms in adopting a process innovation.
23	Danneels and Kleinschmidt (2001)			These studies strongly indicate that neither internal competence of the firm nor customer requirements alone will drive a firm to undertake innovations. Innovation will emerge only when a technically competent firm is able to identify and respond to customer requirements by developing and/or improving products/processes.
24	Adegbite (2012)	Evaluation of the effect of technology innovation on the performance of indigenous textile weaving firms in South-western Nigeria.		The study concluded that the large domestic market for the products, product innovations, total capital invested and years of experience were the prominent factors responsible for the resilience and sustenance of the indigenous textile weaving firms in southwestern Nigeria. However, factors such as payment of tax, sale of products in regional market, intense local competition, trade liberalization and cost of R&D are major constraints on the performance of firms in the industry.
25	Rajapathirana and Hui (2018)	The relationship between innovation capability, innovation type and firm performance.	Logistic regression model.	It is discovered that innovation capability in insurance companies have positive and strong impact on innovation effects innovation on product, marketing and organisation. Also innovation activities had positive and significant impact on innovation performance. This suggests that improving innovation capacity of firms which drives better innovation performance.

APPENDIX TWO: REGRESSION RESULT

```
pwcorr PROD PRFT FINT FENT DEQR PRIN PDIN FAGE FSIZE CORRP ACORRP ASECU POUT CAPU SEXFE SECTOR
```

	PROD	PRFT	FINT	FENT	DEQR	PRIN	PDIN
PROD	1.0000						
PRFT	0.3641	1.0000					
FINT	-0.1205	-0.3419	1.0000				
FENT	0.0226	0.0096	-0.4353	1.0000			
DEQR	0.0288	-0.0328	-0.1371	0.4749	1.0000		
PRIN	0.2018	0.2157	0.0593	0.0208	0.0151	1.0000	
PDIN	0.1421	0.1760	-0.0145	0.0727	-0.0537	0.5297	1.0000
FAGE	0.1431	0.2749	-0.1478	-0.0275	-0.1767	0.0961	0.1704
FSIZE	0.0190	0.3986	-0.3696	0.1255	-0.0715	0.1560	0.1924
CORRP	0.1283	0.1776	0.2050	-0.1366	-0.3394	0.3250	0.2678
ACORRP	0.1290	0.2773	-0.2994	0.0026	-0.1545	0.1547	0.1548
ASECU	0.5683	0.6115	-0.3241	0.2570	0.2435	0.2191	0.2315
POUT	-0.1160	-0.0861	0.0129	0.3771	0.2773	0.0006	0.1073
CAPU	0.1364	0.1549	0.1422	-0.0581	-0.1829	0.3218	0.2065
SEXFE	-0.1417	-0.2250	0.2234	-0.0786	-0.0690	-0.1235	-0.1755
SECTOR	0.0752	-0.0992	0.2158	0.0884	0.1582	0.0737	0.0875

	FAGE	FSIZE	CORRP	ACORRP	ASECU	POUT	CAPU
FAGE	1.0000						
FSIZE	0.3925	1.0000					
CORRP	0.1924	0.1532	1.0000				
ACORRP	0.1554	0.4433	0.2528	1.0000			
ASECU	0.2065	0.3082	-0.0152	0.1430	1.0000		
POUT	-0.0122	0.1144	-0.1526	-0.0538	0.2527	1.0000	
CAPU	0.1802	0.0022	0.4450	0.1752	-0.0930	-0.0716	1.0000
SEXFE	-0.2695	-0.4366	0.0271	-0.2371	-0.3465	0.0245	0.0633
SECTOR	0.0057	-0.3496	0.1134	-0.1718	-0.0726	0.0186	0.1221

	SEXFE	SECTOR
SEXFE	1.0000	
SECTOR	0.2067	1.0000

```
. sum

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
     logPROD |        134    4.977812    .4155134   4.243038    6.39794
     logPRFT |        134    4.952052    1.409883          0   6.883661
        FINT |        134    .4895522     .397647          0        1.5
-------------+---------------------------------------------------------
        FENT |        134    .2932836    .3542328          0          1
        DEQR |        134    .4666511    .8980245          0          4
        PRIN |        134    .7835821    .4133476          0          1
        PDIN |        134    .8283582    .3784837          0          1
        FAGE |        134    12.32836    7.291746          2         41
-------------+---------------------------------------------------------
       FSIZE |        134     6.38806    4.226502          1         20
       CORRP |        129     .751938    .4335718          0          1
    logACCORP |        134    2.880511    1.962171          0   5.544068
-------------+---------------------------------------------------------
    logASECU |        134    3.515988    1.306738          0   4.778151
        POUT |        134    12.66418    7.644295          0         33
        CAPU |        134     .769403    .1776232          0          1
       SEXFE |        133    .5037594    .5018762          0          1
      SECTOR |        134    .3059701    .4625463          0          1


reg logPROD FINT FENT FAGE FSIZE logACCORP POUT CAPU logASECU, robust

Linear regression                               Number of obs     =        134
                                                F(8, 125)         =       6.99
                                                Prob > F          =     0.0000
                                                R-squared         =     0.2845
                                                Root MSE          =     .36254

------------------------------------------------------------------------------
             |               Robust
     logPROD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FINT |  -.2548898   .1094173    -2.33   0.021    -.4714403   -.0383393
        FENT |   .0432994   .1224081     0.35   0.724    -.1989615    .2855602
        FAGE |   .0000778   .0044611     0.02   0.986    -.0087514    .0089069
       FSIZE |  -.0109024   .0100585    -1.08   0.280    -.0308095    .0090047
   logACCORP |   .0704984   .0189936     3.71   0.000     .0329076    .1080892
        POUT |  -.0039252   .0049947    -0.79   0.433    -.0138103     .00596
        CAPU |   .3349255   .1947785     1.72   0.088    -.0505653    .7204163
    logASECU |   .0661239   .0251996     2.62   0.010     .0162507    .1159971
       _cons |   4.515036   .1816406    24.86   0.000     4.155546    4.874525
------------------------------------------------------------------------------

reg logPROD DEQR FAGE FSIZE logACCORP POUT CAPU logASECU, robust

Linear regression                               Number of obs     =        134
                                                F(7, 126)         =       9.70
```

```
                                                Prob > F          =     0.0000
                                                R-squared         =     0.2876
                                                Root MSE          =     .36033

------------------------------------------------------------------------------
             |               Robust
     logPROD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        DEQR |    .121301   .0414342     2.93   0.004     .0393039    .2032982
        FAGE |   .0020048   .0044667     0.45   0.654    -.0068346    .0108443
       FSIZE |   -.000855   .0098986    -0.09   0.931    -.0204441    .0187341
   logACCORP |   .0732086   .0149082     4.91   0.000     .0437057    .1027115
        POUT |  -.0079068   .0036702    -2.15   0.033    -.0151699   -.0006436
        CAPU |   .3223502    .175546     1.84   0.069    -.0250501    .6697506
     logASECU |   .0723199   .0255858     2.83   0.005     .0216863    .1229535
       _cons |   4.288913    .148534    28.87   0.000     3.994969    4.582858
------------------------------------------------------------------------------

vif

    Variable |       VIF       1/VIF
-------------+----------------------
        FINT |      1.70    0.586671
        FENT |      1.57    0.636482
   logACCORP |      1.51    0.661190
       FSIZE |      1.47    0.682265
        POUT |      1.36    0.737520
        CAPU |      1.31    0.761681
        FAGE |      1.30    0.768510
     logASECU |      1.18    0.847793
-------------+----------------------
    Mean VIF |      1.43

. hettest, fstat

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of logPROD

         F(1 , 132)    =     2.88
         Prob > F      =   0.0921

. ovtest

Ramsey RESET test using powers of the fitted values of logPROD
       Ho:  model has no omitted variables
                 F(3, 122) =      2.31
                  Prob > F =      0.0797



reg logPRFT FINT FENT FAGE FSIZE logACCORP POUT CAPU logASECU,robust
```

```
Linear regression                               Number of obs     =        134
                                                F(8, 125)         =       1.77
                                                Prob > F          =     0.0890
                                                R-squared         =     0.0640
                                                Root MSE          =      1.407

------------------------------------------------------------------------------
             |               Robust
     logPRFT |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FINT |  -.3352063   .4257791    -0.79   0.433    -1.177876    .5074634
        FENT |   .2760408   .4491249     0.61   0.540    -.6128332    1.164915
        FAGE |   .0010566   .0150644     0.07   0.944    -.0287578    .0308709
       FSIZE |   .0559426   .0208895     2.68   0.008     .0145996    .0972856
   logACCORP |  -.0063601   .0561011    -0.11   0.910    -.1173911     .104671
        POUT |  -.0015594   .0145287    -0.11   0.915    -.0303136    .0271947
        CAPU |   .7136718   .3252927     2.19   0.030     .0698771    1.357466
    logASECU |  -.0220428   .0508999    -0.43   0.666      -.12278    .0786945
       _cons |   4.231275   .3870395    10.93   0.000     3.465276    4.997274
------------------------------------------------------------------------------

reg logPRFT DEQR FAGE FSIZE logACCORP POUT CAPU logASECU, robust

Linear regression                               Number of obs     =        134
                                                F(7, 126)         =       2.75
                                                Prob > F          =     0.0109
                                                R-squared         =     0.0633
                                                Root MSE          =     1.4019

------------------------------------------------------------------------------
             |               Robust
     logPRFT |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        DEQR |   .2118609   .0798256     2.65   0.009     .0538884    .3698335
        FAGE |   .0034081   .0139455     0.24   0.807    -.0241895    .0310058
       FSIZE |   .0710456   .0259381     2.74   0.007     .0197149    .1223763
   logACCORP |   .0035575   .0464362     0.08   0.939    -.0883384    .0954534
        POUT |  -.0045647   .0130757    -0.35   0.728    -.0304412    .0213117
        CAPU |   .6975148   .3084262     2.26   0.025     .0871485    1.307881
    logASECU |  -.0100423   .0490613    -0.20   0.838    -.1071332    .0870487
       _cons |   3.903527   .3668536    10.64   0.000     3.177534    4.629519
------------------------------------------------------------------------------
vif

    Variable |       VIF       1/VIF
-------------+----------------------
   logACCORP |      1.50    0.665070
        CAPU |      1.31    0.763216
        FAGE |      1.31    0.765637
       FSIZE |      1.27    0.787996
        DEQR |      1.24    0.803438
        POUT |      1.13    0.883878
    logASECU |      1.13    0.886642
-------------+----------------------
```

```
    Mean VIF |      1.27

. hettest, fstat

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of logPRFT

         F(1 , 132)    =     0.35
         Prob > F      =   0.5550

. ovtest

Ramsey RESET test using powers of the fitted values of logPRFT
       Ho:  model has no omitted variables
                 F(3, 123) =      2.19
                  Prob > F =      0.0928


reg logPROD FINT FENT PRIN PDIN FAGE FSIZE logACCORP POUT CAPU logASECU, robust

Linear regression                               Number of obs     =        134
                                                F(10, 123)        =       7.93
                                                Prob > F          =     0.0000
                                                R-squared         =     0.3342
                                                Root MSE          =     .35257

------------------------------------------------------------------------------
             |               Robust
     logPROD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FINT |  -.2754709   .1050865    -2.62   0.010    -.4834832   -.0674586
        FENT |   .0367495   .1184567     0.31   0.757    -.1977283    .2712272
        PRIN |    .235668   .0677666     3.48   0.001     .1015283    .3698078
        PDIN |   .0421856   .0735423     0.57   0.567    -.1033868     .187758
        FAGE |   .0012259   .0043305     0.28   0.778    -.0073461    .0097978
       FSIZE |  -.0139268   .0095572    -1.46   0.148    -.0328446    .0049911
   logACCORP |   .0512823   .0192633     2.66   0.009     .0131517    .0894129
        POUT |  -.0047218   .0048508    -0.97   0.332    -.0143237     .00488
        CAPU |   .2284015   .1633869     1.40   0.165    -.0950128    .5518159
    logASECU |   .0561175   .0240277     2.34   0.021     .0085562    .1036789
       _cons |   4.495171   .1567201    28.68   0.000     4.184953    4.805389
------------------------------------------------------------------------------

reg logPROD DEQR PRIN PDIN FAGE FSIZE logACCORP POUT CAPU logASECU, robust

Linear regression                               Number of obs     =        134
                                                F(9, 124)         =       9.33
                                                Prob > F          =     0.0000
                                                R-squared         =     0.3199
                                                Root MSE          =     .35489

------------------------------------------------------------------------------
```

logPROD	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
DEQR	.1099854	.0380869	2.89	0.005	.0346008	.1853701
PRIN	.1721874	.0525373	3.28	0.001	.0682014	.2761734
PDIN	.0662187	.0591658	1.12	0.265	-.050887	.1833244
FAGE	.0026582	.004416	0.60	0.548	-.0060823	.0113986
FSIZE	-.002912	.0098126	-0.30	0.767	-.0223338	.0165098
logACCORP	.0553207	.0136494	4.05	0.000	.0283047	.0823367
POUT	-.0086349	.0037295	-2.32	0.022	-.0160166	-.0012531
CAPU	.2351602	.1517978	1.55	0.124	-.0652901	.5356105
logASECU	.0665742	.0249636	2.67	0.009	.0171642	.1159842
_cons	4.257537	.1297855	32.80	0.000	4.000656	4.514419

```
reg logPRFT FINT FENT PRIN PDIN FAGE FSIZE logACCORP POUT CAPU logASECU, robust
```

Linear regression

Number of obs	= 134
F(10, 123)	= 1.45
Prob > F	= 0.1684
R-squared	= 0.0646
Root MSE	= 1.418

logPRFT	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
FINT	-.3412575	.429512	-0.79	0.428	-1.19145	.5089351
FENT	.2745908	.4525325	0.61	0.545	-.6211696	1.170351
PRIN	.0905233	.1198142	0.76	0.451	-.1466416	.3276882
PDIN	-.0828742	.1305558	-0.63	0.527	-.3413014	.1755531
FAGE	.0015989	.015319	0.10	0.917	-.0287241	.031922
FSIZE	.0555597	.0213351	2.60	0.010	.0133281	.0977913
logACCORP	-.0079675	.053558	-0.15	0.882	-.1139822	.0980473
POUT	-.0011635	.0147511	-0.08	0.937	-.0303624	.0280353
CAPU	.6891499	.3340369	2.06	0.041	.0279443	1.350355
logASECU	-.0228761	.0496187	-0.46	0.646	-.1210932	.0753411
_cons	4.249552	.3897513	10.90	0.000	3.478064	5.021041

```
reg logPRFT DEQR PRIN PDIN FAGE FSIZE logACCORP POUT CAPU logASECU, robust
```

Linear regression

Number of obs	= 134
F(9, 124)	= 2.17
Prob > F	= 0.0288
R-squared	= 0.0635
Root MSE	= 1.4131

logPRFT	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]

```
------------+----------------------------------------------------------------
       DEQR |   .2133444    .083862     2.54   0.012      .047358    .3793308
       PRIN |  -.0217034   .1284559    -0.17   0.866     -.2759537    .2325468
       PDIN |  -.0382865   .1266971    -0.30   0.763     -.2890555    .2124826
       FAGE |   .0033555   .0142021     0.24   0.814     -.0247545    .0314654
      FSIZE |   .0715233   .0265956     2.69   0.008      .0188831    .1241635
  logACCORP |    .007586   .0431709     0.18   0.861     -.0778614    .0930333
       POUT |  -.0042535   .0134954    -0.32   0.753     -.0309647    .0224577
       CAPU |   .7135235   .3289726     2.17   0.032      .0623946    1.364652
    logASECU |  -.0084464   .0494633    -0.17   0.865     -.1063482    .0894553
       _cons |    3.91568   .3631821    10.78   0.000      3.196841    4.634519
------------------------------------------------------------------------------
```

```
logit PDIN FINT FAGE FSIZE POUT SEXFE CAPU i.SECTOR

Iteration 0:   log likelihood = -61.247227
Iteration 1:   log likelihood = -53.059416
Iteration 2:   log likelihood =  -51.88554
Iteration 3:   log likelihood = -51.856891
Iteration 4:   log likelihood = -51.856841
Iteration 5:   log likelihood = -51.856841

Logistic regression                             Number of obs     =        133
                                                LR chi2(7)        =      18.78
                                                Prob > chi2       =     0.0089
Log likelihood = -51.856841                     Pseudo R2         =     0.1533

------------------------------------------------------------------------------
        PDIN |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FINT |   .0924879   .6948917     0.13   0.894    -1.269475    1.454451
        FAGE |   .0193436    .047476     0.41   0.684    -.0737077    .1123948
       FSIZE |   .1711485   .1077772     1.59   0.112     -.040091    .3823879
        POUT |   .0220269   .0345252     0.64   0.523    -.0456412     .089695
       SEXFE |  -.8419898   .5853846    -1.44   0.150    -1.989323    .3053429
        CAPU |   3.264639   1.358355     2.40   0.016     .6023127    5.926965
    1.SECTOR |   .7874908    .591045     1.33   0.183     -.370936    1.945918
       _cons |  -2.063391   1.265155    -1.63   0.103     -4.54305    .4162679
------------------------------------------------------------------------------

. logit PDIN FENT FAGE FSIZE POUT SEXFE CAPU i.SECTOR

Iteration 0:   log likelihood = -61.247227
Iteration 1:   log likelihood = -53.064173
Iteration 2:   log likelihood =  -51.88513
Iteration 3:   log likelihood =  -51.85632
Iteration 4:   log likelihood = -51.856268
Iteration 5:   log likelihood = -51.856268

Logistic regression                             Number of obs     =        133
```

```
                                                  LR chi2(7)      =      18.78
                                                  Prob > chi2     =     0.0089
Log likelihood = -51.856268                       Pseudo R2       =     0.1533

------------------------------------------------------------------------------
        PDIN |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FENT |  -.1173587   .8519561    -0.14   0.890    -1.787162    1.552445
        FAGE |    .019012   .0474799     0.40   0.689    -.0740469    .1120709
       FSIZE |   .1697409   .1057909     1.60   0.109    -.0376055    .3770873
        POUT |   .0244892   .0366423     0.67   0.504    -.0473285    .0963069
       SEXFE |   -.849264   .5892298    -1.44   0.149    -2.004133    .3056053
        CAPU |   3.292181   1.331362     2.47   0.013      .682759    5.901603
    1.SECTOR |   .8091613   .6068876     1.33   0.182    -.3803164    1.998639
       _cons |  -2.024394    1.25038    -1.62   0.105    -4.475094    .4263056
------------------------------------------------------------------------------

. logit PDIN DEQR FAGE FSIZE POUT SEXFE CAPU i.SECTOR

Iteration 0:   log likelihood = -61.247227
Iteration 1:   log likelihood = -52.734998
Iteration 2:   log likelihood = -51.518691
Iteration 3:   log likelihood = -51.487909
Iteration 4:   log likelihood = -51.487845
Iteration 5:   log likelihood = -51.487845

Logistic regression                               Number of obs   =        133
                                                  LR chi2(7)      =      19.52
                                                  Prob > chi2     =     0.0067
Log likelihood = -51.487845                       Pseudo R2       =     0.1593

------------------------------------------------------------------------------
        PDIN |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        DEQR |  -.2508142   .2845466    -0.88   0.378    -.8085153    .3068869
        FAGE |   .0089016   .0487886     0.18   0.855    -.0867223    .1045255
       FSIZE |   .1722793   .1062344     1.62   0.105    -.0359362    .3804949
        POUT |   .0305441   .0356535     0.86   0.392    -.0393354    .1004237
       SEXFE |  -.9411335   .6003203    -1.57   0.117     -2.11774    .2354727
        CAPU |   3.155884    1.34197     2.35   0.019     .5256722    5.786096
    1.SECTOR |   .9334419   .6204098     1.50   0.132    -.2825389    2.149423
       _cons |   -1.78143   1.281387    -1.39   0.164    -4.292903    .7300425
------------------------------------------------------------------------------

. logit PDIN FINT FAGE FSIZE POUT SEXFE CAPU

Iteration 0:   log likelihood = -61.247227
Iteration 1:   log likelihood = -53.987991
Iteration 2:   log likelihood = -52.836822
Iteration 3:   log likelihood = -52.806599
Iteration 4:   log likelihood = -52.806527
Iteration 5:   log likelihood = -52.806527

Logistic regression                               Number of obs   =        133
```

```
                                                  LR chi2(6)      =      16.88
                                                  Prob > chi2     =     0.0097
Log likelihood = -52.806527                       Pseudo R2       =     0.1378

------------------------------------------------------------------------------
        PDIN |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FINT |    .1258497   .6980547     0.18   0.857    -1.242312    1.494012
        FAGE |    .0309388   .0453738     0.68   0.495    -.0579923    .1198698
       FSIZE |    .1463753   .1051786     1.39   0.164     -.059771    .3525216
        POUT |    .0276957   .0341578     0.81   0.417    -.0392524    .0946437
       SEXFE |   -.7905325   .5714858    -1.38   0.167    -1.910624     .329559
        CAPU |    3.422913   1.355451     2.53   0.012     .7662768    6.079548
       _cons |   -2.052585   1.266718    -1.62   0.105    -4.535306    .4301371
------------------------------------------------------------------------------

. logit PDIN FENT FAGE FSIZE POUT SEXFE CAPU

Iteration 0:   log likelihood = -61.247227
Iteration 1:   log likelihood = -53.955841
Iteration 2:   log likelihood = -52.830026
Iteration 3:   log likelihood = -52.800051
Iteration 4:   log likelihood = -52.799981
Iteration 5:   log likelihood = -52.799981

Logistic regression                               Number of obs   =        133
                                                  LR chi2(6)      =      16.89
                                                  Prob > chi2     =     0.0097
Log likelihood = -52.799981                       Pseudo R2       =     0.1379

------------------------------------------------------------------------------
        PDIN |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FENT |    .1762625   .8293914     0.21   0.832    -1.449315     1.80184
        FAGE |    .0309988   .0454668     0.68   0.495    -.0581144    .1201121
       FSIZE |    .1399213   .1023979     1.37   0.172    -.0607749    .3406175
        POUT |    .0259423   .0359805     0.72   0.471     -.044578    .0964627
       SEXFE |   -.7799987   .5744233    -1.36   0.175    -1.905848    .3458503
        CAPU |    3.494692   1.323727     2.64   0.008     .9002352    6.089148
       _cons |   -2.039142     1.2576    -1.62   0.105    -4.503993     .425709
------------------------------------------------------------------------------

. logit PDIN DEQR FAGE FSIZE POUT SEXFE CAPU

Iteration 0:   log likelihood = -61.247227
Iteration 1:   log likelihood = -53.904634
Iteration 2:   log likelihood = -52.746455
Iteration 3:   log likelihood = -52.714526
Iteration 4:   log likelihood = -52.714445
Iteration 5:   log likelihood = -52.714445

Logistic regression                               Number of obs   =        133
                                                  LR chi2(6)      =      17.07
                                                  Prob > chi2     =     0.0090
```

```
Log likelihood = -52.714445                     Pseudo R2         =     0.1393

------------------------------------------------------------------------------
        PDIN |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        DEQR |  -.1242421   .2636723    -0.47   0.637    -.6410304    .3925462
        FAGE |   .0268098   .0460624     0.58   0.561    -.0634709    .1170905
       FSIZE |   .1416311    .102645     1.38   0.168    -.0595493    .3428116
        POUT |   .0323975     .03495     0.93   0.354    -.0361033    .1008983
       SEXFE |  -.8276386   .5782866    -1.43   0.152     -1.96106    .3057823
        CAPU |   3.412196   1.330264     2.57   0.010     .8049268    6.019465
       _cons |  -1.878598   1.286811    -1.46   0.144    -4.400701    .6435045
------------------------------------------------------------------------------

. logit PRIN FINT FAGE FSIZE POUT SEXFE CAPU i.SECTOR

Iteration 0:   log likelihood = -69.748201
Iteration 1:   log likelihood = -58.462119
Iteration 2:   log likelihood = -57.652024
Iteration 3:   log likelihood = -57.639158
Iteration 4:   log likelihood = -57.639147
Iteration 5:   log likelihood = -57.639147

Logistic regression                             Number of obs     =        133
                                                LR chi2(7)        =      24.22
                                                Prob > chi2       =     0.0010
Log likelihood = -57.639147                     Pseudo R2         =     0.1736

------------------------------------------------------------------------------
        PRIN |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FINT |   .5067871   .6581757     0.77   0.441    -.7832136    1.796788
        FAGE |  -.0337424   .0399913    -0.84   0.399    -.1121238     .044639
       FSIZE |   .1918793   .0948832     2.02   0.043     .0059115     .377847
        POUT |  -.0214179   .0307573    -0.70   0.486    -.0817012    .0388653
       SEXFE |  -.6305718   .5198219    -1.21   0.225    -1.649404    .3882603
        CAPU |   5.196273   1.590456     3.27   0.001     2.079036    8.313511
    1.SECTOR |   .6836598   .5454689     1.25   0.210    -.3854396    1.752759
       _cons |  -3.158635   1.358228    -2.33   0.020    -5.820713   -.4965567
------------------------------------------------------------------------------

. logit PRIN FENT FAGE FSIZE POUT SEXFE CAPU i.SECTOR

Iteration 0:   log likelihood = -69.748201
Iteration 1:   log likelihood = -58.686761
Iteration 2:   log likelihood = -57.939017
Iteration 3:   log likelihood = -57.928732
Iteration 4:   log likelihood = -57.928724
Iteration 5:   log likelihood = -57.928724

Logistic regression                             Number of obs     =        133
                                                LR chi2(7)        =      23.64
                                                Prob > chi2       =     0.0013
Log likelihood = -57.928724                     Pseudo R2         =     0.1695
```

```
------------------------------------------------------------------------------
        PRIN |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FENT |  -.1108765   .7649859    -0.14   0.885    -1.610221    1.388468
        FAGE |  -.0348911   .0400706    -0.87   0.384    -.1134282    .0436459
       FSIZE |   .1772662   .0926364     1.91   0.056    -.0042979    .3588303
        POUT |   -.017264   .0332655    -0.52   0.604    -.0824632    .0479353
       SEXFE |  -.6028127   .5183871    -1.16   0.245    -1.618833    .4132074
        CAPU |   5.470649   1.602159     3.41   0.001     2.330475    8.610823
    1.SECTOR |   .7166676    .555573     1.29   0.197    -.3722356    1.805571
       _cons |  -3.070658   1.381254    -2.22   0.026    -5.777866   -.3634493
------------------------------------------------------------------------------

. logit PRIN DEQR FAGE FSIZE POUT SEXFE CAPU i.SECTOR

Iteration 0:   log likelihood = -69.748201
Iteration 1:   log likelihood = -58.536485
Iteration 2:   log likelihood = -57.797214
Iteration 3:   log likelihood = -57.787062
Iteration 4:   log likelihood = -57.787055
Iteration 5:   log likelihood = -57.787055

Logistic regression                             Number of obs     =        133
                                                LR chi2(7)        =      23.92
                                                Prob > chi2       =     0.0012
Log likelihood = -57.787055                     Pseudo R2         =     0.1715

------------------------------------------------------------------------------
        PRIN |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        DEQR |   .1578465   .2939808     0.54   0.591    -.4183453    .7340384
        FAGE |  -.0307695   .0408323    -0.75   0.451    -.1107993    .0492603
       FSIZE |    .174686   .0915211     1.91   0.056    -.0046921     .354064
        POUT |  -.0236418   .0320475    -0.74   0.461    -.0864537    .0391702
       SEXFE |   -.554764   .5240232    -1.06   0.290    -1.581831    .4723025
        CAPU |   5.572444   1.615051     3.45   0.001     2.407003    8.737885
    1.SECTOR |   .6375124   .5553687     1.15   0.251    -.4509903    1.726015
       _cons |  -3.207037   1.403076    -2.29   0.022    -5.957017   -.4570581
------------------------------------------------------------------------------

. logit PRIN FINT FAGE FSIZE POUT SEXFE CAPU

Iteration 0:   log likelihood = -69.748201
Iteration 1:   log likelihood = -59.231241
Iteration 2:   log likelihood = -58.472894
Iteration 3:   log likelihood = -58.460541
Iteration 4:   log likelihood = -58.460531
Iteration 5:   log likelihood = -58.460531

Logistic regression                             Number of obs     =        133
                                                LR chi2(6)        =      22.58
                                                Prob > chi2       =     0.0010
Log likelihood = -58.460531                     Pseudo R2         =     0.1618
```

PRIN	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
FINT	.5491775	.6611279	0.83	0.406	-.7466093	1.844964
FAGE	-.0233592	.0382204	-0.61	0.541	-.0982699	.0515514
FSIZE	.1617787	.0898219	1.80	0.072	-.014269	.3378264
POUT	-.0172277	.0305433	-0.56	0.573	-.0770914	.042636
SEXFE	-.5760987	.5082673	-1.13	0.257	-1.572284	.4200869
CAPU	5.254856	1.575873	3.33	0.001	2.166201	8.343511
_cons	-3.049247	1.334556	-2.28	0.022	-5.664929	-.4335651

```
. logit PRIN FENT FAGE FSIZE POUT SEXFE CAPU

Iteration 0:   log likelihood = -69.748201
Iteration 1:   log likelihood = -59.500459
Iteration 2:   log likelihood = -58.807341
Iteration 3:   log likelihood = -58.797837
Iteration 4:   log likelihood = -58.797831
Iteration 5:   log likelihood = -58.797831

Logistic regression                               Number of obs     =        133
                                                  LR chi2(6)        =      21.90
                                                  Prob > chi2       =     0.0013
Log likelihood = -58.797831                       Pseudo R2         =     0.1570
```

PRIN	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
FENT	.1157962	.7503185	0.15	0.877	-1.354801	1.586393
FAGE	-.0238155	.0382023	-0.62	0.533	-.0986907	.0510597
FSIZE	.1432374	.086865	1.65	0.099	-.0270149	.3134896
POUT	-.0166594	.0330818	-0.50	0.615	-.0814985	.0481797
SEXFE	-.541083	.5071875	-1.07	0.286	-1.535152	.4529861
CAPU	5.576146	1.589127	3.51	0.000	2.461514	8.690779
_cons	-2.975019	1.365157	-2.18	0.029	-5.650677	-.2993619

```
. logit PRIN DEQR FAGE FSIZE POUT SEXFE CAPU

Iteration 0:   log likelihood = -69.748201
Iteration 1:   log likelihood = -59.175027
Iteration 2:   log likelihood = -58.482098
Iteration 3:   log likelihood = -58.472635
Iteration 4:   log likelihood = -58.472629
Iteration 5:   log likelihood = -58.472629

Logistic regression                               Number of obs     =        133
                                                  LR chi2(6)        =      22.55
                                                  Prob > chi2       =     0.0010
Log likelihood = -58.472629                       Pseudo R2         =     0.1617
```

```
        PRIN |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        DEQR |    .224599   .2869639     0.78   0.434    -.3378399     .787038
        FAGE |  -.0195111   .0388726    -0.50   0.616       -.0957     .0566778
       FSIZE |   .1471497   .0867889     1.70   0.090    -.0229533     .3172527
        POUT |  -.0214085    .031883    -0.67   0.502    -.0838981     .0410811
       SEXFE |  -.4977625   .5124493    -0.97   0.331    -1.502145     .5066197
        CAPU |    5.71712   1.60937     3.55   0.000     2.562813     8.871428
       _cons |  -3.189421   1.397743    -2.28   0.022    -5.928947     -.449894
------------------------------------------------------------------------------

. logit exrd FINT FAGE FSIZE POUT SEXFE CAPU i.SECTOR
variable exrd not found
r(111);

. logit exprd FINT FAGE FSIZE POUT SEXFE CAPU i.SECTOR

Iteration 0:   log likelihood = -86.385629
Iteration 1:   log likelihood = -64.681485
Iteration 2:   log likelihood = -62.895369
Iteration 3:   log likelihood = -62.841963
Iteration 4:   log likelihood = -62.841785
Iteration 5:   log likelihood = -62.841785

Logistic regression                               Number of obs     =        133
                                                  LR chi2(7)        =      47.09
                                                  Prob > chi2       =     0.0000
Log likelihood = -62.841785                       Pseudo R2         =     0.2725

------------------------------------------------------------------------------
       exprd |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FINT |  -1.627754   .6269663    -2.60   0.009    -2.856585   -.3989225
        FAGE |   .0235262    .038256     0.61   0.539    -.0514542    .0985066
       FSIZE |    .274252   .0979281     2.80   0.005     .0823166    .4661875
        POUT |  -.0461916   .0306465    -1.51   0.132    -.1062577    .0138745
       SEXFE |  -.5113229   .4689398    -1.09   0.276    -1.430428    .4077822
        CAPU |   6.403333   1.994951     3.21   0.001     2.493301    10.31337
    1.SECTOR |   .8238132    .475572     1.73   0.083    -.1082907    1.755917
       _cons |  -4.607101   1.629543    -2.83   0.005    -7.800947   -1.413255
------------------------------------------------------------------------------

. logit exprd FENT FAGE FSIZE POUT SEXFE CAPU i.SECTOR

Iteration 0:   log likelihood = -86.385629
Iteration 1:   log likelihood = -67.053461
Iteration 2:   log likelihood = -65.679718
Iteration 3:   log likelihood = -65.654587
Iteration 4:   log likelihood = -65.654559
Iteration 5:   log likelihood = -65.654559

Logistic regression                               Number of obs     =        133
                                                  LR chi2(7)        =      41.46
                                                  Prob > chi2       =     0.0000
```

```
Log likelihood = -65.654559                     Pseudo R2         =     0.2400

------------------------------------------------------------------------------
       exprd |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FENT |   .9045388   .7334096     1.23   0.217    -.5329176    2.341995
        FAGE |   .0260574   .0374155     0.70   0.486    -.0472756    .0993904
       FSIZE |   .2891239   .0931682     3.10   0.002     .1065175    .4717302
        POUT |  -.0595343   .0325758    -1.83   0.068    -.1233817    .0043132
       SEXFE |  -.5294577   .4615438    -1.15   0.251    -1.434067    .3751515
        CAPU |   5.029644   1.678198     3.00   0.003     1.740437    8.318851
    1.SECTOR |   .6614902    .478341     1.38   0.167     -.276041    1.599021
       _cons |  -4.571406    1.48339    -3.08   0.002    -7.478798   -1.664015
------------------------------------------------------------------------------

. logit exprd DEQR FAGE FSIZE POUT SEXFE CAPU i.SECTOR

Iteration 0:   log likelihood = -86.385629
Iteration 1:   log likelihood = -67.685044
Iteration 2:   log likelihood = -66.370686
Iteration 3:   log likelihood = -66.348984
Iteration 4:   log likelihood =  -66.34896
Iteration 5:   log likelihood =  -66.34896

Logistic regression                             Number of obs     =        133
                                                LR chi2(7)        =      40.07
                                                Prob > chi2       =     0.0000
Log likelihood =  -66.34896                     Pseudo R2         =     0.2319

------------------------------------------------------------------------------
       exprd |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        DEQR |  -.1051662   .2423669    -0.43   0.664    -.5801965    .3698641
        FAGE |   .0214548    .037949     0.57   0.572    -.0529238    .0958334
       FSIZE |   .2985303   .0934615     3.19   0.001     .1153491    .4817115
        POJT |  -.0392459   .0295642    -1.33   0.184    -.0971907    .0186989
       SEXFE |  -.6255884   .4684136    -1.34   0.182    -1.543662    .2924854
        CAPU |   4.889882   1.676048     2.92   0.004     1.604889    8.174875
    1.SECTOR |   .8341809   .4798118     1.74   0.082    -.1062329    1.774595
       _cons |  -4.417158    1.49491    -2.95   0.003    -7.347127   -1.487189
------------------------------------------------------------------------------

.  logit exprd FINT FAGE FSIZE POUT SEXFE CAPU

Iteration 0:   log likelihood = -86.385629
Iteration 1:   log likelihood = -66.079546
Iteration 2:   log likelihood = -64.433394
Iteration 3:   log likelihood = -64.394369
Iteration 4:   log likelihood = -64.394364

Logistic regression                             Number of obs     =        133
                                                LR chi2(6)        =      43.98
                                                Prob > chi2       =     0.0000
Log likelihood = -64.394364                     Pseudo R2         =     0.2546
```

```
------------------------------------------------------------------------------
       exprd |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FINT |  -1.617021   .6315778    -2.56   0.010    -2.854891   -.3791515
        FAGE |   .0348478   .0368936     0.94   0.345    -.0374624    .107158
       FSIZE |   .2394047   .0945076     2.53   0.011     .0541732    .4246362
        POUT |  -.0423359   .0304424    -1.39   0.164     -.102002    .0173301
       SEXFE |  -.4734014   .4610577    -1.03   0.305    -1.377058     .430255
        CAPU |   6.601994   1.994504     3.31   0.001     2.692837    10.51115
       _cons |   -4.48392   1.605971    -2.79   0.005    -7.631566   -1.336274
------------------------------------------------------------------------------

. logit exprd FENT FAGE FSIZE POUT SEXFE CAPU

Iteration 0:   log likelihood = -86.385629
Iteration 1:   log likelihood = -67.891071
Iteration 2:   log likelihood = -66.647003
Iteration 3:   log likelihood = -66.626954
Iteration 4:   log likelihood = -66.626931
Iteration 5:   log likelihood = -66.626931

Logistic regression                               Number of obs     =        133
                                                  LR chi2(6)        =      39.52
                                                  Prob > chi2       =     0.0000
Log likelihood = -66.626931                       Pseudo R2         =     0.2287

------------------------------------------------------------------------------
       exprd |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FENT |   1.129136   .7223709     1.56   0.118    -.2866848    2.544957
        FAGE |   .0350879   .0363989     0.96   0.335    -.0362526    .1064284
       FSIZE |   .2589719   .0894056     2.90   0.004     .0837402    .4342036
        POUT |  -.0600333   .0326778    -1.84   0.066    -.1240807    .0040141
       SEXFE |  -.4870945   .4558838    -1.07   0.285     -1.38061    .4064214
        CAPU |   5.180225   1.656088     3.13   0.002     1.934353    8.426097
       _cons |  -4.476995   1.459423    -3.07   0.002    -7.337413   -1.616578
------------------------------------------------------------------------------

.  logit exprd DEQR FAGE FSIZE POUT SEXFE CAPU

Iteration 0:   log likelihood = -86.385629
Iteration 1:   log likelihood = -69.104135
Iteration 2:   log likelihood =  -67.93183
Iteration 3:   log likelihood = -67.914314
Iteration 4:   log likelihood = -67.914296
Iteration 5:   log likelihood = -67.914296

Logistic regression                               Number of obs     =        133
                                                  LR chi2(6)        =      36.94
                                                  Prob > chi2       =     0.0000
Log likelihood = -67.914296                       Pseudo R2         =     0.2138

------------------------------------------------------------------------------
```

logACCORP	.0677156	.0204052	3.32	0.001	.0273248	.1081065
logASECU	.0469043	.025219	1.86	0.065	-.0030152	.0968238
POUT	-.0048777	.0045421	-1.07	0.285	-.0138686	.0041132
CAPU	.2587483	.1955609	1.32	0.188	-.1283524	.645849
_cons	4.485751	.1831514	24.49	0.000	4.123214	4.848288

```
. reg logPROD FINT FENT DEQR PRIN FAGE FSIZE logACCORP logASECU POUT CAPU, robust

Linear regression                               Number of obs     =        134
                                                F(10, 123)        =       8.28
                                                Prob > F          =     0.0000
                                                R-squared         =     0.3683
                                                Root MSE          =     .34342
```

logPROD	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
FINT	-.301719	.1050272	-2.87	0.005	-.5096138	-.0938241
FENT	-.090612	.1267147	-0.72	0.476	-.341436	.1602119
DEQR	.1084261	.0430771	2.52	0.013	.0231575	.1936947
PRIN	.2184836	.0566889	3.85	0.000	.1062714	.3306958
FAGE	.0023195	.004215	0.55	0.583	-.0060239	.0106629
FSIZE	-.0127314	.0099295	-1.28	0.202	-.0323863	.0069235
logACCORP	.0677156	.0171233	3.95	0.000	.033821	.1016102
logASECU	.0469043	.024026	1.95	0.053	-.0006538	.0944624
POUT	-.0048777	.0044701	-1.09	0.277	-.013726	.0039705
CAPU	.2587483	.1658325	1.56	0.121	-.0695069	.5870035
_cons	4.485751	.1537349	29.18	0.000	4.181442	4.79006

```
. reg logPROD FINT FENT DEQR exprd FAGE FSIZE logACCORP logASECU POUT CAPU

      Source |       SS           df       MS      Number of obs   =       134
-------------+----------------------------------   F(10, 123)      =     12.11
       Model |  11.3934478        10  1.13934478   Prob > F        =     0.0000
    Residual |  11.5691883       123  .094058441   R-squared       =     0.4962
-------------+----------------------------------   Adj R-squared   =     0.4552
       Total |   22.962636       133  .172651399   Root MSE        =     .30669
```

logPROD	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
FINT	-.0538925	.095341	-0.57	0.573	-.2426141	.1348291
FENT	.1353821	.1103652	1.23	0.222	-.0830789	.3538432
DEQR	.083519	.0371718	2.25	0.026	.0099396	.1570983
exprd	4.82e-07	7.64e-08	6.31	0.000	3.31e-07	6.34e-07
FAGE	.0014453	.0041779	0.35	0.730	-.0068246	.0097151
FSIZE	-.0234896	.0079093	-2.97	0.004	-.0391455	-.0078336
logACCORP	.0436745	.0184322	2.37	0.019	.007189	.0801599
logASECU	.0325794	.0226561	1.44	0.153	-.0122669	.0774258
POUT	-.0044044	.0040543	-1.09	0.279	-.0124296	.0036208

```
        CAPU |   .2068127   .1732022     1.19   0.235    -.1360303    .5496558
       _cons |   4.583035   .1642093    27.91   0.000     4.257993    4.908077
------------------------------------------------------------------------------
```

```
. reg logPROD FINT FENT DEQR exprd FAGE FSIZE logACCORP logASECU POUT CAPU,
robust

Linear regression                               Number of obs     =        134
                                                F(10, 123)        =      13.54
                                                Prob > F          =     0.0000
                                                R-squared         =     0.4962
                                                Root MSE          =     .30669

------------------------------------------------------------------------------
             |               Robust
     logPROD |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FINT |  -.0538925   .0960912    -0.56   0.576    -.2440991    .1363141
        FENT |   .1353821   .1220419     1.11   0.269    -.1061922    .3769565
        DEQR |    .083519   .0444613     1.88   0.063    -.0044895    .1715275
       exprd |   4.82e-07   7.47e-08     6.45   0.000     3.34e-07    6.30e-07
        FAGE |   .0014453   .0041324     0.35   0.727    -.0067346    .0096251
       FSIZE |  -.0234896   .0102202    -2.30   0.023    -.0437198   -.0032593
   logACCORP |   .0436745   .0155506     2.81   0.006     .0128931    .0744559
    logASECU |   .0325794   .0232842     1.40   0.164    -.0135102     .078669
        POUT |  -.0044044   .0037366    -1.18   0.241    -.0118007    .0029919
        CAPU |   .2068127   .1646852     1.26   0.212    -.1191716     .532797
       _cons |   4.583035   .1484872    30.86   0.000     4.289114    4.876956
------------------------------------------------------------------------------
```

```
reg logPRFT FINT FENT DEQR PDIN FAGE FSIZE logACCORP logASECU POUT CAPU

      Source |       SS           df       MS      Number of obs   =       134
-------------+----------------------------------   F(10, 123)      =      0.97
       Model |  19.3640774         10  1.93640774   Prob > F        =    0.4712
    Residual |  245.009481        123    1.991947   R-squared       =    0.0732
-------------+----------------------------------   Adj R-squared   =   -0.0021
       Total |  264.373558        133  1.98777111   Root MSE        =    1.4114

------------------------------------------------------------------------------
     logPRFT |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FINT |  -.3830259   .4042846    -0.95   0.345    -1.183282    .4172305
        FENT |   .0575589   .4766149     0.12   0.904    -.8858712    1.000989
        DEQR |   .1850838   .1682775     1.10   0.274    -.1480112    .5181788
        PDIN |  -.0425933   .3555696    -0.12   0.905    -.7464215    .6612349
        FAGE |   .0030416   .0192298     0.16   0.875    -.0350226    .0411058
       FSIZE |   .0574167   .0351822     1.63   0.105    -.0122243    .1270576
   logACCORP |   .0178916   .0818935     0.22   0.827    -.1442116    .1799948
    logASECU |  -.0397496   .1037299    -0.38   0.702    -.2450766    .1655775
        POUT |  -.0020959   .0188264    -0.11   0.912    -.0393617    .0351699
        CAPU |   .7482156   .7920426     0.94   0.347    -.8195842    2.316015
```

```
       _cons |   4.206402   .7583792     5.55   0.000     2.705237    5.707568
------------------------------------------------------------------------------

. reg logPRFT FINT FENT DEQR PRIN FAGE FSIZE logACCORP logASECU POUT CAPU

      Source |       SS           df       MS      Number of obs   =       134
-------------+----------------------------------   F(10, 123)      =      0.97
       Model |  19.3356138        10  1.93356138   Prob > F        =    0.4725
    Residual |  245.037944       123  1.99217841   R-squared       =    0.0731
-------------+----------------------------------   Adj R-squared   =   -0.0022
       Total |  264.373558       133  1.98777111   Root MSE        =    1.4114

------------------------------------------------------------------------------
     logPRFT |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FINT |  -.3836419    .404834    -0.95   0.345    -1.184986    .4177021
        FENT |   .0569816   .4771927     0.12   0.905    -.8875921    1.001555
        DEQR |   .1852425   .1704471     1.09   0.279     -.152147    .5226319
        PRIN |  -.0026538   .3423144    -0.01   0.994    -.6802443    .6749367
        FAGE |   .0029863   .0192817     0.15   0.877    -.0351807    .0411533
       FSIZE |   .0571132   .0353091     1.62   0.108    -.0127789    .1270053
   logACCORP |   .0156168   .0838651     0.19   0.853     -.150389    .1816226
    logASECU |  -.0409617   .1036498    -0.40   0.693    -.2461303    .1642068
        POUT |  -.0023928   .0186682    -0.13   0.898    -.0393453    .0345597
        CAPU |   .7423118   .8037529     0.92   0.358    -.8486678    2.333291
       _cons |   4.195333   .7527502     5.57   0.000     2.705311    5.685356
------------------------------------------------------------------------------

. reg logPRFT FINT FENT DEQR exprd FAGE FSIZE logACCORP logASECU POUT CAPU

      Source |       SS           df       MS      Number of obs   =       134
-------------+----------------------------------   F(10, 123)      =      2.75
       Model |  48.3163601        10  4.83163601   Prob > F        =    0.0043
    Residual |  216.057198       123  1.75656259   R-squared       =    0.1828
-------------+----------------------------------   Adj R-squared   =    0.1163
       Total |  264.373558       133  1.98777111   Root MSE        =    1.3254

------------------------------------------------------------------------------
     logPRFT |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FINT |   .2668694   .4120144     0.65   0.518    -.5486879    1.082427
        FENT |   .7266174   .4769413     1.52   0.130    -.2174587    1.670694
        DEQR |   .0677708   .1606374     0.42   0.674    -.2502011    .3857428
       exprd |   1.34e-06   3.30e-07     4.06   0.000     6.87e-07    1.99e-06
        FAGE |   .0031339   .0180546     0.17   0.862    -.0326041     .038872
       FSIZE |   .0199315   .0341799     0.58   0.561    -.0477256    .0875885
   logACCORP |  -.1002877   .0796545    -1.26   0.210     -.257959    .0573836
    logASECU |  -.0984308    .097908    -1.01   0.317    -.2922337    .0953721
        POUT |  -.0021473   .0175205    -0.12   0.903    -.0368281    .0325335
        CAPU |   .3330204   .7484904     0.44   0.657     -1.14857    1.814611
       _cons |   4.452345    .709628     6.27   0.000      3.04768     5.85701
------------------------------------------------------------------------------
```

```
. reg logPRFT FINT FENT DEQR exprd FAGE FSIZE logACCORP logASECU POUT CAPU,
robust

Linear regression                               Number of obs     =        134
                                                F(10, 123)        =       8.27
                                                Prob > F          =     0.0000
                                                R-squared         =     0.1828
                                                Root MSE          =     1.3254

------------------------------------------------------------------------------
             |               Robust
      logPRFT |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        FINT |   .2668694   .4851848     0.55   0.583    -.6935242    1.227263
        FENT |   .7266174   .6175272     1.18   0.242    -.4957397    1.948975
        DEQR |   .0677708   .1345619     0.50   0.615    -.1985863    .3341279
       exprd |    1.34e-06   3.57e-07     3.76   0.000     6.35e-07    2.05e-06
        FAGE |   .0031339   .0145175     0.22   0.829    -.0256026    .0318705
       FSIZE |   .0199315    .025435     0.78   0.435    -.0304156    .0702786
    logACCORP |  -.1002877   .0755769    -1.33   0.187    -.2498875    .0493121
     logASECU |  -.0984308   .0524186    -1.88   0.063    -.2021902    .0053286
        POUT |  -.0021473   .0142986    -0.15   0.881    -.0304505    .0261559
        CAPU |   .3330204   .3339752     1.00   0.321    -.3280629    .9941037
       _cons |   4.452345   .3484487    12.78   0.000     3.762612    5.142078
------------------------------------------------------------------------------
```

APPENDIX THREE

Questionnaire

Financing Options, Innovation and Firm Performance in Cross River State, Nigeria

QUESTIONNAIRE NUMBER ID | | | | |

INTRODUCTION

(ASK TO SPEAK TO OWNER/PROPRIETOR/MD/OTHER SENIOR DECISION MAKER)

Good morning/afternoon, can I check that this is [NAME OF BUSINESS]. My name is (say your name) and I am from Department of Economics, University of Calabar, Calabar. We are conducting research on financing options, innovation and firm performance in Micro Small and Medium sized enterprises in Cross River State.

I would like to ask your opinion about a range of issues concerning small businesses which will take about 20-30 minutes, depending on your responses. The results of the survey will be used for a Ph.D dissertation in the Department and will be useful for academic research, industry and to inform government policy on small business. Is now a convenient time to talk?

All information collected will be strictly confidential and responses will not be attributed to any individual or firm. Results will be reported in the form of aggregated statistics. Enterprises have been randomly chosen from MSMEs in Calabar, Cross River State.

Should I continue with the interview? (Tick as appropriate)

Continue ☐ Refused ☐

Can I just check, are you the firm owner or one of the most senior persons in day-to-day management of [NAME OF BUSINESS]?

Yes		CONTINUE TO A1
No/Uncertain		ASK TO SPEAK TO FIRM OWNER OR SENIOR PERSON IN THE ESTABLISHMENT

A1: What is the firm's current legal status? (Tick as appropriate)	
Sole Proprietorship	
Partnership	
Limited Liability	
Shareholding (including co-operative)	
Others (specify)	
A2: In what year was the firm established (indicate year)	
A3: How many full-time employees does the firm have	
A31: Of the full-time employees, how many are:	
Male	
Female	
A4: What is the sex of firm owner? Male	

C1: What is the estimate of the firm's yearly sales revenue (in naira)	
Less than I million	
One million to < 2 million	
Two million to < 3 million	
Three million and above	
C2: What is the firm's actual average monthly sales revenue	
C3: What is the total monthly cost of labour including wages, salaries, bonuses and pension payments?	
C4: What is the total monthly cost of raw materials and intermediate goods used in production?	
C5: What is the total monthly cost of electricity?	
C6: What is the total monthly cost of security	

D1: Which of the payment channels is used for the firm's financial transactions			
ATM	POS	Internet banking	
Electronic cheques		Electronic authorization for payments	
D2: Did the firm make any informal payment for electric or water connection, tax, sanitation, health and fire safety, or to any government official for any other service? YES		NO	
D21: If YES, how much was paid for that purpose (amount in naira)			
D3: Is the firm aware of Federal Government NIRSAL loan for MSMEs?		YES	NO
D4: If yes how much loan did the firm access from NIRSAL			
None	N750,000	N1.5 million	N2 million
N2.5 million	N3 million and above		
D5: In A typical month, how many power outages does the firm experience			
D6: During the last year, has the firm introduced new or improved product or service? YES NO			
D7: During the last one year, has this firm introduced any new or improved process (method of manufacturing product or offering service, logistics, delivery or distribution method)? YES NO			
D8: During the last one year, how much did this firm spend on research and development activities that led to new product or process?			
D9: What is the average capacity utilization of this firm in the last year?			(in %)
D10: Does the firm own an e-mail or a website?		**YES**	**NO**
D11: How do you rate the performance of your firm?			
Very good			
Good			
Fair			
Bad			
Very bad			

APPENDIX FOUR: DATA USED FOR ANALYSIS

PROD	logPROD	PRFT	logPRFT	FINT	FENT	DEQR	PRIN	PDIN	FAGE	FSIZE	CORRP	ACORRP	logACCORP	ASECU	logASECU	POUT	CAPU	SEXFE
70000	4.845098	-15000	0	0.5	0.5	1	1	1	6	5	1	15000	4.176091	10000	4	25	0.8	0
45000	4.653213	135000	5.130334	0.5	0.5	1	1	1	11	10	1	10000	4	15000	4.18	10	0.85	1
20000	4.30103	-75000	0	0.5	0.5	1	1	1	15	6	1	10000	4	5000	3.7	15	0.95	1
300000	5.477121	4E+06	6.564666	0	1	0	1	1	11	15	1	80000	4.90309	30000	4.48	15	0.85	0
60000	4.778151	34000	4.531479	0.6	0.45	0.82	1	1	21	3	1	2500	3.39794	3000	3.48	10	0.8	1
60000	4.778151	70500	4.848189	0	1	0	1	1	9	3	0	0	0	1500	3.18	10	0.9	1
450000	5.653213	2E+06	6.292256	0	1	0	1	1	21	10	1	50000	4.69897	15000	4.18	7	0.95	0
116667	5.066947	58000	4.763428	1	0	0	1	1	8	3	1	3000	3.477121	7000	3.85	15	0.85	1
87500	4.942008	148000	5.170262	0.5	0.5	1	1	1	19	4	1	15000	4.176091	12000	4.08	25	0.75	1
50000	4.69897	53000	4.724276	0.5	0.5	1	1	1	19	5	1	8000	3.90309	7000	3.85	10	0.8	1
70000	4.845098	123000	5.089905	0.5	0.5	1	1	1	16	5	1	25000	4.39794	10000	4	6	0.85	0
66667	4.823909	130000	5.113943	0	1	0	1	1	11	6	1	20000	4.30103	15000	4.18	15	0.65	1
150000	5.176091	225000	5.352183	0.5	0.5	1	1	1	6	4	1	10000	4	20000	4.3	12	0.8	1
120000	5.079181	358000	5.553883	0	1	0	1	1	11	5	1	15000	4.176091	15000	4.18	25	0.8	0
83333	4.920819	88000	4.944483	0.5	0.5	1	1	1	6	3	1	12000	4.079181	7000	3.85	15	0.9	1
150000	5.176091	825000	5.916454	0.5	0.5	1	1	1	26	10	1	16000	4.20412	25000	4.4	25	0.85	0
233333	5.367977	3E+06	6.414137	0	1	0	1	1	16	15	1	15000	4.176091	25000	4.4	18	0.75	0
40000	4.60206	-60000	0	0	1	0	1	1	22	10	1	25000	4.39794	25000	4.4	16	0.85	0
300000	5.477121	427000	5.630428	0.5	0.5	1	1	1	5	2	1	3500	3.544068	3000	3.48	10	0.9	1
125000	5.09691	80000	4.90309	0.5	0.5	1	1	1	10	2	1	3000	3.477121	5000	3.7	10	0.8	1
300000	5.477121	830000	5.919078	0.4	0.6	1.5	1	1	15	10	1	50000	4.69897	25000	4.4	7	0.85	0
50000	4.69897	41500	4.618048	0.7	0.3	0.43	1	1	9	8	1	5000	3.69897	2500	3.4	5	0.75	1
66667	4.823909	37500	4.574031	0.6	0	0	1	1	6	3	1	3500	3.544068	2500	3.4	8	0.85	1
150000	5.176091	102000	5.0086	1	0	0	1	1	21	2	1	3000	3.477121	3000	3.48	9	0.8	0
120000	5.079181	288000	5.459393	0.8	0	0	1	1	11	5	1	4000	3.60206	5000	3.7	6	0.9	1
80000	4.90309	-75000	0	0	0	0	1	1	20	10	1	45000	4.653213	10000	4	8	0.8	0
200000	5.30103	1E+06	6.10721	0	1	0	1	1	6	15	1	100000	5	0	0	7	0.85	0
250000	5.39794	3E+06	6.486431	0	0	0	1	1	41	20	1	150000	5.176091	10000	4	10	0.9	0
166667	5.221849	1E+06	6.075547	0	0	0	1	1	9	12	1	350000	5.544068	15000	4.18	11	0.85	0

800000	5.90309	6E+06	6.771955	0	0	0	1	1	11	10	1	25000	4.39794	25000	4.4	7	0.75	1
576923	5.761118	5E+06	6.661813	0	0	0	1	1	12	13	1	50000	4.69897	60000	4.78	10	0.9	0
125000	5.09691	180000	5.255273	0.5	0	0	1	1	16	2	1	15000	4.176091	0	0	6	0.85	1
100000	5	140000	5.146128	1	0	0	1	1	9	3	1	10000	4	12000	4.08	9	0.75	0
225000	5.352183	269000	5.429752	1	0	0	1	1	11	2	1	20000	4.30103	5000	3.7	7	0.85	1
28000	4.447158	48000	4.681241	1.5	0	0	1	1	5	10	1	10000	4	0	0	11	0.8	0
100000	5	105000	5.021189	1	0	0	1	1	6	2	1	15000	4.176091	12000	4.08	9	0.85	1
400000	5.60206	269000	5.429752	0.8	0	0	1	1	7	1	1	12000	4.079181	0	0	8	0.95	1
125000	5.09691	55000	4.740363	1	0	0	0	0	6	2	1	15000	4.176091	5000	3.7	6	0.85	1
100000	5	44000	4.643453	1	0	0	0	0	3	3	1	12000	4.079181	6000	3.78	9	0.75	1
50000	4.69897	-73000	0	1	0	0	1	1	16	4	1	10000	4	3000	3.48	6	0.8	0
2E+06	6.176091	4E+06	6.564666	0	1	0	1	1	10	3	1	80000	4.90309	30000	4.48	15	0.85	1
100000	5	-55000	0	1	0	0	1	1	11	2	1	5000	3.69897	5000	3.7	8	0.8	1
125000	5.09691	125000	5.09691	1	0	0	1	1	12	4	1	10000	4	10000	4	6	0.9	0
50000	4.69897	115000	5.060698	1	0	0	1	1	26	12	1	15000	4.176091	15000	4.18	10	0.85	0
350000	5.544068	3E+06	6.452553	0	0	0	1	1	36	10	1	15000	4.176091	10000	4	13	0.85	0
500000	5.69897	2E+06	6.269513	0	0	0	1	1	20	5	1	20000	4.30103	15000	4.18	6	0.92	0
266667	5.425969	3E+06	6.531479	0	0	0	1	1	26	15	1	25000	4.39794	20000	4.3	10	0.9	0
17500	4.243038	58000	4.763428	1	0	0	1	1	21	20	1	3000	3.477121	7000	3.85	15	0.85	0
3E+06	6.39794	4E+06	6.618048	1	0	0	1	1	20	2	1	20000	4.30103	50000	4.7	6	0.85	0
2E+06	6.221849	8E+06	6.883661	0.5	0	0	1	1	20	6	1	25000	4.39794	50000	4.7	8	0.8	0
116667	5.066947	180000	5.255273	1	0	0	0	0	16	3	1	3000	3.477121	5000	3.7	11	0.9	1
50000	4.69897	121000	5.082785	1	0	0	1	1	20	6	1	3500	3.544068	3000	3.48	8	0.85	0
66667	4.823909	540000	5.732394	0	1	0	0	1	22	12	1	55000	4.740363	25000	4.4	23	0.9	1
66667	4.823909	45000	4.653213	1	0	0	1	1	16	3	1	3000	3.477121	5000	3.7	7	0.8	1
41667	4.619789	35000	4.544068	0.6	0.4	0.67	1	0	21	6	0	0	0	10000	4	20	0.8	1
66667	4.823909	95000	4.977724	0.5	0.5	1	0	1	32	3	0	0	0	15000	4.18	15	0.9	0
100000	5	430000	5.633469	0.4	0.6	1.5	1	1	18	10	1	10000	4	20000	4.3	25	0.7	0
37500	4.574031	40000	4.60206	0.5	0.5	1	0	1	15	8	0	0	0	10000	4	10	0	0
25000	4.39794	15000	4.176091	0	0	0	0	0	5	4		0	0	2000	3.3	5	0.5	1
30000	4.477121	43000	4.633469	0	0	0	0	0	6	4		0	0	2000	3.3	7	0.6	0

50000	4.69897	63000	4.799341	0	0	0	1	1	3	7	0	0	0	7000	3.85	10	0.6	1
31250	4.49485	39000	4.591065	0	0	0	0	1	11	8	0	0	0	1000	3	6	0.6	0
62500	4.79588	65000	4.812913	0	0	0	1	1	9	6	0	0	0	10000	4	0	0.8	0
37500	4.574031	44000	4.643453	0	0	0	0	0	8	4	0	0	0	4000	3.6	0	0.4	1
75000	4.875061	50000	4.69897	0.8	0.2	0.25	1	1	7	2	0	0	0	5000	3.7	20	1	1
40000	4.60206	115000	5.060698	1	0	0	1	1	3	5	1	10000	4	5000	3.7	20	0.8	1
666667	5.823909	3E+06	6.511883	0.2	0.8	4	1	1	5	6	0	0	0	50000	4.7	25	0.8	0
100000	5	190000	5.278754	0.4	0.6	1.5	1	1	9	10	0	0	0	50000	4.7	30	0	0
500000	5.69897	1E+06	6.089905	0.2	0.8	4	1	0	4	5	0	0	0	20000	4.3	0	0.6	0
250000	5.39794	340000	5.531479	0.2	0.8	4	1	1	9	2	0	0	0	10000	4	25	0.8	0
125000	5.09691	170000	5.230449	0	1	0	1	1	3	2	0	0	0	10000	4	15	0.8	0
50000	4.69897	30000	4.477121	0.2	0.8	4	0	0	3	3	0	0	0	5000	3.7	15	0.6	1
24000	4.380211	25000	4.39794	1	0	0	0	1	2	5		0	0	5000	3.7	20	0.7	0
50000	4.69897	105000	5.021189	0.5	0.5	1	0	1	4	5	0	0	0	5000	3.7	20	0.8	1
18000	4.255273	29000	4.462398	0.7	0.3	0.43	0	0	3	5	0	0	0	0	0	0	0.5	0
31429	4.497325	125000	5.09691	0.8	0.2	0.25	1	0	9	7	1	0	0	0	0	20	0.7	1
37500	4.574031	230000	5.361728	0.4	0.6	1.5	0	1	6	12	1	0	0	10000	4	25	0.9	0
176471	5.246672	2E+06	6.273001	0.6	0.4	0.67	1	1	11	17	1	0	0	20000	4.3	15	0.75	0
30000	4.477121	42000	4.623249	0.8	0.2	0.25	0	1	3	4	1	0	0	0	0	32	0.82	1
100000	5	223000	5.348305	1	0	0	1	1	11	12	0	0	0	15000	4.18	22	0.55	1
133333	5.124939	584000	5.766413	0.2	0.8	4	1	1	2	6	1	4000	3.60206	10000	4	15	0.68	1
64286	4.808115	282500	5.451019	0.8	0.2	0.25	1	1	21	7	1	100000	5	10000	4	25	0.65	0
28000	4.447158	163000	5.212188	0.7	0.35	0.54	1	0	10	10	0	0	0	5000	3.7	12	0.8	0
52500	4.720159	35000	4.544068	0.8	0.2	0.25	1	1	9	4	0	0	0	12000	4.08	28	0.95	1
30000	4.477121	105000	5.021189	0	0	0	1	1	13	15	1	20000	4.30103	25000	4.4	30	0.8	0
37500	4.574031	66000	4.819544	0.9	0.1	0.11	1	1	11	4	1	4000	3.60206	10000	4	28	0.48	1
44000	4.643453	26000	4.414973	0.9	0.1	0.11	0	0	3	2	0	0	0	0	0	33	0.85	1
20833	4.318759	183000	5.262451	0.4	0.6	1.5	0	0	21	12	0	0	0	0	0	23	0.55	1
41667	4.619789	53000	4.724276	0.5	0.5	1	1	1	16	6	1	8000	3.90309	7000	3.85	10	0.8	1
87500	4.942008	123000	5.089905	0.5	0.5	1	1	0	4	4	1	25000	4.39794	10000	4	6	0.85	0
57143	4.756962	130000	5.113943	0	1	0	0	1	19	7	1	20000	4.30103	15000	4.18	15	0.65	1

200000	5.30103	225000	5.352183	0.5	0.5	1	1	1	11	3	1	10000	4	20000	4.3	12	0.8	1
100000	5	358000	5.553883	0	1	0	1	0	12	6	1	15000	4.176091	15000	4.18	25	0.8	0
87500	4.942008	187000	5.271842	0.6	0.4	0.67	1	1	8	4	1	12000	4.079181	8000	3.9	15	0.9	1
83333	4.920819	80000	4.90309	0.5	0.5	1	1	1	13	3	1	3000	3.477121	5000	3.7	10	0.8	1
272727	5.435729	830000	5.919078	0.4	0.6	1.5	1	1	22	11	1	50000	4.69897	25000	4.4	7	0.85	0
50000	4.69897	41500	4.618048	0.7	0.3	0.43	1	1	9	8	1	5000	3.69897	2500	3.4	5	0.75	1
66667	4.823909	37500	4.574031	0.6	0	0	1	1	4	3	1	3500	3.544068	2500	3.4	8	0.85	1
100000	5	102000	5.0086	1	0	0	1	1	20	3	1	3000	3.477121	3000	3.48	9	0.8	0
120000	5.079181	288000	5.459393	0.8	0	0	1	1	11	5	1	4000	3.60206	5000	3.7	6	0.9	1
72727	4.861697	-75000	0	0	0	0	1	1	12	11	1	45000	4.653213	10000	4	8	0.8	0
214286	5.330993	1E+06	6.103804	0	1	0	1	1	6	14	1	100000	5	10000	4	7	0.85	0
250000	5.39794	3E+06	6.486431	0	0	0	1	1	25	20	1	150000	5.176091	10000	4	10	0.9	0
153846	5.187087	1E+06	6.075547	0	0	0	1	1	9	13	1	350000	5.544068	15000	4.18	11	0.85	0
727273	5.861697	6E+06	6.771955	0	0	0	1	1	13	11	1	25000	4.39794	25000	4.4	7	0.75	1
625000	5.79588	5E+06	6.661813	0	0	0	1	1	26	12	1	50000	4.69897	60000	4.78	10	0.9	0
83333	4.920819	200000	5.30103	0.5	0	0	1	1	16	3	1	15000	4.176091	0	0	6	0.85	1
75000	4.875061	180000	5.255273	1	0	0	1	1	9	4	1	10000	4	0	0	9	0.75	0
225000	5.352183	350000	5.544068	1	0	0	1	1	11	2	1	20000	4.30103	0	0	7	0.85	1
31111	4.492916	180000	5.255273	1	0	0	1	1	20	9	1	10000	4	0	0	11	0.8	0
66667	4.823909	160000	5.20412	1	0	0	1	1	6	3	1	15000	4.176091	0	0	9	0.85	1
200000	5.30103	350000	5.544068	0.8	0	0	1	1	7	2	1	12000	4.079181	0	0	8	0.95	1
83333	4.920819	55000	4.740363	1	0	0	0	0	17	3	1	15000	4.176091	5000	3.7	6	0.85	1
100000	5	44000	4.643453	1	0	0	0	0	3	3	1	12000	4.079181	6000	3.78	9	0.75	1
33333	4.522879	-73000	0	1	0	0	1	1	11	6	1	10000	4	3000	3.48	6	0.8	0
166667	5.221849	450000	5.653213	0.5	0	0	1	1	15	6	1	25000	4.39794	50000	4.7	8	0.8	0
70000	4.845098	180000	5.255273	1	0	0	0	0	13	5	1	3000	3.477121	5000	3.7	11	0.9	1
75000	4.875061	121000	5.082785	1	0	0	1	1	4	4	1	3500	3.544068	3000	3.48	8	0.85	0
114286	5.057992	540000	5.732394	0	1	0	0	1	21	7	1	55000	4.740363	25000	4.4	23	0.9	1
50000	4.69897	45000	4.653213	1	0	0	1	1	9	4	1	3000	3.477121	5000	3.7	7	0.8	1
50000	4.69897	35000	4.544068	0.6	0.4	0.67	1	0	18	5	0	0	0	10000	4	20	0.8	1
50000	4.69897	95000	4.977724	0.5	0.5	1	0	1	23	4	0	0	0	15000	4.18	15	0.9	0

120000	5.079181	30000	4.477121	0.4	0.6	1	1	1	8	5	1	10000	4	20000	4.3	25	0.7	0
60000	4.778151	40000	4.60206	0.5	0.5	1	0	1	5	5	0	0	0	10000	4	10	0	0
25000	4.39794	15000	4.176091	0	0	0	0	0	16	4		0	0	2000	3.3	5	0.5	1
40000	4.60206	43000	4.633469	0	0	0	0	0	14	3		0	0	2000	3.3	7	0.6	0
70000	4.845098	63000	4.799341	0	0	0	1	1	7	5	0	0	0	7000	3.85	10	0.6	1
41667	4.619789	39000	4.591065	0	0	0	0	1	13	6	0	0	0	1000	3	6	0.6	0
93750	4.971971	65000	4.812913	0	0	0	1	1	12	4	0	0	0	10000	4	0	0.8	0
50000	4.69897	44000	4.643453	0	0	0	0	0	6	3	0	0	0	4000	3.6	0	0.4	1
75000	4.875061	50000	4.69897	0.8	0.2	0.25	1	1	12	2	0	0	0	5000	3.7	20	1	1
40000	4.60206	115000	5.060698	1	0	0	1	1	5	5	1	10000	4	5000	3.7	20	0.8	1
400000	5.60206	1E+06	6.09691	0.2	0.8	4	1	1	3	5	0	0	0	50000	4.7	25	0.8	0
121429	5.084321	40000	4.60206	0.4	0.6	1.5	1	1	13	7	0	0	0	50000	4.7	30	0	

APPENDIX 5: INFORMATION LETTER

DEPARTMENT OF ECONOMICS

UNIVERSITY OF CALABAR

CALABAR – NIGERIA

TO WHOM IT MAY CONCERN

LETTER OF INTRODUCTION

EKE, IHUOMA CHIKULIRIM

I write to introduce the above named Ph.D student of the Department of Economics, University of Calabar, Calabar- Nigeria, who is undertaking a Ph.D dissertation on the topic: Financing options, Innovation and Firm Performance in Cross River State, Nigeria under the supervision of Prof Friday S. Ebong.

If you agree to participate in this study, you will be asked to fill out some questionnaires which will take approximately one hour of your time. There are no anticipated adverse effect as it does not involve human subjects. You may refuse to participate or withdraw from the study after it has started with no repercussions whatsoever.

All information collected from participants in this study will be aggregated and all identifying information removed. Thus, your name or that of your firm will not appear in any report, publication or presentation resulting from this study. The date, with identifying information removed will be kept for a period of three years and will be securely stored in a locked office at the University of Calabar, after which it will be destroyed.

This project has been reviewed by and received approval from the Department of Economics and Faculty of Social Sciences Graduate Committees, in the event that you have any comments or concerns resulting from your participation in this study, please contact the Chairman, Department of Economics Graduate Board Chairman, University of Calabar, Calabar (Phone number: 08035072890 or by e-mail: petersamuelubi@gmail.com)

You may also wish to contact the Project Supervisor by phone on 08036747527

Prof Friday S. Ebong
Chief Supervisor

APPENDIX 6

CONSENT FORM

I agree to participate in this study being conducted by Eke, Ihuoma Chikulirim of the Department of Economics, University of Calabar, Calabar. I have made this decision based on the information I have read in the information letter. As a participant in this study, I realize that I will be asked to complete some questionnaires and to take part in a brief interview. I may decline answering any questions if I chose to. All information which I provide will be held in confidence and I or my firm will not be identified in any way in the final report. I understand that I may withdraw this consent at any time by ceasing to fill out the questionnaires.

Participant's firm (optional): .....

Participant's signature: .....

Date (required): .....