Credit Referencing, Bank Lending Methodologies and SME Access to Finance in Ghana

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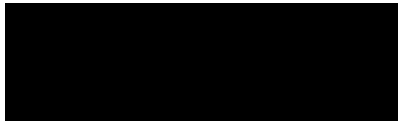
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DECLARATION

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DEDICATION

This thesis is dedicated to my beloved mother, Abena Konadu, and my wife, Charity Adomah Gyimah and my children Raymond Adjei Gyimah, Yaw Asante Gyimah, Sarah Adobea Gyimah, and Kwabena Konadu Gyimah, and all my siblings.

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ABSTRACT

Academic as well as policymakers acknowledge the importance that access to credit to entrepreneurs plays in stirring the economic growth and development in both developed and developing countries. Despite the increasing use of use different lending methodologies in their dealings with Small and Medium Scale Enterprises (SMEs), a significant segment of SMEs are yet to benefit from these methodologies. This study examined the association between bank lending methodologies, Credit Reference Information (CRI), and SMEs ' access to credit in Ghana. This study adopted a mixed-methods research approach characterised by the quantitative (cross-sectional) approach and qualitative technique. The accessible population of SMEs was 2,354, out of which a sample of 1,061 SMEs was determined using the simple random sampling method. The sample applied to the qualitative aspect of the study was eight managers who were selected using the purposive sampling method. A survey questionnaire and interview were used to gather data. Quantitative data were analysed using Pearson's correlation test, Exploratory Factor Analysis (EFA), and Ordinary Least Squares (OLS) regression analysis. Thematic analysis was employed to analyse qualitative data from interviews. Data analysis revealed that two domains of methodologies, namely Collateral Based Records (CBRs) and Personal Business Characteristics (PBCs), were applied to the participants to a great extent. The average scores associated with these dimensions were significantly higher than the median of the measurement scale. Furthermore, responses from the qualitative analysis suggest that CBRs as a methodology were more applied, but financial institutions also applied PBCs. Applying the two methodologies is necessary as they play unique roles in lending, though CBRs better cushions banks against default. This implies that both transaction-based and relationship-based lending methodologies are applied mainly by banks in Ghana though transaction-based lending is the most applied. The study contributed to the literature by proposing a framework of steps that SMEs in Ghana can take towards successful loan applications.

Keywords: Lending, SMEs, lending methodologies, credit referencing, collateral and banking records, Ghana.

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LIST OF ABBREVIATIONS

ACRAA   Association of Credit Reference Agencies in Asia

AfDB   African Development Bank

BIS   Bank for International Settlement

BOG   Bank of Ghana

CBR   Collateral and Business Records

CRB   Credit Reference Bureau

CRI   Credit Reference Information

DTI   Department of Trade and industry

EFA   Exploratory Factor Analysis

EFIGE   European Firms in a Global Economy

FSB   Financial Stability Board

GDP   Gross Domestic Product

GSS   Ghana Statistical Service

IDEV   Independent Development Evaluation

IFC   International Financial Co-operation

IMF   International Monetary Fund

ITC   International Trade Centre

JFC   Japanese Finance corporation

MENA   Middle East and North America

MLR   Multiple Linear Regression analysis

NSSBF   National Survey of Small Business Finance

NBSSI   National Board for Small Scale Industries

OECD   Organisation of Economic Co-operation and Development

PBC   Personal Business Characteristics

PCBs   Public Credit Bureaus

POT   Pecking Order Theory

PwC   Price Waterhouse Coopers

RGD   Registrar Generals Department

SEM   Structural Equation Modelling

SIMF   Survey on Italian Manufacturing Firms,

SPSS   Statistical Package for Social Science (now called Predictive Analytica
Software – PA

SSA   Sub-Saharan Africa

TOT   Trade-off Theory

TSR   Tokyo Shoko Research

UNIDO   United Nations Industrial Development Organization

WB   World Bank

LIST OF PUBLICATIONS

Under Review for Publication

- Lending methodologies and SMEs access to finance in Ghana; the mediating role of credit reference information. Journal: Cogent Business & Management. Submission ID 212035108

Book Chapter accepted for Publication by *MacMillan Publishers*

- Evaluation of lending methodologies used by Ghanaian banks to extend credit to SMEs.

List of Potential Articles

- Influence of firm characteristics on Success of SME loan applications: A review of literature

- Improving SMEs access to credit: An empirical analysis of the role of credit reference data sharing.

- The moderating influence of CRI on the relationship between lending methodologies and access to credit: Evidence from Ghana.

- Bank screening methodologies, firm characteristics and access to credit: evidence from Ghanaian lending relationships.

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Background of the Study

The economic success of every country depends mainly on the rate at which Small and Medium Scale Enterprises (SMEs) achieve their growth potential. SMEs constitute over 90 percent of all privately owned businesses globally, most of which are in developing countries (World Bank, 2018). Academic and developmental literature recognises the critical role played by SMEs and states categorically that it is the driving force for most economies. De Haas, Korniyenko, Pivovarsky, and Tsankova (2015); Cingano, Manaresi, and Sette (2016); OECD (2017); have all acknowledged that SMEs create the majority of employment generated in developing economies through entrepreneurial initiatives by building more industries to aid the development of any economy in the world. Agbola and Amoah (2019) estimate that private entrepreneurial businesses create 90 percent of all jobs, contributing about 52 percent of employment in most sub-Saharan African countries. For example, in the United Kingdom, small businesses contribute 60 percent of all jobs and 47 percent of private-sector turnover (FSB, 2016). In Ghana, statistics indicate that 92 percent of all registered businesses are made up of SMEs (GSS, 2016), providing about 85 percent of employment and contributing 75 percent to the country's GDP until the commencement of oil production.

Despite these acknowledgments, banks find it difficult to lend to SMEs because they are perceived to be informationally opaque, and lending to such institutions will mean the banks are incurring higher credit risk and transactional costs (Beck, Lu, and Yang, 2015). Other reasons highlighted as contributing to banks inability to lend to SMEs include low capacity or inexperience of the owner/managers (Dalitso and Peter, 2000); unfavourable business environment (Peci, Kutllovic, Tmava and Shala, 2012); the actual effect of the economic crisis of 2006 – 2009 on economies of countries (Cingano et al., 2016). However, the current debate has centered on issues relating to the availability of credit information and bank lending methodologies (Beck, Degryse, De Haas, and van Horen, 2018).

Several writers have defined access to credit in different ways. Ogubazhi and Muturi (2014) defined access to credit as the willingness and ability of owners of businesses to source credit. According to Kira (2012), SME owners can acquire credit to finance one's business proposals.

Akudugu (2013) posits that access to credit connotes a situation where business owners have the right to decide concerning the allocation of funds in the short-term and the willingness to repay the facility so acquired according to the schedule and interest so agreed. For this research, access to credit relates to situations where an individual or a firm can acquire the needed funding for their business after meeting all the requirements of the credit provider to ease the cash flow problem (World Bank Group, 2016).

There is enough evidence globally that attests that SMEs face difficulty accessing credit (Wang, 2016). SMEs rely primarily on banks as their traditional source of external finance, and the unavailability of bank financing has hindered their growth. Bank lending to SMEs according to the OECD (2017), registered slower growth in 2015 than in previous years in countries such as Chile, Columbia, and Malaysia. Serbia and Turkey, South-Eastern Asia, and the Pacific hence making SME firms financially constrained. Similar studies in Ghana and some African countries identified a slow growth to access to bank credit, thus impeding the development, economic growth, and political stability of such economies (Aremu and Adeyemi, 2011; Ihua, 2009; Fowowe, 2017). In Ghana, the lack of financing for SMEs is deeply rooted (Ghana Banking Survey, 2019). A publication by African Development Bank on Ghana's economic outlook cited the lack of access to finance by SME businesses to explain the slow growth in economic activities in Ghana (IDEV. 2019).

As a means of mitigating the problem of access to finance to SME firms, the Bretton Wood Institutions, that is - World Bank (WB) and its affiliate institutions, proposed the setting up of credit reference bureaus to collate and share information on the borrower in evaluating credit applications which they believe will help mitigate the problem (Triki and Gajigo, 2012). Credit information sharing (mostly referred to as credit referencing) has been touted as a mechanism to help reduce information differences and has consciously been introduced by these international bodies in collaboration with the central banks of most developing economies (Gehrig and Stenbacka, 2007). Documented benefits of credit referencing include reducing the problem of access to finance to SMEs caused by asymmetric information (Kusi, Ansah-Adu, and Owusu-Dankwa, 2015). Behr and Sonnekalb (2012) assert that credit referencing information allows lending institutions to identify borrowers with good credit history to enhance credit accessibility

and growth in SME financing. Bos, de Haas, and Millone (2016) find that credit information sharing enhances the quantity and quality of loans in general and increases the amount of funds made available to SMEs.

The ability of a bank to overcome the problem of asymmetric information depends on the choice of or a combination of lending methodologies applied. Traditionally, banks have used two primary methodologies: relationship lending methodologies and transactional lending methodologies (Ferri, Murro, Peruzzi, and Rotondi, 2019). Lending relationship relies on the use of information gathered from the regular dealing with bank clients such as deposit, transferring, and receiving money and other personnel interaction with clients (Bartoli, Ferri, Murro and Rotondi, 2013). Transactional-based lending is when banks base their lending decision on "hard" information based on the client's quantitative data. Such information is gathered from the client's balance sheet and other financial and accounting information (Stein, 2002). Several studies, including Berger and Udell (2006); Sette and Gobbi (2015); Bolton et al. (2016); Ferri et al., 2019 have indicated that banks that have relied solely on the use of transactional lending methodology are likely to reduce the number of loans made available to its customer as against banks that use relationship lending methodology. Li et al. (2018) find that the adoption and use of relationship lending reduce asymmetric information, thus increasing credit availability to firms.

Banks in Ghana mostly make use of relationship lending technologies (BoG, 2019). This is probably a majority of banks corporate clients are SMEs and as most SMEs operate informally and cannot produce quantitative information this methodology is perceived to be more reliable. Loan officers interact with SME client owners to build relationships based on trust and reputation (Sarpong-Kumankoma and Osei, 2013). This helps in producing soft information, which the bank depends on in its lending to SMEs. This is supplemented mainly through collateral or guarantees from the owner by using his assets or the business as a source for complex information. It stands to reason that both hard and soft information has been existing methodology used by the bank. In countries like Ghana where the banking system represents the most used source of external finance by SMEs, the introduction of credit reference bureaus that seek to promote the sharing of credit information held by banks on their clients could go a long way to increase access to credit.

1.2 The Problem Statement

The critical role played by SME firms in driving the development of most economies cannot be overemphasised. SME businesses account for over 95 percent of all enterprises providing over 60 percent of employment, especially in developing countries (World Bank, 2018). Thus, the survival of SME firms is therefore fundamental to the success of the Ghanaian economy. Their sustained existence and growth are a source of thriving innovation and employment, hence contributing to the creation of domestic wealth, thereby reducing poverty. Banks remain the primary source of debt finance to SME firms by contributing about 90 % of all domestic credit to SME firms in developing countries (World Bank, 2018). In Ghana, bank credit, particularly obtained through term loans, is very important to helping small businesses maintain cash flow, purchase new machinery and equipment, and expand. However, evidence suggests that SME firms in Ghana experience a severe shortfall in financing. In fact, among the obstacles to the shortfall empirical literature has inadequate access to finance as the key constraint to the growth and functioning of SMEs than other factors such as lack of infrastructure and corruption (Nkuah, Tanyeh, and Gaeten, 2013; Nyanzu and Quaidoo, 2017; Quartey et al., 2017).

The root cause of this problem has been information asymmetry between SMEs and banks (Stiglitz and Weiss, 1981; Abor and Quartey, 2010; OECD, 2017). Many researchers in the credit market believed that the problem of lack of information asymmetry, which had been a hindrance to SMEs ' access to credit, was going to be over with the introduction of credit referencing and reporting in the financial architecture of most countries. The empirical literature on credit referencing in some developed countries in Europe, America, Asia, and some African countries such as Kenya has confirmed that credit reference information sharing improves access to firm credit. Therefore, the question that needs to be answered is, has the introduction of credit referencing into Ghana's financial infrastructure helped reduce this information gap, increasing access to finance to SME businesses? Again, Ghana and many developing countries are characterised by insufficient address and street naming systems, making tracing the borrower recover loans and advances by lending institutions very difficult. Moreover, the inherent risks associated with lending to SMEs and the lending methodologies and procedures adopted to serve SME firms do not reflect the local context.

This brings to the fore the need to further explore the effect of introducing CRB activities into the financial system in Ghana.

1.2.1 The prior research initiatives in Ghana

Primary research conducted in Ghana points to a significant gap in the number of funds demanded to finance SME businesses and the amount supplied by banks, and this is seen as the most pressing constraint impeding the growth of SME businesses (Aryeetey and Aryeetey, 1998; Abor and Biekpe, 2007; Quartey et al., 2017; Erdogan, 2018). However, like many Sub-Saharan African countries which are experiencing a similar problem of access to finance by SMEs, Ghana has sought to implement several reforms aimed at improving the phenomena has only brought some minor success. Such reforms include the development of an improved regulatory framework and other policies targeted specifically at SME financing. Examples include the establishment of public funds such as the Export Development Fund (EDIF) in 2003 and the Microfinance and Small Loans Centre (MASLOC) in 2006 to complement already existing schemes like the National Board for Small Scale Industry (NBSSI) established in 1985 all directed to help improve access to funding to SMEs in the quest to eradicate poverty. These institutions faced several challenges in the implementation of their mandate some of which were identified as the high demand for collateral (Baah-Nuakoh, 2003), the complex legal process that needed to be undertaken to access funds as well the fact that most of the schemes had their offices sited in the capital Accra making accessibility difficult for SMEs outside the capital Duada and Nyarkoh, 2014).

Abor and Quartey, (2010); OECD, (2017) identified the root cause of this problem has been information asymmetry between SMEs and banks. Various development institutions, including the World Bank Group, have this as a major priority and recommended using credit referencing information to reduce the information gap to improve access to SME financing. The International Finance Corporation (IFC), an affiliate of the World Bank, has assisted over 90 countries in establishing Credit Referencing Bureaus (CRB) and registries, including Ghana. Credit reference Information is thus seen as an avenue for banks and other lending institutions to independently access firms' and individuals' credit information with certainty. The intended benefits that include increased credit availability to SMEs, among others, have been documented in the background. If

so, why then are there still reports of lack of access to finance to SME firms ten years after its introduction into the Ghanaian banking industry? The current study takes advantage of the introduction of CRI sharing into the financial architecture of the Ghanaian banking industry and credit market in general to assess the impact of CRI sharing and bank lending methodologies on access to credit by SMEs.

1.2.2 The Research Gap

The significance of the introduction of credit reference information sharing into the financial architecture of the Ghanaian banking industry cannot be overemphasised. However, the debate on the effectiveness of credit reference information sharing in conjunction with other lending methodologies adopted by banks in their dealing with SME firms to reduce the gap between demand and supply of credit to SME businesses still rages.

Therefore, the question that needs to be answered is whether the introduction of credit referencing into Ghana's financial infrastructure helped reduce this information gap and increase access to finance to SME businesses? Is it that the wholesale importation of the credit referencing system is not conducive to the financial architecture of these developing countries where the problem still prevails? Or are there other methods that can be used to complement the current system to help improve the situation at hand? Unfortunately, existing literature has failed to answer these questions, making it imperative for further investigation, especially in developing countries like Ghana.

1.3 Aim and Research Objectives and Questions

1.3.1 Aims and Objectives

This study analysed credit referencing and bank lending methodologies on SMEs' access to finance in the context of Ghana.

The research study focused on the achievement of the following specific objectives:

i.   To examine the lending methodologies used by banks to evaluate SME credit proposals.

ii.   Assess the effect of lending methodologies on SMEs' access to finance in Ghana.

iii. To examine the effect of credit referencing information on SMEs' access to finance in Ghana.

iv. To determine the combined effect of credit referencing information and lending methodologies on SME access to credit.

1.3.2 Research Questions

In addition to fulfilling the aim and the above objectives, this study also sought to answer the following four main research questions:

- **Research Question 1:** What methods do banks undertake in assessing SME credit proposals?
- **Research Question 2:** How do lending methodologies affect SMEs ' access to finance?
- **Research Question 3:** How does credit referencing affect SMEs ' access to finance?
- **Research Question 4:** What are the combined effects of credit referencing and other lending methodologies on credit availability to SME's?

To determine the lending methodologies banks, undertake to assess SME lending proposal the following hypotheses were tested: average score associated with lending methodologies.

H1a: the average score associated with CBRs is significantly higher than the median score of this variable.

H1b: the average score associated with PBCs is significantly higher than the median score of this variable.

To examine the relationship between domains of lending methodologies, credit reference information, and access to credit facilities that concern the research objective, the following hypothesis was tested.

H2a: CBRs has a significant effect on access to credit among the SMEs

H2b: PBCs has a significant effect on access to credit among the SMEs

The hypothesis tested to address to address the third research specific objective (i.e. to examine the effect of credit referencing information on SME's access to finance) was:

H3 – CRI has a significant effect on access to credit among the SMEs

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Finally, to address the fourth specific objective of determining the combined effect of credit referencing information and lending methodologies on SME access to credit the following hypothesis were tested.

H4a – the effect of lending methodologies on access to credit is moderated by Collateral Business Records (CBRs)

H4b – the effect of lending methodologies on access to credit is moderated by Personal Business Characteristics (PBCs).

1.4 Justification of the Study

The results of the study provide five main contributions to the literature. Firstly, investigating the effect of Credit Reference Bureau information and lending methodologies of banks on access to credit to SMEs would benefit the management of banks and other lending institutions to initiate credit risk management practices that could identify creditworthy customers with the ability to repay loans granted to them. Secondly, the study could help bring about the lower cost of credit and enhance easy access to credit by would-be borrowers, including SME firms.

Thirdly, the study's findings could enable policymakers, lending institutions, borrowers, and other stakeholders in the credit market to acknowledge the immense contribution of credit reference agencies in making available credit information, reducing the problems brought about by asymmetric information. Besides, the findings could challenge policymakers and legislators to develop legal frameworks that seek to improve the financial infrastructure to attract investors into the credit market and encourage lending institutions to provide and use credit information available from credit reference agencies.

Fourthly, by focusing on the substitutive and complementarity between the traditional lending methodologies of banks and credit reference information, the finding could reveal whether combining the two lending methodologies would help increase access to finance in general and to SMEs firms. Fifthly, the study could serve as a baseline for other researchers interested in credit management as it would contribute enormously to the existing body of knowledge in this area. Finally, the study proposed a framework for SME lending that ensure that SME firms could be

better prepared and well qualified to meet the requirement demanded by the bank and other lending institution to increase access to credit.

1.5 Methodology Scope

The mixed-method research approach was employed for the study. The mixed approach that draws from both quantitative and qualitative approaches was used because neither can address the study's objectives. For the quantitative study, a questionnaire was used in data gathering. This tool was chosen because it enabled SMEs to respond in the absence of the researcher, and it was the only means for measuring the relevant variables as continuous social variables. The questionnaires for collecting quantitative data were the first to be administered and were done in two phases, the exploratory and hypothesis testing, to address specific objectives. First, the semi-structured interview was used in gathering the qualitative data. Then, the exploratory analysis was conducted before hypothesis testing. Then, thematic analysis was applied to analyse the qualitative data. The experimental technique was necessary for linear regression. This technique was chosen because the research questions, especially research questions, required a deep understanding of bank lending methodologies.

Consequently, there was the need to undertake an in-depth exploration of experiences and views in the context of banking lending activities. The subjective paradigmatic approach was needed to address the research questions. Descriptive statistics were used to summarise the demographic data.

1.6 Delimitations of the Study

This study was limited to SME firms in the Greater Accra region that has credit facilities with banks. As a result, SMEs expected to provide data for analysis were enterprises that had received credit facilities from banks. Of course, an SME would know nothing about the key issues of the study if it had not secured a credit facility from a bank in Ghana. For this reason, not all SMEs registered with the Registrar Generals Department (RGD) could participate in the study. Subsequently, the study focused on SMEs that had received credit facilities from banks, now called the study's target population.

The selection and use of SME firms ignoring large firms may lead to participants' biases that may affect the reliability of the analysis as most of the firms are relatively young and may not have the track record to provide the full credit information sharing data relative to a large firm. Another limitation is the use of survey data and interview methods. Finally, because the SME firms that form the sample were selected from the Greater Accra region of Ghana, the generalisation of the results may be limited. Future research should consider including both small and large firms throughout the country in its data collection to deal with the limitation to facilitate generalisation.

1.7 Organisation of the Study

Chapter 1 centers mainly on the background of the study, including the problem statement. The purpose of this chapter is to bring out the motivation for the study. Four primary research questions are raised here in the chapter while also justifying the study.

Chapter 2 reviews extensively major theories on firms' capital structure, including the trade-off theory, pecking order theory, and market timing theory. The concepts of relationship-based and transaction-based lending methodologies were also extensively reviewed together with the theories of asymmetric information, credit rationing, and credit referencing theories. The purpose of the chapter was to provide a theoretical foundation for the study.

Chapter 3 provides an extensive review of empirical evidence to link and interact with conclusions arrived at by previous researchers on the study under consideration. Chapter 4 describes fully the methodology employed to achieve the objectives of the study. The chapter explained the sources of data collection and the procedure used in sample selection. Finally, the chapter describes how various methodologies (Pearsons's correlation and Multiple Linear Regression) were used to capture the effect of independent variables on the dependent variable.

Chapter 5 presents the result of the various analysis. The purpose of the chapter is to present and interpret the results in order of the objectives. Chapter 6 effectively discussed the findings. The chapter aims to explain the implication of the findings for theory and practice and examine the congruence between current evidence and previous research. Finally, chapter 7 summarises the thesis, implications, limitations, recommendations, and suggestions for future studies.

1.8 Chapter summary and Conclusion

Lack of finance has been the major problem confronting the growth and development of SME businesses all over the globe. However, despite this acknowledgment and efforts made by various governments and their development partners, there has been minimal improvement in improving access to small business financing. The problem has mainly been attributed to a lack of adequate information to evaluate SME loan applications effectively because SME firms are perceived to be informationally opaque. Therefore, with assistance from the World Bank and International Financial Corporation (IFC), most countries have introduced credit referencing information sharing into the financial architecture. The study investigates the effect of Credit Reference Bureau information and lending methodologies of banks on access to credit to SMEs. First, it is intended to develop recommendations that will benefit the management of banks and other lending institutions to initiate credit risk management practices that could identify creditworthy customers with the ability to repay loans granted to them. Secondly, the study could help bring about the lower cost of credit and enhance easy access to credit by would-be borrowers, including SME firms.

1.9 Definition of key terms

Lending: Lending in banking refers to the process when a bank gives away its recourses in the form of cash to another entity or individual persons as per predefined mutual terms.

Small and Medium-sized Enterprises (SME): They represent a group of businesses that capture a relatively low level of scale in terms of turnover and employment. The precise definition varies slightly across different international and national bodies.

Access to credit: this relates to situations where an individual or a firm can acquire the needed funding for their business after meeting all the requirements of the credit provider to ease the cash flow problem

Lending methodology: this is a combination of primary information sources, screening and underwriting procedures, loan contract structure, and monitoring mechanisms. Lending methodologies include a set of transactions technologies and relationship lending, which play a key role in credit allocation decisions

Credit reference: these are documents that describe your credit history, background, and creditworthiness to potential lenders which are normally held by credit reference bureaus.

Collateral and business records: this represents information on collateral and business records of the respondents

Personal business records: this represents items describing the demographic attributes of owners and business characteristics.

Relationship-based lending: this refers to the relationship that the bank or the lender has with the borrower in addition to knowing the financial statements and the information they normally gather to make a loan.

Transaction-based lending: this is a form of lending methodologies is that which are primarily based on hard financial information supplied by the borrower to the bank to aid loan decision making often in the form of financial statements and the value of the assets of the loan applicant.

Collateral-based lending: also referred to as asset-based, collateral-based lending are loans that are primarily secured by an asset.

Asymmetry of information: this is a term that refers to a situation when one party in a loan transaction has more information than the other**.**

CHAPTER TWO
THEORETICAL LITERATURE AND CONCEPTUAL FRAMEWORK

2.1 Introduction

To better understand the debate on lending methodologies and SMEs' lack of adequate financing, it is essential to review some of the several studies carried out globally on the lending methodology adopted by banks and SMEs' access to credit. The section also highlights the theoretical underpinning of the study

This chapter reviews recent literature on lending methodologies, credit referencing, and access to finance. The chapter starts on section 2.2 by looking at an overview of the importance of SMEs to an economy and defining and classifying SMEs by various researchers and institutions. In the next section, 2.3, the researcher briefly looks at the credit assessment criteria by banks. Next is section 2.4, which looks at the concept of transaction-based lending methodology. Section 2.5 looks further into the concept of relationship-based lending methodology. In section 2.6, the researcher reviews the theoretical framework. Section 2.7 takes a brief look at the history of credit referencing and the theories of information sharing. The last section, 2.8, summarises the chapter.

2.2   Overview of the Importance of SMEs to the Global Economy

SMEs serve as the backbone of many economies of the world. Constituting about 95 percent of all businesses in most countries, SMEs significantly contribute to employment generation (Abor and Biekpe, 2007). Studies in both developed and developing economies indicate that SMEs contribute on the average 60 percent of total formal employment in the manufacturing sectors and up to 40 percent to the GDP of most countries (Ayyagari et al., 2007; World Bank, 2015). For instance, about 21.3 million SMEs in Europe employ an estimated 88.6 million workers (Kraemer-Eis et al., 2013). SMEs contribute 25 percent and 35 percent of exports in OECD and Asian countries, respectively. The IFC (2018) estimates that about 44 million formal SMEs in Sub-Sahara Africa employ 62 percent of the workforce. The International Trade Centre (ITC, 2018) states that if the informal SMEs are added to the formal sector, SMEs generate 55 percent of GDP and employ 80 percent of the labour force. SME businesses create the majority of new jobs created in the U.K. Large businesses contributed 24 percent to new jobs compared to 76 percent for SME businesses. Of these, 76 percent of new jobs created by SME businesses, existing SMEs contributed 44 percent

of new jobs created, whilst new business start-ups contributed 33 percent (BIS, 2011). SME firms are seen as a key source of research and development innovation which constitutes an essential base for developing any stable industrial economy (Halabi, 2014; European Union, 2015). Small and Medium Scale Enterprises are acknowledged as having a vast potential for wealth creation in any economy and also a means of poverty eradication (IFC, 2018). SME's play an important role in the process of industrialization, economic stability, and sustainable development of any economy all over the world (OECD, 2017). SMEs are critical to developing every economy as their role in commercialising research and development in innovation to create and serve as an engine of growth to domestic wealth creation cannot be over-emphasised (Kukurah, Alhassan, and Sakara, 2014). Data from the Chinese National Bureau of Statistics indicate that SMEs constitute 99.4 percent of all enterprises in China, contributing 59 percent to the country's GDP.

In literature, both academic and developmental, there is no doubt that if all stakeholders are more committed to SME business development, most economies (especially in developing economies) will witness tremendous transformation and growth. Despite these potentials, SME's worldwide face many problems that seek to undermine the potential the sector has to contribute to economic growth and development. They are faced with several constraints, with credit availability being the principal. The lack of adequate finance and resource poverty harms the growth of SME firms and affects the growth of most economies in the world (Erdogan, 2018).

2.3   Definition of SME

There was a significant concern in academic literature regarding what defines small and medium enterprises (Wernerfelt, 2013). The definition varies among researchers and writers. Therefore, different contributors to the SME financing debate have different criteria in defining SMEs. According to Abor and Quartey (2010), a commonly used criterion in defining SMEs is that which identifies any business entity with an ownership structure and references the number of employees engaged by the entity as a means of classifying SMEs. In addition, various governments and international bodies use thresholds on investment, staff numbers, annual turnover, and enterprise ownership in defining SMEs.

In an attempt to overcome the problem of finding a uniform definition of SME, the Bolton Committee (1971) came up with a definition from two perspectives (i.e., economic and statistical). The committee was the first institution to try to define and categorise SMEs. Economically, SME was classified as small if it meets conditions such as having no management structure; if the firm has a relatively small market share as well as being independent and is not a subsidiary of a larger firm.

Several weaknesses could be identified with regards to this economic definition including the fact that as firm it is not all small firms that do not have a formalised management structure. There are evidence of small firms which employee 200 or less persons but have formalised management structure as it is unlikely that such a firm may be managed by only the ownere or part owners (Kayanula and Quartey, 2000). Also, Wynarczyk et al. (1993) disagreed with the Bolton Committee's economic definition perceiving small firms that operate in a market that the Committee believes is perfectly competitive. However, it must be said that perfect competition does not exist in such markets as many small firms exist to satisfy specific segments of the market by providing a unique service or product in a remote location where there may not exist any competition (Storey, 1994).

For the statistical definition, an SME firm, according to the Bolton Committee, must conform to the main criteria, these are the size of the small firms sector's contribution to GDP, employment, export, etc.; the extent to which the small firm sector contributes to the country's economic growth as well as how it has changed over time and how the contribution to these economic variables above compares to that of other countries.

The statistical definition has also received a lot of criticism in that no single definition or criteria was used to connote "smallness" as the criteria used (ie. Number of employees, owners' structure, turnover and asset base) made the definition so complex that international comparison become difficult (Kayanula and Quartey, 2000). Table 2.1 below depicts the various classification by the Bolton committee based on the characteristics of different industry sectors.

Table 2.1: Bolton Committee Classification of SME firms

Sector	Definition
Manufacturing	200 employees or less
Construction	25 employees or less
Mining and Quarrying	25 employees or less
Retailing	Turnover of 50,000 pounds or less
Miscellaneous	Turnover of 50,000 pounds or less
Services	Turnover of 50,000 pounds or less
Motor trade	Turnover of 100,000 pounds or less
Wholesale trade	Turnover of 20,000 pounds or less
Road transport	Five vehicles or less
Catering	All excluding multiples and Brewery managed houses

Source: Bolton Committee Report (1971)

Based on criticism, many other individuals and institutions have also come up with other classifications of SME businesses. For example, the European Union (EU) defines a micro-firm as having ten or fewer staff, a turnover of no more than 2 million Euros, and an annual balance sheet total of no more than 2 million Euros. A small firm has a maximum of 50 staff, 10 million Euros of turnover, and 10 million Euros on its balance sheet. A medium-sized firm has no more than 250 staff, a turnover of no more than 50 million Euros, and a balance sheet not exceeding 43 million Euros (European Union, 2003).

Table 2.2: EU Classification of SMEs

CRITERIA	MICRO	SMALL	MEDIUM
The upper limit of employee size	10	50	250
The upper limit of annual turnover	2 million Euro	10 million Euro	50 million Euros
The upper limit of the annual balance sheet total	2 million Euros	10 million Euros	43 million Euros

Source: European Union (2003)

Comparing the European Union (EU) definition above with that of the Bolton Committee, it can be seen that the EU definition does not include multiplicity of criteria but is premised solely on employment numbers. The definition also makes a distinction between micro, small and medium thus debunking the earlier assertion by the Bolton committee that SME groups are homogeneous (Elaian, 1996)

The World Bank, as a general rule, defines SMEs as those firms having less than 300 employees, a turnover of around US$15 million, and a total asset base of US$15 million. Banks have their definition of small and medium-scale firms. However, generally, most banks define SMEs as firms with sales of less than US$ 2.5 million and US$10 million, respectively (Becks, 2008a). The department of trade and industry United Kingdom also defines SME, as shown in the table below.

Table 2.3: Department of Trade and Industry (UK) Classification of SMEs

SECTOR	DEFINITION
Micro	0-9 employees
Small	From 0-49 employees includes micro sector
Medium	Between 50 and 249 employees
Large	Above 250 employees

Source: Department of Trade and Industry U.K (2008)

The United Nations International Development Organisation (UNIDO) classifies SME business by distinguishing between developed and developing countries based on only the number of employees. Table 2.4 and 2.5 depicts these two modes of classification.

Table 2.4: Developing Countries Classification by UNIDO

CLASSIFICATION	DEFINITION
Micro enterprises	Having less than five employees
Small enterprises	Having from 5 to 19 employees
Medium enterprises	From 20-99 employees
Large enterprises	More than 100 employees

Source: UNIDO (2005).

Table 2.5: Developed Nations Classification by UNIDO

CLASSIFICATION	DEFINITION
Small enterprises	Firms with less or equal 99 employees
Medium enterprises	Firms with between 100-499 employees
Large enterprises	Firms with greater or equal 500 employees

Source: UNIDO (2005).

In Ghana, the Ministry of Local Government and Rural Development also distinguishes between SMEs as a small, medium, or large scale. The National Board of Small-Scale Enterprises (NBSSI), the body tasked with overseeing the development and effective operation of SME businesses, also define a firm with less than one and not exceeding five employees and an asset base of not exceeding US$10,000 as a microbusiness; firms that employ between 6-29 staff and with a capital base of not more than US$100,000 (excluding land and building) as small (ITC, 2016). The Ghana Statistical service, on the other hand, also defines SMEs as firms that employ between five and 29 employees and with fixed assets not exceeding US$100,000 as small and those with between 30 and 99 employees as either medium-scale Ghana Statistical Service (GSS, 2020). For the study, the definition by the Ghana Statistical Service was be adopted. This is because a higher percentage of businesses in Ghana fall into this category.

2.4   Theoretical Explanation of Sources of SME Finance

Small and Medium Scale businesses need financial resources to function and survive to play an effective role in creating jobs to reduce poverty. There is enough evidence that points to a positive impact on the availability of finance on the level of economic growth and poverty alleviation in developing countries. Ayyagari et al. (2011b) posit that access to finance is positively related to the number of business start-ups and helps in the development of creativity and innovation. Becks et al. (2006) also reiterate that access to finance allows existing firms to achieve growth and also exploit investment opportunities in others to stay in the competition. According to Demirguc-Kuntz, et al. (2006), adequate access to finance allows firms to acquire the assets needed to be

effective and efficient in productivity. SME firms depend on equity and debt to fund their businesses (Myers, 1984; Demirquc-Kuntz et al., 2006). Such sources may include family/friends, share capital, business angels, venture capital and retained earnings (Frimpong and Antwi, 2014); bank loans and overdraft (Coffie, 2012); rotating savings and credit associations (ROSCAs), loan sharks, indigenous savings and credit clubs, informal credit unions, and Susu collectors (Quaye and Sarbah, 2014). These sources can be classified as either formally or informally or internal or external. The factors that determine access to finance through official channels may differ from those that determine access to finance through informal channels. Because informal financing operates in a world where social networks are commonly employed to conduct business (Allen et al., 2018), firm factors like size, financial information, and assets to be used as collateral may not be as important in determining access to informal loans.

2.4.1 Informal sources of finance

Informal credit is accessed from unofficial sources, from institutions that are not operated under government regulation (Hanedar, Altunbas, and Bazzana, 2014). SME firm owners have always preferred to finance their businesses from internal sources if feasible rather than debt financing. According to Shane (2008), this has remained so because access to equity finance in venture capital and the stock exchange is not available to SMEs, especially in developing countries. As a result, firms' owners sometimes depend on internal sources, often from the owners' injection of fresh capital. This has always remained the preferred source, but sometimes owners' resort to long-term external financing in the form of loans from banks and other financial institutions. According to Bukvic and Bartlett (2003), owners of small businesses are forced to primarily depend on self-financing, borrowings from family and friends, trade credit, and other informal sources. A study also in the U.K by Atanasova and Wilson (2003) confirmed that firms that are constrained in terms of access to finance by commercial banks are more likely to use trade credit in the informal markets. A similar study in the United Kingdom, conducted by Lean and Tucker (2001) using primary data obtained through survey questionnaires and interviews to investigate the premise that informal forms of funding play a substantial role in eliminating asymmetric knowledge between lenders and borrowers. The study found among others, however, that informal finance remained extremely limited in use by small businesses in the UK. Musah, Osei Adu, Agbanyo, and Owusu

Boakye (2019) used binary logistic regression to analyse the effect of business size and sector on SMEs' usage of informal financing in Ghana. The study was on a sample of 900 SMEs. The study found that Micro and small businesses, in comparison to medium-sized businesses, have a strong desire for informal lending. In comparison to the agriculture sector, SMEs in the manufacturing, construction, and hospitality industries are less prone to employ informal loans. The study reveals that informal finance is not used in the same way by all SMEs; it varies by size and industry.

2.4.2 Formal sources of finance

External finance to SME firms (which is the standard type) can be categorised broadly into two forms: bank and non-bank financing. SME owners' resort to relying on external finance in other to keep their business running. A survey by the European Central Bank and the European Commission (ECB/EC, 2014) on access to finance for small and medium scale enterprises shows that bank loans are the primary external finance source to SME businesses. Sadly, however, bank finance has become the major source of debt finance and has also proven problematic for SME firms to access (Duygan-Bump, Levkov, and Montoriol-Garriga, 2015; Fraiss et al., 2019). Banks' failure to advance finance to SME firms has been attributed to several reasons: most of these firms are relatively young and informationally opaque, lacking credit reputation, and perceived high operational risk (Ekpu, 2015). For firms with high opacity levels in terms of information coupled with the prevalence of the agency, problem equity seems to be the more appropriate form of finance (Mason, 2009). Governments in most countries also support SME firms financially through specially created vehicles that seek to provide support, especially for start-ups and growing businesses. The next subsection explains various theories that underpin the study.

2.5 Theories explaining the financial structure of SMEs

The researcher reviewed several theoretical perspectives relevant to the study of the phenomenon. According to Adom, Hussein, and Adu-Agyem (2018), a theoretical perspective has the following benefits. These include the ability to assist academicians and innovators to review and measure things that are relevant to the phenomenon under discussion. Secondly, it also helps to make

predictions that would conform to the theory if it is true. Thirdly, it helps to put the theory under stress to help in its improvement.

Several theories have been propounded to explain the capital structure of firm including SMEs. Three of them are seen as the most influential, namely Trade-off theory (TOT), Pecking Order Theory (POT), and the Bank Capital-channel theory.

2.5.1   Trade-off Theory

The trade-off theory was initially introduced by Modigliani and Miller (1958;1963) and later advanced by Jensin and Meckling (1976) and Waner (1977). The theory states that firm owners finance their businesses in a unique way that ensures a balance between the tax advantage of debt finance and the cost of equity. As the interest on the debt is tax-deductible, it is cheaper and a better option to finance business than equity financing. In short, the theory states that debt is seen as more beneficial to achieving optimal capital structure. Optimal capital structure is said to be achieved when a combination of funding sources (i.e., debt and equity) yields the highest value for the firm in the form of higher stock prices. There are two significant assumptions to the trade-off theory. The theory assumes in the first place that firm owners always seek to achieve or pursue optimum capital structure and will do all they can to achieve the optimum target (Graham and Harvey, 2001). Secondly, the theory also assumes that profitable firms with fewer borrowings have the urge to borrow more to shield their profit from tax (De Angelo and Masulis, 1980). However, Tucker and Stoja (2011) hold a different view to this by concluding that in reality, the continuous increase in debt financing will not increase firm value but might instead increase the risk of default and, in the long run, lower the value of the firm.

It must be noted that the problem of SME firms goes through in accessing external finance is primarily due to the problem of asymmetric information. Lenders experience difficulty in monitoring the decisions of small firm owners due to the lack of transparency which generates agency costs (Cieply, 1997). Therefore, it can be concluded that the informational distortion that characterises the bank/SME firm relationship leads to SME firms being denied the needed credit because they are perceived to be high-risk borrowers as banks may incur higher costs in monitoring their activities. This explains why most SMEs owners prefer to finance their businesses from internal sources

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2.5.2 Pecking Order Theory

The pecking order theory by Myers and Mujluf (1984), on the other hand, states that firm owners firstly prioritise the use of internal finance and will only resort to external finance as an alternative only after exhausting all means of financing through internal sources. The focus is on owners of firms to rely on their internally generated funds rather than debt (Barclay and Smith, 2005). It assumes that firms do not necessarily have a prescribed optimal capital structure, but it simply emerges from the results owner's capital raising decision. As a result, the ability to raise new funds is affected by asymmetric information and the firm's profitability (Hailegebreal and Wang, 2019). The theory seeks to explain why profitable firms use more of their reserve funds and have, therefore, less debt ratio.

The pecking order theory suggests that entrepreneurs hold information that is not available to lenders, hence asymmetries. This makes the cost of credit higher for small businesses seeking and obtaining external capital. According to Brown et al. (2012), this phenomenon is more pronounced for small firms. It is presumed based on the pecking order theory that only small firms that are innovative and believe that the project that they embark on will generate enough internal rate of returns higher than the cost of external capital will resort to external borrowing (Beck et al., 2008). It can be said from the above that at all things being equal, owners of firms, in general, prefer to finance their businesses from internally generated cash flows and will only seek external funds when necessary. Bassler et al. (2011) reiterated that information asymmetry is a significant factor in determining firms' financing behaviour. Investigating the financing decisions of 23 firms in some emerging economies, Seifert and Gonene (2010) found that pecking order financing behaviour is assertive in markets characterised by a higher degree of information asymmetry. Firms with symmetric information tend to borrow more, whereas those with asymmetric information rely primarily on their retained earnings as a means of financing their projects (Yang et al., 2014). The order of preference can only be re-arranged if the owners are assured that the external financiers (i.e., venture capitalist firms) could add extreme value to their firms.

2.5.3 Bank Capital-Channel Theory

This theory was propounded by Van de Heuvel (2006). Bank capital-channel theory states that banks' behaviour regarding providing capital to firms changes in line with monetary policy and capital adequacy regulations. That is, the effect of any monetary policy on bank lending is dependent on capital adequacy regulations. Thus, an increase in policy rate transforms into an increase in interest rate, increasing the cost of external borrowing, leading to a reduction in banks' capital and profits. Therefore, there is the highest probability of a reduction in banks' supply of credit if the capital adequacy limit is strictly enforced. This implies that loans made available by banks to SMEs firms who are generally perceived as high-risk borrowers could be reduced.

A conclusion drawn from the three theories is that market imperfections play a vital role in decisions on firms' capital structure. A firm's capital structure is determined after firm owners have evaluated and done a cost-benefit analysis of the two alternatives, debt versus equity. It can be concluded that there is no well-defined capital structure for firms as the capital structure is affected by several other factors. However, empirical evidence on determining the most appropriate financing option for SME firms seems to favour the pecking order theory than the trade-off theory and the Bank capital-channel theory. This is because most profitable firms prefer more equity finance by ploughing back some of their profit reserves to external finance from banks (Cosh et al., 2009). Again, SME firms do not focus on obtaining optimal capital but prefer to finance their businesses with internal finance (if the funds are available) to external finance (Adair and Adaskou, 2015).

2.5.4 Theories explaining lending methodologies

Three theories, namely asymmetric information theory, credit rationing theory, and credit referencing information theory form the basis for this study and are discussed in the following subsections.

2.5.4.1 The Theory of Asymmetric Information

There abounds much literature both past and present that emphasize the fact that banks see SMEs segment as very profitable as margins on loans to the segment is high as such meriting attention (Calice et al. (2012); de la Torre et al. (2010); Quartey et al. (2017). But contributing to the debate

Stiglitz and Weiss (1981) posited that market imperfections (which include asymmetric information) could result in credit rationing by lenders, mainly because banks and other lenders cannot differentiate between good and bad borrowers especially when loans are unsecured.

Theories concerning small business credit markets emphasize the existence of significant information asymmetries between borrowers and lenders (Nakamura, (1993); Padilla and Jappelli (1997); Berger and Udell (2006); Jiangli, Unal and Yom (2008); Irwin and Scot, (2010). Asymmetric information is the differences in the information held by lenders and borrowers in the credit market. These differences in information make lending decision-taking very difficult for lenders as it may result in increased loan defaults. The importance of credit information sharing in the credit market has in the past few decades been subjected to several empirical pieces of research to establish its ability to reduce the difference in the information held by lenders and borrowers. This theory of asymmetric information was first brought to light by Freimer and Gordon (1965). Pagano and Jappelli (1993) advanced this earlier theory by Freimer and Gordon which stated that information from Public Credit Bureaus (PCBs) helps in reducing asymmetric information. Pagano and Jappelli developed a theoretical model to show that information shared by credit reference bureaus can alleviate information asymmetry. This view has not been acceptable to all, including De Meza and Webb (1987), who stated that asymmetric information in the credit market might lead to over-lending (excess credit availability) as applications can be screened more diligently and efficiently, a view collaborated by Allen and Santomero, 1998). They believe that if banks can thoroughly screen applicants, they can differentiate between good and bad borrowers. This enables banks to charge higher interest to high-risk borrowers claiming that credit rationing is less likely in such circumstances. Stiglitz and Weiss (1981); Riding et al. (2010) argue that banks will then only offer loan (credit) contracts to high-risk borrowers only when they can provide collateral. They contend that the same adverse selection effect may lead to credit rationing because of the higher interest rates, as lenders will find it challenging to differentiate borrowers with riskier investment projects. The theoretical research (both old and new) suggests that there is a threefold effect on lenders' exchange of information about borrowers. They have also established that information asymmetry is associated with adverse selection, moral hazards, and monitoring costs.

2.5.4.2 Adverse Selection theory

This problem arises when buyers and sellers of financial assets have difficulty assessing the quality of the financial product in advance of purchase. It is a problem that arises because of different (symmetric) information between a buyer and a seller before any purchase agreement takes place (Gehrig and Stebacha, (2007). Works including that of Akerlof (1970); Jaffee, Pagano, and Jappelli (1993, 1999, 2000); Russell (1976) in their purely adverse selection model effect of information sharing stated that the creation of credit reference bureaus helps improve knowledge of applicants' characteristics and help increase accuracy in the predictability of a borrower's repayment probabilities. They concluded that in economies where access to information is asymmetrical or unavailable, access to lending and credit resources becomes more complex, expensive, and inefficient. Information sharing through credit reference bureaus may resolve the problem of adverse selection by banks taking advantage of an already existing record data of borrowers that enable them to differentiate between good and bad borrowers and bring safe borrowers back into the market.

Other works such as those of Hauswald and Marquez (2003); Love and Mylenko (2003); Gehrig and Stenbacka (2007), concluded that the introduction of credit referencing could lead to an increase in the demand for credit if information (both positive and negative) is shared equally among lenders. Hauswald and Marquez (2003) believe that if lenders can acquire and process borrower information, it will lead to efficient and effective borrower screening, thus taking advantage of information rent to compete effectively in the market. This, to the writers contend, results from efficient and competitive pricing introduced into the credit market. They also contend that the increase in demand for credit comes from customers with good credit history and whose incentive to borrow was suppressed by higher charges they receive because of the absence of information on their creditworthiness. From the above, it can be concluded that reducing adverse selection by introducing credit information sharing can positively affect lenders' knowledge of applicants' characteristics and, in the end, help improve the repayment probability of borrowers. In addition, these mechanisms help increase the borrower repayment because of fear of being blacklisted by tightening borrower discipline. In situations where banks cannot effectively

distinguish between high-risk and low-risk borrowers, there is bound to be an ineffectively high default rate, resulting in restrictions on credit supply.

2.5.4.3 Moral hazard theory

A moral hazard is said to exist in a financial market. This occurs if, after signing the agreement between the borrower and lender of financial assets, the borrower (buyer) engages in some activities that are undesirable in such a way that the probabilities used by the lender (seller) to determine the terms of the agreement, are no longer accurate or will make it less likely for the loan to be repaid (Varian, 1990). The borrower is only imperfectly able to monitor this behaviour change. A moral hazard problem arises if after a lender purchases a loan contact from a borrower, the borrower increases the risk initially associated with the loan contract by investing his borrowed funds in more risky projects than he initially reported to the lender. This makes loan recovery excessively costly if at all possible. It brings along a range of problems as borrowers are engaged in unnecessary risky behaviours that the banks bear. Moral hazard is more salient when the competition is high because borrowers who default in payment can easily move to other lenders without being noticed. Padilla and Pagano (1997); Berger, Frame, and Ioannidou (2016) posit that moral hazard declines with the introduction of credit referencing as lenders will no longer exploit rent from borrowers because their reputation builds up as creditworthy borrowers. However, defaulting borrowers will lose their reputation in credit. Berger, Frame, and Ioannidou 2016) view that moral hazard is further reduced if only negative information is shared amongst banks and other lending institutions. This may lead to improved borrower discipline and an improvement in the quality and quantity of loans granted. Karapetyan and Stacescu (2014) stated that the effect of credit information sharing through the credit reference bureau is even stronger as it may encourage banks to invest in soft non-verifiable information, giving them a more competitive advantage.

2.5.4.4 Monitoring cost

Some conclude that the introduction of credit referencing reinforces borrower discipline and reduces default rates. Such contributors in this area include Djankov et al. (2006); Brown et al. (2007). A borrower may have better information than the lender to negatively report his/her

performance to deceive the lender, who cannot always observe the investment outcome, thus constantly monitoring the borrower any time he/she defaults. They concluded that these have led to increased lending to small and medium scale enterprises and corporate lending.

2.5.4.5 Credit Rationing Theory

Freimer and Gordon (1965) initially introduced this theory and have been referenced several by times Stiglitz and Weiss (1981); Diamond and Rajan (2001). The theory states that an economic agent (in this case, an applicant for a credit facility) who makes an offer for a credit facility and thus agrees to pay a market rate of interest is said to be credit rationed if the applicant is not supplied the full amount of demand. The theory believes that asymmetric information makes it difficult for lenders to differentiate good and bad borrowers and resort to credit rationing usually first felt by households and small economic actors like SMEs. Diamond and Rajan (2001) posit that rationing occurs if the same interest rate is charged to borrowers because of their inability to distinguish between borrowers. Diamond and Rajan (2001) argue that this does not happen in the real world because, to a certain degree, banks can differentiate between borrowers and, as such, can charge more than one interest rate to borrowers, thus credit rationing occurs to borrowers an extent. Another reason that has been cited in the literature is causing credit rationing. Kunieda and Shibata (2014) posit that those imperfections in the credit market, especially in developing countries, are derived from the problem of adverse selection and moral hazard and the high cost of monitoring and contract enforcement. This theory assumes that a borrower's want and loan demand is only dependent on the interest rate charged by the lender. This assumption cannot be wholly valid as the demand and supply of loans depend not only on the interest rate but also on the amount of collateral offered and the borrower's own equity. Azzi and Cox (1976) did prove that the supply of credit under various conditions is an increasing function of the amount of collateral and equity offered by the borrower. That is to say, borrowers will be supplied more credit if they can offer more collateral or equity. In developed countries where there exist well-functioning legal systems and better collateral registries problems like enforcement of contract and collateral verification and ownership, credit rationing is not as pronounced as in developing countries. In developing countries, however, banks do capitalize on such problems as the inability

to enforce contracts and collateral verification and ownership to ration credit even though this cannot be associated with SMEs alone but also large businesses (Pandula, 2013).

2.5.4.6 Credit Reference Information Theory

Earlier studies suggest that credit referencing (otherwise known as credit information sharing) has emerged as one of the most recent mechanisms in reducing information differences and has consciously been introduced by international bodies in collaboration with the central banks of most developing economies (Brown et al., 2009; Gehrig and Stenbacka, 2007; Kallberg and Udell, 2003). It provides that sharing information reduces the problem of access to finance to SMEs caused by asymmetric information (Kusi et al., 2015). Berger and Udell (2006) advocate that credit information sharing helps reduce adverse selection and moral hazard. Triki and Gajigo (2012) research work finds that private credit reference agencies are the most efficient means of disseminating credit information and therefore help improve financial access.

2.6 The SME Finance Constraint

Economic theory tells us that in situations of "perfect market" conditions, firms can obtain all the necessary finance needed at a fair price (Modigliani and Miller, 1958). This, however, is not the case in the real world, where the market condition is imperfect due to imperfections such as adverse selection and moral hazards that occur as a result of asymmetric information. According to Stiglitz and Weiss (1981); Holmstrom and Tirole (1997), market imperfection has the potential to restrict access to finance. For example, Stiglitz and Weiss explain that where demand for loans exceeds supply, lenders should increase interest rates, automatically bringing about equilibrium in the credit market. However, because the market is imperfect and has an adverse selection, it is difficult for lenders to differentiate between good and bad borrowers as such banks limit the supply of funds available for lending though there is demand for loans. Beck et al. (2008) postulate that SME firms are the worse affected by the credit squeeze. Several surveys carried out throughout the world on SME access to finance have established that SMEs are financially constrained despite the various initiatives that have been put in place, both public and private, to help facilitate firm access to finance (Quartey et al., 2017; Ndiaye, 2018). SMEs are said to be financially constrained when a

sizeable number of economically viable SME firms are unable to obtain credit as a result of banks and other financial institutions inability to meet or provide owners of SMEs with the needed finance to expand and grow their businesses Amentie, Negash, and Kumera, (2016). Researchers have for some decades been debating on the level and the extent to which lack of finance has been affecting the growth of SME firms, mostly in developing economies.

Kumar (2017), researching small firm financing in high-income countries to low and middle-income countries, observed that traditional banks provide 17% of the total loan to small businesses in low and middle-income countries as against 50% in high-income countries. Chavis, Clapper, and Love (2010), employing data from the World Bank Enterprise Survey of 2006 - 2009, concluded that 31% of all firms surveyed saw access to finance as the most inhibiting constraint to their growth. Studies conducted by Beck (2007); Lorenz and Pomemet (2017) found that firms in developing countries in sub-Saharan Africa, the Pacific, MENA, East, and South Asia are more likely to be credit constrained than large firms. Kuntchev et al. (2012), examining SME financing in Sub-Saharan Africa, concluded that about 23% of SME firms are fully constrained in terms of access to finance compared to 10% of large businesses. In Ghana, Amegashie-viglo and Boko (2014) cite insufficient finance as the biggest impediment to the growth of the informal sector in their study carried out in five districts in the Volta region. Quaye, Abrokwah, Sarbah, and Osei (2014), researching how to bridge the finance gap experienced by SMEs in Ghana, concluded that there is a finance gap between SMEs' demand for credit and that of large businesses. After controlling for many firm characteristics such as age and profitability levels, a survey in six African countries in the 1990s found that among manufacturing firms that applied for credit, the smaller firm had higher chances of being denied access to credit (Bigsten et al., 2003). Fanta (2015): Mungiru and Njeri (2015), researching in Ethiopia and Kenya, respectively found evidence indicating that SMEs in developing countries have difficulty accessing finance, therefore, resort to informal means to finance their businesses.

This evidence attests to the fact that globally, SMEs indeed experience a financial gap that is inhibiting their development and growth, and it is more evident in developing and emerging economies than in developed countries (Menkhoff, Neuberger and Suwanaporn, 2006; Hander, Broccardo, Bazzana, 2014; World. Bank, 2017). Though credit constraint is not unique to SME businesses, SMEs are more likely to experience a credit squeeze in the credit market than larger

firms. Since access to finance is seen as critical to SMEs' development growth, and survival, it is crucial to investigate what determines access to bank finance.

2.7   Drivers of SME access to finance

Research papers, including both academic and developmental, have revealed many findings as to the drivers of the finance constraint experienced by the SME sector, especially in SSA. Policy research papers of the World Bank and its affiliates such as the International Financial Corporation (IFC), Internal Monetary Fund (IMF), and the African Development Bank (AfDB) have all identified several interesting outcomes on the factors that constrain bank lending to SMEs. The literature on SMEs' lack of access to bank credit provides several reasons. One of such reasons can be attributed to the inability of SMEs to deal with financial needs through internal re-allocation of available funds but tend to rely primarily on external sources of funding (Beck and Demirguc-Kuntz, 2006). Lack of internal funds puts a strain on SMEs getting access to external financing. Fazzari and Peterson (1993), using firm internal cashflows and working capital as proxies for financial constraints, found that lenders' and investors' decision to invest or lend in a firm is sensitive to cashflows and working capital. Though lenders recently have shown the tendency to provide credit to small businesses, those without excess cash balances are quantity constrained. For example, survey data from some EU countries indicate that the share of external funds available to SMEs has consistently increased from 35 percent to 44 percent between 2014 and 2018 (FSB, 2019). This cannot be said of developing countries where the institutional framework is less developed, leading to higher informality, thus limiting finance sources. Smaller firms in such countries face significant financial challenges as they have no credit history or less tangible collateral.

2.7.1   Global financial crises and access to credit

Another reason for the lack of credit availability to SME firms is the global financial crisis (Fraser et al., 2015). Several years after the crisis that induced severe economic recession in most countries, banking regulators have imposed stringent measures bordering capital adequacy requirements. This provoked an unwillingness of lenders, especially banks, from lending to both

individual and business customers. The phenomena have continued even after the easing of the crisis, and it is SME that have borne the blunt severely (Sedláček and Sterk, 2017)). According to the Bank of England (2015), SMEs are likely to experience contraction in credit supply given their risk exposure continually. Banks and other lending institutions have reduced their risk appetite ever since the crisis (Chodorow-Reich, 2014).

Periods of financial crisis are usually coupled with tightening credit in the financial markets and reducing business confidence Fraser, (2014). As a result, SMEs become discouraged from seeking external finance. This is likely to happen to firms with higher information opacity, unsuccessful loan applications, and those with more flawed bank/firm relationships (Cowling et al., 2013). North et al. (2013) further state that as banks become more stringent in their credit allocation, SMEs become more reluctant to apply for credit even when made available for fear of not being able to make enough revenue to pay off the loans.

Dwenger (2018) posits that firms, in some way, try to offset the reduced supply of credit by looking for alternatives either from short-term or long-term sources during such times as financial crises. This may be from bank loans, debt securities, venture capital, and private equity. However, these sources seem not to be the perfect substitute for private sources and retained profits as it is bound to impose an extra burden on firms. Therefore, firms that demand higher investment needs depend more on retained profit, and personal finance as external finance becomes more difficult to obtain the desired amount needed to invest especially in times of financial crises.

In most countries around the globe, SMEs are not to be left out of this contraction, and Ghana is no exception. Evidence from the Bank of Ghana (BoG) figures depicts that the share in the growth of gross loans and advances to the private sector over the years have only seen a marginal increase after the crisis. For example, 2020 had a marginal increase of 5.8 percent, a sharp decline from 2019 with a 23.8 percent growth over 2018 (BoG, 2021). This has been attributed to weak credit demand from the private sector due to the perception of banks' willingness to supply credit. In addition, this has been attributed to the Covid-19 pandemic, which saw most banks' capital available for lending dwindling due to low deposits from clients (Saiedi, 2019).

2.7.2 Firm characteristics and access to credit

Following from the global financial crises as a determinant of access to credit is the firm characteristics. Different strands of researchers have identified firm characteristics as directly impacting SME access to external debt finance (Kira, 2013, Kira and He, 2012). Firm characteristics are defined in this context as firm size, geographical location, the industry in which the firm operates, the form of ownership, number of years in operations, and managerial competence of the owner/managers (Ajibade and Khayundi, 2017). Pickernell (2013) suggests that new and younger firms are more likely to apply for credit than older firms, but younger firms find it difficult in accessing credit (Daskalakis, 2013). Managerial experience (Quartey et al., 2017; Bouazza et al., 2015); education (Kung'u, 2015); and competence of the owner/managers of SME firms (Bandar, 2016) are seen as contributing factors to access to credit. The subsequent sub-section discusses each of these characteristics.

2.7.2.1 Firm size and access to credit

Discussions on the firm size as a characteristic of SME businesses and its impact on access to finance have received less attention in academic literature because many scholars see differences in size as a reflection of differences in other variables such as the age of the firm, capital invested, and the number of employees. However, the size of a firm coupled with its cash flow is seen as highly significant in predicting firms' access to finance (Silva and Carreira, 2010).

Although firm size itself may not be the only determinant of the size of a loan or the simple acceptability of a loan application, the characteristics that generally come with a firm's size do influence bank lending. Du and Girma (2012) indicate that firm size has a vital role in determining the financial structure of firms. Ukaegbu and Oino (2014) stated that firm size significantly influences access to debt financing because firms with a significant volume of tangible assets are more likely to have greater access to long-term debt finance, which is also in line with trade-off theory. According to Honhyan (2009), firm size matters concerning access to credit as smaller firms have a lower likelihood of survival than larger firms. Quartey et al. (2017); Becks et al. (2006) finds that large firms are more likely to have access to finance than small firms as large

firms have a better cash flow and can provide the needed collateral demand of lenders, show better information opacity to prove creditworthiness necessary to qualify them for external finance. Contrary to this, SME firms, according to Cassar (2004), may find it extremely difficult in resolving the information opaqueness that characterises small firms and their relationship with lenders, which implies that SME firms will be constrained in terms of access to finance. While small firms find it difficult to access credit, large firms have fewer restrictions as they possess more bargaining power and thus can negotiate better credit terms and larger loan sizes (Cenni et al., 2015). Love and Mylenko (2003) find that introducing credit registries in a country increases access to credit by lowering information asymmetry between lenders and borrowers. In all the above studies, lower information asymmetry and reduced information opacity for small firms can significantly improve access to credit.

Hoque, Sultana, and Thalil, (2016), investigated the credit rationing of SMEs in the city of Chittagong, Bangladesh. The data was gathered using a structured questionnaire on various socio-economic features of SMEs and credit rationing of SMEs that was administered by enumerators in collaboration with the researchers. The SMEs were drawn from a variety of sub-sectors, including service, urban agriculture, manufacturing, and trade to achieve the study's goal. A stratified and clustered random sampling approach was used to obtain a representative sample. A total of 200 companies were chosen for analysis, which was done using descriptive statistics and multinomial logit regression. The study concluded that the number of employees who defined firm size had little effect on credit access, according to the results of econometric analysis. The following subsection discusses the impact of a firm's available collateral on access to credit.

2.7.2.2 Collateral and access to credit

Collateral is usually demanded by the lending institutions, including banks, in their loan contract with the borrower to mitigate the agency problem that is associated with asymmetric information. The lending institution usually requires the borrower to pledge tangible assets to reduce ex-ante adverse selection problems associated with firms that exhibit information opacity (Bahaj et al. 2020). A recent report by the Financial Stability Board (FSB, 2019) shows that the percentage of bank loans that have tangible assets pledged as collateral amounts to 90 percent in the USA, 82

percent in Switzerland, and 65 percent in China. SMEs have fewer assets that qualify to be accepted as collateral. This is because the initial capital to start such businesses is always small, culminating in lower retained profit, hindering them from acquiring fixed assets compared to larger firms. Earlier works in literature have it that collateral can reduce the burden of adverse selection and moral hazard as such acts as a signalling device for banks to determine quality borrowers from bad ones and conclude that imposing collateral is a standard requirement on loan contracts (Bester 1985; Chan and Kanatas, 1985; Besanko, Thakor 1987; Boot et al. 1991). Bester (1985), for example, concludes that any time borrower quality is in question, banks use collateral as a screening device to improve access to credit. Becks et al. (2006), researching the determinant of collateral in Eastern Europe and Central Asia, found that collateral is the third most crucial obstacle to access to finance. Xu (2019) researching on the relationship between collateral and access to credit in China concluded that allowing movable assets as collateral can improve firms' access to bank credit and extend also debt maturity. The following subsection discusses the effect of the level of education of the SME owner on access to credit.

2.7.2.3 Level of education and access to credit

A copious amount of research has found a positive relationship exists between owners of small firms with higher levels of education and access to credit. According to Bobbs and Hamilton (2007), education helps enhance individual communication abilities and improves exploratory skills; hence may help owners /managers present a plausible case to enhance loan application success. Gavurova et al. (2018) found that persons with higher education are likely to have a higher probability of accessing credit successfully. Abdulsaleh and Worthington (2013) posit that banks perceive owners/managers with higher education as creditworthy, and therefore, owners that have higher levels of education have a higher likelihood of being successful with their loan applications than those who do not have. Zarook et al. (2013) also discovered a positive correlation between owner/managers educational level and access to bank credit. Kozan et al. (2006); Nyamboga et al. (2014); Tuyisenge, (2015); Wanjiku and Muturi, (2015); Abu et al., (2017); Musabwasoni, (2018); Salifu et al. (2018) in their various research on the relationship between education and access to

credit found that a positive relationship. For example, Salifu et al. (2018) further stated that education helps improve access to loans and repayment.

Petersen and Rajan (1994) remark that lenders condition the granting of credit to the education and experience of the owners and managers of the firm. Kumar (2005) cites those enterprises with educated owners are more likely to have the required experience in managerial skills in finance, marketing, production, and international business needed to grow and survive small firms. According to Nikado et al. (2015), these contribute to small firms' access to formal credit than those with less educated and experienced owner/managers. However, there are some studies as well that have found no evidence of a significant relationship between these sets of variables. Herzenstein et al. (2011) identified educational level as not significant in determining loan success. Nguyen and Luu (2013) indicated that there had been a mixed result of studies on the effect of these factors on access to a bank loan, and the result varies across countries. Using logit regression to analyse the relationship between educational levels of firm owners and loan accessibility, Abdesamed and Wahab (2013) discovered an insignificant relationship. Makani and Letsina (2020), research in Cameroon, found that the level of education and training of owners/managers of small businesses has a significant and negative influence on access to credit.

Using logit regression to analyse the relationship between educational levels of firm owners and loan accessibility, Abdesamed and Wahab (2013) discovered an insignificant relationship. Makani and Letsina, (2020) researching in Cameroon found that the level of education and training of owners/managers of small businesses have a significant and negative influence on access to credit. Ogubazghi and Muturi, (2014), researched to determine the impact of owner/manager qualities on SMEs' ability to obtain bank loans. A proportionate systematic sampling method was used to select 87 small and medium industrial firms from Asmara city. The researcher acquired solid primary data using semi-structured and structured questionnaires that he personally administered. The data were analyzed using descriptive and econometric statistical analysis techniques. Using logistic regression, the researchers discovered that the owner/age manager's educational degree has no bearing on the ability to obtain a bank loan.

It has been shown from the above proceedings that there is no agreement in the literature on the influence of education on access to credit from banks as the conclusions from various researchers

have been mixed. Therefore, the following subsection looks at the availability of financial information as a firm characteristic on access to credit.

2.7.2.4 Availability of financial information and access to credit

Financial information gathered by banks and other lending institutions from clients' financial statements indicates a borrower's ability to repay any loan granted together with the accrued interest charges. Kira (2013) finds that the unavailability of adequate financial information leads to information differences among lenders and borrowers, leading to credit rationing. This explains the reasoning behind the theory of asymmetric information. Such differences in the information burden SME firms as lenders, including banks, charge a high cost for credit disbursed (Zoppa and McMahon, 2002).

Hence, SME firms known to be bankrupt in providing financial information are likely to experience credit constraints (Ajibade and Khayundi, 2017). Sarapaivanich and Kotey (2006) find a relationship between the keeping and proper management of financial information and SME access to external finance. The 2007- 2009 credit crunch lessons have made banks institute stricter measures for borrowers in high-risk industries. As part of the credit assessment procedure, banks are required to ensure they have much financial information about loan applicants to help in making lending decisions. The information is usually acquired through long-term and close relationships between the bank and the client (Szturo, et al, (2018). The information can either be softly acquired through relational cooperation or hard through the transactional relationship with clients. Banks and other lending institutions make maximum use of such information to arrive at lending institutions the lack of which may lead to a denial of loan approval.

Adzido et al. (2014) researched to determine the association between financial openness and ease of access to bank loan facilities. Questionnaires were utilized to obtain primary data from the twelve banks in Ho, Ghana, in addition to secondary data. Using the descriptive technique, the study discovers that greater financial transparency fosters greater trust, allowing for easier access to credit. Clients who have a good track record and follow full disclosure principles have a better chance of getting credit than those who don't have any evidence of a good track record. The study concluded that financial openness is a means to a goal and that it is a process of disclosing more

trade/finance secrets to build trust and improve credit accessibility. Financial openness, on the other hand, has a reciprocal cost/benefit decision effect on both the supply and demand sides, with a considerable impact on bank loan access. Both characteristics have a beneficial impact on SMMEs' ability to obtain a bank loan.

2.7.2.5 Location of the business and access to credit

It has been argued from several quarters that the firm's location influences the cost and availability of credit for SME firms. This has been attributed to a variety of factors. Pandula (2013) asserts that small firms located in rural areas are likely to have problems accessing financing. The writer cites proximity to financial institutions in such rural areas as one of the reasons. The absence of many financial institutions in such areas may create a monopoly for the few operating as such they take advantage to charge higher interest rates as SME firms may have no alternative available to them. The higher interest rate does put-off small businesses from attempting to access finance even when available (Pandula, 2013).

Secondly, banks located in such rural areas are reluctant to lend to small firms because of uncertainty and information asymmetries. However, Kumar and Francisco (2005), researching funding to SME firms in selected regions in Brazil, found that in rural communities where more bank branches are available, there is physical access to finance to small businesses as the problem of asymmetric information is reduced because of the closeness of bank and their staff to SME owners.

Thirdly, branch managers may delay loan applications because they have limited authority to approve loan applications beyond specific amounts. Such applications may have to go through the head office, where the personnel working on such loan applications may have no personal knowledge of applicants. This tends to higher levels of disapproval. Perry (1988) found no evidence in New Zealand that small firms in rural committees are constrained in external financing from banks located in such areas. Rand (2007) also arrived at a contrary view that firms located in rural communities are disadvantaged in finance search. He believed that firms in rural communities rather have a higher probability of success in their credit applications as most banks located in these areas are government-owned and have funds strictly meant for allocation such firms in rural settings. Rand concluded that he found no evidence that distance between lenders and borrowers

can influence credit allocation. According to Kira and He (2012), geographical location has a relationship with SME access to finance. The geographical proximity of lenders and borrowers enables soft qualitative data about a client's worthiness, enhancing access to finance (Berger and Udell, 2006; Pandula, 2013).

In Ghana, Dary (2018) investigated the impact of being located in an industrial cluster and having a production/supply contract on informal enterprises' access to trade finance in Ghana. The researcher used cross-sectional data from a World Bank survey of informal businesses in Ghana conducted in 2013. A stratified random sampling approach was used to sample 729 businesses for the survey. The survey's respondents were the owners and top executives of the companies in the sample. The findings reveal that bank credit is the most important external source of operating capital for informal sector businesses. In the econometric study, binary probit was used. Controlling for firm characteristics, financial characteristics, characteristics of the firm's largest owners, industrial sector, and geographical location, the results show that both being located in an industrial cluster and having a production/supply contract significantly increase informal firms' access to trade credit. The presence of an industrial cluster and the holding of a production/supply contract greatly improve informal enterprises' access to bank loans as well as increased trade credit for SMMEs.

2.7.2.6 Industry sector and access to credit

Though firms may have a proven credit history, such firms may nonetheless experience a decline in credit availability due to the business situation that pertains to the industry in which the firm operates. For example, Winker (1999), writing on the causes and effect of financing constraints on businesses, finds a strong relationship between lenders and the business expectation of a sector in which a firm finds itself and access to finance. This the writer attributes to the fact that the current and expected business situation within various industry sectors is used as a screening variable. Therefore, firms with different industry situations will be categorised differently in the loan market.

Further to this, Kumar and Francisco (2005) find that small business enterprises that operate in industry sectors that require higher initial capital outlays and continuous investments are likely to experience greater finance constraints. Lending Institutions also attach a higher risk of default to firms that operate in industries where the level of domestic and international competition is high for the simple reason that they may not be making enough returns to use as pledgeable income or collateral. Bernini and Montagnli (2017) found a relationship between competition in the industry sector and financial constraint by stating that access to finance is more tightened for firms under more significant competitive pressure as they are seen to be riskier borrowers. The next subsection analysis the effect of the form of firm ownership on access to credit.

2.6.2.7 Form of ownership and access to credit

Firms can take on different forms of ownership, be it a sole proprietorship, partnership, or company. Lenders do perceive the form of ownership as a sign of credibility (Ceasar, 2004). Thus, according to Abor (2007), the type of ownership has a direct positive relationship between the form of firm ownership and access to credit. Firms owned by more than one individual, such as partnerships and companies, are more likely to succeed in securing finance because they are perceived to have perpetual existence compared to sole proprietorship firms (Westhead et al., 1995). According to Pandula (2013), entrepreneurs globally decide on a particular ownership structure purposely to ensure adequate financing. Earlier works, including that of Beck et al. (2006); Harrison (2003), found that businesses listed on the stock exchange and foreign-owned firms face fewer financial constraints.

2.7.3 Level of competition in the credit market and access to credit

The potential impact of bank competition and credit availability by banks to businesses has become a significant concern to both academicians and policymakers (Berger et al., 2004). The traditional market power hypothesis explains that there is an association between market competition and the higher cost of credit. Market power is greater in markets with less competition than in markets with greater competition. However, several alternative views have been expressed over the past years that pre-supposes that the relationship between bank market competitions and credit availability may also result from asymmetric information (Dell'Ariccia and Marquez, 2005).

Grandi and Ninou-Bozon (2019) document that there are conflicting theories in the literature regarding the relations between banking competition and credit availability. Citing Dell'Ariccia and Marquez (2006), Grandi (2019) attribute banks' inability to provide finance to SME firms to the level of competition in the banking sector. Patti and Gobbi and Patti (2007); Berger et al. (1998) state categorically that banking competition resulting from bank consolidation is associated with a reduction in lending, especially to SME businesses. These earlier writers were later joined by Rice and Strachan (2010), Zurutskie (2006), and more recently Bernini and Montagnoli (2017), and Love and Peria (2015). For example, Bernini and Montagnoli (2017) attribute banks' reluctance to lend to SME firms to their sensitivity to macroeconomic uncertainties. According to the writers, the competitive environment in which a lending institution finds itself does affect the lenders' behaviour as it may be difficult and expensive to assess a borrower's prospect of repayment. Zarutskie (2006), writing after the deregulation of the US banking sector, concluded that competition in the sector (which had been occasioned by deregulation) discourages banks from lending to firms, especially those firms with scarce credit history. Fungacova et al. (2019) conclude that bank-level competition increases firms' cost of credit to SMEs, thereby decreasing demand for credit by SME firms.

From the above deliberations, one can conclude that there is no conclusive evidence of a positive relationship between market power and access to credit. As such, researchers and policymakers must exercise restraint when concluding the influence of market competition and access to credit.

2.7.4   Friction in the credit market and access to credit

Other strands of literature attribute the financial constraint of SME firms to financial friction in the credit market. Earlier contributors in this line of research include Akerlof (1970); Stiglitz and Weiss (1981) and later joined by Beck and Demirguc- Kuntz (2006); Berger and Udell (2006). Stiglitz and Weiss (1981), for example, found that in an economy where there is no friction (perfect market), funds flow from less profitable firms to those that are envisaged to have a higher net present value (NPV). A seminal work of Myers and Majluf (1984) affirmed the findings of the earlier writers by stating that asymmetry information which leads to the problem of adverse selection and moral hazard, is the cause of banks' inability to lend to SMEs firms. In an economy

where there is market imperfection due to asymmetric information, the writers stated that other firm characteristics become relevant in determining whether a firm can obtain credit. Beck et al. (2011, 2006, 2005) and Burger and Udell (2006) also joined the fray in this line by asserting that asymmetric information is detrimental to SME access to finance. Lorpev (2011) identified obstacles to SME finance in Nigeria to perceived risks and uncertainties associated with SME's. He went on to affirm earlier assertions by other contributors, including Pagano and Jappelli (1993), Vercammen (1995), Padilla and Pagano (2000), Marsch, Schmieder, and Aerssen (2007), that SMEs are very opaque in terms of information. Huang, When, and Lui (2014) attributed the root cause of limited firm access to finance to asymmetric information between SMEs and financial institutions. According to Ferri et al. (2019), the ability of banks and other lending institutions to overcome the problem of asymmetric information depends mainly on the lending methodology used in assessing the credit proposal.

2.8   An Overview of Credit Assessment by Banks

Lending is a means by which banks, on the one hand, contribute to the creation of resources for firms that need money to invest in their businesses and, on the other hand, a means to generate resources (Hralambie, and Ionescu, 2016). To achieve higher profitability, banks must assess the creditworthiness of their clients, both individuals and corporate effectively. There is, therefore, the need for banks to conduct high-quality credit analysis to identify the quality of the borrower and thus avoid problematic loans through defaults by borrowers. However, banks have found credit assessment very challenging for a long time. Lots of literature abound on the lending methodologies applied by banks and other lending institutions in assessing SME loan applications. Some of this literature has provided empirical evidence on these methodologies either in isolation (Udel, 2004; Berger and Frame, 2007) or have sought complementarity amongst these methodologies (Uchida et al., 2006).

Information is very vital to banks as it indicates the borrower's lending behaviour. However, as stated earlier is characterised by information asymmetry regarding both adverse selection and moral hazards. Banks in their dealings with SME firms that are perceived to be informationally opaque collect data either independently or aided by the central authority through credit information sharing to reduce this information problem and ensure efficient allocation of

resources. Such information can be either qualitative or quantitative. Soares, et al. (2011), asserts that banks in making credit decision-making is based on four main types of information. These are: i) Information is collected purely through a bank-SME strong relationship that is commercial and primarily qualitative; ii) information of financial nature taken from financial records; iii) information relating to the owners and managers of the firm; and iv) information that seeks to mitigate the risk of non-payment (collateral or guarantees in fulfilment of Basel 1 and 11 accords).

Banks can determine from the information so collected whether a borrower is willing to repay the loan with interest charged. Consequently, banks go through much stress by adopting different methodologies to assess the creditworthiness of their client (Aga and Reilly, 2011). The 5Cs is an acronym derived from the first letters of the specific areas considered when assessing loan applicants (Manurung and Manurung, 2019). Peprah et, al, (2017) researching on how banks in Ghana rank the 5Cs in the evaluation of loan applicants stated that the acronym represents the qualitative aspect of the lending methodologies namely:

i. Character – assesses the borrower's willingness to repay the amount of money requested and the accompanying interest (Abbadi & Karsh, 2013).

ii. Capacity - assess the borrower's financial situation and the ability to repay the loan on time (Sharma & Kalra, 2015).

iii. Capital –assesses the borrower's ability to generate enough revenue from its business to repay the amount borrowed (Noradiva & Azlina, 2016).

iv. Collateral - represents the borrower's ability to cover the loan with some form of security or guarantees (Sharma & Kalra, 2015).

v. Condition –determine the macroeconomic circumstance prevailing that might render the borrower unable to meet its repayment obligation on time (Moti, Masinde, Mugenda & Sindani, 2012).

The quantitative assessment involves an assessment of the financial statement of SME firms. The documents requested and assessed include the balance sheet, income statement, and cash flow statements. The balance sheet is assessed to determine the present assets value of the business and its sources at a given time. The income and cash flow statements help determine the business's past

economic situation (Palepu and Healy, 2012). The subsequent subsections discuss the 5Cs lending methodology, which banks have traditionally used.

2.8.1 The 5Cs principle of credit assessment

According to literature, one method in use for centuries is the 5C's of lending and comprises character, capacity, condition, collateral, and capital (Dheeraj, 2018). This has been the principle on which bank credit officers, time after time, used to evaluate and make judgments on all aspects of the application for loans received. Banks use a basic standard operating procedure to identify eligible and trustworthy customers for credit (Manurung and Manurung, 2019). The 5C's method of assessing the creditworthiness of applicants is based on the predictive modelling methodology.

2.8.1.1 Character as a principle of credit assessment

Character depicts the nature of the individual or entity that is applying for the credit. Myers and Forgy (2005) posit that character is the personal impression that a client makes on a potential lender. It is a tool that provides weighting values for various characteristics of an applicant and the total weighting score of the applicant used to estimate his/her creditworthiness. Character is used here to refer to the owner/manager characteristics and also SME firm characteristics. Owner/manager characteristics include age, gender, marital status, education, and experience. Moti et al. (2012), using the life cycle as an example, stated that older families with mature children are less likely to default since it is easier to attach collateral on their assets since they are settled, unlike young couples. Nguyen and Luu (2013); Nkuah et al. (2013) posit that owner/manager characteristics have a solid relationship for access to bank credit. Firm profile characteristics such as firm size, firm age (number of years in operation), ownership structure, location, and business type affect access to credit (Cowling et al., 2016). Honhyan (2009); Dun and Girma (2012), for example, concluded that large firms are less likely to go bankrupt as they are more diversified and can attract more credit from banks than smaller firms. Ceaser (2004) attributes this phenomenon to the high cost of resolving the problem of asymmetric information associated with smaller firms with lenders. According to Demirgüç-Kunt et al. (2008), the location of the business significantly affects access to credit. Abor (2007) postulates that firm ownership structure affects firms' access to finance.

2.8.1.2 Capacity as a principle of credit assessment

Capacity represents the ability of the borrower to guarantee repayment. Managers of the firm can operate the business efficiently and profitably to repay loans obtained. Haron et al. (2013) posit that financial capacity has a significant impact on the success of a loan application of SME firms. To evaluate capacity, banks and other lending institutions rely on analysing financial statements to predict a borrower's repayment capacity (Kessey, 2015). The financial statement analysis can be broken down into several perspectives (the lenders, shareholders, and the state) based on the method for which it is sought. There has been no clear consensus on the breakdown either in theory or in practice on the ideal method for analysing financial indicators. Teply (2009), constructing a financial stability indicator based on business failure prediction, identified twenty-two (22) indicators and further divided them into four main groups: liquidity, solvency, profitability, and activity indicators. The liquidity indicators seek to predict a firm's ability to meet its short-term liabilities or how its long-term assets cover its long-term liabilities. A higher liquidity ratio implies a lower probability of default. Persistent lower liquidity indicates the probability of having problems meeting its long-term debts (Pavithra and Gurukrishnan, 2018). This, in several cases, may lead to the failure of the firm. (E.g., the current ratio, quick ratio, cash ratio, working capital ratio, capitalisation ratio). The solvency indicators show the firm's ability to repay its long-term debts Nguyen, (2018). Generally, the higher the debt ratio and a longer repayment period result in a higher probability of default. On the other hand, the ability of a company to generate enough funds for debt repayment and the higher the proportion of internal funds reduce this probability. E.g., retained earnings, interest coverage, debt payback period, cash flow (Erdogan, Erdogan, and Omurbek, 2015).

The profitability indicators explain the relationship between the quantity of input employed by a firm and the level of profit earned. Thus, higher profitability indicates the lower possibility of default (Sarpong et al. 2015). For example, gross profit margin, return on asset, return on equity, and net profit margin.

Finally, the activity ratio measures the efficiency with which a firm generates revenue from a given input. The lower the efficiency with which a firm generates revenue from a given quantity of

inputs, the higher the probability of default as cash flows into the firm will fall, making the firm unable to pay its short-term debts (McLaney, 2009).

2.8.1.3 Capital as a principle of credit assessment

The capital represents the funds introduced by the owner(s) into the business. This may be in the form of cash or assets. It is one major determinant of credit risks that helps to decrease or eliminate the risk of non-payment. The size of the owners' capital has been found in the literature to be a strong determinant of access to finance (Quartey et al., 2017). Researching the impact of capital structure determinants on Iranian SME firms and access to finance, Hashemi (2013) concluded that lenders find SME firms with weaker asset bases to be riskier to advance credit.

2.8.1.4 Collateral as a principle of credit assessment

The collateral represents what the applicant presents or puts up from their resources pledged to obtain a loan. It includes assets such as land and building, machinery and equipment, and stock. Collateral is the guarantee that the prospective borrower uses to secure the credit, be it movable or unmovable, asset value that should exceed the amount of credit been requested. Investigating the determinants of access to credit in the Cote D'Ivoire, Ghimire, and Rodrigue (2013) concluded that the requirement for collateral is key in determining access to credit by banks. Osano and Languitone (2016), research into factors that influence access to finance to SMEs in Mozambique, concluded that there exists a relationship between Collateral and access to finance. This is because collateral plays two essential functions in a loan decision. First, according to Besankor and Thakor (1987): Chan and Kanatas (1985), collateral serves as an enhancement to the quality of the borrower. Secondly, it serves as insurance against the loan's quality granted and allows the borrower to shift uncompensated risks to the lender. Rajan and Winton (1995) identify two types of collateral, "inside collateral" and "outside collateral". They defined "inside collateral" as assets owned by the firm and outside collateral as assets not owned by the firm. They posit that these two types of collateral address the problems of adverse selection and moral hazard. That is when inside collateral is pledged. As a result, the lenders have an incentive to monitor collateral to ensure that the loan amount does not exceed the value of the collateral while at the same time permitting the lender to gain more information about the firm's performance and health (Swary and Udell, 1988).

"Outside collateral" can reduce the borrower's adverse selection since it can depict the quality of the borrower (Besankor and Thakor, 1987; Boot, Thakor, and Udell, 1991). Collateral, therefore, is seen as a significant obstacle to SMEs ' access to credit as these firms relatively lack fixed assets to use as collateral to qualify for loans (Duarte et al., 2017).

2.8.1.5 Condition as a principle of credit assessment

The condition represents the prevailing economic environment. This determines whether the existing economic condition supports the effective performance and survival of the business to generate enough returns to be able to repay the loan. The ability for repaying debts depends on the cash flow of the borrower. So prevailing economic conditions (for example, the economy being in a recession or experiencing falling sales) may determine or influence the probability of a borrower defaulting. Adeyeye et al. (2016) found that banks' decision to provide credit to SME firms is influenced by the firm characteristics and depends on the macroeconomic conditions prevailing at a particular point in time. However, to reduce the risks it faces in its lending activities, banks update their credit officers by evaluating the macroeconomic environment to ascertain elements within the environment that may pose a risk to the bank.

The 5Cs method has served banks and SME firms well. However, it has become evident over a few decades (especially after the emergence of the credit crunch) that this method was not robust enough to provide adequate information on which lending institutions could use to make a sound judgment of borrowers (Chaibi and Ftiti, 2015). Banks have faced significant obstacles using the 5Cs in the credit decision process mainly because prospective borrowers do not prepare financial statements. Subsequently, this makes it difficult for credit officers to adequately measure, for example, capacity by using the accounting data to measure capacity variables, let alone calculate the use of capital to determine the prospective applicant's ability to pay and effective use of loan granted.

The introduction of credit referencing, which is one of the measures proposed by the framework to help improve the risk assessment of credit applicants, can change the credit system and the culture of most lending institutions, especially in emerging economies. As such, efforts were made by some world economic bodies to introduce credit information sharing in other to reduce the

differences in information that exist with this traditional system. This highlighted the importance of sustained cost-effective innovation in relational lending methodologies for the credit industry to continue facilitating the entry of loan applicants such as SME firms without credit histories into institutional financial markets (Gonzalez-Vega and Villafani, 2007). The 5C's method of assessing the creditworthiness of applicants is based on the predictive modelling methodology. This methodology has been used widely in the financial services industry in the past. It is said to account for most of the spectacular failures of firms in the industry and contributed to the financial crises of 2008 (Crotty, 2009). This has led to a significant debate on the best method(s) to serve this sector. Though there have been numerous methodologies introduced in different economic environments, these methodologies differ in approach. For example, Berger and Udell (2004) and Bartoli et al. (2013) classified such methodologies as transaction-based lending and relationship-based. The importance of these various methodologies proposed by Berger et al. has been tested empirically by several writers. For example, Uchida et al. (2006), using data from the Japanese credit market, concluded that there was evidence of complementarity among the various lending technologies.

2.9   The concept of Soft (relationship) and hard (Transaction) based Lending Methodology

Effectively assessing credit applicants is seen as an essential component of the overall process to reduce credit risk. It is critical not only to banking institutions involved in the credit market but also to the economy (Win, 2018). This has necessitated much research by both economics and academic scholars in search of an appropriate methodology using different theoretical underpinnings and methodologies. One significant component of financial transactions identified by literature is the reliance on financial institutions' information in decision-making. This explains why banks collect, process, and transmit information on the creditworthiness of clients. Over the past five decades, transmitting information was difficult because of the lack of technology which made information held by banks on clients more difficult to transmit and share as information was difficult to process into numbers. This made banks a repository of information about the creditworthiness of borrowers. Such information is primarily soft and is seen as very valuable to banks in making lending decisions.

Currently, the banking system has seen a growth in the amount of numerical information about borrower creditworthiness resulting from the improvement in technology. As a result, some data hitherto resided with banks can now be moved outside the bank and shared with other banks through credit reference bureaus. Therefore, a banks' decision to use or rely on soft or hard information (or both) depends on the availability of the information and the advantages that such information will bring to the bank.

2.9.1 Transaction-based (Hard) Lending methodology

Transaction-based lending methodologies is that which are primarily based on hard financial information. The empirical literature has it that firms' access to credit depends on how informationally transparent the firms can make available hard information about their firms (Petersen and Rajan, 2002). It must then be expected that firms that cannot produce much hard information will find it difficult to access credit. Therefore, a firms' access to credit is premised on how much information is available to the financial market regarding small businesses. Thus, small firms that are seen to be informationally transparent (i.e., those that can produce formalised records have a higher probability of having their loan request approved (Petersen and Faulkender, 2006).

One major feature of transactional lending methodology is that information about clients can be relatively verified easily, observed, and transmitted through internal communication channels with the financial institution. It includes Collateral-Based Lending, Financial Statement Lending, credit Scoring, and Viability-Based Lending methodologies.

2.9.2 Collateral-based lending

Traditional banks and other finance companies usually offer this method and combine asset-based finance and factoring-based finance.

2.9.2.1 Asset-based finance

According to Berger and Udell (2005), takes the assets of the borrower as security. It is the most guaranteed form of lending to SME's. The value of the borrower's assets is used as collateral or

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the primary source of repayment for the borrowing. The extension of credit to an applicant is based on the value of the assets rather than the borrower's overall creditworthiness (Migliero, 2012). It is seen as one of the best ways for SME businesses with poor credit records to secure large amounts of a loan compared to other forms of small business credit. Asset-based loans are easier to quantity as long as the business can show ownership of valuable collateral. Other sources of information, whether available or not to the lender, is not taken into consideration. Underwriting focuses on the value of specific assets of the business and not on personal assets. This technology focuses on "inside" collateral and not "outside" collateral (Berger and Udell, 1995). This technology of lending is based on the quality of available collateral.

Asset-based lending has the benefit of flexibility in that a lender who will otherwise have required past credit records and other credit records relating to the borrower can now be ignored because borrowers have a strong asset pool that can be relied on as security and often allow for revolving funds. As advances are paid, the borrower can secure new advances with the same assets as security. Another benefit is that because the lender has some assets to rely on as collateral, frequent and consistent reporting in the form of weekly or monthly reports that are usually required under the other conventional lending methods may be ignored. As a result, businesses in asset-based lending relationships tend to develop better cash management practices and good financial reporting. One major drawback for the lending method is the increased monitoring needed from the lender to ensure that the collateral value of the assets is maintained through to the loan's maturity (OECD, 2014).

2.9.2.2 Factoring-based finance

Factoring is a transaction technology or a short-term financing mechanism where a firm (i.e., seller) receives cash from a specialised institution (the factor) in exchange for its account receivables. It occurs when the factor buys the rights to collect the firm's invoices from its customers after paying the face value of those invoices at a discount. The amount paid is seen as a means of financing the firm. This method of assessing credit applicants follows the same principle as the assets-based method discussed above. The significant differences are that the factor-based method is more focused as it only involves the financing of account receivables rather than focusing on the firm's overall value. Also, with this method, the factor (lender) buys the assets

(i.e., the account receivables) from the borrower at a discount, usually between 70 to 80 % of the value (Milenkovic-Kerkovic and Dencic-Mihajlov, 2012). Thus, the title passes from the borrower to the lender so that at maturity, the factor collects the full amount from the obligor. Factoring may be a particularly valuable technology, especially in countries with weak lender infrastructure (Bakker, Klapper and Udell, 2004). Klapper (2006) explains that factoring as a lending mechanism plays a vital role in providing access to credit for SME firms.

However, factoring as a lending mechanism in developing countries such as Ghana is constrained by inadequate financial infrastructure, legal and regulatory systems, and tax issues. For example, in countries with weaker information infrastructure, factoring may be discouraged as it poses much burden on the factor while trying to collect information about the customer's creditworthiness for assessing credit risk. The ability of the factor to assess the risk associated with the customer is dependent on the availability of excellent and reliable customer information data, which are usually lacking because of the non-existence of well-developed credit information bureaus and registries. Factoring also requires an effective legal system that allows for the enforcement of underlying contracts, enabling the factor to take legal recourse to recover accounts receivables assigned for the clients' customers. Unfortunately, such legal regulations are primarily non-existent in developing countries like Ghana. This makes it difficult for the factor to take legal action when a seller or customer defaults.

2.9.2.3 Financial Statement Lending

Information-based lending usually incorporates financial-based lending, credit scoring, and relationship lending. Financial statement lending occurs when loans are approved based on the strength of the borrower's financial statement Bondu and Sangisetti (2020). It is a direct reflection of the cumulative effect of the past decisions of firm managers (Helfert, 2001). They are documented firms use to report yearly results to their stakeholders, including banks. Banks also emphasise using these documents to decide whether to lend to such firms (Charles, et al., 2012; Bondu and Sangisetti, 2020). The main financial statements required by banks for their analysis and decision-making are the income and expenditure statement, balance sheet, cash flow statement, statement of equity changes, and statement of exploratory notes (Asllanaj, 2008).

The income and expenditure statement represents a summary of the amount of money spent to generate a certain amount of income. The income depicts the total amount of assets generated due to the business operation through the production of goods and services, while expenditure, on the other hand, represents the number of assets used to generate the income. If any, the difference between the income and expenditure is the net profit (Asllanaj, 2008).

The balance sheet summarises the balance of all assets and liabilities (Lewis and Pendrill, 2004). According to Xhata (2003), the term balance sheet is derived from the assumption that total assets and total capital and liabilities must always balance or be equal. Therefore, the equation represents this as follows:

Assets = liabilities + Capital (equity).

The cash flow statement is requested mainly to review business operational activities that impact cash inflows and outflows. It depicts transactions from which cash is generated and which money is expended (Hasanaj and Kuqi, 2019). The statement of equity changes, on the other hand, is needed by the bank to know the changes that have occurred over a period of time to the size of the owners' equity (Mayor, 2012). The banks' interest in requesting to have all these financial documents from the SME firms they assess based on the financial statements aims to determine the borrower's ability to pay its debts when due. For example, the bank is interested in determining the liquidity of the borrowing SME firm to protect the bank from possible future defaults due to lack of cash to settle the loan and the accrued interest (Shuli and Perri, 2010). The methodology is best suited for relatively transparent firms with a certified audited account (Hasanaj and Kuqi, 2019). It is the choice of most financial institutions when assessing large firms but can be applied to small firms with long histories, relatively transparent transactions, and strong audited financial statements (Berger and Udell, 2011). The unfortunate situation is that many small firms in emerging economies lack the required financial information for such a lending methodology to be applied.

2.9.3   Credit Scoring

This is a lending technique based on hard information about the borrowing firm. It uses summary statistics about the borrower's expected future performance (Feldman 1997; Mester, 1997). It is

based on the information collected from the borrower's primary data such as earning or income, debts, financial assets, mortgage records usually obtained from credit reference bureaus. The credit scoring technique assumes that credit analysis determines the credit history of firms and their owner(s) and is highly predictive of the repayment prospects of the business (Berger et al., 2002). The various models developed for credit scoring involve attaching heavy statistical weights to the financial condition and history of the applicant, given that the creditworthiness of the owner(s) and the firm are closely related for small businesses (Berger et al., 2005). By obtaining information on clients and comparing these with information on the client held already by the lending institutions, they can predict the probability of the firm defaulting in the payment (DeYoung et al., 2010; OECD, 2013e; Hurley and Adebayo, 2016). If applied to the information obtained, a predictive scoring model can help determine an applicants' creditworthiness. A decision to grant credit is made by comparing the estimated probability of default against some predetermined threshold (Ahmed and Rajaleximi. 2019).

Financial institutions and other credit providers primarily use credit scoring methods for both consumer and trade credit (Berger and Udell, 2006; Ahmed and Rajaleximi. 2019). These institutions use them to predict the specific level of risk that an individual or a company brings to a particular transaction (Berger, Frame, and Miller,2002); Wolkowitz and Parker, (2015). Rutherford (1995); observed that though credit scoring methods of predicting defaults have been used for some time in underwriting consumer loans, it has been rarely introduced or applied to lend to small commercial businesses, which are perceived to have non-standardised documentation and are also seen to be too heterogeneous. An example is the financial scoring model developed by Jakubík and Teplý (2011) and tested on Czech companies using their accounting data. In the face of information opacity, commercial banks make loan applications based on their internal credit rating models (Farinha and Felix, 2015). As a result, commercial banks can impose higher interest rates and non-price-related restrictions in SME lending in the form of offering smaller loan sizes with shorter maturity periods, demand for collateral, and personal guarantees from owner/managers (Hanedar et al., 2014; Kirschemann, 2016).

2.9.4   Viability-based Lending

A substantial number of SMEs may not have the required security demanded by the traditional or formal financial institutions to assess conventional asset-based lending, nor do they have high enough returns to meet the high level of profitability, gearing, stability, and other business financial performance criteria required to qualify for funding. The viability-based lending approach is concerned with the business itself and aims to provide better general business development assistance to reduce risk and increase returns.

However, there are criteria that SMEs must meet to qualify for this kind of funding. These have been enumerated below in no particular order.

Firstly, viability-based lenders are interested in registered businesses (Mensah, 2004). This shows seriousness on the part of the owner(s) and at the same time shows that such SMEs are responsible to regulators, whether the registrar of companies in filing their returns, the tax authorities, and banks. No lending institution would want to deal with a business the way it deals with an individual. For instance, a bank will offer an SME its corporate banking services rather than a personal banking service (e.g., current account).

Secondly, proper documentation is important. This ensures that the business is organised and can be monitored (Agyapong, Agyapong, and Darfor 2011; Ogohi and Cross, 2018). A situation where sales are made without receipts, invoices, and contracts are entered into without any agreements or documentation depict such an SME as an unserious and dangerous business.

Thirdly, the commitment of the owner and his team to the business is a crucial criterion. A financial institution that provides SME finance rates a business it intends to fund by looking at the commitment of the SME operator/owner (Aduda et al., 2012). It means this kind of fund is not meant for those who treat this business in a part-time fashion.

Fourthly, the SME must put in place measures that promote financial accountability and proper management of resources. The business should have bank statements, statements of accounts, and annual audited accounts (Alhassan and Sakara 2014. This helps the lender study the business, identify trends, behaviours, and performances, and look for areas to correct or firm up when the lender finally decides to provide the finance required for the business. Also, through the accounts and financial statements, the lender can assess whether the SME owner manages resources well or

is given to spendthrift. Availability of such information help reduce the administration cost of financing (Mazanai and Fatoki, 2012).

Fifth, the viability of the business and the ability to pay back equity or debt or both injected into the business is another important consideration. Viability-based lenders are concerned about the viability of the business. They are concerned with the cash flow, the business fundamentals like higher income and returns on the business, and lower expenses (Shuli and Perri, 2010).

Sixth, the existence of good corporate governance in the business is also important to viability-based lenders (Pham and Nguyen, 2019). The owner is the accountant, salesman, cashier, HR manager, and all that, giving away the business as an autocracy. This is not to say that the business may not employ lean staff measures. However, structures have to be put in place to show that the business owner is himself/herself responsible for the business system in place.

Seventh, the existence of a business plan will further accelerate the process of business assessment by a viability-based lender. In this case, when the SME owner/operator has made his/her presentation, the lender needs to have a document to pore over to determine the viability of the business. The onus is on the SME owner to prepare a business plan or outsource that job to a consultant who prepares a comprehensive and financeable business plan that would be useful to both the SME owner and the lender in facilitating the release of the funds and in running the business (WB. 2018). Eight, the management ability and competence of the SME owner(s) will also be considered because if the existing workforce does not have the requisite skills and training to manage the expansion stage of the business, it might jeopardize the success of the whole funding effort (Khan, Jan, and Abdulrahim, 2017).

All these are important criteria that an SME ought to meet to access viability-based finance. One major obstacle in applying viability-based lending in the past has been getting information required to assess viability. However, improved technology and information sharing have made the process easier and cheaper for lending institutions in the last few years. The emergence of credit referencing bureaus that share credit information in most emerging economies has made banks and other lending institutions SMEs more cost-effective.

2.9.5 Relationship-based (Soft) Lending Methodology

For several years researchers and policymakers have sought to investigate the problem of asymmetric information, all aimed at reducing its effect on lending to SMEs. The approach has been to determine the appropriate lending methodology rather than focus on individual signing of commercial contracts (Carbo-Valverde et al., 2008). One methodology that has been identified in the literature as capable of reducing the effect is relationship lending. Relationship lending is seen to play an essential role in financing SME firms within the context of information asymmetry. It has a screening mechanism and a monitoring strategy capable of reducing the opacity of information associated with SME firms (Berger and Udell, 2006). Relationship lending is a technique designed to address the problem of information asymmetry between lenders and borrowers Elyasiani and Goldberg (2004). The value of relationship lending becomes manifest as SMEs are seen to be informationally opaque coupled with the lack of credit history, the impossibility of credibly verifying the quality of the loan application, and the lack of separation between ownership of the firm and management (Ferri and Murro, 2016). All definitions of relationship-based lending point to the fact that there always exists a unique form of relationship between the lender and the borrowing firm by which way the lender gathers private information from repeated interaction with the client.

According to Onega and Smith (2000), relationship-based lending is defined as the relationship between a bank and its client that extends beyond the execution of a simple, anonymous financial transaction. With this method, the lender bases a substantial part of the lending decision on information obtained about the borrowing firm and its owner(s) held by the firm and other shared information received from credit reference bureaus. Rajan (1992) posits that the shared information is the primary information used by the lender to decide to lend is based on "soft" information collected in the lender and the borrower relationship. The "soft" information is typically gathered from the bank's interaction with clients, suppliers, competitors, and other affiliate businesses. Berger et al. (2019) state that such information, when gathered, could be used to assess the financial condition and characteristics of the firm.

This emphasis on soft information distinguishes this lending method from others (Berger and Udell, 1994). Dell'Ariccia and Marquez (2005) suggest that informationally captured firms are associated with more credit availability. Boots and Thakor (2000) posit that lending relationships

enhance the bank's information about their SME customers and their operations, hence improving the SME firm's reputation, increasing the probability of receiving bank finance at a lower cost. In addition, the confidential relationship helps to enhance safety by encouraging SME owners to submit comprehensive information on the business, thus increasing the willingness of the bank to approve the credit request and enhancing monitoring.

Research by Petersen and Rajan (1994, 1995); Berger and Udell (1995); Cole (1998); Elsas and Krahnen (1998); Harhoff and Körting (1998) collectively contain literature giving a comprehensive assessment of the positive relationship between relationship lending and credit availability, credit terms, and demand for collateral. Fisher, (2005) posit that banks that acquire more information about their borrowing client tend to advance more credit. Studies by Angora et al. (2019) have shown that lending institutions, especially banks, that assess SME credit applications through relationship lending methodology can gather more reliable information and significantly increase the trust between the lender and borrower, therefore increasing access to credit in the long run. However, previous studies by Sharp (1990); Kim, Kliger, and Vale, (2003) believe that using a mono lending relationship could lead to a hold-up, limiting credit to SME firms. As such other contributors to the topic, such as Degryse and Van Cayseele (2000); Jimenez et al. (2006); Steijver et al. (2008), tried to research into the interaction effect between relationship banking and transaction-based banking found no significant effect. This leaves a gap in the literature pointing to further research into the complementarity between lending methodologies by introducing other variables such as credit reference information. The following section looks at the theoretical framework by discussing the theoretical underpinnings of the research.

2.10 Conceptual Framework
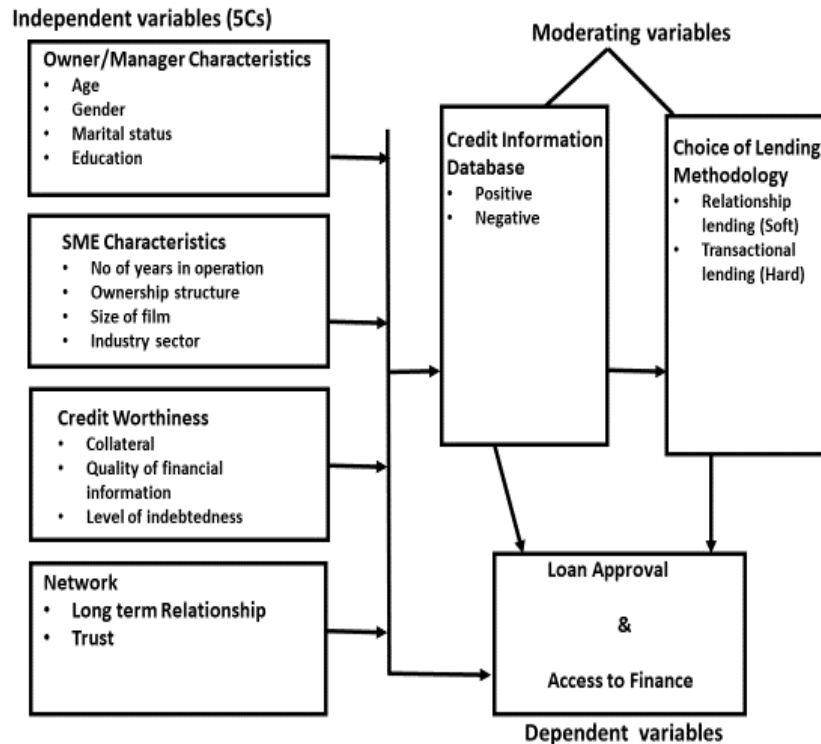
Figure 2. 1: Conceptual Framework

Source: Researchers Construct (2021)

Figure 2.1 depicts a conceptual framework developed by the researcher against the backdrop of the afore-mentioned theoretical framework and previous research regarding the value of credit referencing information sharing and SME access to credit. The frame depicts the relationship between owner/manager characteristics, SME characteristics (independent variable) credit information data, bank lending methodologies (moderating/mediating variables), and loan approval and access to credit (dependent variables).

Generally, the empirical literature has proven that SME owners' personal and firm characteristics do affect the behaviour and financial decision-making of banks. This is explained by the fact that the owner/manager plays the most influential role as the decision-makers in managing the firm (Nyanzu and Quaidoo, 2017).

Owner/manager characteristics such as age (Nkuah, 2013; Nega and Hussien, 2016), education levels (Scott and Irwin, 2009; Aterido, Becks and Iacovone, 2013), owner/manager experience

(Gomper et al., 2010; Notsinger and Wange, 2011) and gender (Alina, 2011; Abdulsaleh and Worthington, 2013; Asiedu et al., 2013) have all been empirically identified as having a contributory influence on improving access to SME credit.

On SME characteristics, the number of years in operation (Klapper et al., 2006; Fatoki and Asah, 2011), firm Size (Caesar, 2004; Quainoo, 2011), ownership structure, and legal status (Caesar, 2004; Abor, 2008), industry sector (Mackay and Phillip, 2005; Abor and Biekpe, 2007) and geographical location (Abor, 2008; Fatoki and Asah, 2011) have also been identified in the literature as having the potential of influencing the behaviour of banks to SME access to credit.

Empirical evidence largely suggests also that creditworthiness which is represented in the framework by collateral (Becks et al., 2006; Xu, 2019), quality of information (Kira, 2013; Ajibade and Khayundi, 2017) and the level of indebtedness (Bernado, 2015) of the firm influences access to credit. For example, Bernado, (2015) posit that information sharing helps reveal the overall indebtedness of borrowers from multiple lenders and in the long run help reduce the debt burden of borrowers, therefore, increasing loan approval rates as well as reducing default rate. Focusing exclusively on bank lending using bank-level datasets from African economies, Fosu (2014) found that quality credit information helps improve bank lending to borrowers. The lack of quality information on which SMEs are assessed for finance tends to increase the cost of credit as such reducing the probability of loan approvals.

Network depicts the long-term relation and trust that develop between the SME and its lenders. Uchida, et al. (2011) investigated the role of credit officers and relationship lending and concluded that credit officers' role help build relationships with borrower clients. Their conclusion was based on the fact that the close relationship between credit officers and borrowers helps build soft information for banks as such helps in the development of trust between the bank and their borrower clients (Moro, Finks and Kautonen, 2012). Researchers Tornberg and Hemlin, (2013) also found evidence that soft information (non-financial) alone does not affect credit officers' decisions. But subsequent findings by Baskara, et al. (2017) shows that trust becomes a perfect mediating variable in the relationship between the borrower and the lenders as such help increase access to credit.

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Banks depend on lending methodologies to collect and process information that relates to the borrower. Petersen and Rajan, (2004); Behr et al. (2012) posit that this information can either be qualitative based on soft information (relationship lending methodology) or quantitative based on hard (transactional lending methodology). Soft information is generated through the interaction between the bank credit officers and borrower clients. Quantitative information is the borrower's financial information obtained from financial statements provided by the client.

The framework depicted in figure 2.1 above seeks to show the alleged moderating or mediating influence of credit information database and lending methodologies on the relationship between the independent variables and the dependent variables. The next section gives a brief history of credit referencing and how it helps mitigate the problem of asymmetric information.

2.11   Brief History of Credit referencing and the Problem of Asymmetric Information

The aftermath of the period of the credit crunch has seen the activities of banks and other lending institutions come under severe scrutiny (Fujji and Matousek, 2014). Crotty (2008) sees the reason for this to be the role of these institutions in most countries' economic development. This is more prevalent in emerging economies where information asymmetries remain rife, making screening and monitoring costs of lending very high (Greenidge and Tiffany, 2010). Lending in emerging economies has been very challenging to banks in particular and lending institutions in general. The reason is that these institutions are severely exposed to credit risk, which affects their profitability enormously (Becks and Levine, (2004); Karbo and Adamu, (2009). Lending is even more challenging in such economies because of ineffective judicial and legal structures, coupled with the fact that information is not easily accessible for these lending institutions to ascertain the suitability of a loan applicant to repay. Also, the fact that applicants do not have the required collateral to use as a guarantee in support of the loan makes credit delivery difficult (Conning and Udry, 2007; Osano and Languitone, 2016). As a result, these lending institutions are exposed to a lot of credit risk making their survival and the stability of the financial sector of these economies threatened (Louzis et al. 2012; Castro 2013). Credit referencing has been identified as a major instrument in reducing credit risk.

Credit risk is the risk of not receiving anticipated cash flows due to default by a client on a debt obligation (Maxwell, 2008). It relates to the failure on the part of a client to make good the terms

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of a loan contract. Credit risks occur when a client fails to meet the payment schedules per agreed terms. Credit risk is seen as one of the significant causes of bankruptcy and distress among banks (Osei-Assibey, and Bockarie, 2013). Financial institutions, including banks, use risk management tools to help minimise the rate at which losses occur due to credit defaults to circumvent such risks. To reduce the effect of credit risks on the activities of banks and other lending institutions, the emphasis has been to improve on the financial infrastructure of emerging economies to include the (i) establishment of secured transaction legislation and registries, (ii) adoption of modern insolvency and creditor rights regimes, (iii) development of efficient digitalised payment systems, (iv) stronger accounting and auditing practices within the banking sector, (v) and the setting up of credit information systems (Alibhai et al. 2017). Therefore, it is not surprising that credit referencing systems have been introduced in most emerging economies in an attempt to improve the banking lending system. The works of Brown and Zehnder, (2007), and Dzankov et al. (2007); Hartzberg et al. (2011) show evidence of this.

2.11.1 Evolution of Credit Referencing: background and development

Credit referencing began in the United State of America with six major companies dominating the commercial credit referencing industry in America all gathering information independent of one another. These companies are Equifax commercial, Experian Business, Cortera, Dun & Bradstreet, PayNet, and the South-Eastern Association of Credit Management (SACM). Data is compiled by these companies from personal credit records as well as from public records for over 220 Americans. The data so collected is transposed into credit score by Fair Isaac which maintains a contract with all the registered credit reference bureaus (Miller, 2003)

Experian was originally set up as a data processing unit of the U.S high technology conglomerate Thomas Ramo Woodbridge (TRW) Inc. Great Universal Store (GUS), a U.K retailer shop with interests that include Burberry, acquired TRW and also absorbed CCN, a data service arm of GUS (TransUnion, (2007). Experian was later spun off GUS in 2006 and has since expanded aggressively paying $240m for internet metric specialist Hitwise in 2007 and paid $600m for 70% of Brazilian credit reference group Seresa which boasts of having over 160 million files. Experian

claims to maintain credit information of over 235 million consumers and 14 million business in the U.S alone. Worldwide it controls over I billion customer information and operates in over 37 countries (Credit knowledge guide, 2019; Congressional Research Service, 2020).

Equifax traces its origin to a retail credit established in Atlanta in 1899. It became Equifax in 1913 (McNeil, 1992). TransUnion, dubbed the "world's premier business intelligence supplier," was founded in 1968. It's a reimagining of Union Car Company, a retail car leasing company that bought the Cook County Credit Bureau (CBCC) in 1969 and automated its operations. CBCC used 3.6 million card files at the time of its acquisition. Trans Union launched the Credit Reporting Online Network Utility System (CRONUS) in 1970, which was the first online information storage and retrieval processing system to supplement credit grantors' automatic processes (Credit knowledge guide, 2019). Trans Union sold credit reports, credit and insurance risk scoring models, target marketing systems, pre-employment evaluation reports, skip tracing, and search tools in the late 1990s. Equifax currently has credit data on over 800 million consumers and 90 million businesses in more than 24 countries (Credit knowledge guide, 2019).

2.11.2 Current Development: The development of credit reference Bureaus in American

Currently, in the United States of America, there are other institutions (trade associations) though not credit reference bureaus that gathered information from small businesses from all industries (Credit knowledge guide, 2019). An example is the Small Business Financial Exchange, Inc (SBFE) gathers information on small businesses that are its members and help protect the payment data of its members. This helps in building true and accurate data on small businesses to help facilitate the exchange of data to certified specific business reporting agencies for the risk management purposes of its members. The credit reporting industry is worth $14.1 billion, not including the billions of dollars created and redistributed between customers and financial services corporations like banks and lenders as a result of the industry (World Bank, 2019).

Of all the companies that generate credit information, six large companies currently dominate the commercial credit referencing market in the United States, each obtaining data independently. As a result, three separate credit ratings can be derived from three different reports. Equifax

Commercial, Experian Business, Cortera, Dun & Bradstreet, PayNet, and the South-Eastern Association of Credit Management are among these businesses (SACM). Credit reports for nearly 200 million Americans are created by these organizations using data from public databases and creditors. Furthermore, all of these businesses have a contract with Fair Isaac, an independent firm that converts the data into a credit score (Miller, 2003).

Experian began as a data processing division of TRW, a high-tech company based in the United States. In 1996, it was purchased by Great Universal Store (GUS), a U.K. retailer with holdings including Burberry, which also absorbed CCN, GUS's data service arm (TransUnion, 2007). Experian was spun off from GUS in 2006 and has since aggressively grown, spending $240 million for online metric specialist Hitwise in 2007 and $600 million for 70% of Brazilian credit reference business Seresa, which counts over 160 million files. In the United States alone, Experian claims to have credit information on over 235 million households and 14 million businesses. It has a global client database of over one billion records and operates in 37 countries (Credit knowledge guide, 2019; Congressional Research Service, 2020).

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2.11.3 Development of Credit Reference Bureaus in Europe

Surprisingly, the credit reporting bureaus that rule the United States have only made little advances throughout Europe. Equifax operates joint venture bureaus in Spain and Portugal and is a key player in the United Kingdom. Experian was founded in the United Kingdom and also has a presence in the Netherlands. Aside from that, there isn't a lot of cross-border bureau ownership in Europe (Miller, 2003). It operates offices in 15 countries and has a presence in eight more (Riestra, 2002a). They are, however, more interested in consulting and scorecard development than in establishing bureaus. Several countries' credit bureaus are working on bilateral partnerships, including Schufa Holding (Germany), KSV (Austria), BKR (Holland), CRIF (Italy), and NBB (Belgium) (Miller, 2003).

The types of credit bureaus that can function in European countries are dictated by cultural and legislative variations (Jentzsch, 2005). Almost all countries' legislation establishes the types of information that can be held, the maximum amount of time that information can be stored on an individual's credit history, the right of access to the information recorded, and provisions for correcting errors or communicating one's inclusion in the bureau's database. Credit bureaus that collect negative information only collect data on people or businesses who have defaulted on payments in the past (delinquencies, charge-offs, bankruptcies, etc.). Positive information, on the other hand, includes additional aspects of the individual's financial situation that would allow for a more specific assessment of his or her ability to repay, such as accounts currently opened, their balances, and credit limits. In most countries, such as Finland, Ireland, France, or Sweden, one single credit bureau dominates the industry. Two or more enterprises share the market in the United

Kingdom and Italy. Furthermore, in some economies, such as Belgium and Germany, state and private credit bureaus coexist (Credit knowledge guide, 2019).

2.11.4 Development of credit reference bureaus in Asia

The Asian financial crisis of the 1990s highlighted the importance of credit information exchange among financial institutions in various Asian Pacific countries (Chakravarti & Benghai, 2005). Following the crises, several local and international credit reference bureaus were established, with the central banks of these nations playing an important role in their formation. Credit reference bureaus in South Korea, on the other hand, arose as a result of the country's growing financial infrastructure, as they did in Japan. The IFC and the World Bank have both contributed significantly to the growth of credit reference bureaus in Central and Southern Asia and South-East Asia. Most countries' bureaucracies, on the other hand, are unstructured and fragmented. There are currently credit bureaus in Australia, Hong Kong, Singapore, Taiwan, Korea, and New Zealand that cover 100% of the adult population (Association of Credit Reference Agencies in Asia, ACRAA, 2020). In comparison, only 7% of people in Pakistan, Vietnam, and Indonesia have access to the internet. Two or more enterprises share the market in the United Kingdom and Italy. Furthermore, in some economies, such as Belgium and Germany, state and private credit bureaus coexist (Credit knowledge guide, 2019).

2.11.5 Credit referencing in Emerging Economies

Many developing economies still have no credit reporting systems in place, or the coverage of the current services is extremely limited (IMF, Doing Business, 2018). For example, several Eastern European countries have no credible information available to lenders (Albania, Belarus, Latvia. Moldova, Montenegro, Slovenia, Ukraine). Those with credit bureaus in place have a coverage rate of 30 % except for Croatia (74.4 percent), Poland (51.5 percent), and Serbia (51.3 percent). The same situation is present in sub-Saharan African countries. Ghana, Lesotho, Nigeria, Uganda, Senegal, Gabon, Kenya, Mozambique, and Rwanda have coverage of less than 7.02 percent (WB, 2019). Latin America shows a slightly broader coverage, but levels are still far from those in the

United States and Western Europe. Paraguay, Brazil, Ecuador, Panama, Colombia, Chile, Bolivia, and Guatemala all show coverage rates below 50 percent.

An interest in credit referencing originated with introducing the New Basel Accord known as Basel II in 2006 (BIS, 2008). The Basel II rules required all central banks to increase bank equity relative to loans and a more formal assessment of risk (Riportella, Ponce, and Casasola, (2008). Since this provision began to take shape, most emerging economies with no credit reporting systems have established mechanisms to have one operating. This is because research has identified that credit referencing bureaus are an essential element of a country's financial infrastructure. They are a vital enabler of emerging market lending (Tobias, Massimo, Migilo, Fabiani, and Ginera (2009). As stated earlier, the presence of credit referencing bureaus helps increase access to credit, support responsible lending, reduce credit losses, assist lenders to make faster and more objective decisions, and help make loans cheaper.

2.12 Chapter summary and concluding remarks

According to the literature review, funding SMEs to accomplish the necessary growth and expansion has been a hot topic among academics, policymakers, financial and non-financial organisations, including banks. A review of the literature revealed the existence of a financial gap, which has since been regarded as the most significant challenge facing SMEs and impeding their growth and expansion. The problem of asymmetric information has been cited as a major reason for the shortage of finance for SMEs in the literature. However, due to unfavourable market conditions, lenders are forced to use a variety of strategies to help bridge the knowledge gap between banks and SME company borrowers. This includes charging higher charges to compensate for the increased amount of uncertainty and risk involved with lending to small businesses. The literature reviewed revealed that lending bank criteria vary depending on firm-level entrepreneurs and firm characteristics such as age, gender, education levels, location, industry in which the firm operates, ownership structure, number of years in operation, firm performance, and managerial competence of the owner/managers. Firm owners with relative inexperience and with poorer education were identified by literature as most likely to experience difficulty in accessing external finance. It was also revealed that firms that experience high levels

of information opacity coupled with an associated agency problem are likely to be refused credit by banks and tend to rely mostly on equity financing as it is the more appropriate for such firms. On the other hand, some contributors to literature also argue that based on the pecking order theory, information opacity between lenders and borrowers, debt is the preferred mode of finance to equity for SME owners because new equity issues tend to dilute shareholders ownership and firm owners are mostly reluctant to relinquish control of their business. Thus, according to literature affects the willingness of SME owners to accept equity capital. It was also revealed in literature the small firms that show lower levels of information opacity stand the chance of being offered credit by commercial banks. To overcome these problems of information opacity and information asymmetry some researchers, posit that banks make use of a combination of lending methodologies (especially relationship and transaction lending methodologies) as one methodology alone cannot help solve the problem.

It has also been revealed from the literature that banks rely on some tools to mitigate the information asymmetry in other to increase access to credit to SMEs which include collateral, business records, and credit reporting information from credit reference bureaus to facilitate and standardize the means of evaluating credit applicants. Reliance on credit reporting information has been argued as a means to help reduce the cost of lending as well as lower the dependence of collateral by lending institutions.

CHAPTER THREE
REVIEW OF EMPIRICAL EVIDENCE

3.1   Introduction

There is enough literature that finds evidence that there is a relationship between SME firm characteristics and access to credit. However, these studies have divergent conclusions regarding firm size, the length of time in operation, type of industry, and ownership. This section reviews the empirical literature that supports the theories outlined in the previous chapter. First, it reviewed the empirical literature on SME firm characteristics, the complementarity of bank lending methodologies, and credit reference information sharing and its effect on the availability of credit to SME firms. The final sections examine an overview of Ghana's banking sector, emphasising the legal and regulatory framework.

3.2   Empirical evidence on firm characteristics and access to credit

A copious amount of literature abounds with empirical evidence on the effect of firm characteristics on access to credit. Ganyaupfu (2014), researching the success of SME businesses in Gauteng Province in South Africa, measured firm characteristics as the size of business, sector of the firm, the period in business, and location of business. Regarding firm characteristics, firm size, the length of time in operation, type of industry, and ownership are essential factors that affect the success of SME firms in accessing credit (Mothibi, 2015; Essel et al., 2019). In a study in Nigeria, Ubon, and Chukwuemeka (2014), researching the accessibility of credit in the Niger Delta, concluded that age, size, collateral, and education significantly influenced access to credit. The subsequent subsection discusses empirical evidence of each firm characteristics. The subsequent subsection discusses empirical evidence on firm characteristics and collateral as a determinant of access to SME credit.

3.2.1   Empirical evidence of the effect of firm size on access to credit

Several empirical studies have been conducted on firm age, and many have concluded that firm age as a variable controls access to credit. Conducting a study in Vietnam, Nguyen and Ramachandran (2006) obtained primary data from 487 SME firms in Hanoi to investigate credit accessibility and identify factors that affect access to credit. Logistic regression and ordinary least

squares were used to analyse and estimate the data, respectively. The results showed that firm size is positively associated with accessibility to bank loans.

Musamali and Tarus (2013) conducted empirical evidence to analyse the effect of firm characteristics on SME firms on access to credit in Kenya using primary data collected from 103 SME businesses using questionnaires. Multiple regression was used to analyse the data and concluded that the firm's age significantly influences access to credit.

Researching on the determinants of firm characteristics on SME finance in three Eastern European countries, Rahman et al. (2017) used data obtained from the BEEPs survey. Data of 734 SMEs were obtained from the Czech Republic, Slovak Republic, and Hungary. The SMEs were classified as Micro, Small, and Medium. In all, data was obtained for 268 micro firms, 385 small firms, and 140 medium firms. The ordinary least square regression was used in the analysis. The result found that firm size has a positive relationship with access to credit. This results in conformity with Ferri and Murro's (2015) earlier works, which were investigating SME firms in Italy concerning access to credit, arrived at a similar conclusion. However, the results also found that SME firms that can show better information opacity to banks are more likely to receive credit.

To gain a better understanding of SMEs' access to financing in the West African sub-region, Quartey et al. (2017) used data from the World Bank's Enterprise Survey dataset to examine determinants of access to finance at the sub-regional and country levels. Logistic regression was used to predict the likelihood of the regressors explaining a firm's access to funding for the sake of robustness. The study discovered that on a sub-regional level among other factors characteristics such as firm size has a significant impact on access to finance. this may be attributed to the fact that a larger firm may be able to produce the required assets to be used as collateral by banks and other lending institutions.

Kaddu (2018) researched to ascertain the factors that influence SME access to credit in Rubaga, Kampala, Uganda. The study adopted the cross-sectional/correlational design using a sample of 130 SME firms operating in Rabago. Data were analysed using Pearson Ran correlation coefficient and regression. The study found a strong positive correlation between the age of firms and access to credit.

Nguli and Odunga (2019) investigated the association between firm characteristics and financial access using data from women-owned businesses in Kenya. This research used a positivist approach while conducting an explanatory survey, focusing on 8000 women-owned SMEs in the North Rift Region Economic Bloc Counties as the study's target population. Cluster sampling was used to group SMEs in seven counties, and a sample size of 723 was chosen using simple random. Using a multiple regression model, the data were descriptively analysed. The study found that firm size had a positive and significant effect on financial access.

One may be tempted to conclude that firm size generally leads to a higher probability of gaining access to credit. For example, Rahman et al. (2017) showed that micro firms negatively correlated to access to credit. This finding indicates that SME firms' firm-level characteristics, if not broken down into various classifications and lumped together, may produce inaccurate results.

3.2.2 Empirical evidence of the length of time in operation and access to credit

Evidence has been mixed on the influence of the number of years a firm has been in operation and credit availability. Abor (2007) examined the determinants of bank financing and debt of Ghanaian SME firms by employing firm-level characteristics, including length of time in business (age of firm) and firm size. The sample was based on 105 SMEs drawn from a member firm of the Association of Ghana Industries and the National Board for Small Scale Industries. The study focused on SMEs that have accessed bank loans. The panel regression model estimate was used in the data analysis. The result showed that length of time in operation (age of the firm) and size of the firm has a significantly positive relationship with access to a bank loan. This result confirmed the results of earlier researchers such as Diamond (1991) finds that firms that have not been in operation for more extended periods (young firms) experience credit constraints in that they do not have longer lending relationships with their banks as such lowering the probability of accessing bank loans.

Kira (2013) evaluated the factors that determine debt financing to SME businesses in Tanzania. The study was based on 164 SME firms; the research design was quantitative and involved testing hypotheses to determine the association between perceived construct using multiple regression and correlation analysis. The findings provided, among others, factors that influence access to credit to include firm age and firm size. The results were that the coefficient of firm age and size was

positively associated with access to credit. This finding is also in line with Ngoc (2009) and Klapper (2010), who had earlier concluded in the various works that younger firms find it challenging to access finance than older firms. Small younger firms find it extremely difficult and expensive to access bank finance primarily due to information asymmetry.

Quartey et al, (2017) in an attempt to provide an understanding of the determinants of SMEs' access to finance in the ECOWAS sub-region investigated the similarities and or differences in the determinant of access to credit using data from fifteen countries sourced from the World Bank Enterprise Survey Database. The pooled order logit regression was used to analyse the data. Among the findings was that SME firms in the ECOWAS that have been in operation for many years are more likely to receive enhanced access to finance as compared to start-ups. Again, the research also concluded that firm size was significantly correlated with access to credit. This collaborates the work of Nguyen & Ramachandran, (2006); Musamali and Tarus, (2013) reported earlier in the previous subsections.

In an attempt to understand the determinants of SMEs' access to finance in the ECOWAS sub-region, Quartey et al. (2017) investigated the similarities and or differences in the determinant of access to credit by using data from fifteen countries sourced from the World Bank Enterprise Survey database. The pooled order logit regression was used to analyse the data. Among the findings was that SME firms in the ECOWAS that have been in operation for many years are more likely to receive enhanced access to finance than start-ups. Again, the research also concluded that firm size was significantly correlated with access to credit. This collaborates the work of Nguyen and Ramachandran (2006); Musamali and Tarus (2013) reported earlier in the previous subsections.

However, other earlier researchers such as Elsas and Kirchnev (1998), Balckwell and Winter (1997), Petersen and Rajan (1995) found no significant relationship between the number of years of existence and access to bank credit. For example. Petersen and Rajan (1995) used data from the National Survey of Small Business Finance to determine the strength of the firm-creditor relationship to measure the effect of the relationship on both availability and access to credit. In

all, 3404 firm data was collected from the sample, out of which 1,875 were corporate, 1,529 were either a partnership or sole proprietorship business and operated in various sectors, including mining, construction, manufacturing, and the services sector. Descriptive statistics (regression) was used in analysing the data. The finding was that there was no significant relationship between the number age of a firm and access to credit.

The finding is supported by Saied, (2019) who, relying on data from both Bruegel's EFFIGE and ECBs SAFE data investigated the determinants of external finance applications outcomes of European SME firms. The study used self-selecting SME firms that apply for debt financing instruments using Heckmann's (1979) two-sample selection procedure in the probit model and the exogeneous-determined exclusion criteria in the selection. The result was that younger firms with higher investment needs had difficulty obtaining debt financing but were likely to apply for equity finance. The researcher concluded that this result might be because of uncertainty and information asymmetries associated with small firms, making it difficult for inexperienced firms and their owners to secure credit (Saiedi, 2019). On the contrary, it can be said that there is evidence in the literature that the number of years in business may positively influence access to finance.

Zabri, Ahmad, and Adonia, (2021) employing a managerial-based theory, studied the financing preferences of microenterprises and factors that influence their preference towards external financing. Based on 310 valid replies to a questionnaire survey conducted among Malaysian microenterprises. Applying structural equation modelling, the study demonstrates that business age and the relative location of a business from banks and/or finance agencies appear to have a significant confounding influence on access to credit. The subsequent subsection gives evidence that type of industry in which a firm operates significantly predicts access to credit.

3.2.3   Empirical evidence of the type of industry and access to credit

Every sector of an economy has different characteristics that lenders considered when making credit decisions. Several studies have evidenced the factors that relate to the industry sector in which a firm operates. For example, firms that operate in the construction sector differ from those in the agro-processing sector. Therefore, financial institutions assess firms based on industry characteristics.

Kira and He (2012) found the industry where a firm finds itself a determinant of accessing credit after evaluating the factors determining debt financing to SME businesses in Tanzania. The study focused on the coastal cities of Dar es Salaam, Arusha, Zanzibar, and Mbeya. The study was based on 163 SME firms, and self-administered questionnaires were used to gather the data. The mixed-method research methodology was used as both quantitative and qualitative data were collected. In addition, Pearson correlation and logistic regression were used to establish the association between dependent and independent variables. The researchers concluded that SME firms that could provide the required collateral obtain credit more easily than their counterparts who cannot have access to collateral. That is, access to finance by SMEs in Tanzania is positively impacted by the availability of collateral.

Le (2012), using data sourced from the World Bank Enterprise Survey in 2009, investigated factors that determine access to credit in Vietnam. The study was carried out in 5 regions consisting of 14 provinces. The firms consisted of 18 manufacturing and services firms. Descriptive statistics using the logit regression model were used in the analysis. Further to this, discriminant and cluster analyses were further used to analyse variables that the logistic model could not do. The study results, among others, that type of industry in which a firm operates strongly and significantly increases the probability of succeeding in accessing bank credit. Therefore, the study concluded that firms in the service and manufacturing sectors have a high potential to succeed in their quest for credit.

Zelalem and Wubante (2019) examined the effect of firm characteristics in accessing finance and other factors affecting the growth and performance of MSMEs in southern Ethiopia. The mixed-method research design was used. As such, both quantitative and qualitative data were collected. The target population was 345 firms operated in Hawassa in Southern Ethiopia. Primary data was collected through questionnaires and interviews from a sample of 260 participants for the study. Both descriptive statistics and Ordinary Least Square (OLS) regression were used in the data analysis. The findings were that among all the explanatory variables, including the type of industry, the firms had a statistically positive relationship with access to credit. This conclusion confirms

earlier empirical studies by Le (2012); Ha, Nguyen, and Nguyen, (2016), all carried out in Vietnam.

3.2.4 Empirical evidence of Collateral and access to credit

Availability of credit to SME business has remained a significant hindrance to the growth of SME firms due to the lack of assets to be pledged as collateral. This subsection discusses available empirical evidence on the effect of lack of collateral on access to credit.

Fatoki and Asah (2011) examined the impact of firm and entrepreneurial characteristics on access to debt financing by SMEs in King Williams town in South Africa. The use of a self-administered questionnaire collected survey data. The study focused on SME firms registered with the Enterprise directory and the yellow pages telephone directory. In all, 173 SME firms were sampled for the study. Pearson Correlation and Logistic regression were used in the analysis. Kolmogorov-Smirnov test was used to determine normality. The regression analysis results indicated that SME firms that can provide collateral, either personal or business, are highly expected to succeed in their loan applications.

Haron et al. (2013) examined factors that significantly influence the loan assessment of SME firms in Malaysia. The study population was credit officers responsible for loan assessment of SME clients in Panang, Kedah, Perlis, and Panang Island in Malaysia. Commercial banks and other banks that offer loans to SME firms were the sample frame. Specifically, the sample units were managers and credit officers of financial institutions. Questionnaires were used in the data collection from 63 bank officers who participated in the study. The study found that three variables, namely, collateral, good relationship with financial institutions, and providing accurate financial records, significantly affected loan approval by banks. This finding was also collaborated by Kira (2013) using available SME data from Tanzania. Kira (2013) concluded that the availability of collateral such as land, buildings, and equipment was a significant influence on SME credit accessibility (see 3.2.3 above).

Osano and Languitone (2016) investigated the factors influencing access to finance in Mozambique using a target population of 2,725 participants comprising 2075 bank staff and 650

SME firms from Maputo Central Business District. The use of structured questionnaires collected primary data while descriptive and inferential research design was adopted to analyse the data. The results showed, among others, a significant relationship between collateral and access to credit. Rahman et al. (2017) also obtained data for 268 micro firms, 385 small firms, and 140 medium firms from the Business Environment and Scientific Performance survey (BEEPS 2012-2014) to examine the determinant of collateral as security in the Czech Republic, Slovak Republic, and Hungary. The ordinary least square regression was used in the analysis. The study indicated that collateral had a significantly high relationship with access to credit.

Meressa (2020) did a study to investigate the growth factors of micro and small-scale firms operating in Ethiopia's growing region of Benishangul-Gumuz. The study used an explanatory methodological approach, with primary data collected using a cross-sectional survey questionnaire and a mixed research technique. The study's sample consisted of 220 businesses chosen using a proportional stratified random selection technique based on Yamane's formula. Using regression to analyse the data the study concluded among others that availability to land to be used as collateral was an important determinant in affecting the growth of businesses as well as improving access to external credit.

Furthermore, the result found that borrowers need to pledge collateral as security to access loans. This, according to the research, helps reduce the problem of asymmetric information, thereby increasing access to credit. However, the research also concluded that small firms with a business record of losses arising from robbery, theft, vandalism, and arson are most likely to be asked to provide collateral for their borrowings. However, though collateral is recognised as having a significant role in mitigating the financial constraints of SME firms, research has shown that reliance on collateral as security to access credit has the most severe consequences for SME firms, especially during periods of economic downturn when the collateral is the collateral value of assets falls. In such situations, SMEs that do not have well-diversified funding portfolios face the challenge of being denied the needed credit (Lian and Ma, 2019: OECD, 2019).

3.2.5 Empirical evidence of the type of ownership and access to credit

The ownership structure of small businesses in large has a role to play in accessing adequate credit. Sole proprietorship firms are especially perceived to be of high risk for borrowers as the business's success depends on one person, who is the owner/manager. As such, they mostly find access to credit very difficult (Pandula 2013). To gain a better understanding of SMEs' access to financing in the West African sub-region, Quartey et al. (2017) used data from the World Bank's Enterprise Survey dataset to examine determinants of access to finance at the sub-regional and country levels. Logistic regression was used to predict the likelihood of the regressors explaining a firm's access to funding for the sake of robustness. According to the survey, foreign-owned businesses in Senegal are 75 percent more likely than domestic-owned businesses to obtain loans.

Nyanzu and Quaidoo (2017) examined access to credit and SME functioning in Ghana. The study made use of the World Bank Enterprise Survey data that was released in 2003. The data consisted of 720 firms, and the stratified random sampling technique was employed to give each subset in the sample an equal opportunity to selection into the sample. The study employed descriptive statistics and econometric analysis to determine factors that influence SME functioning. Access to SME credit was assessed by descriptive statistics with Chi-square employed to test the significance levels of the constructs. The logit and ordered logistic regression model were used in the analysis of the data. The results of the study were that SME firm in Ghana experiences financial constraints. The study also concluded that access to finance was influenced by characteristics such as firm age, firm size, collateral, and location. More importantly, the study concluded that the ownership type significantly influences access to credit. Subsequent works of Balogun (2018); Cuccullelli et al. (2019) collaborated on these findings.

Balogun (2018) studied to determine the predictors of credit accessibility of SME firms in the construction industry from financial institutions in South Africa. All 250 firms in the construction sector were conveniently sampled using a questionnaire in the collection of data. Binary logistic regression was used in the data analysis to determine the predictors of access to credit using SPSS22 to perform the binary regression analysis. The study results showed that business ownership type did not significantly affect access to credit and could not fully predict credit accessibility.

Murro and Peruzzi (2019) analysed the impact of the family firm and credit availability using Italian manufacturing firms as the sample population. The study used survey data from 18,000 Italian manufacturing firms sourced from the banking group UniCredit-Capitalia (Survey of Italian Manufacturing firms, SIMF) and complemented by data from the Italian National Statistics Office. Probit regression was employed in the analysis of the data. The study finds an adverse impact on family-owned businesses on access to credit and that family-owned firms are more likely to experience a reduction in credit availability than non-family-owned firms. However, the researchers conclude that the adverse effect is mitigated by closer long-lasting relationship lending.

3.3 Empirical literature on lending methodologies

Banks make use of a variety of methodologies. The choice of a particular lending methodology is dependent on the credit policy of the bank in question. There abounds a large volume of empirical evidence on lending methodologies used by banks to provide credit to SMEs. The first strand of empirical literature focuses on identifying specific lending methodologies applied by banks (Berger and Udell, 2006; Jimenez et al., 2009). The second strand of empirical evidence seeks to examine whether banks use multiple lending methodologies and, if so, the preferred application to SME firms (de La Torres, 2010; Berger and Black, 2011). The third strand seeks to find complementarity among the lending methodologies (Uchida et al., 2008; Uchida, 2011; Bartoli, 2013). This section seeks to examine empirical evidence on the lending methodologies adopted by banks in the relationship with borrowing clients.

Using sing data from a unique survey in Japan, Uchida, Udell, and Yamori (2006) investigated the relevance of different lending methodologies utilised by Japanese banks for lending to SME firms. Specifically, the study was to (i) examine the extent to which different lending methodologies were used; (ii) examine the complementarity between the lending methodologies; (iii) identify what determines the choice of a particular lending methodology. Data was sourced from the management survey of corporate issues in the Kansai area conducted in 2005. Questionnaires were used to collect data from a sample population of 9000 chosen from the Tokyo Shoko Research (TSR) database of a firm in three areas: Osaka, Kyoto and Kyota, all in Kansai's study area. A

sample base of 1700 was used for the analysis, including firms from construction, manufacturing, retail, wholesale, service, and others. Descriptive statistics (regression) was used in the analysis of the data. The study results showed that Japanese banks use two lending methodologies. These are transaction-based lending (based on financial statements) and relationship-based lending (based on soft information held on customers) methodologies. However, the study also revealed that banks make use of multiple lending methodologies when applicable. Again, another conclusion drawn from the study was that banks with a rich accumulation of soft information from their SME clients tend to use relationship lending methodology. This is an indication that banks in Japan see complementarity between the lending methodologies.

Jiangli et al. (2008) examined whether the intensity of banking relationship measured by the number of banks that a firm does business with and accounting disclosure increases the availability of credit using survey data sourced from the World Bank on SME firms from Indonesia, Korea, Philippines, and Thailand. The Ordinary Least Square (OLS) and multiple regression were used in analysing the data. The study found that both lending methodologies (i.e., transaction-based and relationship-based) are used by a bank in all the countries involved in the study. However, it was found that relationship lending, in particular, increases the likelihood of success in loan applications of firms in Korea and Thailand. The study also found that relationship lending did not significantly affect access to credit in Indonesia and the Philippines. However, the research found that for firms in Indonesia to have weaker lending relations with their banks, relationship lending is replaced by financial statement (transaction-based) lending. It was therefore observed in Indonesia that transaction-based lending has a positive effect on access to credit.

Referring to a survey on the Italian manufacturing sector, Bartoli et al. (2013) empirically investigated the difference in lending methodologies of Italian banks, both public and private. Data was sourced from two reliable databases, the Japanese Finance corporation on Small and Medium Scale firms (JFC-SME) and the Tokyo Shoko Research Limited (TSR) database. The target was 15000 SMEs in Japan. 7500 SMEs were sampled from each of the two databases and was done through simple random sampling. Questionnaires were used to gather the data, which was analysed using descriptive statistics involving regression. The study's findings identified two types of

lending methodologies applied by the Italian bank in their lending relationship with their SME clients. These are transaction-based lending based on complex information, and relationship-based methodology, based on soft information. The study further found that banks combine both lending methodologies independent of size and proximity to the borrower. Although the study again found that relationship lending helps decrease the probability of a firm being refused credit, the study again concluded that both lending methodologies, when used together, complement each other but do not act as substitutes.

Fanta (2015) intended to establish complementarity between relationship lending and collateral on access to bank credit based on a survey of 102 randomly chosen manufacturing SMEs in Ethiopia. Using binary logistic regression to analyse the data, the study discovered that Ethiopian banks are wary of offering credit to SMEs, thus they used a variety of lending strategies at the same time to make lending judgments. Collateral and relationship lending approaches were determined to be complementary by the researcher.

The finding above was affirmed recently by Degryse, Matthews, and Zhao (2017), who examined the importance of relationship lending on access to credit by focusing on SME firms in Wales. Data was sourced from a sample survey of Federation of Small Business (FSB) Wales members conducted in 2013 with a population of 10,000. In addition, a random sample of 2500 was surveyed with questionnaires. Descriptive statistics with the probit regression model were used in the analysis. The maximum likelihood technique was used to compute an estimate of the coefficient and the standard errors. The marginal effect of the probability of occurrence was also derived. The results find that SMEs firms in Wales with a close relationship with their banks have better access to credit. The writer explained that borrowing rates decrease as the number of years the firm relates to their banks lengthens, increasing credit availability to SMEs.

Angoli, Aristei, and Gallo (2019) found the relevance of different lending methodologies on firm access to credit. The researchers found the presence of a heterogeneous impact on lending relationships among firm size. They also concluded that the use of multiple lending relationships

positively impacts access to credit to small firms while lending to large firms deteriorates with an increase in the number of lending relationships.

In Ghana, empirical research on the use of lending methodologies by Ghanaian banks is scanty. Ladime, Sarpong-kumankoma, and Osei, (2013) investigated the determinants of bank lending using the GMM-system estimator developed by Blundel and bond (1998). The writers concluded that most banks in Ghana use relationship lending methodology and found a statistically positive influence of relationship lending on access to increased credit. This confirms earlier finding by becks et al., (2004)

Apanga, Appiah, and Arthur (2015) used data from varied sources including questionnaires, analysis of internal policies, and interviews to examine the credit risk management practices of Ghanaian listed banks. The researchers concluded that banks in Ghana make use of multiple lending practices emphasising mostly on collateral-based lending (collateralised debt obligations and guarantees). The researchers reiterated the fact that banks make more use of collateral-based lending than other transaction lending practices because it provides the best protection to bank lending. This is in line with the finding by Bartoli et al. (2013) and Benerje, Gambarcota, & Sette, (2017).

Researching on the roles of the relationship between borrowers and lenders and its effect on transaction cost of obtaining credit by Ghanaian farmers, Antwi and Ohene-Yankyira, (2017) using data collected from 380 farmers from five districts as then sample size and employing multiple regression in the data analysis concluded that improving farmer-lender relationship significantly reduces transaction cost as well as increase access to credit. this is in line with the conclusion of Bakiciol, (2017).

3.4 Empirical literature on the relationship between credit referencing information and credit to SMEs

Prior empirical literature evidences the benefit of banks' use of credit bureau information. Djankov et al. (2007); Brown et al. (2009); Behr and Sonnekalb (2012) lead the first group of researchers who assert that credit referencing information allows lending institutions to distinguish between borrowers with good and bad credit history to enhance credit accessibility and growth in SME

financing. Berger and Frame (2007) also lead another group who believes that credit referencing information enhances the quality and quantity of loans in general and especially that made available to SMEs. Stiglitz and Weiss (1981), Jappelli and Pagano (2000), Djankov et al. (2007), in their various studies, concluded that Credit referencing information sharing has a direct relationship to the supply of credit by reducing asymmetric information, thus helping to reduce loan defaults. This section examines empirical evidence available regarding the relationship between credit reference information sharing and access to credit.

Behr, and Sonnakalb (2012), using data from commercial banks in Albania, examined the effect of credit information sharing between lenders and (i) access to credit; (ii) cost of credit; and (iii) loan performance. Data was sourced from a loan-level databank that serves micro-enterprises and SME borrowers in Albania. The data contained information of over 55,000 loan applicants spanning from 2005 to 2009. It covers over 27 bank branches across the country. The data is part of the data in the credit registry system. Overall, 51, 299 data of loan approvals on the database were sampled for the analysis. Descriptive statistics with regression was used in analysing the data. On the effect of credit referencing information on access to credit, the study found no significant influence of credit information sharing on access to credit. However, the study found that credit information sharing helps improve loan performance. The finding can be attributed to the fact that credit information sharing had just begun four years before the study in Albania. As such, it may be presumed that the credit register was not complete enough to provide the required information for adequate assessment of borrowers. However, the study found again that credit information sharing had influenced a reduction in loan defaults. The explanation that can be adduced to this is that the new system had led to borrower discipline (disciplinary effect) in the credit market.

Kusi et al. (2015) investigate the impact of credit information sharing on access to bank credit. The study made use of annual data from the World Development Indicators (WDI) database. The study employed the ordinary least square robust standard error regression model. In addition, ANOVA was used to test the differences in information sharing and access to bank credit. The study concluded that credit information sharing improves access to credit.

Djankov et al. (2007) investigated determinants of private sector access to credit using data on legal credit rights and private and public registry data of 129 countries. The data was sourced from the International Financial Statistics of the International Monetary fund. The data measures claim on private sector firms from commercial banks in all countries affiliated to the World Bank. Descriptive statistics were employed in the analysis using the robust standard error regression technique. The study concluded that information sharing has two significant effects on Lending Institutions: screening and incentive effects. The screening effect occurs because information sharing assists lending institutions to acquire adequate credit information needed to effectively assess and determine a borrower's propensity to repay loans and hence reduce the effect of adverse selection. The writers explain the incentive effect as what motivates borrowers to repay their loans due to credit information sharing for the fear that they will be denied future loans or that any default will be captured and shared with other lenders.

Kusi et al. (2015) assessed the banking sector performance in the area of credit growth, asset quality, and profitability pre (2006-2009) and post (2011- 2014) credit referencing era in Ghana. The study employed yearly industry-level data from the Bank of Ghana Financial Stability Reports covering 2006-2014. In addition, the study made use of the Students T-test to test the statistical difference in means to the pre (2006-20090 and the Post (2011-2014) eras. The study concluded that credit reference information resulted in higher credit growth during the pre-credit reference era against the post-credit reference era. This result implies that credit reference information sharing had a negative effect on access to credit.

This study by Kusi et al. (2015) seems to contradict the earlier studies that credit referencing leads to increased access to credit. As such, there is a need for further investigation. However, the drawback of these earlier studies is that they all failed to recognise the fact that banks use multiple lending methodologies in arriving at credit decisions and that focusing on credit referencing alone might not be conclusive enough as such the continued existence of the finance gap in SME financing in most developing countries.

For a broad sample of nations in the Middle East, North Africa, Afghanistan, and Pakistan (MENAP), and Caucasus and Central Asia (CCA) areas, Fouejieu, Ndoye, and Sydorenko (2020) studied the drivers of SME access to credit. The researchers used data from the World Bank

Enterprise Survey (WBES) and the IMF Financial Access Survey (FAS). This is a firm-level dataset that includes a variety of factors in the business environment, including access to capital. The data were analysed using linear regression and principal component analysis (PCA). The findings demonstrate that better credit information could help bridge the gap between the Middle East, North Africa, Afghanistan, and Pakistan (MENAP) and Caucasus and Central Asia (CCA) regions and the highest performing countries in terms of SME access to finance.

3.5   Empirical evidence of complementarity between credit referencing information (soft), lending methodologies (Hard), and credit to SMEs.

Prior studies have shown that information asymmetry influences SMEs' lending behaviour (de Haas and Van Horen, 2013). However, the extent to which banks can mitigate the effect of information asymmetry depends on how lending methodologies are applied in reaching a lending decision (Sette and Gobbi, 2015; Bolton et al., 2016; Beck et al., 2018; Li et al., 2018). Different methodologies in arriving at a lending decision have indeed been a prevailing phenomenon in the banking sector. Petersen (2004) posits that hard information has consistently been suitable for large corporate lending instead of soft information that is well appropriate for SME lending. Hauswald and Marquez (2006) found that transactional (hard) lending information and relationship (soft) lending information all play different but significant roles in the lending process. The bank primarily relies on one type of information for a particular credit product. However, Francisca et al. (2013) had a contradictory view by stating that lending technologies can be applied simultaneously. This section examines available empirical evidence on the complementarity of lending methodologies is their impact on access to credit.

Bartoli et al. (2013) investigated SME financing in Italy and sought to determine the possibility for banks to combine lending methodologies for financing SMEs independent of size. Data was sourced from the Survey of Italian Manufacturing firms SIMF) the database held by UniCredit banking group. The data contained detailed information on the relationship between Italian banks and their SME borrower clients. A sample of 5,137 firms with between 11 to 500 employees was involved in the study as the sampled population from the database using a stratified sampling procedure. Descriptive statistics using the Tobit regression model were used in the analysis of the

data. The study finding confirmed earlier studies that concluded that banks mostly use two lending methodologies: relationship lending and transaction lending. The study further found that banks can produce soft information if either relationship banking is used independently or with transaction lending methodology. That is to say, if transaction lending is used alone becomes ineffective in producing soft information. By implication, transaction lending, when used alone, is ineffective in reducing information asymmetry associated with lending to SMEs. The study further concluded that complementarity between lending methodologies is helpful as it helps produce soft information, which helps in reducing information opacity associated with SME firms, thereby having a significant influence on access to credit.

This view was also collaborated by Nguyen (2014), who investigated the use of different lending technologies by Vietnamese banks on lending to SME firms found a combination of different lending methodologies as beneficial. Primary data from 487 SME firms in Hanoi investigate credit accessibility and identify factors affecting credit access. Logistic regression and ordinary least squares were used to analyse and estimate the data, respectively. The results indicated complementarity between two principal lending methodologies (i.e., relationship lending and transaction lending methodologies) in arriving at lending decisions. Transactional lending information (soft) drives transactional credit decisions and pricing, whereas relationship lending information (hard) collected through previous interaction and the loan documentation process determines the success or otherwise of loan proposals.

Using EU-EFIGE Bruegel-UniCredit survey data covering 14759 manufacturing firms across seven European countries, Ferri et al. (2019) surveyed European firms to ascertain the use of lending methodologies and determine whether lending methodologies, when used together, are capable of predicting a trade-off between availability and pricing of credit. Six European countries were involved in the survey, Germany, France, Italy, Spain, the United Kingdom, Austria, and Hungary. Stratified sampling was used to ensure firms in all representative countries had an equal chance of selection into the sample. Questionnaires were used in the data collection, and they covered different areas such as firm ownership, workforce characteristics, financial condition, bank-firm relationship, and balance sheet information. The study found that soft (relationship lending information) and Hard (transactional lending information) when used together in making lending decisions, do have a significant effect on the probability of a firm (big or small)

experiencing credit rationing. However, researchers were also able to show that a combination of the content of both lending technologies was able to help predict a trade-off between the availability and pricing of credit for each lending channel as the adoption of soft information help improve access to credit.

Ferri et al., (2019) conducted a survey of European firms using EU-EFIGE Bruegel-UniCredit survey data covering 14759 manufacturing firms across seven European countries to determine the use of lending methodologies and whether lending methodologies when used together can predict a trade-off between credit availability and pricing. Germany, France, Italy, Spain, the United Kingdom, Austria, and Hungary were among the six European countries surveyed. Stratified sampling was used to ensure firms in all representative countries had an equal chance of selection into the sample. Questionnaires were used in the data collection and they covered different areas such as firm ownership, workforce characteristics, financial condition bank-firm relationship, and balance sheet information. When soft (relationship lending information) and hard (transactional lending information) are combined in making lending decisions, the risk of a firm (large or small) encountering credit rationing increases significantly. However, the researchers were able to demonstrate that combining the content of both lending technologies could assist forecast a trade-off between credit availability and pricing for each lending channel since soft information adoption helps boost credit access.

Using the same data from EFIGE (European Firms in a Global Economy) project, Angoli, Aristei, & Gallo (2019), analysed the role of lending methodologies and multiple banking relationships on access to SME credit in Italy. The study revealed the relevance of different lending methodologies on credit accessibility. The study concluded that the depth and strength of the bank-firm relationship reduce the financial constraint experienced by small businesses. The researchers further discovered that firm size has a diverse impact on lending relationships. They also concluded that the use of multiple lending relationships has a positive impact on access to credit to small firms while lending to large firms deteriorates with an increase in the number of lending relationships.

The drawback to these studies is that most of the empirical work was carried out on European markets where the financial infrastructure is well established and that the problem of information asymmetry is not well pronounced. The survey data collected included both large and small firms and the outcome cannot be generalized as it may not be a true reflection of the problem being investigated, that is the availability of credit to SME's.

However, most of the empirical literature focuses on lending methodologies (i.e., relationship and transactional lending methodologies) on the loan interest rate and access to finance in general. While this is seen as informative, these studies do not control credit bureau information as playing a complementary role in increasing loan approval rates or vice versa. Therefore, this current research departs from earlier studies by looking at the correlation between lending methodologies vis-à-vis the introduction of credit referencing information. Specifically, this research examines the interaction of different bank lending methodologies and their effect on SME loan approval rates.

3.6 Chapter summary and concluding remarks

The chapter reviewed the empirical literature on SME firm characteristics and their influence on access to credit. It reviewed the evidence on the extent to which different lending methodologies identified in the previous chapter are applied by banks and show if there is any evidence of complementarity in the use of the lending methodologies. However, the researcher thinks that the empirical literature espoused above provides mixed evidence on the benefits of using multiple lending methodologies (Degryse and Ongena 2008). This is because most of the evidence has been based on heterogeneous sources of data, some of which are country-specific surveys and or panel data from specific continents, and cannot be applied in all settings. Another argument that can be espoused is that most of the literature is derived from developed countries and relates to infrastructure characteristics. It must be stated that banks and firms in developing countries such as Ghana do experience more informational deficiency than developed countries because of inadequate legal systems, lack of enforcement, lack of transparency, inefficient address systems, and poor disclosure standards. All these lead to adverse selection and moral hazard problems, resulting in the higher probability of firms in developing countries being rationed or refused credit by banks and other lending institutions.

CHAPTER 4

BANKING SECTOR OVERVIEW AND CREDIT REFENCING IN GHANA

4.1 Introduction

The theory of financial intermediation states that intermediary institutions serve as a conduit between those who have excess funds and those who need funds for investment purposes. This process occurs as a result of imbalances in information flow between the surplus side of the economy and the deficit side of the economy. Banks are the institutions that are tasked with the responsibility to perform the function of financial intermediation. A well-functioning banking system with the right financial infrastructure has a positive influence on how an economy performs generally.

4.2 An overview of the Ghanaian banking sector

Many restrictions and reforms have been implemented in Ghana's banking sector. The Bank of Ghana (BoG) was founded in 1957 with the express purpose of governing, supervising, and regulating the country's banking operations. Only three banks were operating in Ghana at the time of its establishment: Barclays Bank, Standard Bank, and Bank of Gold Coast. However, fifty-eight years later, the Ghanaian banking sector had grown to twenty-seven (27) banks, the majority of which were owned by foreigners. Foreign banks account for fifteen (15) of the twenty-seven (27) banks, with the remaining twelve (12) being domestic or local banks (Bank of Ghana 2014, Pricewaterhouse Coopers, 2014). As of 2018, the government owns four major banks, two of which are among Ghana's top three.

The BoG launched a comprehensive reform plan in 2017, intending to clean up the banking industry and strengthen the regulatory and supervisory environment to make it more resilient. The new minimum capital directive, which was announced on September 11, 2017, is perhaps one of the most crucial components of the banking sector reforms. By the end of 2018, universal banks operating in Ghana were obliged to boost their minimum declared capital to GHS400 million (equivalent to US$70 million). Following the deadline for compliance, the changes in the banking sector have largely gone in the direction expected, that is, to decrease the number of banks, although the impact may not have been as significant as first thought. As a result, the total number

of banks currently operating as universal banks in Ghana stands at twenty-three (23). In effect, the number of banks has shrunk by eleven (11), representing a 32 percent decline from the 34 banks that operated as universal banks before the coming into effect of the new minimum capital directive.

Out of the eleven (11) banks that exited the market following the issuance of the new minimum capital directive, three (3) were assessed as insolvent by BoG and had their licenses revoked even before the deadline for compliance. These are UniBank Ghana Limited (UGL), The Beige Bank (TBB), and The Royal Bank Limited (TRB). In addition, according to the Bank of Ghana, Sovereign Bank Limited (SBL) and The Construction Bank Limited (TCB) had their banking licenses revoked for obtaining them by pretenses through the use of suspicious and non-existent capital. The remaining seven (7) have had to either exit the market or merge with other banks for various reasons, including those related to the new minimum capital requirement. In addition, the BoG approved three mergers involving six banks, effectively accounting for three more exits. The approved mergers are First National Bank and GHL Bank Limited, Energy Bank and First Atlantic Bank, and the Sahel - Sahara Bank and Omni Bank.

Banking assets have seen their size double since 2014, although the size of the banking sector in terms of GDP has declined to about 38 percent. The regulatory and legal framework within which banks, non-bank financial institutions, and forex bureaux operate in Ghana are the following:
•   Bank of Ghana Act 2002, Act 612.
•   Bank of Ghana (Amendment) Act, 2016 (Act 918) Banks and Specialised Deposit-Taking Institutions Act, 2016 (Act 930).
•   Non-Bank Financial Institutions Act, 2008 (Act 774).
•   Companies Act, 1963 (Act 179).
•   Bank of Ghana Notices /Directives / Circulars / Regulations.

The BoG, to create a sound, stable and efficient financial system, had the following on its agenda:
    i.   increased disclosure requirements for financial institutions in line with Pillar III of the Basel accord;

ii.   strong capital adequacy of financial institutions so that they will be Basel II and III compliant; and

iii.   effective supervision and regulatory measures.

The introduction and execution of Basel I, II, and III, the introduction of universal banking, the provision of credit information, and the development of a cheque code clearing system were all notable reforms. In its annual report for 2018, the Bank of Ghana reported that it had successfully overseen the implementation of Basel I and II, which began in 2012, and that it was planning to begin and complete Basel III by 2019. These notable events in the Ghanaian banking sector have been detailed from 2000 to 2020 in Table 4.1 below.

Table 4.1: Banking Events Summary in Ghana from 2000 - 2020

Year	Reform and regulatory event
2000	• Three banks that had been declared insolvent were closed down by the Bank of Ghana. These banks were Bank for Housing and Construction, Bank for Credit and Commerce, and Co-operative Bank.
2002	• The Bank of Ghana Act (2002) established independence for the central bank, allowing it to focus on price and financial stability. • The Bank of Ghana (BoG) implemented the Ghana Interbank Settlement System, also known as the Real-Time Settlement System (RTGS).
2003	• The Bank of Ghana issued a directive requiring all banks to increase their minimum stated capital requirements from GH20 thousand to GH7 million by the end of 2006, as a result of the introduction of the universal banking license. • The Payment Systems Act of 2003, Act 662, deals with the operation and supervision of electronic and other payment, clearing, and settlement systems, as well as the rights and obligations of transacting and intermediating parties and other relevant subjects;
2004	• The Banking Act of 2004 was enacted to replace the Banking Law of 1989. The Bank of Ghana has started to improve its risk-based prudential supervisory procedures. In addition, the minimum capital adequacy ratio has been enhanced from 6% to 10%. • The Bank of Ghana implemented the paper-based credit clearing mechanism.
2006	• The Foreign Exchange Act of 2006, Act 723, governs foreign currency exchange, international payment operations, and foreign exchange transfers, as well as foreign exchange business;
2007	• The International Financial Reporting Standards (IFRS) were introduced, and all banks were required to report their financial situation and performance under IFRS.

	- Implementation of risk-based banking oversight. - The Cedi re-denominated.
2008	- The Anti-Terrorism Act of 2008, Act 762, requires banks to assist in the fight against terrorist financing; - The Borrowers and Lenders Act of 2008, Act 773, establishes the legal framework for credit, as well as the standards of information disclosure required of borrowers and lenders, and other related matters. It makes lenders responsible for registering charges and collateral used by borrowers to get loans from lenders with the Collateral Registry.
2016	- The Securities Industry Act of 2016, Act 929, governs financial institutions that do business on the capital market, while - the Companies Act of 1963, Act 179 (as modified), governs all companies including the banking industry. - Ghana Deposit Protection Act 2016, Act 931, went into effect on September 14, 2017. It establishes a deposit protection program, a deposit protection fund, and the Ghana Deposit Protection Corporation (GDPC), among other things. It aims to protect small depositors in the event of a bank failure.
2017	- The Bank of Ghana increased the minimum paid-up capital requirement for existing and new banks from 120 million to 400 million Ghana cedis. Existing banks have until December 31, 2018, to meet the new capital adequacy criteria.

Source: Compiled from data on BoG Statistical Bulletin (2000 – 2020).

4.3   Loans and Advances

Despite the execution of these changes, some of which were intended at boosting access to finance for the private sector, particularly SMEs, a World Bank Doing Business study has identified access to credit as the biggest obstacle for Ghanaian enterprises over the years. Even though private sector credit accounted for 18 percent of GDP in 2017, which was on pace with the sub-Saharan median, it is still considered inadequate in comparison to Ghana's quality of living income (FinStats, 2018). Overall domestic credit to the private sector according to the World Bank, (2018) is low. Ghana was ranked 80th over 190 countries in terms of the ease with which Businesses can access credit. The report indicated that credit to Ghana's private sector is anaemic, but the positive outlook is that there has been nominal growth of about 14 percent in 2019 after the implementation of the financial sector clean-up which began in 2017 (World Bank, 2018).

A survey conducted by Price Waterhouse Coopers, (2020), concludes that out of the several reforms embarked upon by the Bank of Ghana, the implementation of the minimum capital directive has had the most impact on the banking business. This single policy has achieved an

expanded capital base for the banking sector, increasing their network thereby putting banks in a position to increase their lending to the private sector including SMEs.

Using Bank of Ghana data from 2014 to 2018, the IMF, (2019) raised concerns over the high cost of bank lending rate despite a reduction in the base rate by the Monetary Policy Committee of the Bank of Ghana by 900 percentage points from 25 percent to 14.5 percent in 2019. This has been attributed to the high cost of bank intermediation which has been a main feature of the banking business in Ghana. This phenomenon is been driven by the high-profit margins that banks seek because of the significant market power of banks and the high-risk profiles of most of the firms that apply for credit from these banks. The BOG annual reports also show the high operation cost of banks which is seen as driving the intermediation cost. This is a result of most banks' business models based on the bank branching system which is associated with high personnel costs. Research has shown that banks that use business models that rely on digital platforms have low overhead cost that drives down the operating cost. In such situations, operating costs will account for a smaller percentage of bank interest margin thereby enticing clients to demand more loans. This suggests that improving banks' operation efficiency and ensuring that banks embrace and leverage data and digitization to support their operations will help reduce the cost of credit and enhance lending (Geiger, 2019).

In addition to these, the BoG in collaboration with relevant agencies also embarked on an effort to address issues relating to land acquisition and registry to mitigate the problems associated with taking collateral as security by banks. This is why changes like the Borrowers and Lenders Act 2008, Act 773, which establishes the legal framework for credit, as well as the norms of information disclosure needed of borrowers and lenders, and other relevant issues, are warmly welcomed by lenders. It requires lenders to report with the Collateral Registry any charges or collateral used by borrowers to secure credit facilities from lenders (BOG, annual report, 2019).

Currently, four of Ghana's 23 banks are state-owned, while the other 19 are privately owned, with 17 of them controlled by foreign corporations. Loans and advances, which had previously accounted for the majority of bank assets, have been surpassed by investment holdings. Loans and advances accounted for 28.7% of bank assets in 2018, down from 33.3 percent the previous year PwC, Ghana Banking Survey, 2020). Figures from the Bank of Ghana (2019) annual report, bank

loans and advances totalled $45.2 billion in 2020, making a 23% rise in total bank assets. This trend indicates a decrease in the amount of money made available to the private sector by banks to establish and expand enterprises throughout time. In nominal terms growth in credit to the private sector slowed to 10.6% at the end of December 2020 from a growth of 18.0% recorded in the corresponding period in 2019 (PwC, Ghana Banking Survey, 2020).

4.4   Credit referencing usage in Ghana

Lending has always been challenging in the financial world, especially in emerging economies where the financial infrastructure is not readily available in Ghana not exempted (WB, 2006). The lending situation in Ghana is not different from the prevailing circumstances as provided above. Urgent calls by participants in the financial services sector for credit information sharing among financial institutions gained momentum between 2005 and 2006. As such, the Bank of Ghana, with a recommendation from international bodies such as the International Monetary Fund (IMF) and the International Financial Corporation (IFC), enacted the Credit Reporting Act, 2007 (Act 726) to help bring lending discipline in the financial sector leading to the establishment of Credit Reference Bureau (CRB). The aim of the enactment of the Credit Reporting Act is to ensure that there is a legal and regulatory framework to guide credit information sharing in the country. The Act enabled the establishment of Credit Reference Bureaus (CRB) with the mandate to gather, filter, process, evaluate, maintain and store data collected from banks and other financial institutions that are not in the public domain for lending purposes. The Act mandates all banks and lending institutions to make available all records of financial operations to CRBs. The purpose was to strengthen the lending activities of all banks and financial institutions experiencing many difficulties and challenges in making credit decisions.

The establishment of a Credit Referencing System in Ghana is expected to bring many benefits to the financial services sector (BoG, 2006). These benefits according to the Bank of Ghana (2006) include the following:

*	Improve the financial sector's performance and stimulate economic development by making lending and borrowing easier, faster, and ultimately cheaper.
*	Borrowers can use their positive credit history as "collateral" to access loans at better rates and seek more competitive terms from different lending institutions.

- By addressing information asymmetries, the system is expected to support an increased level of trust between lenders and borrowers, resulting in an increased volume of credit in the economy. This trust also will increase transparency and competition between lenders.
- Timely and accurate information on borrowers' debt profiles and repayment history enables banks and financial institutions to make more informed lending decisions.
- As the data on the system is built up, the information available will enable loan processing to become simpler and faster, collateral requirements to be streamlined, default rates to be reduced, and ultimately loans shall become cheaper.
- Banks and other financial institutions will, therefore, be able to offer new products and offer competitive interest rates due to the availability of information on customers' credit risk profiles.

Currently, three CRBs have been licensed under the Act to gather and share credit information. These are XDS Data (Ghana) Limited, Hudson Price Data Solutions, and Dun and Bradstreet (Ghana) Limited (BoG, 2019). It can be seen from earlier literature on credit referencing above that Dun and Bradstreet and Hudson Price also have a presence in other countries in Europe and America. CRBs in Ghana today offer five main products to the industry, which can be categorised into Consumer centred and commercial centred products. Consumer-centred products offer the sharing of data on the creditworthiness of individual clients, while commercially centred products deal with the creditworthiness of corporate clients, including SME businesses. Both consumer and commercial-centred products offer qualitative and quantitative data to track, trace, and recover loans given to the clients. The quantitative data provided on both consumer and corporate clients specifically assisted in determining credit limits, interest to be charged, and the duration of the credit period for all types of clients, while the qualitative data provides basic information on consumer clients demographics for banks and other participants in the credit market to know the customers they deal with (PwC, 2018).

Now the question that one may ask is that with the credit culture of our lending institutions, will the adoption of these methods of assessing the creditworthiness of SMEs help brings to bear the advantages as stated above? Again, all previous studies on the topic have focused on developed

economies with homogenous cultures. A gap exists in that the credit culture in the developed economies, which have succeeded in increasing access to credit to SME's and also reducing the default rates significantly, differs from that of a developing country like Ghana.

4.4.1 Trends in Usage of CRB Products and Services

Data from the Bank of Ghana (2019) revealed an increase in the usage of credit reference information by banks and other lending institutions. The central bank stated in the report that a total of 2,820,946 inquiries were received from the three credit reference agencies representing an increase of 7 % of the previous year's figure. Table 4.2 depicts the trend in total enquiries by commercial banks from CRBs.

Table 4.2: Trend in Total Credit Enquiry

Year	Total Enquiries	% Change
2019	2,820,946	7
2018	2,629,400	18
2017	2,222,311	34
2016	1,662,740	-17
2015	2,008,170	111
2014	948,360	79
2013	528,491	156
2012	205,949	-

Source Computation from data on BoG annual report (2012- 2019)

Table 4.2 shows evidence that a more significant number of lending institutions make use of CRB information. The consistent increase in total enquiries by commercial banks thereby affirms the importance of CRB information in credit delivery in Ghana. It also shows that lending institutions that are always mandated to undertake credit searches before lending to prospective borrowers are adhered to under Act 742 which governs the establishment of CRBs in Ghana. Figure 2.2 depicts the yearly enquiries graphically by lending institutions.
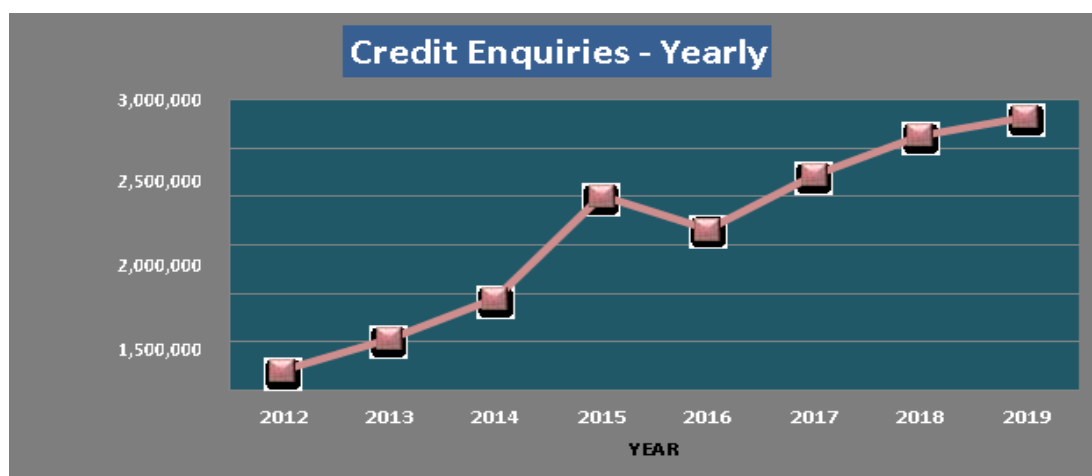
Figure 4.1: Trends in Yearly Credit Enquiries

Source: BoG Annual Report (2012-2019)

4.4.2   Number of Successful and Unsuccessful Enquiries

Of the total number of inquiries made, 61 % were regarded as a hit because the searches produced information that the banks needed to form an opinion on loan applicants' creditworthiness (BoG Annual Report, 2019). The report further stated that 39 % of the searches did not produce a hit for obvious reasons, such as either the individual or institution did not have any credit history, had some inconsistencies in their information, or the data lacked quality. The report also stated that a no-hit might be that how the enquiry was made may not be accurate due to the absence of unique identifiers such as inaccurate address and identification. These have been some of the major problems encountered by lending institutions in their dealing with prospective borrowers. Table 4.3 shows the hit or no hit of enquiries made on CRBs.

Table 4.3: Hit/No Hit Enquiries

	Number		Percentage	
	2018	**2017**	**2018**	**2017**
Total Hits	1,732,628	1,743,469	61 percent	66 percent
No Hits	1,088,318	885,930	39 percent	34 percent
Total	**2,820,318**	**2,629,400**	**100 percent**	**100 percent**

Source: Computation from data on BoG annual report (2011-2018)

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4.4.3 Sectorial Distribution of Enquiries

Sector by sector Finance houses and savings and loans companies made the most use of CRB information accounting for 56 percent of total enquiries (BoG, 2019). This has been the situation over the years. The trend has mainly been attributed to increasing payroll lending to individuals on the government payroll. There was a reduction in enquiries made by rural and community banks in 2019 compared to previous years. On the other hand, commercial banks recorded an increase of 3 percent in 2019, far less than the 28 percent achieved in 2018. This is depicted in table 4.4 and the chart accompanying it as shown below.

Table 4.4:Sectorial Distribution of Enquiries

	2019	2018	2017	2016	2015
Banks	893,736	739,765	227,956	215,881	274,211
NBFIs	1,583,249	1,569,032	1,793,372	1,300,053	1,598,157
RCBs	192,455	212,553	118,396	108,565	81,710
MFIs	135,245	85,997	80,582	34,906	54,092
OTHERS	16,261	22,052	2,005	1,319	
Total	**2,820,946**	**2,629,400**	**2,222,311**	**1,660,724**	**2,008,170**

Source; Computation from data on BoG annual report (2015-2019).
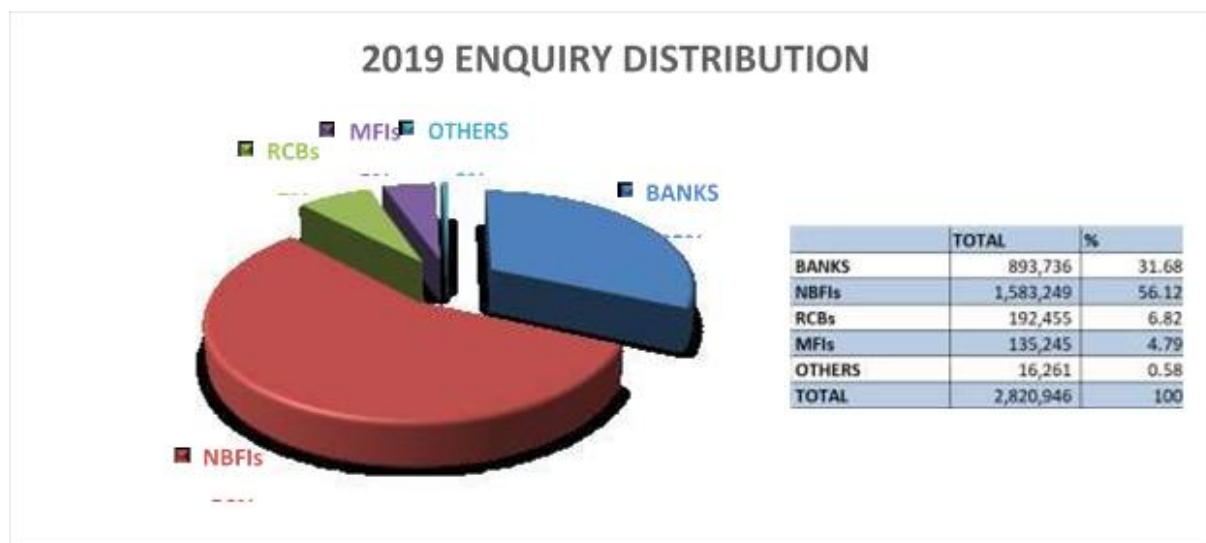
Figure 4.2: Enquiry Distribution by Sector

Source: Annual BoG report, (2019*)*.

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4.4.4 Reasons for Enquiries

Lending institutions use CRB information for several purposes, especially to aid in credit decision-making (BoG, 2019). The Act mandates explicitly that all lending institutions undertake credit reference and searches to ascertain the creditworthiness of would-be borrowers before advancing credit and to monitor repayment schedules. Table 4.5 below shows the purpose for which banks use the services of CRB.

Table 4.5: Purpose of Enquiry

Purpose of Enquiry	Number of Enquiries	%
KYC	6,207	0.22
Credit Application	2,076,999	74
Review of Guarantor	8,747	0.3
Review of Existing Customer	545,946	19
Loan Recovery	105,747	4
Others	77,300	3
Total	2,820,946	100

Source: Computation from data on BoG annual report (201

4.4.5 Credit Bureau Data Statistics

The total number of records held by all the three credit bureaus in Ghana as of December 2019 for both credit and non-credit information stood at 23,022,698. Out of this, individual clients were 22,305,962 while corporate customers were 716,736.

Table 4.6: Credit Information in Credit Bureau Database

Credit Information	
Total No of Consumer Records (Credit)	8,239,801
Total No of Commercial Records (Credit)	429,206
TOTAL	**8,669,007**

Source: BoG Annual Report (2019).

Table 4.6 above shows that as of December 2019, credit bureaus had registered a total of 8,669,007 records with credit information. These include 8,239,801 individual credit records and 429,206 corporate credit records in this database. Furthermore, statistics from the database indicate that the total number of individual borrowers account for 96% out of 5,117,478 who were able to access credit, while corporate borrowers only account for 212,206, representing just 4%. This is an indication that in Ghana, consumer credit forms a larger percentage of bank borrowings as opposed to corporate borrowings. This may be attributed to the fact that SMEs which constitutes a larger population firm do not apply for loans for the fear of been rejected for not being creditworthy.

Table 4.7: Unique Subjects in CRB Database

Unique Subjects	Number of Records
Individual customers	4,904,910
Corporate	212,568
Total	**5,117,478**

Source: BoG Annual Report (2019).

This is an indication which may lend credence to the that SMEs which form a more significant proportion of all firms in Ghana either do not apply for credit from banks or are credit constrained as shown in Table 4.7 above.

4.5 Chapter summary and concluding remarks

The banking sector in Ghana has for the past two decades seen significant consolidation. The sector has seen the number of banks reduced from 34 to 23. The sector which was dominated by three main state-owned banks has seen further consolidation with the transfer of the assets of seven indigenous banks to another state bank created as a special purpose vehicle to assume the assets and liabilities these seven failing banks. Credit to the private sector by banks has decreased over the las few years. This has been attributed to the lack of appetite by banks to lend resulting from economic meltdown and deteriorating assets quality. Lending rates though has seen a decrease in the last four years is still regarded as high compared to neighboring West African countries. This reflects the high credit risk and increased cost of funding experienced by SMEs. The cause has been attributed to the lack of credit mitigation tools such as credible secured transaction framework and well function credit reporting and information system.

The Bank of Ghana in an attempt to reverse these trends introduced several reforms including the Credit Reporting Act, 2007 (Act, 726) and also increased the minimum capital of commercial banks to ₵400m (equivalent to $80m). Banking sector liquidity has remained high as the increased capital levels have led to increased liquidity indicators for the banks. Banks profitability has also been encouraging as a result. Though the credit reporting system has been in operation for over a decade, the absence of well-functioning national identification system for both personal and corporate enterprises is hampering the effective credit appraisal and the provision of financial services.

In conclusion, it can be said that despite numerous reforms introduced into the banking system that are meant to generally improve access to finance, the banking sector in Ghana is still plagued by structural weaknesses in the credit infrastructure thus hampering access to credit made available to SMEs. The low number of credit searches especially for corporate customers of banks depicts banks do not seem to have trust in the credit information provided by the credit bureaus may be because most banks do not believe that all banks share quality information with the credit bureaus. The result is that banks in Ghana continue to make most use of transaction lending methodology based mostly on collateral lending as opposed to relationship lending.

CHAPTER FIVE
RESEARCH METHODOLOGY

5.1 Introduction

The research methodology plays a central role in ensuring that a study is of sufficient quality and credibility as it constitutes the procedures, assumptions, tools, and methods utilised to gather and analyse data (Allwood, 2012). Because evidence from a study depends on the quality of data gathered and used, the appropriateness of the research methodology is the ultimate determinant of the usefulness of a study. With this in mind, this chapter presents and justifies the appropriate methodology used in the current study. The specific facets of the methodology considered are the research paradigm, research design, study setting, research population, sampling methods, sample size, instrumentation, validation of the instruments, data collection approach, ethical considerations, and data analysis method.

The purpose of the study was to examine the methods applied by banks in assessing SME credit proposals and determine how these lending methodologies influence access to credit. The aim was also to investigate if the introduction of credit referencing information sharing have had any impact on credit availability to SME firms to assess if there is evidence of complementarity between credit reference information sharing and the other lending methodologies, and to determine the combined effect of using multiple lending methodologies on credit availability to SME firms. This chapter starts with a discussion of the research paradigm of the study.

5.2   Research Paradigm

The general research approach is informed by an appropriate research paradigm, which is defined as a philosophical way of thinking encompassing the researcher's world view of a research problem (Wong et al., 2011). A worldview in this context represents the researcher's shared beliefs, school of thought, and principles that form the basis of data interpretation (Mingers, 2003). This being so, the research paradigm forms the foundation of how the researcher gathers, analyses, and interprets data to make sense of the data. As evidence from empirical research is rooted in quality data, the utilisation of a suitable paradigm is inevitable in any empirical study such as the current one. Even so, the fact that several paradigms exist in the extant literature emphasises the need for researchers to identify and use the most appropriate paradigm for their study.

To identify the most appropriate paradigm for the current study, it is necessary to know and understand the main paradigms available in the literature. According to Kivunja and Kuyini (2017), ontology, epistemology, methodology, and axiology are the main tenets of a research paradigm. Epistemology is the branch of philosophy that is concerned with what constitutes knowledge. It constitutes the scope and validity of knowledge and what makes the truth different from an opinion (Allwood, 2012). Epistemology, thus, focuses on describing the building blocks of knowledge and its justification.

On the other hand, ontology is a branch of philosophy concerned with the study of being (Wong et al., 2011). Ontology is associated with questions such as what is being and what can be said to be the truth? Epistemology and ontology are related because understanding what constitutes reality or being is a foundation for knowing the nature of knowledge.

Further to the above, the above philosophies answer questions regarding whether or not reality or knowledge exists independent of man or is only an outcome of cognition. If researchers assume that reality or knowledge is independent of man and cognition, then the appropriate paradigm that must guide their research is positivism (Mingers, 2003). In contrast, the appropriate paradigm to guide research is interpretivism or subjectivism if the researcher believes that reality is constructing man's cognitive skills (Kivunja and Kuyini, 2017). If the researcher assumes that reality is partly constructed and partly independent of man's thinking, then a pragmatic (pluralistic) paradigm is the most appropriate for a study (Wong et al., 2011). When the positivist paradigm is applied, the researcher is entirely independent of the research process and ensures that choices and assumptions are bias-free (Mingers, 2003). The objectivity of this approach is based on the assumption that truth takes the same form worldwide (Williams, 2007), as a result of which what is found in a setting and study utilizing this paradigm can be generalised to other settings.

In contrast, subjectivists believe that knowledge is an outcome of man's mental abilities. As such, the discovery of knowledge cannot be free of man's experience and thinking. Constructivists, therefore, do not assume the generalisability of their results, and even if they do, to a limited extent (Wong et al., 2011).

The methodology is another paradigm that represents the procedures, methods, tools, and assumptions applied to gather and analyze data in a study (Kivunja and Kuyini, 2017). A dominant

methodology includes using a questionnaire or measurement instrument to gather quantitative or numeric data on some variables (Williams, 2007). Also growing in influence is the use of interviews and focus groups on gathering count data, pictures, figures, and illustrations to analyse a phenomenon in detail (Creswell, 2003). Another methodology requires blending the above two approaches to make a pluralistic technique (Mingers, 2003). The first approach whereby quantitative data is gathered focuses on statistical inference in which statistics are inferred or generalised to the population. Therefore, this methodology best fits the positivist approach.

Drawing on the discussion above, it is apparent that a pluralistic methodology or technique includes aspects of qualitative data collection and analysis. While most of the specific objectives of the current study require an assessment of relationships for inference, an analysis of some qualitative data, including illustrations, is necessary to address some specific objectives thoroughly. Therefore, although the positivist paradigm was adopted in this study as a dominant approach, the use of some aspects of the subjectivist approach would maximise the value of the research. A pragmatic paradigm dominated by the positivist philosophical approach was, thus, chosen for the study. By choosing this approach, the researcher assumes that the evidence or knowledge from this study is not entirely independent of man's cognitive processes (Morgan, 2007). This chosen approach is different from the post-positivist paradigm, which is unique for merely relaxing the assumptions of the positivist paradigm, such as generalisability (Wong et al., 2011). In this study, assumptions of the individual paradigms underlying pragmatism are not relaxed.

5.3   Research Approaches and Design

Research techniques are techniques driven by research philosophical underpinnings (Wong et al., 2011), which means that a particular philosophical approach would call for the application of a specific research technique. In the introductory chapter of this study, four specific research questions were enumerated and said to guide this study, namely:

  i.   What methods do banks undertake in assessing SME credit proposals?

  ii.   How do lending methodologies affect SMEs ' access to finance?

 iii.   How does credit reference affect SMEs ' access to finance?

iv. What are the combined effects of credit referencing and other lending methodologies on credit availability to SME's?

Of these four, three (i.e. questions 2, 3, and 4) concern whether a relationship exists between two or more variables. Only research question 1 (corresponding with objective 1) to examine the lending methodologies used by banks to evaluate SME credit proposals focuses on the holistic evaluation of the methodologies of bank lending. Therefore, to address most of the objectives, a positivist ontology and epistemology should be the best philosophical orientation to the study. Nevertheless, the first objective (i.e. to examine the lending methodologies used by banks to evaluate SME credit proposals), which requires a deep understanding of methodologies to bank lending, also needs to be well addressed. Because such understanding requires in-depth exploration of experiences and views in the context of banking, a subjectivist paradigmatic approach is needed to address the study's first objective. These observations made it necessary for the mixed research approach to be used. Several definitions have been given for mixed methods research. These include the following:

"….the collection, analysis, and integration of quantitative and qualitative data in a single or multiphase study," Hanson et al. (2005, pp. 224).

"Research in which the investigator collects and analyzes data integrates the findings and draws inferences using both qualitative and quantitative approaches in a single study or program of inquiry," Tashakkori and Creswell (2007a, p.2).

"… the type of research in which a researcher or team of researchers combine elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration," Johnson et al. (2007, p. 123).

The quantitative, qualitative, and mixed research approaches are the traditional techniques applied in the research (Williams, 2007, Allwood, 2012). While the quantitative approach focuses on the use of numeric (continuous) data to estimate parameters and test relationships for statistical inference (Williams, 2007), the qualitative technique applies data in the form of illustrations, texts, symbols, and counts to thoroughly understand a phenomenon (Creswell, 2003). The mixed approach draws on both the qualitative and quantitative approaches, whereby the context is the

pragmatic (pluralistic) philosophical stance. Howe (2009) believes that pragmatism in the comprehension of mixed methods plays a vital role. Tashakkori and Newman (2010); Morgan (2007) have justified pragmatism as the best philosophical foundation for studies using a mixed-method approach. Morgan, (2007) justification is based on the fact that:

i.   Pragmatism does not limit itself to any specific epistemology or ontology.

ii.   Pragmatism offers the researcher the flexibility when choosing a potential method, technique, or procedure necessary to achieve the study's objectives.

iii. Pragmatism helps to clarify the objective of quantitative and qualitative synthesis.

iv.   Pragmatics believe that the world is not an "absolute unit" as such when a mixed method is adapted, researchers can use various approaches for data collection instead of relying on either qualitative or quantitative methods only.

v.   Pragmatism allows for diversity. That is to say, it allows for an analysis of varied depictions of the phenomenon.

The basic assumption of the mixed-method research approach is that it allows for multiple data collections thereby leading to a comprehensive understanding of the subject under investigation. The quantitative and qualitative methods are compatible as such can be used within a single study (Wisdom & Creswell, 2013). It also has the potential of strengthening and enriching the analysis and findings of any study. A mixed-method study has the advantage of helping to understand the contradictions that exist between quantitative and qualitative data findings (Creswell et al., 2003; 2011). It gives a voice to participants, ensuring that findings are well-grounded in individual participants' own experiences (Scott et al., 2011). Mixed methods study gives greater flexibility and, at the same time, can be adaptable to most study designs such as randomized trials, observational and exploratory studies (Tashakkori and Newman, 2010). The researcher chose the mixed approach for the current study because, as explained above, neither the qualitative nor quantitative approach alone can address the study's specific objectives. Therefore, the specific variant of the mixed approach used comprised the correlational and phenomenological techniques based on the cross-sectional approach.

Applying pragmatism to mixed methods research despite its numerous benefits, however, does not end without criticism. For example, Zou, Sunindijo, and Dainty (2014) criticized this approach to research because both methodologies are of two distinct philosophical stances, and the mode of

operation varies for each other as such cannot be successfully incorporated. However, this criticism has been rebuffed by Fiorini, Griffiths, and Houdmont (2016) that pragmatism considers both the advantages and disadvantages of both the quantitative. Also, qualitative methodologies are complementary and inter-reliant and capable of off-setting the probable drawbacks of both methodologies.

There are various variants of the quantitative and qualitative techniques, which means that the researcher's choice of any of the approaches available in the literature ought to be specified. The quantitative research method is usually associated with testing theories, measuring numbers, and analysing statistical techniques. It allows for generalisation to be made about large populations based on smaller samples. McGrath, Palmgren, and Liljedahl (2019) argue that quantitative methods are the basis of providing valid answers scientifically, which allows for actions and changes to be made. The quantitative research methodology allows for replications and validation of original findings independently by other researchers. However, it must be stated that quantitative methods, when used, do not allow perceptions, beliefs, and issues of identity to be meaningfully reduced to numbers. Also, quantitative research studies tend to reflect the pre-conception and biases of the researcher as they can be planned from far from the location where the actual research is conducted. It must also be stated that, while quantitative research methods allow for the pretesting of data collection instruments to determine its reliability, the questionnaire is usually not designed based on collecting insight from the ground. The pretesting of the measuring instrument allows for poorly designed instruments to be identified and amended; qualitative methods better address these issues when constructing the instrument. The quantitative method is less detailed than qualitative data as it may miss the responses that would have been desired from participants (Mohajan, 2018).

The main quantitative approaches available are the correlational, quasi-experimental, and experimental approaches (Allwood, 2012). Of these approaches, the quasi-experimental and experimental techniques compare two or more groups using respective principles and standards (Williams, 2007). On the other hand, the correlational technique does not compare groups but instead examines the association between variables (Asiamah et al., 2019). Therefore, since the

three objectives of this study require an evaluation of the association between variables, the best quantitative technique applicable was the correlational approach.

Williams (2007) reasoned that the correlational technique typically examines the association between variables while using appropriate methods to reduce confounding of the relationship being tested. However, this assertion suggests that the correlational technique does not guarantee the complete elimination of confounding biases but is designed to eliminate all identifiable alternative explanatory influences on the tested relationship. For instance, in testing the influence of credit referencing on SME's access to finance, it is necessary for potential confounding variables such as firm age and firm size to be adjusted for as potential confounding variables. This is the case because these potential confounders can as well influence access to credit facilities. In a recent study, therefore, Asiamah et al. (2019) found that the best correlational studies are those that adjust for confounding variables.

On the other hand, qualitative research is a data collection activity that analyses techniques that use purposive sampling, semi-structured and open-ended interviews (Gopaldas, 2016). It is inductive and consists of interpretative and material seeking research questions intended to explore and get insight into events from participants' viewpoints to share their ideas in a given situation (Levitt et al., 2017). Therefore, it helps the researchers use tools such as interviews, diaries, journals, classroom observations, and immersions and helps the researcher undertake content analyses of data obtained (Zohrabi, 2013). According to Polkinghorne (2005), qualitative research help in the understanding of the social world in which we live, giving an interpretation as to why things are the way we see them.

In such instances, the researcher becomes an instrument of enquiry as he/she is not limited to a predetermined position. Qualitative research helps the researcher investigate a local knowledge and understanding of a given situation, people's experiences, relationships and meanings, social processes, and contextual factors that characterise a group of people (Leedy and Ormrod, 2001). It mainly focuses on words rather than numbers as it takes the naturalistic approach by interpreting situations to understand and make sense of a phenomenon in terms of how people make meanings out of certain situations (Denzin and Lincoln, 2005; 2011). Qualitative research, however, has its limitations. Since data collected are usually from a small population, it becomes highly problematic and difficult to generalise findings and outcomes as it is deemed not to be statistically

representative. Also, since the data analysis is heavily dependent on the skills and experience of the researcher, interpretation can easily be influenced by the idiosyncrasies and biases of the researcher.

Like the quantitative approach, the qualitative technique has sub-categories. So, the fact that a mixed approach was employed in this study necessitates the specification of the qualitative technique used. While the case study, phenomenological technique, ethnographic technique, grounded theory approach, and content analysis have dominated qualitative approaches over the years (Creswell, 2003; Allwood, 2012), the current study adopted the phenomenological approach. This technique is consistent with the interpretivism paradigm and allows a phenomenon to be investigated in sufficient detail. To explain why this technique was chosen over others, it is crucial to define phenomenology as a qualitative approach to research. Creswell (2003) defines phenomenology as the approach that focuses on identifying and understanding the commonality of the lived experiences of members of a group. In this study, such a group is bankers (credit risk managers) who provide loans to SMEs, and the lived experiences relate to 'methodologies of lending' or how bankers determine who qualifies for a loan and how credit should be disbursed. The phenomenological approach was used because bankers share some experiences and thoughts about such methodologies since they operate under the same Central Bank and face the same market risks. The commonality of these experiences and thoughts is best seen and understood through the phenomenological approach, which often involves focused group discussions or semi-structured interviews (Allwood, 2012).

A research technique, be it qualitative or quantitative, would be associated with data gathered at a fixed time or over a period. A study that gathers and analyses data once or at a fixed time is called a cross-sectional survey (Asiamah et al., 2019). This approach is opposed to the longitudinal approach, whereby data is collected over a period to see how a variable or phenomenon changes over time (Williams, 2007). In the current study, chronological changes in the variables were not of interest, and none of the specific objectives required an analysis of how the variables change over time. As such, the cross-sectional approach best suited the study and was therefore applied. In addition, data for the qualitative and quantitative facets of the study were gathered and analysed once, enabling the researcher to estimate fixed effects and understand the phenomenon as they

occur in the context of bank lending. As Figure 4.1 indicates, therefore, the specific approaches chosen converge to a cross-sectional survey
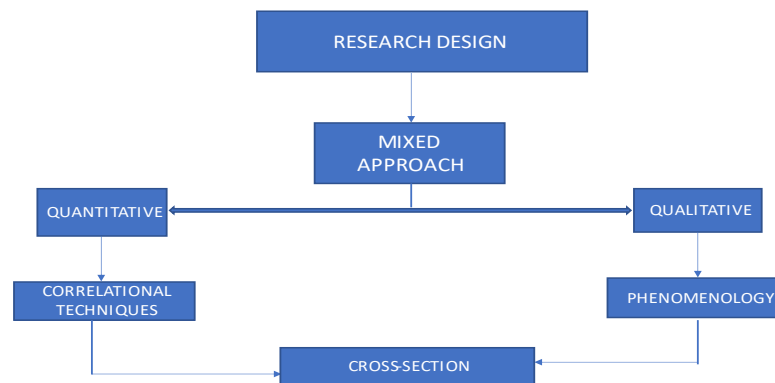
Figure 5.1: The Research Design

Source: The Researcher's Construct (2021)

The specific methodologies chosen converge to a cross-sectional survey, as shown in Figure 5.1. In a mixed research methodology, the qualitative phase of the study (phenomenological approach) can be linked to the quantitative element, as shown in the image. This is to say that under a mixed research approach, the cross-sectional (correlation) technique can complement the phenomenological approach. Since the research objectives addressed in this study require qualitative and quantitative approaches, the framework represented by figure 5.1 depicts the ideal relationship between the specific qualitative and quantitative techniques used in this study. This relationship is an expression of how phenomenology complements the cross-sectional approach to address the research objectives. Quantitative data was collected using the correlational technique whereby questionnaires were administered to solicit responses from participants. However, the use of a questionnaire in collecting quantitative data limits the ability to generate unexpected information as it is normally standardised and does not allow for the researcher to ascertain the reasons underpinning the participants answers (Bryman, 2012). As such there was the need to collect qualitative data through the phenomenology approach by interviewing a small number of

participants. This approach is capable of getting an insight into the underlying reasons for answers given by the participant to ensure the trustworthiness of the results. By making use of both methodologies, the research was able to address all the research questions by means of integrating the findings arrived at via the two contrasting methodologies. The makes the conclusions arrived at both robust and rigorous (Cronholm & Hjalmarsson, 2011).

5.4   Study Setting

The study setting is the geographical location where the study participants are located (Creswell, 2003). In addition, the study setting is the point where participants are located and represent the location where data is gathered (Allwood, 2012). For this reason, a study setting is also called a data collection site. Given the above information, it is understandable that the study setting represents the location where a study is conducted, and participants are located. Data from the Integrated Business Establishment Report (2020) which was compiled from the Ghana Statistical Services, GSS (2016-2020) estimates the total number of SMEs in Ghana registered with the Registrar General Department at 405,000. This figure is made up of 320,000 small businesses and 85,000 medium-scale businesses. Out of the total figure, 118,681 are said to be actively operational (GSS, 2020).

The setting for this study was Accra, Ghana's capital city. The city covers an area of 225.67 km2 and is home to about 2.27 million people as of 2012 (GSS, 2020). It has 12 local government districts, that is, 11 municipal areas and the Accra Metropolitan area. The city of Accra has the highest population of businesses, including SMEs. As of 2019, the number of active (operational) registered SMEs in Accra was 34,093 (GSS, 2020). Therefore, Accra was chosen for the current study because it hosts most of Ghana's SMEs (Mabe et al., 2013; Ghana Statistical Service, 2020). Hence, a random sample from this area is representative of the national population of SMEs.

5.5   Research Population

Research studies are mostly carried out in a sample rather than on the whole population. One of the challenging tasks in research is how to draw a sample from the target population on which the results of the research would be generalised. The task becomes even more difficult because of the

possibility of sampling bias that occurs to a lesser or greater extent in most research work undertakings. The target population is the entire set of units the researcher intends to study (Majid, 2018). Most often, it is not appropriate to sample the whole population of interest. As such, researchers recruit a sample from the population of interest to include in the study. This section details the study's population. Two populations are specified; one for the quantitative aspect and the other for the qualitative part of the study.

5.5.1 Population for the quantitative aspect

Social research is a type of study that utilises data from human participants (Creswell, 2003). As such, one defining attribute of this form of research is its dependence on information from people located in a well-defined geographical area. In simple terms, a research population is people located in the study setting who provide data for a study (Allwood, 2012). Therefore, to better understand a research population, it is important to know the difference between the general population, target population, and accessible population.

The general population has been defined as all individuals or entities about which an inquiry is to be made or is being made (Asiamah et al., 2017b). In other words, the general population comprises all people who share characteristics that make them potential sources of data. For the current setting, this population comprised individuals who can provide accurate information on their SMEs. Therefore, the ideal general population of the study was managers and/or owners of SMEs in Accra who could describe the nature of their businesses. Table 5.1 shows details relating to the general population size of the study as indicated by information from the Registrar General's Department (RGD). That is, the general population comprised only businesses registered with the RGD.

This study drew on the experiences of SMEs with the lending activities of banks in Ghana. As a result, SMEs expected to provide data for analysis were enterprises that had received credit facilities from banks. Of course, an SME would know nothing about the key issues of the study if it had not secured a credit facility from a bank in Ghana. For this reason, not all SMEs registered with the RGD could participate in the study, as a result of which the study had to focus on SMEs that had received credit facilities from banks, now called the target population of the study. Asiamah et al. (2017b) defined the target population as all individuals or entities with specific

characteristics that make them the ultimate source of data. This population is often determined by selecting from the general population people who meet the study's selection criteria.

The selection criteria of a study are conditions implied by the specific characteristics of participants that are of interest to the researcher (Allwood, 2012). For example, being a manager or owner of an SME that had acquired a credit facility from a bank is a participant attribute that is of interest in this study. Asiamah et al. (2017b; Whitehead and Whitehead, (2019) posit that the research objective and scope inform the selection criteria. Because the current study focused on lending, participants' experience with lending was one of the selection criteria. Experience with lending was assessed in terms of the number of times the SME owner or manager acquired a bank loan. That is, a manager or owner was eligible to participate only if he or she had acquired a loan from a bank at least once. Table 5.2 shows the number of individuals who met the above selection criteria and therefore made up the target population.

The accessible population is a subset of the target population defined by Asiamah et al. (2017b) as all individuals from the target population who will be available and are willing to participate in the study. Since it is unethical for anyone to be forced to participate in a study, it is mandatory to always specify the accessible or specific population by removing from the target population those who do not want to participate in the study for personal reasons. The accessible population is therefore reached by excluding from the target population those who are not willing to participate or will not be available to participate. Individuals who were not willing or will not be available to participate were identified when the study was first introduced to members of the target population. Next, the purpose and timeline of the study were explained to the potential participants, after which the researcher asked if they will be available to complete questionnaires at the specified time. Finally, those who would not be available at the time of data collection were removed from the study. Table 5.2 shows the number of individuals who made up the accessible population of the study.

Table 5. 1: Study Population and Sample Sizes

Sector	General population	Target population	Accessible population	Sample
Research and Development	2,211	564	544	226
HR Services	1,231	421	401	196
Agric Processing	908	231	277	123
Tourism	1,011	432	403	196
Beverage manufacturing	803	133	109	86
Manufacturing (others)	1,891	673	620	234
Total	8,055	2,454	2,354	1,061

Source: Researcher's Construct (2021).

5.5.2 Population for the qualitative aspect

The qualitative part of the study explores the experiences of bankers with SMEs. Typically, such bankers must demonstrate a high level of expertise in the area of bank lending. Therefore, the general population of the qualitative aspect of the study was credit risk managers of banks in Accra. According to Hammarberg et al. (2016), participants in a qualitative study must be individuals who are not only knowledgeable in a professional field but also have frequent practical experiences in this field. This being the case, the target population of the qualitative facet of the study was credit risk managers whose banks were among the most active lending institutions in Ghana. Information from the Bank of Ghana reveals that 16 banks in Ghana are in the category of frequent and active lending institutions. Therefore, sixteen (16) credit risks managers (one from each of the 16 banks) met the following relevant selection criteria applied per Ames et al. (2019):

i.   Having worked in the current bank for at least four years. Individuals who had worked in the bank for less than four years were assumed (based on the experiential learning theory) to have insufficient experience with SMEs and lending practices in the current bank. The experiential learning theory implies that knowledge about an organisation and its practices is based on how long an individual had been learning about that organisation as a stakeholder or employee. According to Palinkas et al. (2013), between one to four years is required for complete knowledge acquisition through experiential learning; hence, the researcher decided to focus on individuals who had worked in the organisation for at least four years.

ii.   Having the ability to read and write in English, the medium in which interviews were administered. This condition was used because a few workers in Ghanaian organizations such as cleaners and security personnel cannot read and write in English (Asiamah et al., 2017a). Including such individuals could have biased the findings since they might have misunderstood the questions. Interestingly, only a small proportion of employees in Ghanaian organizations are unable to speak and write in English (Asiamah et al., 2017a); hence this criterion did not substantially limit the scope of the population.

iii.   All credit risk managers of the selected banks met the above criteria and therefore made up the target population. The number of managers who were unwilling to participate or would not be available at the study time was four. That being so, the accessible population of the study was 12.

The researcher followed procedures reported earlier to identify individuals who were not willing to participate. The following section presents how sampling from the above populations was done.

5.6   Sampling Methods and Sample Size

The primary purpose of sampling is to assist in the appropriate section of suitable participants for the research. According to Whitehead and Whitehead (2019), effective sample selection is vital to the research design and process as inappropriate sampling will impact the finding and outcomes of the study. Several types of sampling procedures are available to be adopted, and the choice of the research design help guide the selection of the appropriate sampling technique. In this section, the sample sizes for the quantitative and qualitative parts of the study are determined.

5.6.1   Quantitative sample

A key attribute of quantitative approaches is the use of representative samples through probability sampling (Williams, 2007). Sampling is the process of determining a subset of the population for a study (Ames et al., 2019). The purpose of sampling in quantitative research is to determine a subset of the population from which data is collected rather than from the entire population (Palinkas et al., 2013). Sampling is done when the researcher does not have enough funds and time

to collect data on the entire population. However, sampling may be necessary for theoretical reasons (Asiamah et al., 2017a).

As mentioned earlier, quantitative researchers aim to generalise their findings from a sample to the population. However, generalisation is only possible when a specific type of sample, a representative sample, is used (Williams, 2007). A representative sample is a subset of the population that yields findings that the entire population would have produced (Ames et al., 2019). Hence, representative samples are characteristically large and are determined using a probability sampling technique, defined as a method that gives population members a known chance of being selected into the sample (Palinkas et al., 2013). This technique is opposed to the non-probability sampling method, a selection process whereby members of the population do not have a known probability of being included in the sample (Hammarberg et al., 2016).

Several probabilistic sampling techniques are applied to determine a representative sample, and typical examples are simple random sampling, stratified sampling, systematic sampling, cluster sampling, and multistage sampling (Asiamah et al., 2017a). Of these methods, the simple random sampling method was used in the current study. The simple random sampling method is a probability sampling technique that gives all population members the same chance of being selected into the sample (Allwood, 2012). It was preferred to other probability approaches because the population sampled did not have clusters and strata but rather sub-groups. A sub-group of a population is different from a cluster or strata as it is a pre-existing facet of the population (Ames et al., 2019); clusters and strata are formed for the specific purpose of sampling in the current study (Palinkas, 2014). Finally, the simple random sampling approach determines the most representative sample because it accords population members the same probability of being selected into the sample.

The sample size is critical to the accuracy and reliability of the sample drawn and to aid the making of inferences and generalisation of results from the sample statistics of the population under study, Henn, Weinstein, and Foard, (2006). There are several formulas to determine the size of a research sample population. The most frequently used are Cochran's (1977) sample size formula, Cohen's statistical Power Analysis (1998), and the Krejcie and Morgan formula (1970). The researcher settled on using the Krejcie and Morgan formula as it results in a larger sample size. According to

Maleske (1995), a larger sample size allows for valid inferences to be made from the sample population as it will be accepted as representative of the population.

Before sampling, Krejcie and Morgan's (1970) sampling table was used to determine a representative sample from the population. This table was used because it is a global standard for determining sample sizes and uses a formula that makes room for attrition (Asiamah, Opuni, and Frimpong, 2019). It applies a confidence level of 95 percent and a population proportion of 5 percent and was used to select a representative sample of participants from each sector (please see Table 5.2), with samples from the sectors added up to reach the overall sample. For example, from table 5.2 an accessible population of 544 for the research and development sector, the sample size per the Krejcie and Morgan's (1970) sampling table of 226 would be needed to serve as a representation of the population. As Table 5.2 above indicates, the overall sample of the study was 1,061.

Members of the sample were selected using the Random Sampling Function in SPSS. The names of members of the population for each sector were assigned numeric codes, which were inputted into SPSS. For each sector, codes equal in number to the sample size of that sector were selected using the random sampling function. All codes selected became part of the sample. As Table 5.2 indicates, the sampling process involved six iterations, with each iteration used to select the sample for a sector. Codes were assigned to all businesses in the accessible population of the first sector (i.e. Research and Development) and entered into SPSS. The Random Sampling Function was then used to select 226 codes, which became the sample corresponding to 'Research and Development". The procedure was repeated for the other five sectors. Thus, all codes selected became part of the total sample of Table 5.2.

5.6.2 Qualitative sample

On the other hand, qualitative research aims to explore opinions and experiences in a defined context and does not always begin with a pre-determined sample size (Isaac, 2014). Therefore, there are no formal criteria in determining the sample size for qualitative research. As such, there are no laid down rules to determine when the sample is large or small. What is most important is

the richness of the data collected. Typically, this type of research does not produce findings that can be generalised because it often applies non-representative samples determined using non-probability sampling. Essential non-probability sampling methods identified by Asiamah et al. (2017a) include convenience sampling, purposive sampling, and snowball sampling. The purposive sampling method was used per a procedure demonstrated by Asiamah and colleagues (2017a) in the current study. To pledge authentic analysis and ensure that selected banks included in the sample study have been operating in Ghana for more than 10 years, purposive sampling was adopted. According to (Greener & Martelli, 2015) a purposive sampling allows the researcher to use his or her own discretion to select a sample. Purposive sampling is usually with very small samples and populace within qualitative research. This is a popular approach in qualitative research. Purposive sampling helps recruit participants according to some pr-selected criteria relevant to achieving the study's research objectives. It is purposely designed to provide first-hand information as participants are selected based on their experience, status, and knowledge in the subject area of interest to the researcher.

Per the preceding procedure, a purposive sample is a subset of the population that results from selecting participants who meet some criteria or have some characteristics. The procedure also connotes that the accessible population size of 12 credit risks managers specified earlier results from a stepwise purposive sampling process. First, participants with the best experience and expertise in the area are identified and selected for the study. Then, to further refine this population per Asiamah et al.'s (2017a) technique, the job tenure of the 12 managers in their current banks and their highest educational level was used. That is, individuals with the highest job tenure and educational level were chosen for the study. The assumption applied in this respect was that one's ability to provide the best response that reflects situations in the bank depends on years of work and education. In other words, the ability to respond accurately would increase with job tenure and education.

The researcher selected eight (from 12 credit risk managers) who had the highest education and job tenure with the above understanding. This sample was determined from banks that were most active in lending to SMEs. The sample size of eight was chosen because researchers (Allwood, 2012; Creswell, 2003) indicate that a qualitative study can apply a sample size ranging between four and 30 individuals or cases. Creswell (2017) added that the qualitative aspect of a mixed

(pluralistic) design that addresses a minor case of the study can use between four to 12 participants, three to five participants for the case study, and 15 to 30 participants for grounded studies 3-10 participants for phenomenological studies. Krueger and Case (2009) recommended between 5 and 10 participants for the focus group. Because the qualitative aspect of this study addressed only one specific objective or a minor case of the study, a sample size of 8 was deemed appropriate.

5.7   Data Collection

The data collection method chosen is one of the most critical decisions that researchers make. Data collection has been defined as gathering and measuring information relevant to the research purpose' (Kabir, 2016). Every researcher needs to know the different data collection methods to be able to make objective and informed decisions on the collection approach to acquire the correct data and have a better understanding of the data collected. Therefore, accurate data is essential for maintaining the quality and integrity of any research work, no matter the field of study or preference for a particular type of data (quantitative or qualitative). The data collection process begins with determining which data to be collected. This is then followed by the sample selection from the target population, after which some instruments are used to collect the data from the target. This section discusses variables and their operationalisation, instrumentation, validation of measures, data collection procedure, and ethical steps are taken.

5.7.1   Variables and Operationaliation

The quantitative part of this study involved three main variables, namely lending methodologies, credit referencing, and SMEs' access to funds. Lending methodologies were measured following Blackburn et al. (2013), Addae-Korankye (2014), Essel and Amankwah (2019) as different schemes of lending applied by the banks that have a unique set of lending criteria. It was, therefore, measured using a five-point Likert scale with levels strongly disagree, disagree, somehow agree, agree, and strongly agree. The scale comprised three factors. The first factor comprised seven items and measured information on collateral, financial transactions, and banking experience. The second factor comprised five items and measured the personal characteristics of the owner. The final factor measured previous borrowing and ability to repay loans. Section C of Appendix A

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shows items of the scale used to measure lending methodologies. Credit referencing was measured as the SME's perceived importance of credit referencing by agencies. It was a measure of 12 indicators associated with a five-point descriptive anchor: strongly disagree (1), disagree (2), somehow agree (3), agree (4), and strongly agree (5). Appendix A (section D) shows items of the scale used to measure credit referencing. SMEs' access to credit was measured as the total amount of money (in Ghana cedis, ₵) received by the SME in loans from financial institutions. This measure was chosen over others because it is an objective method that indicates the amount of money the SME had acquired from lending institutions.

Other variables measured were SME characteristics and control variables. The control variables measured was (i) company size (i.e. the number of employees Anton, 2019), (ii) operational capital (i.e. the business's capital in Ghana cedis, Ibhagui and Olokoyo, 2018).), (iii) industry experience (i,e, the number of years the company has been operating, Coad, (2018), and (iv) loan acquisition experience (i.e. the number of years the company had successfully acquired loans from financial institutions, Akolaa 2018). Other variables measured on participants were gender (i.e. male versus female), level of education (i.e. years of schooling), and work experience (i.e. the number of years the individual had worked with the company). These two variables were measured as continuous variables.

Logistic regression coded the independent variables to analyse the ownership and firm characteristics data as follows:

- gender (one male one and two females);
- age groupings (one between 18-25 years; two between 26-35 years, three between 36-45 years, four between 46-55 years and five 56 and over);
- education (one high school, two diplomas/bachelor, three masters degrees; four Ph.D. or equivalent);
- ownership (one sole proprietor, two partnerships, three corporates);
- business category (one wholesale/retail, two manufacturing, three agriculture/agribusiness, four services);
- business age (one between 1-5 years, two between 6-10 years, three between 11-20 years, four more than 20); and

- bank experience (one between 1-5 years, two between 6-10 years, three between 11-20 years, four more than 20 years).

Table 5.2: Measures and coding scheme for measures of business and demographic characteristics

Category	Variable	Type	Level	Code
Demographic attributes	Gender	Nominal	Male	1
			Female	2
	Age	Ordinal	18_25	1
			26-35	2
			36-45	3
			46-55	4
			Over 55	5
	Education	Ordinal	MSLC	1
			High school	2
			Diploma/Bachelor's degree	3
			Master's	4
			Ph.D. or equivalent	5
Business characteristics	Ownership	Nominal	Sole ownership	1
			Partnership	2
			Co-operate	3
	Business category	Nominal	Wholesale/retail	1
			Manufacturing	2
			Agriculture	3
			Services	4
	Business age	Oridinal	1-5 yrs	1
			6-10 yrs	2
			11-20 yrs	3
			Above 20	4
	Bank experience	Ordinal	1-5 yrs	1
			6-10 yrs	2
			11-20 yrs	3
			Above 20	4

			Less than ¢50,000	1
	Fixed Assets	Ordinal	¢500,000 - ¢750,000	2
			¢750,001 - ¢1,000,000	3
			¢1,000,001- ¢1,500,000	4
			More than ¢1,500,000	5
	Current asset	Ordinal	Less than ¢50,000	1
			¢500,000 - ¢750,000	2
			¢750,001 - ¢1,000,000	3
			¢1,000,001- ¢1,500,000	4
			More than ¢1,500,000	5
	Annual sales (2019)	Dichotomous	Less than ¢50,000	1
			¢500,000 - ¢750,000	2
	Net Income (2019)	Ordinal	Less than ¢10,000	1
			¢10,000 - 20,000	2
			¢21,000 - ¢30,000	3
			¢31,000 - ¢40,000	4

Source: Researcher's Construct (2021).

Copious literature has classified entrepreneurial characteristics and has done so using five categories: traits, demographic/social characteristics, behavioural/managerial characteristics, human capital characteristics, and economic characteristics. Islam et al. (2011) used similar categorisation by referring to the following variables: demographic characteristic, individual characteristic, personal traits, entrepreneur orientation, and entrepreneur readiness as owner/manager characteristics. For this thesis, the selection of these variables was based on previous studies of (Blackburn et al., 2013; Anton, 2019; Essel et al., 2019) which have evidenced that each of these variables can influence lending methodologies and their relationship to access to credit. For example, Blackburn et al. (2013) reported that the number of employees in the business and operational capital could influence the ability of the business to meet lending criteria and access credit. Therefore, the effect of lending methodologies on access to credit may be due to operational capital and the number of employees available. They added that companies with more significant capital often better meet lending criteria.

Given the above information, it was necessary to measure and control for capital size and the number of employees. These two variables were measured as continuous variables. Other variables

measured on participants were gender (i.e. male versus female), level of education (i.e. years of schooling), and work experience (i.e. the number of years the individual had worked with the company). These variables are demographic variables relating to the owner or managers of the organisation. According to Essel et al. (2019), these variables can affect the management of the business, how revenues are generated, and the business's relationship with banks. For example, businesses managed by men are more likely to benefit from high education since men are generally more educated than women in Africa. With high education, managers may be more capable of meeting lending methodologies to access credit facilities. However, work experience could also affect the ability of the management to achieve high performance and attract credit facilities from bankers (Ajibade and Khayundi, 2017). Consequently, these demographic attributes can confound the primary relationships tested in this study.

In the qualitative aspect of the study, lending methodologies were the only measures taken. Credit risk managers were asked in an interview to give their expert opinions and experiences regarding specific lending methodologies used in Ghana. Other demographic variables of the experts recorded were gender, education, and work experience as a credit risk expert (i.e. the number of years the individual had worked as a credit risk management expert or officer).

5.7.2   Data Collection Instruments

Instrumentation is a term used to describe the tools used in collecting data in a study (Allwood, 2012). Since this study employed the mixed research approach, both qualitative and quantitative tools were used to gather data. Concerning the quantitative study, a questionnaire was used to gather data. This tool was chosen because it enabled SMEs to respond in the absence of the researcher and was the only means for measuring the relevant variables as continuous social variables. The researcher's choice was also informed by the fact that the variables of interest were measured in previous studies using a questionnaire (Addae-Korankye, 2014; Essel et al., 2019).

The questionnaire used had five main parts. The first part comprised the demographic characteristics of participants and control variables. The second part measured SMEs' access to credit. The third part measured lending methodologies, while the fourth part measured SMEs' access to finance. Finally, the fifth section captured questions on credit referencing. Each of the

sections had an open-ended question that was aimed at eliciting detailed or complementary responses.

A semi-structured interview was used to gather qualitative data. This approach was chosen for a couple of reasons. Firstly, respondents had a busy schedule and could only be contacted once. Hammarberg et al. (2016) indicated that the semi-structured interview approach should be used when participants cannot be interviewed twice as other interview approaches would require talking to participants more than once. Secondly, using the semi-structured interview allowed the researcher to probe the respondent with clarification questions that provide detailed information. So, the semi-structured approach was more convenient and efficient. The interview was based on an interview guide containing three blocks of information. The first block contained information about the researcher and instructions for responding to questions. The second block presents the primary (main) questions and their respective clarification questions, whereas the third block presents a conclusive remark.

5.7.3 Scale validation

The validation of a scale is a term used to describe the assessment of the psychometric properties of a measure (Na-Nan et al., 2020), where a measure's psychometric properties are statistics that represent its validity and reliability. The validity of a scale has been defined as the degree to which a scale measures what it was designed to measure (Drost, 2011). For instance, if a scale was developed to measure the perceived importance of credit referencing, its validity is the degree to which it measures this variable precisely. On the other hand, reliability is the extent to which a scale can produce consistent results or scores across studies and populations (Na-Nan et al., 2020). A reliable scale should, therefore, produce approximately identical scores in different populations.

Table 5.3: A Summary of Psychometric Assessments and Criteria Applied

Step	Psychometric indicator	Tool used	Criterion/baseline	Key references
Reliability assessment	Internal consistency	Cronbach's α	α ≥0.7	Prentice, 2008
	Composite reliability (CR)	CFA	CR ≥0.7	Na-Nan et al., 2020
Validity assessment	Convergent validity	CFA	AVE≥0.5	Palmgren et al. (2018)
	Discriminant validity	CFA	MSV <AVE	Na-Nan et al., 2020

CFA – confirmatory factor analysis; EV – Eigenvalue; NI – number of items; AVE – average variance extracted; MSV – maximum squared variance; CR – composite reliability.

As the above definitions indicate, validity and reliability are measures of the credibility of a study because they determine the genuineness of data collected and analysed. If a scale is not valid and reliable, its results will be misleading and erroneous. For this reason, it was necessary to assess the psychometric properties of the scale used to measure credit referencing, measured in terms of SMEs' perceived importance of credit referencing. In assessing the said psychometric indicators of this scale, the standard procedure applied in the literature was utilised (Palmgren et al., 2018; Na-Nan et al., 2020). The specific procedure used in the confirmatory factor analysis (CFA) was used to estimate validity measures (i.e. average variance extracted (AVE) and maximum squared variance (MSV)). The maximum likelihood method was chosen for factor extraction based on recommendations from Na-Nan et al. (2020). The Cronbach's alpha coefficient (α) was computed as an indicator of scale reliability (Cormac et al., 2019). Validity and reliability were confirmed based on recommended baselines associated with these statistics. Table 5.4 shows a summary of the baselines. Findings of the test are presented in the next chapter, where data are analysed.

5.7.4   Data collection approach

The rudiments of data collection involve various methodologies. The nature of the data collected depends on the study objectives. Some objectives are targeted at standardizing and making systematic comparisons, while others seek to study a phenomenon. Because of these differences in intentions, there is always the need to adopt different approaches and methods to data collection. There are two main approaches to data collection, that is quantitative and qualitative. Both quantitative and qualitative data are determined based on the research objectives as stated above. Quantitative research data is often gathered by using survey questionnaires that have been carefully designed and structured to provide numerical data capable of being analysed statistically to present outcomes that could be generalised to a larger population.

On the other hand, qualitative data is subjective and exploratory and aims to seek explanations for a particular phenomenon. It is non-numerical and is often gathered through individual interviews

and focus groups discussions using semi-structured or unstructured interview guides. For this study, data collection was done in two phases, as discussed below.

5.7.4.1 Qualitative data collection

Before collecting qualitative data, management of the banks where participants worked was informed about the study in writing. The letter detailed the purpose of the study and the requisite characteristics of participants. Upon approving the study, management then provided a list of employees who had the attributes specified in the letter. The list was then used for sampling purposes. Experts who were selected for the sample were then contacted through a voice call to schedule the interview. An email containing the interview guide (with questions) was then sent to the participants. This step was taken to allow participants to prepare for the actual interview. Participants also provided informed consent.

Interviews were conducted either online or in person at the office of the participant. During the interview, the researcher introduced himself officially and reiterated the purpose of the study. Instructions for responding and the order in which questions would be asked were then given to the participant. The researcher asked each listed (primary question). If per the participant's response, a follow-up question was necessary, it was asked by the respondent. Follow-up questions asked can be seen in the Appendices (see Appendix B). The interview lasted between 30-45 minutes, and the entire process was audiotaped for transcription. In the end, the interviewee was thanked for his effort and responses. All selected participants made time for the interviews.

5.7.4.2 Quantitative data collection

Quantitative data collection commenced after the researcher called all the SMEs to inform them about the study and identify individuals (SMEs) qualified to participate in the study. Selected SMEs were asked to complete an informed consent form. Five field assistants were hired to assist in data collection; two were from the University of Ghana (Main campus), one from Accra City Campus, and two from Accra Technical University. Questionnaires were administered at the premises of the SMEs, where field assistants explained to each participant how the questionnaire should be completed. Participants were encouraged to complete the questionnaires instantly, and those who could not complete and return the questionnaires immediately were given two weeks to

complete the survey. During the two weeks, follow-up calls were made to participants who could not complete the questionnaire instantly to remind them of the deadline given them. In time, the field assistants and researcher went to the field to take back completed questionnaires. The entire data collection process lasted over a month.

5.7.5   Ethical considerations

Ethical considerations in a study are moral principles that the researcher adheres to protect and recognise the rights and interests of participants (Allwood, 2012). Some common rights and interests of participants that researchers are expected to protect are the rights to participate voluntarily, opt out of the study if the study is harmful to health, know the purpose and risks of the study, and have personal identity masked (Creswell, 2003).

In this study, these and many more rights were recognised through different procedures. First, the purpose and potential risks of the study were disclosed to participants through the informed consent form. Participants' organisations were also informed about the study and its benefits. All individuals participated voluntarily. More so, each participant had to complete an informed consent form to signify his or her willingness to participate in the study. Third, the anonymity of participants was ensured by masking the identity of every respondent at the time of data collection and analysis. That is, no respondent was identified with his or her name, organisation, or residential address. Fourth, the study received ethical clearance from the Ethics Review Committee of the University of KwaZulu-Natal, South Africa, before the data collection commenced. Before obtaining ethical clearance, a gatekeeper's letter was required and was provided to the committee before receiving final approval. This final step confirmed that the study conformed to research protocols for human safety and protection.

5.8   Data Analysis Method

Thematic analysis was applied to analyse qualitative data from the interview, with NVivo 12 utilised in this vein. In addition, quantitative data were analysed using a combination of descriptive statistics, Pearson's correlation test, and multiple linear regression (MLR) analysis through SPSS 26. Finally, the factor analysis (i.e. principal components extraction) method was utilised in

estimating effects. The rationale for choosing the above methods over other techniques is discussed in the following sections.

5.8.1 Qualitative analysis

A thematic analysis was applied in this study as it was the most suitable way to identify patterns in the qualitative data, tally responses, and make meaning of the results (Allwood, 2012). The thematic analysis involved six stages of data processing. The first stage, called familiarization (Creswell, 2003), is a phase where the researcher understands the scope of the data. Then, in line with best practices (Allwood, 2012), the researcher became familiar with the data through its transcription. In data transcription, the researcher translated the participants' responses (if necessary) and changed the responses into text. In this regard, different blocks of text given titles reflecting the questions asked were generated. In the second stage, coding is done to assign codes or numbers to key responses. This step made way for generating tallies or determining the number of individuals who made a specific comment. In the third phase of the process, codes were changed into themes. If responses from participants are recurrent, a theme that describes the recurrent responses is assigned to the code representing these responses. Afterward, the themes are reviewed in the fourth phase to know whether the original data is consistent. The review of themes enabled the researcher to be sure nothing in the original data was skipped. The fifth step was to define and name themes. Each theme was named with a word that describes its research or interview question. In the final stage, the themes were interpreted by indicating the meaning of each team based on practice, theory, and previous research evidence.

The respondents interviewed are presented in the following table according to name, Position, Institution, and date of the interview.

Table 5.4: List of interviewees

Name	Position	Institution	Interview Date
Mr. Afrifa Maxwell (RES 1)	Principal credit officer	Ecobank Ghana	17.11.2020
Mrs. Tenkorang Hannah RES 2)	Credit officer	GCB Bank Limited	17.11.2020
Mr. Anim Danquah Michael (RES 3)	Credit officer	Agricultural Development Bank Limited	19.11.2020

Mrs. Oppong Sandra (RES 4)	Head of credit	Societe General (Ghana) Limited	22.11.2020
Mr. Ababio Rudolph (RES 5)	Head of credit	CalBank PLC	22.11.2020
Mrs. Anima Aisha (RES 6)	Chief credit officer	Standard Chartered Bank (Ghana) Limited	26.11.2020
Mr. Abdul Rahman (RES 7)	Branch Manager	Absa Bank Ghana Limited	30.11.2020
Mr. Owusu Ansah Bediako (RES 8)	Head of Operations	Prudential Bank Limited	30.11.2020

Source: Researcher's Construct (2021).

5.8.2 Quantitative analysis

The quantitative analysis of data was conducted at two phases: the exploratory and the phase, where hypotheses are tested to address the specific research objectives. The exploratory stage of quantitative data analysis is about verifying the suitability of the data collected, assessing relevant assumptions, and determining whether the measurement scales are associated with satisfactory psychometric properties (Leung, 2007; Tarka, 2017). These exploratory techniques are essential for linear regression analysis (Leung, 2007). In the current study, therefore, the exploratory analysis was conducted before hypothesis testing. In this vein, descriptive statistics (frequencies, %) were used to summarise the categorical demographic variables. Continuous variables, including credit referencing, were summarised using the mean and its standard deviation. Factor analysis (i.e. principal components extraction method) was then used to estimate relevant psychometric properties to assess the reliability and validity of the scale. This procedure is consistent with studies (Keleva, 2016; Asiamah et al., 2018) that have indicated that factor analysis is the ultimate foundation for understanding the factor structure of measurement scales. Cronbach's alpha coefficient was estimated to assess the internal consistency of the scales in harmony with procedures adopted from Kelava (2016). Subsequently, confirmatory factor analysis was used to estimate construct validity indicators, namely average variance extracted (AVE) and Mean Shared Variance (MSV). Measurement models were fitted using independent confirmatory factor analyses for all scales and the AVE and MSV of each scale computed. Based on previous practices (Asiamah et al., 2018; Kelava, 2016; Amorim et al., 2010), these indicators were compared with standard baselines to know whether the scales had construct validity. These

baselines are AVE ≥0.5 (for convergent validity) and MSV < AVE (for discriminant validity). Results based on these baselines are presented in the next chapter.

As a parametric statistical tool, regression is only used if the normality of the data distribution is confirmed (Garson, 2012). Hence, the Shapiro-Wilk test was used to verify the normality of the data (Garson, 2012). As part of the normality of data assessment, stem and leaf plots were created to support decisions made with the Shapiro-Wilk test in harmony with recommendations (Asiamah et al., 2018; Kelava, 2016). In addition, other assumptions (independence or errors and multicollinearity) that govern the use of multiple linear regression analysis were also assessed in line with previous procedures applied and recommended (Garson, 2012; Asiamah et al., 2018).

At the second stage of the quantitative analysis, the first hypothesis was analysed using the one-sample t-test. The first hypothesis was tested to ascertain the extent of using the lending methodologies, namely CBRs and PBCs. To test this hypothesis, a procedure applied previously (Kim, 2015) was adopted to determine whether the mean scores associated with these methodologies were significantly different from a median score, a composite value from all items measuring each of the methodologies. A high level of application of the methodologies is confirmed if the mean score is significantly larger than the median in a one-sample t-test (Kim, 2015). This is to say that the one-sample t-test, with a test value equal to the composite median, was used to test the first hypothesis.

To analyse hypotheses two and three, Pearson's correlation was used to examine the correlation between lending methodologies, access to funds, credit referencing, and controlled variables. This step was taken as a basis of regression analysis, bearing in mind the idea that regression should not be performed unless a correlation between relevant variables is confirmed (Alexopoulos, 2010). Thus, Pearson's correlation analysis through SPSS provided a basis for testing direct and intervening (moderating) effects using Multiple Linear Regression analysis (MLR).

The extant literature indicates that regression is a powerful tool for estimating the effect of a predictor or predictors on a single outcome variable (Cheung and Lau 2008; Alexopoulos, 2010). Cheung (2007) revealed that regression analysis has no limitations if used to estimate the effects of one or more predictors on a single outcome or dependent variable. That is rightly so because

regression functions on the idea that a dependent variable can be affected by one or more predictor variables. Tarka (2017) recently supported this idea by revealing that structural equation modelling (SEM) and its methods, such as maximum likelihood estimation, are as good as regression. However, they are used only for fitting regression models involving two or more dependent variables and single or multiple-level mediation effects. Amorim et al. (2010) similarly posited that SEM is an advanced version of regression built on the same statistical principles, though it is more effective at reducing the type one error for models involving two or more outcome variables. A type one error in this vein is the probability of confirming an effect that does not exist (Garson, 2012).

Researchers (Amorim et al., 2010; Tarka, 2017) have reasoned based on the above thoughts that it is not necessary to use SEM if simple linear regression or MLR can be used effectively. Tarka (2017) reasoned that the use of SEM in a situation where regression can be used could be construed as a novice research practice since there is no difference between estimates from SEM and regression in this situation. Thus, using SEM in a situation where regression can be used can mar the reputation of a study or thesis. These thoughts recently influenced studies recently published in highly reputable journals (Seggie and Griffith, 2021; Zhao and Murrell, 2021) that used MLR to model relationships involving one outcome variable and moderation effects. The relationships analysed by these studies are like those considered in this study as they involved only one outcome variable and a moderating effect. For this reason, MLR was used.

To predict the independent variables' influence on access to credit (dependent variable) the following regression model was set up;

$$P(1-p) = \beta_0 + \beta_1 \times 1 + \beta_2 \times 2 + \beta_K \times K$$

Where P is the estimated likelihood of receiving a positive response to loan application

1, X2 -------------------- XK represent the independent variables (i.e. collateral business records, personal business characteristics, and credit reference information).

Specifically, the regression was modeled as follows:

$$P(1-p) = \beta_0 + \beta_1 \times CBR + \beta_2 \times PBC + \beta\ CRI + \varepsilon$$

Where P(1-p) is the odd ratio where (p) represents the probability that a positive response is received and (1-p) is the probability that no response will be received,

CBR represents Collateral Business Records,

PBC represents Personal Business Characteristics,

CRI represents Credit referencing Information, and

ε represents the error.

To determine the association between the dependent and independent variables the maximum likelihood of the maximum odds ratios valued is represented as follows: >1 (positive association); <1 (negative association) and = 1 (no association). This is in line with Balogun, Agumba & Ansray, (2018).

Based on a previous sensitivity analysis method (Ashley and Parmeter, 2020), the remaining two hypotheses (i.e. H2 and H3) and their sub-hypotheses were tested using two models, the baseline model and ultimate model, with the latter being the source of findings on which conclusions of this study are based. The baseline model estimated the crude regression coefficients. The coefficients from the baseline model are crude because they are susceptible to confounding (Asiamah et al., 2019). Each of the two remaining hypotheses has some sub-hypotheses. The first (H2a) and second (H2b) sub-hypotheses of hypothesis 2 respectively examined the effects of CBCs and PBCs on access to credit. The first sub-hypothesis (H3a) of hypothesis 3 examined the moderating effect of CRI on the association between lending methodology and access to credit. The second sub-hypothesis (H3b) of hypothesis 3 evaluated the moderating effect of CRI on the association between CBCs and access to credit. The third sub-hypothesis (H3c) of hypothesis 3 examined the moderating effect of CRI on the association PBCs and access to credit.

Corresponding ultimate models of the baseline models were fitted to estimate the ultimate effects on which conclusions are based by incorporating the potential confounding variables. The regression coefficients (i.e. standardised weights and t-values) between the two models were then compared to know the impact of the confounding variables on the hypothesized relationships. The purpose of this comparison is to demonstrate how the ultimate effects (estimated with the ultimate model) are affected by confounding variables. Based on testing the moderating effects, three

dummy variables were computed in SPSS following a recently used procedure (Namazi and Namazi, 2016; Menz-Brew and Asiamah, 2019; Asiamah et al., 2021). The first dummy variable is the interaction between CRI and lending methodology (i.e. CRI*Lmethology). The second and third dummy variables were interactions between CRI and each of CBCs (i.e. CRI*CBCs) and PBCs (i.e. CRI*PBCs). The moderating effect of CRI on the relationship between lending methodology and access to credit was assessed by using the baseline and ultimate models to assess the effect of CRI*L methodology on access to credit.

Similarly, the moderating effects of CRI on the relationships between domains of lending methodology and access to credit were assessed by using the baseline and ultimate models to assess the effects of CRI*CBCs and CRI*PBCs on access to credit. Other key statistics compared between models are F-statistics and their significance, and the total variance accounted. Again, the statistical significance of findings was detected at $p < 0.05$.

5.9   Chapter Summary

This study employed a mixed research approach dominated by the quantitative technique. The specific research approaches adopted the correlational technique to test some associations, and the phenomenological approach was utilised to explore experts' opinions. The study was also a cross-sectional survey as it gathered and analysed data at a fixed period. The population for the quantitative aspect of the study was SMEs in Accra that had acquired credit facilities from one or more banks. The simple random sampling method was used to select 1,061 SMEs. The population for the qualitative design was credit risk managers of banks in Accra. The purposive sampling method was used to select eight managers for the study. A questionnaire was used to gather data for the quantitative approach, whereas a semi-structured interview was used to gather qualitative data. The Ethics Review Committee of the University of KwaZulu Natal approved the study. Participants also provided informed consent to participate in the study wilfully. In the qualitative analysis, thematic analysis was conducted to understand the lending methodologies used by banks. In quantitative data analysis, factor analysis was used to assess the psychometric properties of the measurement scale, while descriptive statistics were used to summarise the data. Pearson's correlation test and multiple linear regression analysis were used to test the hypotheses.

CHAPTER SIX

DATA PRESENTATION AND ANALYSIS

6.1   Introduction

All scientific research has data to back or disprove the hypothesis. To make sense of the data, there is the need to analyse the data to assist in the objective presentation of key results. A detailed analysis is intended to provide insight and interpretation of the data in the discussion section. Data analysis form the basis for reaching the objectives of the research. The objective of this study was to assess lending methodologies used by banks to evaluate SMEs' credit proposals and analyse how these methodologies and credit referencing interact to affect access to credit among SMEs in Ghana. The specific objectives of this study are to (i) examine the lending methodologies used by banks to evaluate SME credit proposals; (ii) assess the effect of lending methodologies on SME's access to credit; (iii) evaluate the effect of credit referencing information on SME's access to credit; (iv) test the interaction effect of the lending methodologies and credit referencing on access to credit. This chapter presents the results of data analysis and is an extension of previous chapters that presented the research problem, review of literature, and methodology. This is so because the empirical review section helps to identify the need for the current research. There is the possibility that some flaws or inconsistencies may have been uncovered in the literature emanating from the wrong design, data collection instrument, or that the research was conducted on a different population. The results analysis section helps to confirm or unconfirmed what was found in previous research. Findings presented in this chapter to address the specific objectives provide a basis for discussions in the next chapter and recommendations and conclusions in the final chapter. This chapter is presented in two main sections. The first section presents results of an exploratory data analysis where essential attributes (e.g., the distribution, reliability, and validity) of the data are assessed. This exploratory analysis sets the foundation for the second section, presenting findings addressing each of the above specific objectives. This section summarises the data collected using descriptive statistics. Reports on the finding from inferential statistical analysis conducted are also presented to answer the research questions and hypothesis.

6.2   Exploratory Analysis of Credit Reference and Bank lending methodologies

An exploratory analysis of data was conducted using both descriptive and inferential statistics. These were done to determine the appropriateness of the data collected in answering the research question under consideration. The first analysis conducted descriptively was to determine the response rate as well as to produce a summary of the basic demographic, business variables and the financial characterstics of the SME respondents to the questionnaires administered. To ensure the suitability of the data collected in determining the association between credit referencing, lending methodologies and their influence on SME access to finance, the one sample T-test was conducted. In the second part of the analysis, exploratory analysis, expecically, Exploratory Factor Analysis (EFA) and Crombach's alfa coefficient was used to assess the reliability and validity of the scales used in the study.

6.2.1   Response Rate and Summary Statistics of Questionnaires Administered

Ensuring an adequate response rate to data collection of any research is critical as it is seen as an essential quality criterion (Mellahi and Haris, 2016). This is because a smaller response rate may lead to a smaller data sample, decreasing the statistical power and reducing the application of major statistical procedures (Rogelberg and Stanton, 2007). This is why it is crucial to ensure sufficient responses to data collection, as a low response rate in a survey may indicate coverage bias (Spekle and Widener, 2018). Hamilton (2009) defines response rate as the percentage of respondents who participate in a survey for the determined sample size. Based on Lindner and Wingenbach's (2002) recommendation, a response rate of 50 % is acceptable for surveys; the valid response rate of 80% is acceptable and adequate for further analysis. Table 6.1 depicts the response rate to questionnaires administered for data collection.

Table 6.1:Response Rate for the Questionnaires

Response	frequency
Number of distributed questionnaires	1,061
Returned questionnaires	899
Returned and usable questionnaires	848

Returned and excluded questionnaires	30 +21=51
Questionnaires not returned	162
Response rate	84.7 percent
Valid response rate	80 percent

Source: Survey data (2021)

In Table 6.1 above, the participants in this study were SMEs (represented by CEOs and managers) and credit risk officers of banks in Accra. SMEs provided data for the quantitative facet of this study, whereas credit risk officers provided data for the qualitative part. Of the 1,061 questionnaires administered to the SMEs, 899 were completed and returned by participants. However, 30 were not completed at all and were therefore removed. For 21 of the questionnaires returned, respondents did not respond to questions or items of a whole scale (e.g., lending methodologies). According to Garson (2012), questionnaires containing missing data for a whole scale should be discarded. As such, those 21 questionnaires were also dropped. Therefore, 80 % of the questionnaires administered were analysed. A total of 8 credit officers constituted the qualitative sample. Table 6.2 shows summary statistics on owners' demographic variables and basic business variables.

Table 6.2:Basic owner and business characteristics

Variable	Level	Frequency	percent
Gender	Male	552	65 percent
	Female	296	35 percent
	Total	**848**	**100 percent**
Age	26-35	96	11 percent
	36-45	232	27 percent
	46-55	324	38 percent
	Over 55	196	23 percent
	Total	**848**	**100 percent**
Education	High school	152	18 percent
	Diploma/Bachelor's degree	228	27 percent
	Master's	468	55 percent
	Total	**848**	**100 percent**
Ownership	Sole ownership	536	63 percent
	Partnership	172	20 percent
	Co-operate	140	17 percent
	Total	**848**	**100 percent**

Variable	Level	Frequency	percent
Business category	Wholesale/retail	208	25 percent
	Manufacturing	196	23 percent
	Agriculture	100	12 percent
	Services	344	41 percent
	Total	**848**	**100 percent**
Business age	1-5 yrs	56	7 percent
	6-10 yrs	232	27 percent
	11-20	208	25 percent
	Above 20	352	42 percent
	Total	**848**	**100 percent**
Bank experience	1-5 yrs	56	7 percent
	6-10 yrs	200	24 percent
	11-20	284	33 percent
	Above 20	308	36 percent
	Total	**848**	**100 percent**

Source: Survey data (2021)

In Table 6.2, about 65 percent (n = 552) of the participants were men whereas about 35 percent (n = 296) were women. Thus, the majority of participants in the study were men. This difference in the proportions of male and female participants implies that the findings of this study may not be generalised to the general population and could better represent the opinions of men. About 11 percent (n = 96) of the participants were aged 26 to 35 years; 27 percent (n = 232) were aged 36 to 45 years; 38 percent (n = 324) were aged 46 to 55 years, and 23 percent (n = 196) were aged over 55 years. Hence, the largest proportion of participants were those aged 36 to 45. This result suggests that all the age groups were represented in the study, which provides a basis for generalizing findings to all age groups (Garson, 2012). About 18 percent (n = 152) of the sample had senior high school education; about 27 percent (n = 228) had a diploma or first degree, and about 55 percent (n = 468) had a Master's degree. Therefore, the majority of participants had a Master's degree. It can be seen in Table 6.2 that all participants had at least a senior high school certificate, which means that the sample of participants had some formal education. Researchers, including (Creswell 2003; Asiamah et al., 2017a), argue that participants with at least a basic education qualification have a better ability to reason logically and provide accurate responses,

especially in English. Thus, the above educational profile of the sample implies that participants had the knowledge and ability to provide accurate responses.

In terms of the ownership of the businesses, about 63 percent (n = 536) of the businesses had single owners (i.e. sole ownership), about 20 percent (n = 172) were based on a partnership, and 17 percent (n = 140) were corporate. Hence, most of the SMEs were sole proprietorships. Thus, less than 40 percent of the sample represented corporate and partnership businesses. The large proportion of sole proprietorships involved in this study suggests that the findings of this study may apply more to sole proprietorships. It also supports Essel et al. (2019) that sole proprietorships dominate the SMEs in Ghana.

In addition, about 25 percent (n = 208) of the businesses were in the wholesale or retail category, 23 percent (n = 196) were in the manufacturing category, 12 percent (n = 100) were in Agriculture, and 41 percent (n = 344) were in the services category. Thus, the largest proportion of businesses was in the services category. It has been reported that the dominant businesses of the SMEs sector in Ghana are service-based firms, agricultural businesses, and manufacturing companies (Essel et al., 2019). The above statistics on the sectoral distribution of the sample, thus, indicate that the key groups that characterise the SMEs sector in Ghana are represented in this study. About 7 percent (n = 56) of the SMEs were 1 to 5 years old, about 27 percent (n = 232) were 6 to 10 years old; 25 percent (n = 208) were 11 to 20 years old, and about 42 percent (n = 352) were over 20 years old. So, the largest proportion of SMEs was over 20 years old. These statistics conclude that every SME that participated in this study had existed for at least one year, and at least 60 percent of the sample had existed for at least six years. This result implies that all businesses had ample experience in their respective sectors, enabling them to provide experience-based responses. According to Allwood (2012), responses based on ample industry and professional experience are the ideal data for studies utilizing primary data.

Finally, about 7 percent (n = 56) of all participants had been banking with the bank for 1 to 5 years; 24 percent (n = 200) had been banking for between 6 and 10 years, 33 percent (n = 284) had been banking for between 11 and 20 years, and 36 percent (n = 308) had been banking for over 20 years.

Hence, the largest proportion of SMEs had been banking for over 20 years. Needleless to say, participants of this study were required to respond to their borrowing activities and experiences with banks. Therefore, the accuracy of the information provided by participants depended on how long these participants had banked with their respective banks. The preceding statistics, thus, suggest that participants (SMEs) had an appreciable level of banking experience on which their responses were based. Table 6.3 shows the financial characteristics of SMEs.

In Table 6.3, 17 percent (n = 148) of the SMEs had a net asset of less than 50,000, about 18 percent (n = 156) had a net asset of between 500,000 and 750,000, 30 percent (n = 256) had between 750,001 and 1,000,000, 31 percent (n = 256) had between 1,000,001 and 1,500,000, and 3 percent (n = 24) had over 1,500,000. About 5 percent (n = 44) had less than 500,000 of current assets, 15 percent (n = 128) had between 500,000 and 750,000, 16 percent (n = 132) had between 750,001 and 1,000,000, 33 percent (n = 276) had between 1,000,001 and 1,500,000, and 32 percent (n = 268) had over 1,500,000. This result indicates that the SMEs had different asset capacities and financial capabilities. Moreover, the sample contained more of medium-sized businesses as at least 70% of the sample had an asset of more than 750, 000 Ghana cedis (Essel et al., 2019). If so, findings of this study may better describe medium-sized enterprises.

Table 6.3: Financial characteristics of Ghanaian SMEs

Variable	Group	Frequency	Percent
Fixed Assets	Less than ¢50,000	148	17 percent
	¢500,000 - ¢750,000	156	18 percent
	¢750,001 - ¢1,000,000	256	30 percent
	¢1,000,001- ¢1,500,000	264	31 percent
	More than ¢1,500,000	24	3 percent
	Total	**848**	**100 percent**
Current asset	Less than ¢50,000	44	5 percent
	¢500,000 - ¢750,000	128	15 percent
	¢750,001 - ¢1,000,000	132	16 percent
	¢1,000,001- ¢1,500,000	276	33 percent
	More than ¢1,500,000	268	32 percent
	Total	**848**	**100 percent**
Annual sales (2019)	Less than ¢50,000	296	35 percent
	¢500,000 - ¢750,000	552	65 percent
	Total	**848**	**100 percent**
Net Income (2019)	Less than ¢10,000	136	16 percent

	¢10,000 - 20,000	216	25 percent
	¢21,000 - ¢30,000	320	38 percent
	¢31,000 - ¢40,000	176	21 percent
	Total	**848**	**100 percent**

Source: Survey data (2021).

In terms of annual sales for 2019, about 35 percent (n = 296) had less than 50,000, and about 65 percent (n = 552) had between 500,000 and 750,000. Though these amounts are relatively large and could imply that the SMEs had satisfactory sales performance within the financial year, they do not give information about whether they met or exceeded projected (targeted) sales and resulted in profitability. This shortcoming is addressed by the next attribute, the annual income of the SMEs. Finally, 16 percent (n = 136) had less than 10,000 in net annual income; 25 percent (n = 216) had between 10,000 and 20,000, 38 percent (n = 320) had between 20,001 and 30,000, whereas 21 percent (n = 176) had between 30,001 and 40,000. Table 6.3 shows summary statistics on measures to access credit amongst SMEs.

Given the above results, it is apparent that at least 50 percent of the SMEs made an annual income of 10,000 Ghana cedis. While these incomes look appreciable, it is unclear whether they met the business's expectations or targets. It can, however, be said that the SMEs had a positive net income over the period. Table 6.4 depicts the number of respondents who had applied for and received loans from their banks.

Table 6.4: Measures of Ghanaian SMEs access to credit facilities

Variable	**Group**	**Frequency**	**Percent**
Access to loans	Yes	848	100 percent
	No	0	0 percent
	Total	848	100 percent
Frequency of loan access	Once in a while	236	28 percent
	Once a year	504	59 percent
	Several times in a year	108	13 percent
	Total	848	100 percent
Loan received (¢)	Less than ¢2,000	12	1 percent
	¢2,000 - 5,000	48	6 percent
	¢5,001 - ¢10,000	248	29 percent
	¢10,001 - ¢15,000	496	58 percent
	More than ¢15,000	44	5 percent
	Total	848	100 percent

Source: Survey data (2021)

In Table 6.4, all SMEs had acquired loans or credit facilities, reflecting that the sample included only businesses that had acquired a credit facility at least once. About 28 percent (n = 236) of the businesses had acquired a facility once in a while; 59 percent (n = 504) acquired a loan once in a year, and 13 percent (n = 108) had acquired a facility several times a year. So, most of the SMEs acquired credit facilities at least once a year. This result suggests that SMEs had experienced banking lending and knew about the conditions and methodologies applied in lending. About 1 percent (n = 12) of the SMEs had received less than 2,000 in loans; 6 percent (n = 48) had received between 2,000 and 5,000 in loans; 29 percent (n = 248) had received between 5,001 and 10,000; 58 percent (n = 496) had received between 10,001 and 15,000 in loans, and 5 percent (n = 44) had received more than 15,000 in loans. Table 5.4 shows the summary statistics for lending methodologies. Thus, more than 60 percent of SMEs had received at least 10,001 Ghana cedis, and all SMEs had received at least 2,000 Ghana cedis. This finding implies that all SMEs had accessed credit facilities from the banks and therefore acquired some knowledge about bank lending. Table 6.5 shows a summary statistics of the lending methodologies applied by banks and their indicators.

Table 6.5:Summary statistics on Ghanaian banks' lending methodology and its indicators

Variable	Min.	Max.	Mean	Median	SD
I was asked if I had a collateral	3	5	4.36	5.00	0.72
I was asked to provide my balance sheet information	3	5	4.33	4.00	0.73
I was interviewed on the policy, philosophy and performance of my business	3	5	4.35	5.00	0.73
I was asked to provide a copy of my business plan	3	5	4.32	4.00	0.75
I was asked to provide or discuss my financial performance target	3	5	4.32	4.00	0.74
I was asked about the historical records of my sales	3	5	4.35	4.00	0.71
I was asked about any debts I had	3	5	4.36	5.00	0.72
I was asked about the recognition of my business	1	4	3.18	3.00	0.85
Collateral and banking records	23	39	33.58	35.00	5.16
I was asked about my age	1	4	3.21	3.00	0.81
I was asked about my gender	1	4	3.15	3.00	0.84
I was asked if I was married	1	4	3.17	3.00	0.86
I was asked about my highest education	1	4	3.21	3.00	0.86
I was asked to indicate my experience in the business	3	5	4.35	5.00	0.73
The number of years the business had been in operation was ascertained	3	5	4.32	4.00	0.75

Variable	Min.	Max.	Mean	Median	SD
I was made to provide information on the ownership structure	2	5	4.29	4.00	0.80
I was asked about the size of my business	2	5	4.31	4.00	0.78
I was asked to describe the structure of the industry I operated in	2	5	4.28	4.00	0.81
I was asked to indicate the number of years I had banked with the bank	3	5	4.32	4.00	0.75
I was asked to indicate if I had received a loan from the bank in the past	3	5	4.29	4.00	0.76
I was asked to indicate how many times I had received a loan in the past from the bank	3	5	4.33	4.00	0.73
Personal and business characteristics	32	56	47.24	48.00	7.21
Lending Methodology	55	95	80.82	81.00	12.08

Source: Survey data (2021).

In Table 6.5, the average (mean) scores represent the extent to which participants agreed that the individual items or variables represent lending methodologies applied to them. Since the Likert scale applied had five descriptive anchors representing a continuum from 1 to 5, the extent to which a lending methodology is applied increases from 1 to 5. This is to say that the largest mean score that could be produced on this scale is 5. Moreover, the median of each indicator represents the median value of a distribution of its values in an ascending or order. The median of each indicator, thus, shows the centre of the indicator. Medians close to the mean indicate relative consistency between the measures of central tendency (Garson, 2012). The interpretation of the scale this way is consistent with Asiamah et al. (2018), who applied the same descriptive anchors to analyse the level of emotional intelligence in a sample. Garson (2012) also indicated that a mean score of a variable between the minimum and maximum values and a standard deviation not larger than the mean are indicators of the non-availability of outliers in the data. If so, data associated with items of lending methodologies did not have major outliers, though a more rigorous analysis is performed later to identify outliers.

Based on the above interpretation from Asiamah et al. (2018), it can be said that all items of the scale produced relatively large mean scores and therefore represent lending methodologies applied to the SMEs. The item with the largest mean score is "I was asked if I had a collateral" (Mean = 4.36; SD = 0.72), followed by "I was interviewed on the policy, philosophy, and performance of my business" (Mean = 4.35, SD = 0.73). This finding suggests that the provision of collateral and information on the business's policy, philosophy, and performance were outstanding requirements

for acquiring credit facilities. The least mean scores are produced by "I was asked about my age" (Mean = 3.21; SD = 0.81) and "I was asked about my gender" (Mean = 3.15; SD = 0.84). That is to say that the provision of information on the borrower's demographic characteristics is less of lending criteria applied. However, this information was still an aspect of the lending methodologies. Lending methodologies as a variable accounted for a mean score of about 81 (Mean = 80.82; SD = 12.08) out of a maximum expected mean score of 95. This average score produces about 85% of the maximum scale score, which is more than the 50th %ile of the variable 'lending methodologies. It can be seen from Table 6.5 that the medians are close to the mean. The median of 'lending methodology', for instance, is 81, which is close to the corresponding mean of 81. Table 6.6 shows the summary statistics on credit referencing information.

Table 6.6:Summary statistics of Ghanaian banks' credit reference information and its indicators

Variable	Min.	Max.	Mean	Median	SD
The procedure for obtaining a bank loan has been simplified by the introduction of the use of credit referencing information	3	5	4.43	5.00	0.64
Banks are responsive to SME financing needs.	3	5	4.20	4.00	0.70
Sharing of credit information has reduced loan processing costs and increased lending volume significantly	3	5	4.41	4.00	0.64
Sharing of credit information has reduced interest rates charged on loans by commercial banks	3	5	4.18	4.00	0.71
Credit information sharing from Credit Reference Bureaus rewards and promotes a good credit track record for firms.	2	5	4.39	5.00	0.70
Credit information sharing acts a deterrent to loan default.	3	5	4.24	4.00	0.70
Credit information sharing has impacted positively on loan repayment	3	5	4.42	5.00	0.66
Credit information sharing has effectively reduced non-performing loans on the institution's financial statement	2	5	4.12	4.00	0.79
Credit risk information	24	40	34.40	36.00	4.52

Note: SD – standard deviation

Source: Survey data (2021)

Based on Asiamah et al.'s (2018) interpretation disclosed above, it can be said that all items in Table 6.6 produced relatively large mean scores. Therefore, the items represent a significant level of access to credit referencing information. The largest mean score was produced by "The procedure for obtaining bank loan has been simplified by the introduction of the use of credit referencing information" (Mean = 4.43; SD = 0.64), followed by "Sharing of credit information

has reduced loan processing costs and increased lending volume significantly" (Mean = 4.41; SD = 0.64). Next, "Sharing of credit information has reduced interest rates charged on loans by commercial banks" (Mean = 4.18; SD = 0.71) and "Credit information sharing has effectively reduced non-performing loans on the institution's financial statement" (Mean = 4.12; SD = 0.79) produced the lowest mean scores, though these scores are close to 5. Credit referencing information (CRI) produced a mean score of about 34 (Mean = 34.40; SD = 4.52) out of a total expected mean score of 40. Thus, CRI accounted for about 86% of the total scale score, which is more than the 50th percentile of the variable 'CRI'.

Further to this, the median of the variables in Table 6.6 is close to their corresponding means. Finally, Table 6.7 shows results from an assessment of the distribution of the key variables. The distribution of the data is assessed with summary statistics and the Shapiro-Wilk test. Shapiro-Wilk's test examines the univariate normality of the data and accompanies relevant graphs.

Table 6.7: Tests of data distribution and normality

Variable	Mean	SD	Skewness	Kurtosis	Shapiro Wilk's Test
Lending Methodologies	80.82	12.08	-0.492	-0.87	0.912
Credit risk information	34.4	4.52	-0.441	-0.86	0.895

**p<0.001 Source:
Source: Survey data (2021).

Table 6.7 shows descriptive statistics on the two main variables, namely lending methodologies and credit risk information. It can be seen that lending methodologies accounted for skewness and kurtosis values of -0.49 and -0.87, respectively. The Shapiro test is preferable if the sample size is fewer than 2000 (Shapiro and Wilk, 1965). A null hypothesis of a normality test is that there is no substantial deviation from normality. When the p is greater than .05, the null hypothesis is not rejected, and the assumption is upheld. CRI also accounted for skewness and kurtosis values of -0.44 and -0.86, respectively. According to Garson (2012), skewness and kurtosis values falling between -3 and +3 are satisfactory and indicate no significant outliers in the data. Each variable further accounted for a Shapiro-Wilk's statistic ≥of 0.8 (p < 0.001).
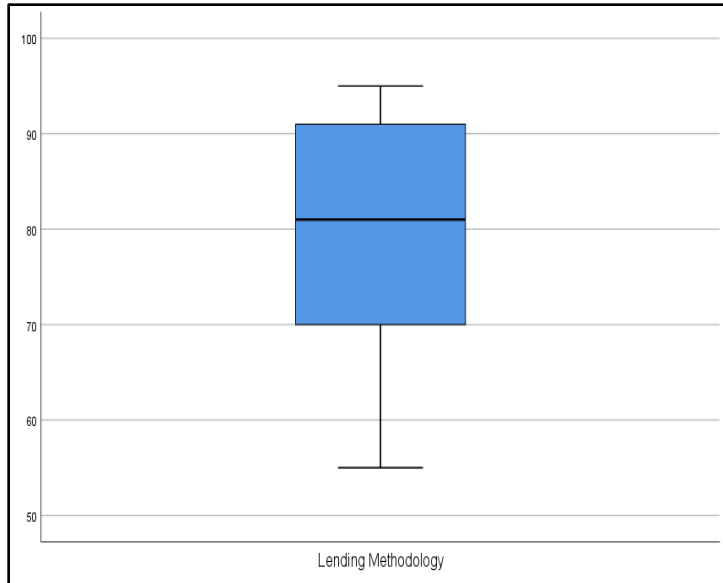
Figure 6.1: A boxplot showing a slight deviation of data associated with lending methodologies from normality

Source: Survey data (2021).
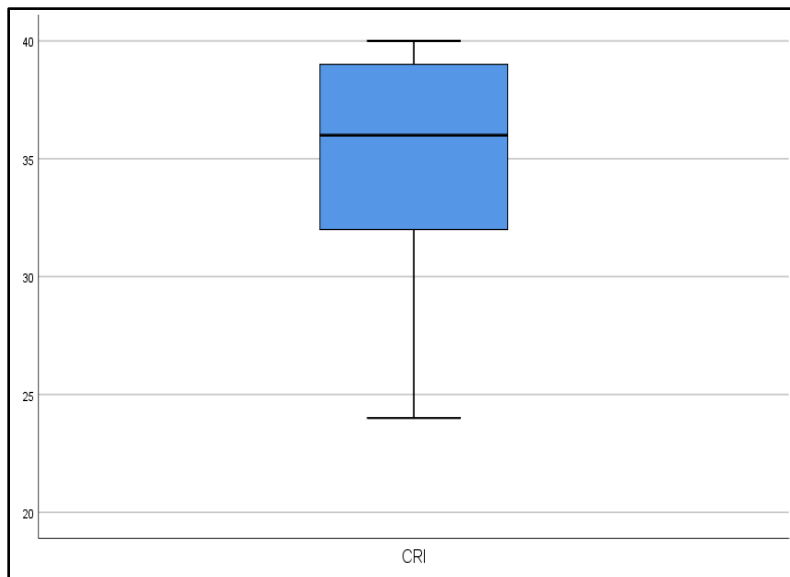
Figure 6.2: A boxplot showing a slight deviation of data associated with credit risk information from normality.

Source: Survey data (2021).

Figures 6.1 and 6.2 are box plots that show whether the data associated with the two variables in Table 6.7 are typically distributed. According to Garson (2012), normality is achieved if the box is divided into two equal haves by the black middle line. However, it can be seen that this condition is not met in both figures; the boxes are not equally divided by the middle line.

Given the above result, it is clear that the distribution of data associated with the two variables deviates from normality. However, according to Kelava (2016), this result is not a problem if the study's sample is larger than 300 and the data contain no significant outliers. Since the study's data met these conditions, parametric statistical tools could be used as planned. The following subsection presents findings from an EFA used to assess the reliability and validity of the measurement scales.

6.2.2 Exploratory factor analysis of Credit referencing methods

In this section, EFA and Cronbach's alpha coefficients are used to assess the reliability and validity of the measurement scales used in this study. Table 6.8 shows factors loadings and key statistics resulting from an EFA, specifically the maximum likelihood method.

In Table 6.8 below, two factors of lending methodologies applied by Ghanaian banks were extracted from the EFA. The first nine items constitute the first factor, with each accounting for factor loadings ≥0.5 (0.68-0.91). The second factor comprises the remaining items (i.e. 10-20) that account for factor loadings ≥0.5 (0.57-0.98). It can be seen that the first nine items represent information on collateral and business records (profile). As such, it is called "Collateral and business records" (CBRs). The second factor comprises items describing the demographic attributes of owners and business characteristics. It is therefore called "Personal and business characteristics" (PBCs). CBRs produce a variance of about 67 % (Eigenvalue = 13.4) whereas PBCs account for a variance of about 21.3% (Eigenvalue = 4.27). The total variance accounted for by the two factors is 88.3%, representing a good model fit. In the context of the EFA, a valid (extracted) factor is a set of items that produce an Eigenvalue not less than 1 (Garson, 2012; Kelava, 2016). Figure 6.3 shows a scree plot depicting the number of factors extracted. In this figure, only two factors of lending methodologies applied by Ghanaian banks (i.e. CBRs and PBCs) have Eigenvalues greater than one, as Garson (2012) recommended.

Table 6.8: Factor loadings and variance of lending methodology from EFA.

	Variance extracted	
Eigenvalue	13.4	4.27
Variance (%, total = 88.31)	66.98	21.34
Indicator	1	2
1. I was asked if I had a collateral	0.55	0.16
2. I was asked to provide my balance sheet information	0.91	0.14
3. I was interviewed on the policy, philosophy, and performance of my business	0.91	0.14
4. I was asked to provide a copy of my business plan	0.89	0.17
5. I was asked to provide or discuss my financial performance target	0.89	0.09
6. I was asked about the historical records of my sales	0.95	0.16
7. I was asked about any debts I had	0.92	0.16
8. I was asked about the recognition of my business	0.68	0.11
9. I was asked about my age	0.11	0.96
10. I was asked about my gender	0.13	0.89
11. I was asked if I was married	0.11	0.98
12. I was asked about my highest education	0.14	0.97
13. I was asked to indicate my experience in the business	0.09	0.98
14. The number of years the business had been in operation was ascertained	0.05	0.95
15. I was made to provide information on the ownership structure	0.10	0.89
16. I was asked about the size of my business	0.11	0.88
17. I was asked to describe the structure of the industry I operated in	0.08	0.91
18. I was asked to indicate the number of years I had banked with the bank	0.09	0.93
19. I was asked to indicate if I had received a loan from the bank in the past	0.12	0.89
20. I was asked to indicate how many times I had received a loan in the past from the bank	0.07	0.57

Source: Survey data (2021)
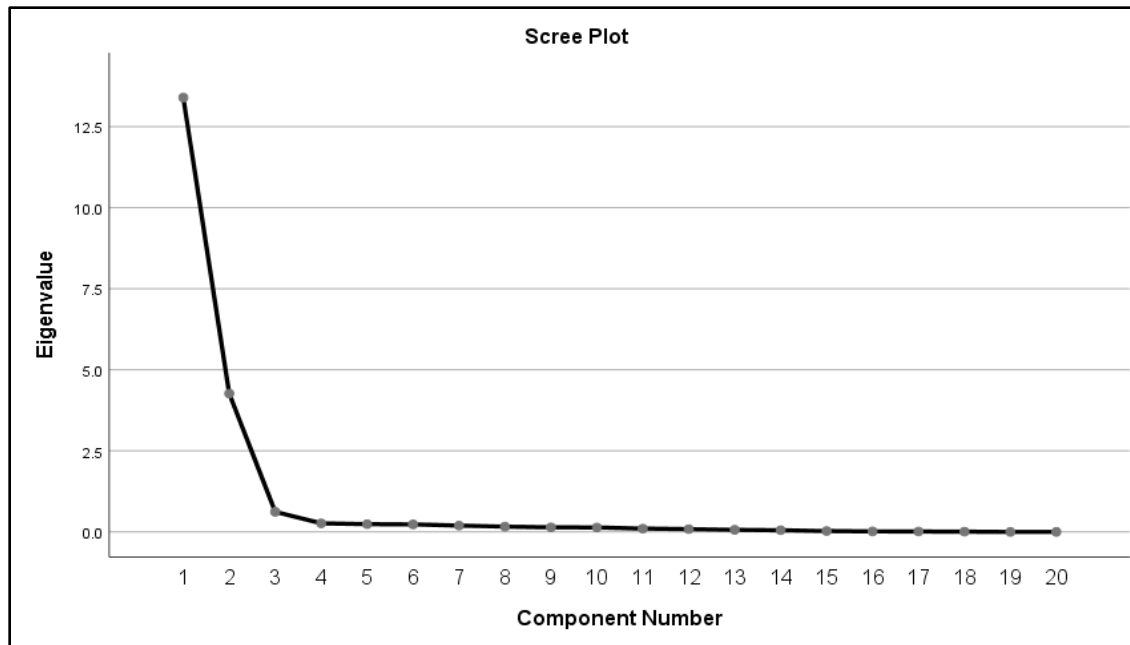
Figure 6.3: A scree plot depicting the number of factors of lending methodology extracted from principal component analysis with Promax rotation.

Source: Survey data (2021)

Table 6.9 below shows findings from the EFA for CRI. Since the scale used to measure CRI is a unidimensional construct, a single-factor extraction method was specified. Thus, as Table 5.8 and Figure 5.4 indicate, only one factor was extracted, which each item was producing a factor loading ≥ 0.5 (0.63-0.97). The total variance produced by the factor is 66.3%, which represents a high model fit (Kelava, 2016). The EFA results above suggest that the scales used to measure lending methodologies and CRI were internally consistent. Even so, further analysis was conducted to affirm the reliability and validity of the two measures. Table 6.9 shows the composite reliability, Cronbach's alpha, and average variance extracted from the EFA for CRI.

Table 6.9: Factor loadings and variance of credit reference information from EFA

Statistics	Factor loading
Eigenvalue (5.34)	
Variance (%, total = 66.34)	
Indicator	
1. The procedure for obtaining a bank loan has been simplified by the introduction of the use of credit referencing information	0.97
2. Banks are responsive to SME financing needs.	0.96

Statistics	Factor loading
3. Sharing of credit information has reduced loan processing costs and increased lending volume significantly	0.96
4. Sharing of credit information has reduced interest rates charged on loans by commercial banks	0.51
5. Credit information sharing from Credit Reference Bureaus rewards and promotes a good credit track record for firms.	0.69
6. Credit information sharing acts as a deterrent to loan default.	0.94
7. Credit information sharing has impacted positively on loan repayment	0.95
8. Credit information sharing has effectively reduced non-performing loans on the institution's financial statement	0.63
Statistics	Factor loading
Eigenvalue (5.34)	

Source: Survey data (2021)
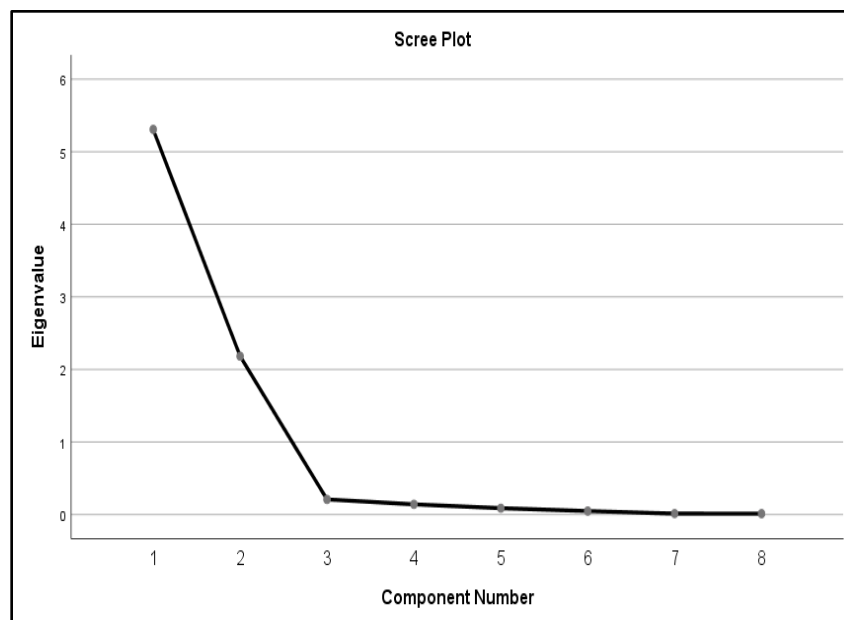
Figure 6.4: A scree plot on credit reference information from EFA with Promax rotation.

Source: Survey data (2021)

Table 6.10: Psychometric properties of the scales used to measure lending methodologies and credit risk information.

Variable	Factor	Cronbach's alpha	Composite reliability	Average variance extracted	Maximum shared variance
Lending methodologies	Factor 1	0.937	0.954	0.621	0.212
	Factor 2	0.935	0.944	0.619	0.204
	Whole scale	0.966	---	---	---
Credit risk information	Whole scale	0.926	---	---	---

Note: ⁻⁻⁻ Not applicable

Source: Survey data (2021)

The extant literature indicates that Cronbach's alpha is a measure of internal consistency, whereas composite reliability (CR) estimates scale reliability (Kelava, 2016; Asiamah et al., 2018). Furthermore, Cronbach's α confirms satisfactory internal consistency at α≥0.7. It can be seen that this condition is met for each domain and the whole construct in Table 6.9. Besides, construct validity is achieved at CR ≥ AVE (Average variance extracted), while discriminant validity is achieved at AVE≥0.5 for lending methodologies (Kelava, 2016; Asiamah et al., 2018). CR, AVE, and MSV values were not computed for CRI for a couple of reasons. First, these statistics are computed based on information from theoretical factors extracted in EFA (Slocum-Gori and Zumbo, 2010). As indicated above, the CRI construct, or scale, is unidimensional, so there is no basis for AVE, MSV, and CR to be computed. Secondly, Kelava (2016) indicated that internal consistency assessed with the Cronbach's alpha coefficient is enough for a unidimensional scale since convergent validity and discriminant validity for such as scale cannot be computed with a single source primary data. These thoughts explain why only Cronbach's alpha was computed and shown for CRI in Table 6.10.

6.3   Findings on Specific Objectives

In this section, the study's findings are presented to address the specific research objectives or hypotheses. The first objective analysed in this section is to assess the lending methodologies applied to SMEs. This analysis builds on the EFA, which initially identified two domains of the lending methodologies (i.e. CBRs and PBCs). To address the first objective, descriptive statistics and the one-sample t-test are used to examine the extent to which the banks applied these methodologies in lending to banks. Next, the researcher draws on an existing approach (Altman

and Royston, 2006) to examine the extent to which lending methodologies were used. In this vein, the median and average scores of lending methodologies and their two domains were estimated. According to Alman and Royston (2006), scores above the median represent a great extent of applying the lending methodology and vice versa. As such, the one-sample t-test was used to examine whether the average of the variable is significantly larger than its median.

6.3.1 Objective One – lending methodologies used by SMEs

The first hypothesis (H1) tested is that the average score associated with lending methodologies is significantly higher than the median score of this variable. This hypothesis has two sub-hypotheses as follows:

H1a: the average score associated with CBRs is significantly higher than the median score of this variable.

H1b: the average score associated with PBCs is significantly higher than the median score of this variable.

If this hypothesis is confirmed, then the extent of lending methodologies can be said to be high. Table 6.11 below shows descriptive statistics associated with the above hypotheses.

Table 6.11: Summary statistics on lending methodologies and their indicators

Variables	Scale			Mean	
	Minimum	Maximum	Median	Statistic	SD
Collateral and banking records	8	40	24	33.58	5.16
Personal and business characteristics	12	60	36	47.24	7.21
Lending Methodologies	20	100	60	80.82	12.08

Source: Survey data (2021)
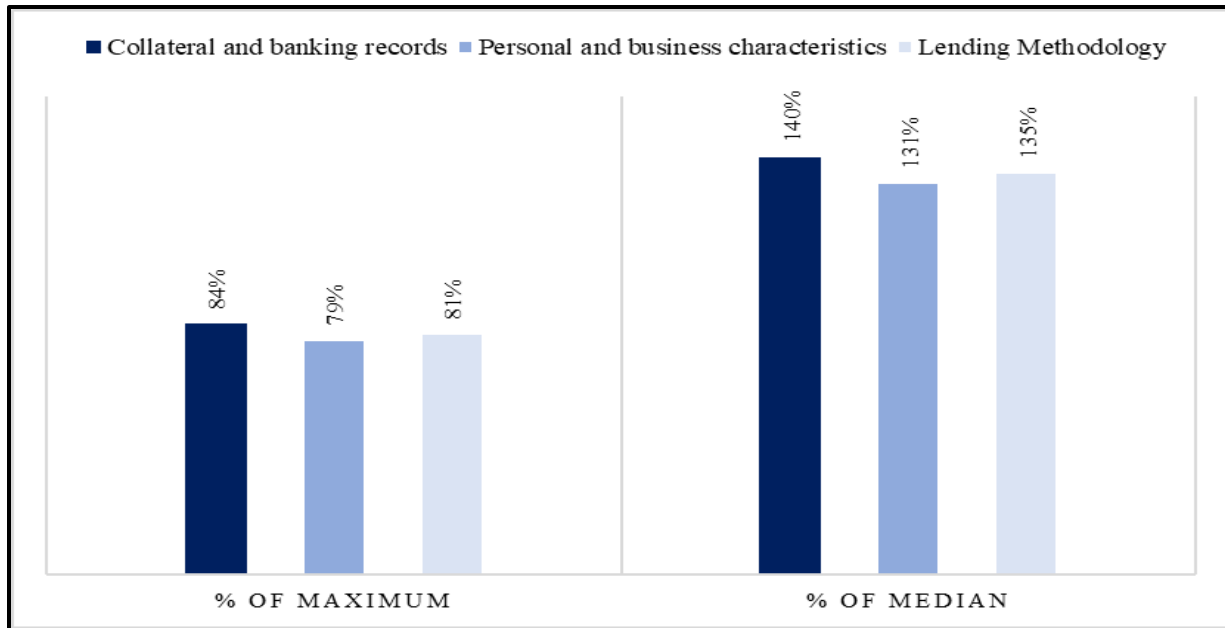
Figure 6.5: Percentage points indicating reported levels of application of lending methodologies. Source: Survey data (2021).

In Table 6.11, the median scores of CBRs, PBCs, and lending methodologies are 24, 36, and 60, respectively. It can be seen that the mean score of CBRs (Mean = 33.58; SD = 5.16), PBCs (Mean = 47.24; SD = 7.21) and lending methodologies (Mean = 80.82; SD = 12.08) are larger than their medians. Figure 5.5 shows the proportion of the maximum value and median (see Table 5.11) that each variable accounted for as the average score. These proportions express the extent to which SMEs agreed that the lending methodologies were applied to them. It can be seen that the whole scale (i.e. lending methodology) produced an average score that represents 81 % of the maximum score of 100 and 13 % of the median. CBRs accounted for 84 % of the maximum score and 140 % of the median, whereas PBCs accounted for 79 % of the maximum score and 131 % of the median. These proportions, thus, confirm that the average scores produced by the variables are larger than the median. Table 6.12 shows a one-sample t-test used to test the above hypotheses.

Table 6.12: The one-sample *t*-test for a high level of application of lending methodologies.

Variable	Test value	t	df	p	Mean Difference	95% CI	
						Lower	Upper
Collateral and banking records	24	54.077	847	0.000	9.58	9.23	9.93
Personal and business characteristics	36	45.392	847	0.000	11.24	10.75	11.72
Lending Methodology	60	50.199	847	0.000	20.82	20.00	21.63

l [a.] *Value equal to the median in Table 6.10; CI – confidence interval*

Source: Survey data (2021)

In Table 6.12, the test value of the t-test is the median of the variable involved. In Table 6.12, the test associated with CBRs is significant ($t = 54.08$, p = 0.000), which suggests that the mean score of CBRs is significantly larger than its median. The test is also significant for PBCs ($t = 45.39$, p = 0.000) and lending methodologies ($t = 50.2$, p = 0.000). The first hypothesis and its sub-hypotheses are, therefore, confirmed. In other words, the extent of the application of the lending methodologies was high.

An examination of qualitative data was conducted to confirm the findings from the quantitative data on bank lending methodologies. The objective for undertaking qualitative data analysis was to learn more about the lending procedures utilized by banks for SMEs lending. It is in favour of a triangulation technique since it allows the researcher to corroborate the quantitative analysis or hypothesis testing outcomes. According to findings, the lending methodology applied by banks constitutes three main steps. The first step is to ask the loan applicant to provide key information. This step is followed by assessing the information provided based on standard benchmarks used by the bank. The final step is deciding on the information provided after credit risk managers had evaluated the information provided. Thus, as the following response indicates, the lending methodology is characterised by an analysis of information relating to the loan applicant's creditworthiness.

"The specifics of the lending strategy are asking the applicant to provide key information, evaluating the information, and making a decision. Though all these steps work together, what seems most important is the accuracy and reliability of the information provided. Sometimes applicants forge documents and provide wrong information, a reason why third-party information

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such as credit referencing information is important. Unfortunately, this third-party information does not exist, for the most part." (RES 3, F, 46, Interview Data, 2020).

Data analysis shows that the above lending methodology is generally the same for all banks, which suggests that the lending methodology of all banks requires collecting relevant information from customers and matching this information with standards to understand the creditworthiness of the customer or loan applicant. Per the following comment from the 6th participant, the lending methodology is about investigating whether the loan applicant has some borrowing experience, had some cash flows with the bank, and are not in debt elsewhere:

"Our lending methodology is closely related to what other banks use; however, our approach is more flexible. Generally, we investigate to know if the loan applicant had acquired credits and repaid them before, whether applicants have had some cash flows, and whether applicants are not in debt elsewhere. This information helps us to evaluate the creditworthiness of the applicant." (RES6, M, 45, Interview Data, 2020).

The above evidence is substantiated by the 8th participant, who acknowledged that the purpose of the lending methodology is to understand the loan applicant's creditworthiness. That is to say that the bank is interested in whether the loan applicant would be able to repay a loan on time.

"Here in our bank, we simply try to know the creditworthiness of the customer or loan applicant. We get to acquire this knowledge by collecting information about business records, personal savings, landed collaterals, cash collaterals, personal information, and previous experience in repaying loans." (RES8, F, 37 Interview Data, 2020).

The participants also revealed that their lending methodologies are flexible, which means that the lending process and criteria are not rigid. Through the use of flexible criteria and a general lending process, more customers can apply for loans and have access to credit facilities with relative ease. However, as the comment below indicates, some financial institutions still apply stringent lending

methodologies and criteria. By referring to them as loan sharks, the following comment indicates that not all banks may be applying sufficiently flexible lending criteria and methodologies:

"I can describe our lending methodology as a flexible one because it characterises lending criteria and protocols that are not burdensome to customers. You know, many financial institutions, especially the loan sharks, have stressful lending methodologies that make it extremely difficult and embarrassing for individuals to acquire loans. In our case, the lending methodology makes the acquisition of credit relatively easy, completely free of stress. These days, you can receive your loan within 24 hours, provided you meet the criteria. This means that our bank does not delay the process". (RES7, M, 41, Interview Data, 2020)

Participants revealed the specifics of their lending methodologies, including the specific lending criteria. Collateral security emerged as the most dominant lending criteria. As the 8th participant put it, though, the collateral is still the standard lending criteria that secure the bank and ensures that credit risk is reduced as much as possible. Another key insight from the result is the fact that customers generally do not want to be asked to provide collateral security for two main reasons. First, many customers do not have qualifying collateral security. Second, even if they do, they fear losing their valued properties to the bank. The comment below shows that credit risks managers feel sorry for using collateral security arrangements as major lending criteria:

"This is an interesting question. You know that customer hates to hear about collateral. That's because most of them don't have collateral or would not want to risk losing their properties. So, asking customers for collateral is the most sensitive aspect of the lending process. More than 50 % of the loan applicants develop cold feet as soon as they are asked to provide collateral. In any case, the collateral is still the best security a bank can have from a loan applicant; I see it as the most important part of the lending process, though I feel sorry a lot of customers can't access loans because of it." (RES8, F, 37, Interview Data, 2020).

It was further found that all lending criteria are important, though some enable the bank to stay better safe from defaulters. Interestingly, the 1st participant re-emphasised the lending criteria reported and shows a consistent list with the quantitative data analysis. The lending methodology has two domains related to business information, history of savings, default history, cash flow, and customer characteristics in the quantitative analysis. These different components of the methodology work together as a complementary set. The comment of the 1st participant below confirms these facets of the lending methodology:

"To me, all the specific lending criteria are important. Of course, that's why they are all considered in the lending process. Collateral, business records, loan acquisition history, default history, cash flow, and customer characteristics such as dependents and education are all important. I would look at these specific components of the lending strategy as a complementary set. This means that all these components have to work together to avoid loan default. So, it is wrong to treat any of them as more important." (RES1, F, 38, Interview Data, 2020).

Given the above findings, it is understandable that the lending methodology of banks is about the analysis of information on the creditworthiness of loan applicants. The specific information analysed includes collateral security, business characteristics, personal characteristics, default history, and cash flow. These pieces of information make up the lending criteria generally applied. Though the banks revealed standard lending methodologies, some are less flexible in applying the lending criteria. What may be most interesting is the consistency between the qualitative and quantitative results concerning the lending methodologies; the criteria used by the banks are generally the same per the two analyses.

6.3.2 Objectives Two – The effects of lending methodologies on access to credit

The other hypotheses are tested using OLS regression analysis, which is recognised as the best method for modelling linear associations as it minimises the sum of the squares in the difference between the observed and predicted values of the dependent variable (Nusair and Hua, 2010; Nunkoo and Ramkissoon, 2012). To use this method, five primary requirements need to be met by the data (Cheng, 2001). Firstly, the dependent variable should be normally distributed for OLS to

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be suitable (Nusair and Hua, 2010; Garson, 2012). Interestingly, the normality of the data has been confirmed in the exploratory analysis. The second requirement is that the variables of interest should be linearly related (Garson, 2012).

Figure 6.6: Standardised residuals and predicted values (the effects of lending methodologies on access to credit).

Source: Survey data (2021)

Figure 6.6 shows a scatter plot of the standardised residuals and standardised predicted values. Residual scatter plots provide a visual examination of the assumption homoscedasticity between the predicted dependent variable scores and the errors of prediction. The benefit of using a scatter plot is that the assumption can be viewed and analysed with one glance; therefore, any violation can be determined quickly and easily. When an analysis meets the assumptions, the chances for making Type I and Type II errors are reduced, which improves the accuracy of the research findings.

This plot establishes linearity and homoskedasticity (another requirement for regression) for the OLS models fitted in this analysis (Nunkoo and Ramkissoon, 2012). Following Garson (2012), this plot assesses linearity and homoscedasticity for the OLS model assessing the effects of the

lending methodologies (whole construct) on access to credit. For linearity and homoskedasticity to be met, the residuals (the difference between the obtained and anticipated DV scores) should have the same variance for all predicted values (Tabachnick and Fidell 2007). If this is the case, the assumption is satisfied, and the scatter plot takes on the (approximate) shape of a rectangular; scores will be concentrated in the center (around the 0 point) and scattered in a rectangular pattern. To put it another way, scores will be strewn across a horizontal line at random. Any pattern or clustering of scores, on the other hand, is regarded as a violation (Garson, 2012).

Figure 6.6 evaluates linearity and homoskedasticity for the OLS regression assessing the effects of the domains of the lending methodologies on access to credit. Finally, Figure 6.7 assesses linearity and homoskedasticity for the OLS model testing the effect of CRI on access to credit. It can be seen that the scatter plots show no 'funnel shape', which is the pattern produced if the homoscedasticity assumption is violated (Garson, 2012).

Similarly, the scatter plot represents a shapeless cluster, which describes a linear relationship (Nunkoo and Ramkissoon, 2012). Thus, linearity and homoskedasticity are met for the primary regression models fitted. With the above results, a basis is set for performing OLS regression analysis.
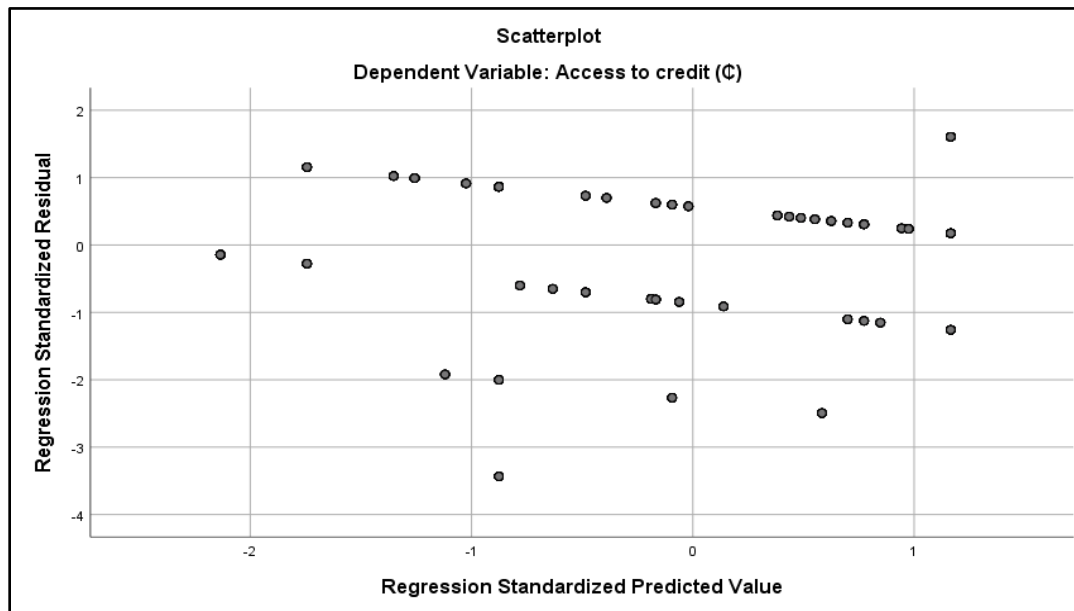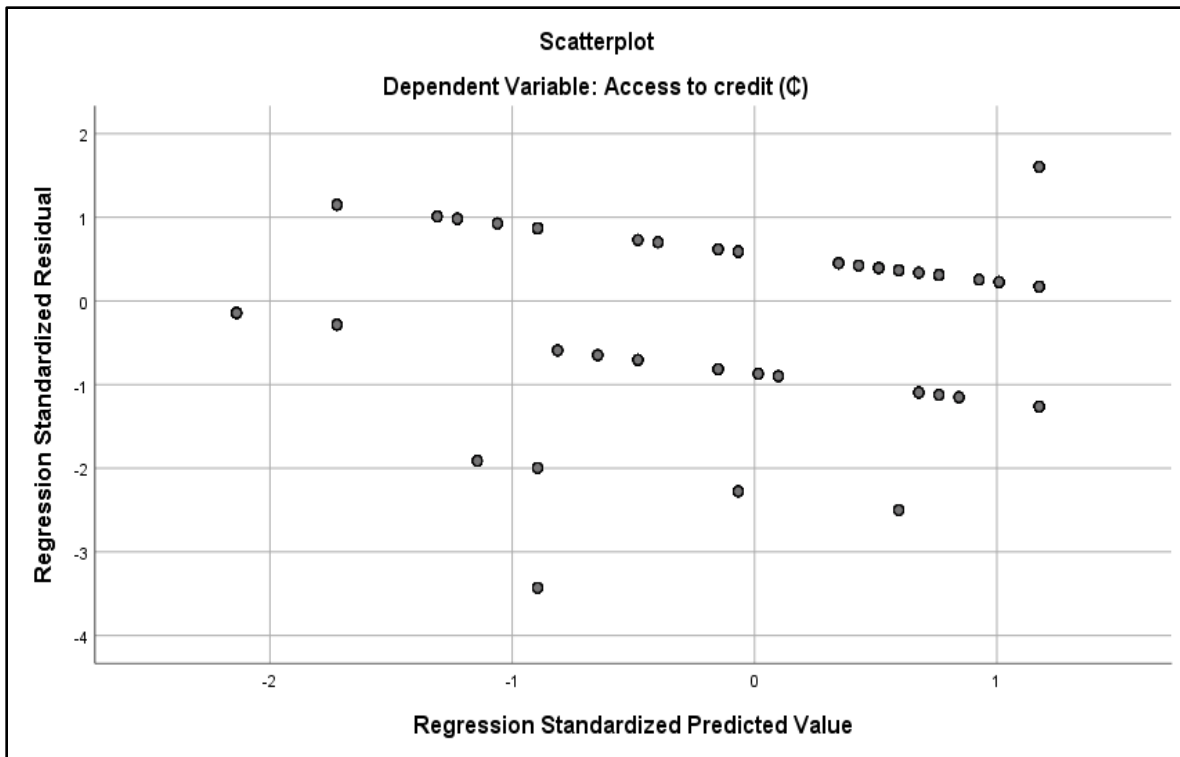
Figure 6.7: Standardised residuals and predicted values (the effects of CRI on access to credit).

Source: Survey data (2021)
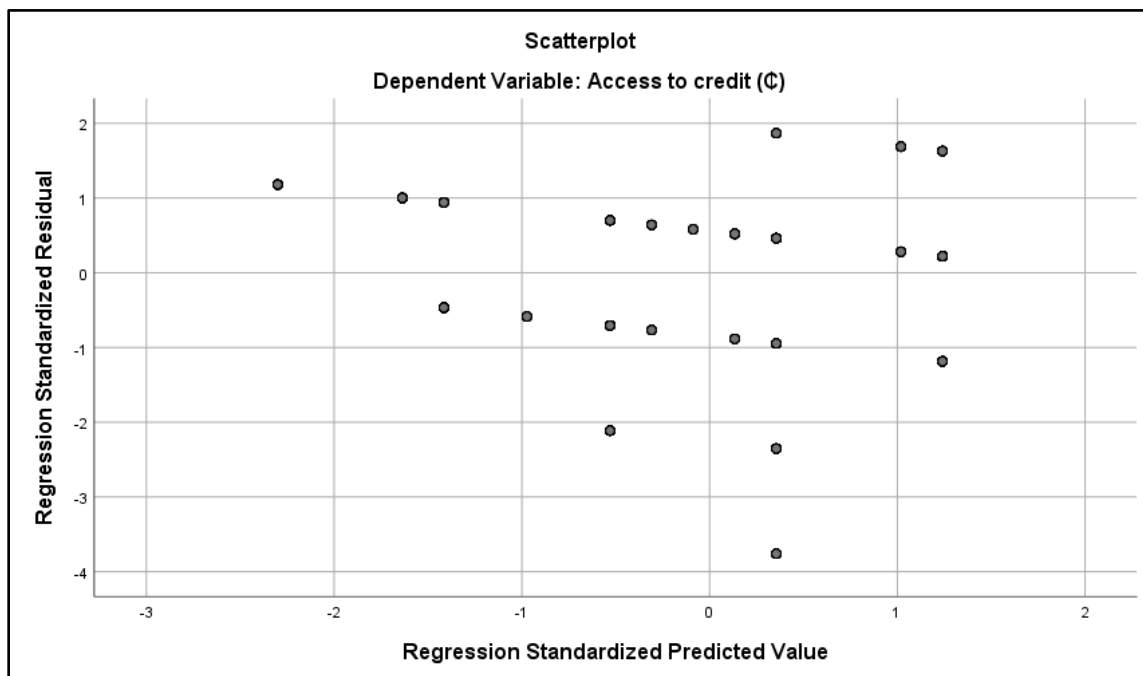
Figure 6.2: Standardised residuals and predicted values (the effects of CRI on access to credit).

The third and fourth requirements are the independence of regression errors (i.e., a lack of correlation between the errors and values of the predictors) and absence of multicollinearity assumptions (Garson, 2012). The independence of errors requirement was met for each regression model with a Durbin-Watson statistic ranging between 1.5 and 2.4, with the value 2 being a perfect indicator of independence of errors (Nusair & Hua, 2010; Garson, 2012). On the other hand, multicollinearity was met with Variance Inflation Factor (VIF) values not greater than 5 (Garson, 2012). A significant correlation between the dependent variable and at least one predictor is the final requirement for performing OLS regression (Nunkoo & Ramkissoon, 2012). Table 6.13 reveals a significant correlation between access to credit and at least one of the predictor variables, which provides a basis for performing OLS regression.

In Table 6.13, CBRs is positively correlated with lending methodologies ($r = 0.312$, $p = 0.000$, two-tailed), access to credit ($r = 0.494$, $p = 0.000$, two-tailed) and CRI ($r = 0.27$, $p = 0.000$, two-tailed). This result suggests that access to credit improved with perceived CBRS. PBCs is also positively correlated with lending methodologies ($r = 0.313$, $p = 0.000$, two-tailed), access to credit ($r = 0.485$, $p = 0.000$, two-tailed) and CRI ($r = 0.238$, $p = 0.000$, two-tailed). It can be seen that many of the covariates, which represent business characteristics, are also significantly correlated with lending methodologies and their two domains. For example, net income 2019 is positively associated with CBRs, PBCs, lending methodologies, access to credit, and CRI at $p = 0.000$. Fixed assets are also positively correlated with CBRs, PBCs, lending methodologies, access to credit, and CRI at $p = 0.000$. Table 6.13 shows a correlation matrix of key variables and serves as the regression analyses' primary table.

Table 6.13:Correlation matrix of relevant variables

Variables	#	1	2	3	4	5	6	7	8	9	10	11	12
CBRs	1	1	.904**	.967**	.312**	.494**	.270**	.479**	.446**	.216**	.238**	0.056	.251**
PBCs	2		1	.983**	.313**	.485**	.238**	.501**	.534**	.107**	.143**	0.061	.338**
Lending Methodologies	3			1	.320**	.501**	.258**	.504**	.509**	.156**	.187**	0.06	.309**
Access to credit (₵)	4				1	.262**	.283**	.230**	.239**	.137**	.084*	.117**	.489**
CRI	5					1	.521**	.381**	.300**	.301**	.364**	.242**	.533**
Number of employees	6						1	.320**	.285**	.220**	.288**	0.059	.370**
Business age	7							1	.915**	.071*	.135**	.168**	.198**
Experience with bank	8								1	0.005	.095**	.115**	.153**
Fixed Assets	9									1	.918**	.191**	.123**
Current Assets	10										1	.160**	.089**
Annual Sales 2019	11											1	.189**
Net Income 2019	12												1

1**p<0.001; *p<0.05; CBRs – collateral and business records; PBCs – personal and business characteristics; CRI – credit referencing information.

Source: Survey data (2021)

Table 6.14a: Regression coefficients indicating the relationship between lending methodologies and access to credit

Model	Predictor	Coefficients			95% CI	Tol.	Model fit				
		B	SE	B(t)			R^2	Adjusted R^2	Change in R^2	Durbin-Watson	F
1[a]	(Constant)	2.03	0.16	(12.49)**	±0.64		0.103	**0.101**	**0.002**		**96.62****
	Lending Methodologies	0.02	0	0.32(9.83)**	±0.01	1.00					
2[b]	(Constant)	1.81	0.16	(11.14)**	±0.64		0.31	**0.303**	**0.007**	**1.77**	**47.11****
	Lending Methodologies	0.01	0	0.13(3.66)**	±0.01	0.66					
	Covariates										
	Number of employees	0.07	0.02	0.10(3.11)**	±0.09	0.73					
	Business age	-0.14	0.05	-0.20(-2.67)*	±0.21	0.15					
	Experience with bank	0.22	0.06	0.3(4.00)**	±0.22	0.15					
	Fixed Assets	0.26	0.05	0.41(5.29)**	±0.20	0.14					
	Current Assets	-0.22	0.05	-0.38(-4.93)**	±0.18	0.14					
	Annual Sales 2019	0.02	0.05	0.01(0.41)	±0.18	0.90					
	Net Income 2019	0.29	0.03	0.39(11.74)**	±0.10	0.76					

*ł **p<0.001; *p<0.05; [a] baseline model without covariates; [b] ultimate model with covariates; SE – standard error; CI – confidence interval (of B); Tol. – tolerance.*

Source: Survey data (2021)

Table 6.14a presents regression coefficients for testing the second main hypothesis (H2). The second hypothesis is that there is a significant positive relationship between lending methodologies and access to credit. This hypothesis is tested to address the second specific research objective through two regression models, namely the *baseline model* that does not control the covariates and the ultimate model, which controls covariates. The regression coefficients of the two models are compared to know what impact the covariates may have made on the primary relationship. Regarding the baseline model, lending methodologies have a significant positive association with access to credit ($\beta = 0.32$, $t = 9.83$, $p = 0.000$). In the ultimate model, the relationship is still positive and significant ($\beta = 0.13$, $t = 3.66$, $p = 0.000$); however, the effect size has reduced from 0.32 to 0.13. There was, therefore, a 59 % inflation of the ultimate effect size by the covariates. This result means that about 59 % of the effect of lending methodologies on access to credit in the baseline model was due to the business characteristics. The second hypothesis was confirmed nevertheless based on an effect size of 0.13.

In Table 6.14a, the number of employees, experience with the bank, fixed assets, and Net Income 2019 positively affects access to credit at $p < 0.05$. Thus, access to credit increases as the number of employees, the number of years the SME had banked with the bank, fixed assets, and net income increase. Business age and current assets, however, have a negative effect on access to credits. This result suggests that access to credit decreases as current assets and business age increase. The baseline model produced a variance of 10.1 % of the total variance, whereas the ultimate model yielded a variance of 30.3 %, which indicates that the ultimate model was a better fit for having more predictors. By accounting for a Durbin-Watson statistic of 1.77, close to 2 as recommended in the literature (Garson, 2012), the ultimate model met the independence-of-errors assumption. The ultimate model's multicollinearity assumption is also met based on *tolerance* ≥ 0.1 for each predictor (Asiamah et al., 2020).

Table 6.14b shows the results of a multiple linear regression analysis used to examine the relationship between domains of lending methodologies, CRI, and access to credit facilities. This

analysis tests the sub-hypotheses of H2 (i.e. H2a and H2b). These hypotheses are recalled as follows.

H2a: CBRs have a significant effect on access to credit among SMEs.

H2b: PBCs have a significant effect on access to credit among SMEs.

Table 6.14b: Regression coefficients indicating the relationship between lending methodologies and access to credit facilities

Model	Predictor Tol.	Coefficients			95% CI		R²	Adjusted R²	Change in R²	Durbin-Watson	F
		Model fit									
		B	SE	B(t)			0.116	0.113	0.003	1.87	37.01**
1a	(Constant)	1.60	0.20	(8.04)**	±0.78	0.18					
	CBRs	0.02	0.01	0.12(1.52)	±0.04	0.18					
	PBCs	0.02	0.01	0.14(1.87)	±0.03	0.75					
2b	CRI	0.02	0.01	0.14(3.61)**	±0.02						
	Main effects						0.334	0.326	0.008	1.66	41.95**
	(Constant)	2.16	0.19	(11.43)**	±0.74	0.14					
	CBRs	0.06	0.01	0.39(5.15)**	±0.04	0.12					
	PBCs	-0.02	0.01	-0.23(-2.82)*	±0.03	0.43					
	CRI	-0.02	0.01	-0.15(-3.44)**	±0.03						
	Covariates					0.65					
	Number of employees	0.08	0.02	0.12(3.45)**	±0.09	0.13					
	Business age	-0.19	0.06	-0.26(-3.3)**	±0.22	0.12					
	Experience with bank	0.29	0.06	0.38(4.74)**	±0.24	0.14					
	Fixed Assets	0.22	0.05	0.33(4.32)**	±0.20	0.13					
	Current Assets	-0.18	0.05	-0.31(-3.98)**	±0.18	0.88					
	Annual Sales 2019	0.05	0.05	0.03(1.13)	±0.18	0.60					

ⱡ **p<0.001; *p<0.05; [a] baseline model without covariates; [b] ultimate model with covariates; SE – standard error; CI – confidence interval (of B), CBRs – collateral and business records; PBCs – personal and business characteristics; CRI – credit referencing information; Tol. – tolerance.
Source: Survey data (2021)

In the baseline model, the two domains of lending methodologies have no significant influence on access to credit, but CRI has a positive effect on access to credit ($\beta = 0.14$; $t = 3.61$; $p = 0.000$). In the ultimate model, the two domains of lending methodologies significantly influence access to credit at $p < 0.05$. In this respect, CBRs ($\beta = 0.39$; $t = 5.15$; $p = 0.000$) have a positive influence on access to credit whereas PBCs ($\beta = -0.23$; $t = -2.82$; $p < 0.05$) have a negative influence on the outcome variable. With these findings, H2a and H2b are confirmed by the data.

6.3.3 Objective Three – The effect of CRI on access to credit

In this section, the third specific research objective is analysed. This objective is to assess the effect of CRI on access to credit. Since CRI is a unidimensional construct, no assessment of its domains on access to credit is conducted. The hypothesis tested to address the third specific objective is:

H3 – CRI has a significant effect on access to credit among SMEs.

Table 6.15 shows results regarding the effect of CRI on access to credit. In the ultimate model, the effect of CRI on access to credit is negative ($\beta = -0.15$; $t = -3.44$; $p = 0.000$), which suggests that the direction and size of the relationship changed after adjusting for the business characteristics. Thus, the third hypothesis is also supported by the data. Furthermore, the number of employees, experience with the bank, fixed assets, and Net Income 2019 positively affects access to credit at $p < 0.05$. On the other hand, business age and current assets have adverse effects on access to credits. The baseline model, which has a smaller number of predictors, accounts for a variance of 11.3 %. The ultimate model, on the other hand, accounts for a variance of 32.6 %. Both models have a significant F-test at $p < 0.05$.

Moreover, the two models produced a Durbin-Watson statistic value that falls between 1.5 and 2.5 as recommended in the literature (Garson, 2012). Each predictor in the models accounts for a *tolerance* value ≥ 0.1. Hence, the independent-of-errors and multicollinearity assumptions are met by the model.

Table 6.15: The moderating influences of lending methodologies on the association between access to credit and CRI

Model		Predictor	Coefficients			95% CI	Tol.	Model fit				
			B	SE	B(t)			R^2	Adjusted R^2	Change in R^2	Durbin-Watson	F
1[a]		(Constant)	2.51	0.10	(24.12)**	±0.41		0.122	0.121	0.001	---	117.67**
		CRI*Lmethodology	0.04	0.00	0.35(10.85)**	±0.01	---					
2[b]		(Constant)	4.18	0.26	(16.17)**	1.01		0.359	0.352	0.007	1.88	52.2**
		CRI*Lmethodology	-0.01	0.01	-0.06(-1.52)	±0.02	0.45					
		Covariate										
		Number of employees	0.00	0.02	0.01(0.18)	±0.09	0.64					
		Business age	-0.23	0.05	-0.33(-4.44)**	±0.21	0.14					
		Experience with bank	0.23	0.05	0.31(4.33)**	±0.21	0.15					
		Fixed Assets	0.23	0.05	0.36(4.84)**	±0.19	0.14					
		Current Assets	-0.28	0.04	-0.48	±0.17	0.14					
		Annual Sales 2019	-0.09	0.05	-0.06(-1.88)	±0.18	0.86					
		Net Income 2019	0.17	0.03	0.23(5.85)**	±0.11	0.52					

*ɫ **p<0.001; [a] baseline model without covariates; [b] ultimate model with covariates; SE – standard error; CI – confidence interval (of B), CRI – credit referencing information;*

Tol. – tolerance; Tolerance ≥0.1 for each predictor

Source: Survey data (2021)

Table 6.16: The moderating influences of domains of lending methodologies on the association between access to credit and CRI

Model	Predictor	Coefficients			95% CI	Model fit				
		B	SE	B(t)		R^2	Adjusted R^2	Change in R^2	Durbin-Watson	F
1[a]	(Constant)	2.51	0.1	(24.10)**	±0.41	0.122	0.119	0.00	1.78	58.47**
	CRI*CBRs	0.03	0.03	0.12(1.04)	±0.12					
	CRI*PBCs	0.04	0.02	0.23(1.99)	±0.09					
2[b]	(Constant)	2.13	0.12	(17.79)**	±0.47	0.318	0.311	0.01	1.871	43.43**
	CRI*CBRs	0.15	0.03	0.56(4.71)**	±0.13					
	CRI*PBCs	-0.1	0.02	-0.51(-4.11)**	±0.09					
	Covariate									
	Number of employees	0.05	0.02	0.07(2.16)*	±0.09					
	Business age	-0.22	0.06	-0.31(-4.0)**	±0.22					
	Experience with bank	0.35	0.06	0.47(5.97)**	±0.23					
	Fixed Assets	0.25	0.05	0.38(4.99)**	±0.20					
	Current Assets	-0.22	0.05	-0.38(-4.89)**	±0.18					
	Annual Sales 2019	0.01	0.05	0.01(0.2)	±0.18					
	Net Income 2019	0.34	0.03	0.45(12.26)**	±0.11					

ɫ **p<0.001; *p<0.05; [a] baseline model without covariates; [b] ultimate model with covariates; SE – standard error; CI – confidence interval (of B), CBRs – collateral and business records; PBCs – personal and business characteristics; CRI – credit referencing information; Tolerance ≥0.1 for each predictor

Source: Survey data (2021)

6.3.4 Objective Four – the moderating influence of CRI on the relationship between lending methodologies and access to credit

In this section, the fourth specific objective is analysed. Table 6.15 shows regression results associated with the test of the fourth hypothesis (i.e. H4). This hypothesis states that CRI increases the strength of the relationship between lending methodologies and access to credit. This hypothesis is tested by fitting the baseline and ultimate models as done earlier in this chapter. In the baseline model in which covariates are not captured, the interaction term (i.e. CRI*Methodology) has a positive influence on access to credit ($\beta = 0.35$; $t = 10.85$; p = 0.000). In Table 6.15, the effect accounted for by lending methodologies alone is 0.32, which is smaller than 0.35 (the moderation effect). Thus, there is an increase in the effect size due to the influence of CRI.

In the ultimate model of Table 6.16, however, the interaction term has no significant influence on access to credit facilities. This result implies that CRI has no significant moderation influence on the effect of lending methodologies and access to credit if the business characteristics are controlled for.

Similarly, the business characteristics have a major influence on the moderating influence of CRI on the relationship between lending methodologies and access to credit. The fourth hypothesis is, therefore, not supported by the data. Table 6.16 shows results associated with the test of the sub-hypotheses of H4 that are shown below:

H4a – the effect of lending methodologies on access to credit is moderated by Collateral Business Records (CBRs).

H4b – the effect of lending methodologies on access to credit is moderated by Personal Business Characteristics (PBCs).

In the baseline model, none of the interaction terms has a significant influence on access to credit. In the ultimate model, nevertheless, CRI*CBRs has a positive effect on access to credit ($\beta = 0.56$; t = 4.71; p = 0.000). In the ultimate model of Table 6.15, the effect size accounted for by CBRs is 0.39. With an effect of 0.56 produced by CRI*CBRs, it is understandable that CRI has increased the effect of CBRs from 0.39 to 0.56, a 44 % increase in the effect size. Hence, Ha4 is supported by the data. CRI*PBCs have a negative effect on access to credit ($\beta = -0.51$; t = -4.11, p = 0.000), which suggests that access to credit reduces as this interaction

effect increases. In the ultimate model of Table 6.16, PBCs alone accounted for an effect size of -0.21 on access to credit. This effect further reduces to 0.51, which means a reduction by 143 % in the effect size (of PBCs) due to CRI has taken place. The second sub-hypothesis (H4a) is, therefore, supported by the data.

6.4 Chapter Summary

EFA produced satisfactory Cronbach's alpha values, composite reliability, and other statistics that indicate the scales used to measure lending methodologies and credit referencing information. The average variance extracted for each factor also met the criteria AVE≥0.5 and CR≥AVE, which indicate that the scales used to measure lending methodologies and credit referencing information had satisfactory convergent validity and discriminant validity. The Shapiro-Wilk test also confirmed the univariate normality of the data used in the analysis. The first objective of the study was to assess the extent of the application of the lending methodologies. Data analysis confirmed that the two domains of the methodologies, namely CBRs and PBCs, were applied to the participants to a great extent. The average scores associated with these dimensions were significantly higher than the median of the measurement scale. After adjusting for the confounding variables, CBRs positively affected access to credit, but PBCs and CRI had adverse effects on access to credit. Without adjusting for the confounding variables, only CRI had a positive effect on access to credit. After controlling for the confounding variables, CRI did not moderate the relationship between lending methodology and access to credit. However, after adjusting for the confounding variables, CRI positively moderated the relationship between CBRs and access to credit, which means that the intervention of CRI increased the relationship between CBRs and access to credit.

Moreover, the relationship between PBCs and access to credit was increased by CRI after adjusting for the confounding variables. Thus, the relationship between the whole construct of lending methodologies and access to credit was not moderated by CRI, but CRI moderated the relationships between its dimensions and access to credit. A discussion of the findings is done in the next chapter.

DISCUSSION OF FINDINGS

7.1   Introduction

7.2   Primary Findings on Credit Referencing, Bank Lending Methodologies and SME Access to Finance.

In this study, four main research objectives were formulated, namely:

i.   to examine the lending methodologies used by banks to evaluate SME credit proposals;

ii.   assess the effect of lending methodologies on SME's access to finance in Ghana;

iii.   to examine the effect of credit referencing information on SME's access to finance in Ghana; and

iv.   determine the combined effect of credit referencing information and lending methodologies on SME access to credit.

For all the objectives, the overriding aim was to examine the relationship between lending methodologies used by banks and how these methodologies influence access to SME financing. The study's finding contributes to the body of knowledge by ensuring that SME firms understand the loan screening requirement of banks and other lending institutions before applying for loans. This will reduce high levels of loan applications rejected by banks and help improve access to finance from banks. Banks and other lending institutions may also have to support small business borrowers to understand and make effective use of credit referencing information to safeguard their reputation in the advent of credit reference bureau activities.

In this section, the discussion relates findings from survey data and interviews to the literature, theories, and practices. Therefore, only results from the hypotheses tested are discussed in this section.

7.2.1   Lending methodologies used by banks to evaluate SME credit proposals

The results from the data analysis showed that the banks used two categories of lending methodologies. The first category extracted from the exploratory factor analysis (principal components) is collateral and business records (CBRs), whereas personal and business characteristics (PBCs) constitute the second factor extracted. Commentaries provided in the literature suggest that factor extraction in exploratory factor analysis is based on the strength of the relationship between indicators of the factors (Kelava, 2016). The extraction of CBRs as the first factor thus connotes that the indicators of this factor are more strongly correlated and

produce a larger variance compared to indicators of the second factor extracted. In other words, the lending methodologies can be conceptualized as a construct of two related domains, which are the lending methodologies (i.e., CBRs and PBCs). More importantly, while EFA showed that lending methodologies used in Ghana had a factor structure characterised by two components, the analysis did not indicate the more important component of the lending methodologies. The current factor structure is crucial as it provides a theoretical basis for full-scale validation of a scale measuring lending methodologies in Ghana or possibly other settings. This assertion is premised around the idea that the factor structure produced with EFA is a statistical blueprint or theoretical basis for conducting a confirmatory factor analysis and estimating reliability and validity statistics associated with a scale (Keleva, 2016; Asiamah et al., 2018).

Further analysis of the first objective indicates that CBRs (represented by manifest variables 1 to 8 in Table 6.5) as a construct of the lending methodologies were perceived as the more important methodology as it provided a larger average score. In the context of this study, being the most important sub-methodology means that it is the most frequently used by banks in Ghana. This result is consistent with several studies and commentaries in the literature (Angori et al., 2019). The first example is Duarte et al. (2017), who reported that collateral-based lending is the most frequently used methodology in the banking sector due to its potential to protect financial institutions. Ferri et al. (2019) also acknowledge that collateral-based lending is the most dominant form of lending in the European region that protects both the creditor and borrower. Mills and colleagues (2014) also revealed that lending methodologies asking for collateral security and information on borrowers are among the most reliable approaches in the world. They added that other methods, such as PBCs, are only supplementary. Finally, the World Bank Group (2018) affirmed that the only sustainable approach to lending or the provision of credit for business expansion is the use of more secure methods such as collateral-based lending.

Data analysis also showed that both Collateral Based Records (CBRs) and Personal Business Characteristics (PBCs) methodologies are sufficiently used by the banks, though CBRs were more important and frequently used. This result came from the one-sample t-test, which confirms that the extent of use of both methodologies was great. This result is congruent with the World Bank Group (2018) reasoning that lending methodologies or criteria better work

together as a complementary set. This is to say that the two methodologies play unique roles and that failing to apply both makes a lending process vulnerable to credit risks. Duarte et al. (2017) also found that all lending methodologies and criteria are considered necessary as they play unique roles to credit risk mitigation. For instance, if a borrower provides collateral security for a credit facility but does not provide information on his or her business, this may make it difficult for the bank to manage and track the collateral provided and monitor how well the individual is repaying the loan facility. This is rightly so because debt recovering and loan repayment are assessed with the information provided by the borrower at the time of loan application.

This study's findings are consistent with both the current practice and theory of lending as described in the literature. With the EFA retaining all items with which lending methodologies were measured, this study supports the credit referencing information theory (Brown et al., 2009; Gehrig and Stenbacka, 2007), which describes a set of criteria that banks consider making lending decisions. This model assumes that the bank or creditor provides credit facilities after securing collateral security from the borrower and information that links the collateral to the borrower. While this paradigm is the most frequently used methodology (World Bank Group, 2018; Ferri et al., 2019), it differs from other models used, particularly Islamic lending models that do not impose interests on loans (Mills et al., 2014). It is thus understandable that Ghana applies the traditional model because its banking sector is free of Islamic banks. Furthermore, Islamic lending methodologies do not overlook collaterals and information on borrowers (World Bank Group, 2018), as a result of which such approaches can be consistent with the traditional approach. The ideal way to differentiate Islamic models from the traditional methodologies confirmed in this study is that the former is less stringent or more flexible to borrowers (World Bank Group, 2018; Mills et al., 2014).

7.2.2 The effect of lending methodologies on SME's access to finance in Ghana

After controlling for the relevant confounding variables, both domains of the lending methodology had a significant effect on access to credit. CBRs had a positive association with access to credit facilities, but PBCs had a negative association with access to credit. So, while access to credit increases with the increasing application of CBRs, it reduces as the application of PBCs increases (Angori et al., 2019). As such, it is evident that lending methodologies have

a significant influence on access to credit. This result, which affirms the second primary and sub-hypotheses, is consistent with critical commentaries in the literature. In terms of the positive association between CBRs and access to credit, Beck et al. (2018) observed that collateral-based lending criteria are the ultimate determinants of access to credit facilities. This assertion agrees with the World Bank Group's (2018) view that methodologies that secure credits with collateral and banking records are the most important factors considered in providing access to credit. Dheerai (2017) similarly opined that no individual or group could access credit facilities by only providing personal or business information; collateral security and information about creditworthiness (i.e. information on banking experience) are needed to make a positive credit decision for the borrower. According to Ferri et al. (2018). Lending methodologies based primarily on hard quantitative information and the traditionally standardised risk measures are the most appropriate in screening and motoring borrower activities.

Regarding the negative association between PBCs and access to credit facilities, the above trend of literature corroboration applies in the sense that information on a business or its owner is important in recovering loans (Duarte et al., 2017). However, they are insufficient to lead to a favourable credit decision for the borrower without collateral security and information on loan repayment experience, encapsulated in CBRs. This negative association implies that PBCs as an independent methodology would rather discourage the provision of credit, assuming that the borrower does not provide CBRs. In practice, the inability to provide collateral security and information indicating the borrowers' creditworthiness results in an adverse credit decision for the borrower and constitutes bad precedence for future loan applications. That is rightly so because SMEs ' inability to provide essential information and collateral security in the first instance builds an adverse profile that might work against them in the future.

Furthermore, PBCs would be expected to have a negative effect on access to credit if one's educational level and income are not sufficient. This reasoning draws on Kessey's (2015); Ajibade and Khayundi (2017); Kira (2013); Fatoki and Asah (2011), Ahmed and Hamid (2011); Pandula (2011) argument that people with higher education and income are more likely to access credit facilities because financial institutions believe these individuals can more easily repay their loans or secure jobs to repay their loans. Thus, if an SME's owner has low education and income and cannot provide collateral security in applying for a credit facility, he or she is

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unlikely to be successful. These thoughts describe the negative association between PBCs and access to credit facilities.

Noteworthy is the major changes in the regression weights or effects (in Table 5.13) that occur between the baseline and ultimate models. In the baseline model, none of the two domains of lending methodology significantly influenced access to credit. In the ultimate model that adjusts for business characteristics, however, both significantly affect access to credit. While the ultimate model is the source of the conclusions made in this study, the change in effects has significant statistical implications. First, the change suggests that the influence of CBRs on access to credit is independent of business variables such as age, number of employees, and current assets. For instance, a business with a large asset is more likely to access credit with its collateral, possibly because the bank is motivated by the extra assets (i.e. extra collateral security) to offer financial assistance. Second, business age is also an indicator of how long the business had operated, banked, and repaid previous loans; hence, it will support CBRs to provide access to credit facilities. Finally, if an SME had repaid its loans in the past, the bank should be comfortable accepting collateral security and providing a credit facility. These views are in line with the traditional lending model (i.e. credit rationing theory) that emphasises the image of the borrower. In this vein, the borrower's image is embodied by business characteristics such as age, total assets, number of employees, and net revenues. Also supporting the above deductions is Kessey (2015), who reasoned that business characteristics translate into an image that affects credit decisions. Dheeraj (2017) similarly averred that lending decisions draw on the image of the borrower that is reflected in market experience (e.g. which is related to revenues and business age) and wealth (e.g. revenue, profitability, and total assets).

Drawing from the above, it is understandable why there was a major change in the regression weights between the baseline and the ultimate model. What is more important to note are two lessons that practitioners and researchers should consider in the future. First, for researchers, this result emphasises the importance of controlling for confounding variables in testing relationships. If the researcher had not adjusted for the confounding variables, a different and misleading conclusion would have been reached, suggesting that failing to adjust for SME characteristics in a regression model is a serious shortcoming. No doubt, Asiamah et al. (2019) has acknowledged that regression models provide misleading results if they do not include

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relevant confounding variables. Thus, this study provides compelling reasons why borrower characteristics should be controlled to analyse relationships, including the association between lending methodologies and access to credit. The second lesson is that a sensitivity analysis that compares the baseline and ultimate models is the best way to appreciate regression results, including confounding variables. In this study, fitting both the baseline and ultimate models visualises the primary effects of interest for both the baseline and ultimate models, making it easier for decision-makers to assess the influence of the confounding variables on the primary relationship. If the researcher had fitted the ultimate model without showing the baseline model, the compelling nature of the change in effects between the two models would not have been seen and demonstrated.

7.2.3 The effect of credit referencing information on SME's access to finance in Ghana

In the baseline model in which business characteristics were not controlled for, CRI had a negative effect on access to credit, which means that access to credit reduced as the perceived level of credit increased. The ultimate result, however, is the ultimate model, which adjusts for the business characteristics. In this model, CRI instead had a positive effect on access to credit, which is the reverse of the relationship confirmed in the baseline model. By the results from the ultimate model, it can be said that CRI reduces the likelihood of an SME being denied access to finance after taking into account business size (in terms of the number of employees), business age, and other business attributes. Over the years, studies assessing the relationship between CRI and access to credit facilities have produced mixed findings; while some studies have confirmed a positive association, others have found a negative association. For example, Brown et al., (2009) found that credit referencing information increased the likelihood of borrowers having access to credit. Similar findings were found by Kallberg and Udell (2003). On the other hand, Uchida (2011) reported that borrowers are less likely to access credit if they are not well networked and are not favoured by the records of credit reference bureaus.

Drawing on the study of Uchida (2011), there are two reasons why a negative association between CRI and access to credit may occur. The first of these reasons is not having the appropriate networks to access information on credit referencing. Logically speaking, having the appropriate networks would depend on business age and worth since businesses need time to make more social capital. In some cases, market image and financial worth are facilitators of social capital and would increase access to credit referencing information. The second factor

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is indebtedness or previous defaults, which put the borrower in the bad books of credit reference bureaus. If SMEs had failed to pay their previous debts, CRI might instead worsen their creditworthiness because credit referencing information will work against them. Supporting this notion is Sette and Gobbi (2015), who observed that soft information obtained through Credit Reference Information sharing, though likely to enhance creditworthiness and provide guidance toward credit facilities, may reduce the creditworthiness of defaulting borrowers. They added that defaulting borrowers, in the process of using credit information to access credit facilities, face impediments caused by their unpaid loans, which reflect a bad image on them. Further to the above, it can be said that the inclusion of business or borrowers' characteristics in the ultimate regression model was a necessary step toward estimating the actual effect of CRI on access to credit facilities. This view emphasises that inconsistencies in the results of previous studies could be due to research design differences. For instance, none of the studies reported above had adjusted for borrower characteristics in testing the relationship between CRI and access to funds. A few confounding variables were controlled for (Zhao and Murrell, 2021; Angoli et al., 2019; Essel et al., 2019), but the list of confounders considered was not as exhaustive as the list of business characteristics considered in this study.

Confounding variables according to Asiamah et al. (2019), are factors that could affect the primary relationship and should therefore be carefully selected. This assertion meant that not every variable can cause confounding and that confounding is not always possible. This idea forms the basis of their provision of a methodology for identifying confounding variables for a model through a theoretical lens. While the current study followed this procedure to select business characteristics that are likely to affect the primary relationship, most previous studies did not adjust for confounders at all, while some adjusted for an incomplete or irrelevant set of confounding variables. This study, therefore, provides a sterling example of how statistical analysis can affect the internal validity of findings. No doubt, the current study provides a more precise accuracy of the effect of CRI on access to credit, which is in the ultimate model. Finally, the current evidence reinforces the need for researchers to adjust for the relevant set of confounding variables in testing relationships in finance and other disciplines employing cross-sectional designs.

7.2.4 The joint effect of credit referencing information and lending methodologies on SME access to credit.

In the ultimate model, the interaction between CRI and lending methodology had a positive relationship with access to credit, though this relationship was significant in the baseline model. This suggests that CRI does not moderate the relationship between lending methodologies and access to credit after considering the characteristics of the business. Furthermore, while CRI failed to moderate the relationship between domains of lending methodology and access to finance in the baseline model, it moderated the relationship between these domains and access to finance in the ultimate model. In this respect, the moderating effects of CRI instead strengthened the relationships between the domains of lending methodologies and access to credit. This result affirms the idea from the previous two discussions that business characteristics play a major role in the relationship between lending methodologies and access to credit facilities. Thus, this study consistently found that whether lending methodologies would increase or decrease finance access depends on business characteristics.

More specifically, the positive effect of CBRs on access to finance was positively moderated by CRI, which means that CRI increased this effect. In other words, collateral security and business records more strongly increased access to finance in situations where CRI favoured the business. This result endorses some previous findings regarding the role of CBRs in securing credit facilities. For example, Ferri et al. (2019) found that businesses accessing credit facilities provided basic collateral security and were linked to social networks that provided a high level of credit referencing information. Such businesses also had clearance from credit reference bureaus, thereby justifying their creditworthiness.

Similarly, Munene (2012) observed that clearance from credit referencing bureaus and access to the necessary collateral security were the underlying factors that gave businesses access to credit facilities. Deductively, access to credit reference information can only support access to credit facilities if the borrower receives clearance from credit reference bureaus, which enables it to take advantage of credit reference information. In their critique of the credit referencing information theory, Brown et al. (2009) argued that borrowers who have access to credit are those who have access to relevant information. The credit referencing information itself supports this view by its argument that businesses and individuals who do not have access to relevant credit referencing information may not benefit from credit rationing, which is a concept often associated with the credit rationing theory. Per this theory, credit rationing is

necessary for a situation where information asymmetry is high and assumes that not every borrower successfully accessing credit facilities. Therefore, only those with enough access to credit referencing information can demonstrate creditworthiness have access to credit facilities. In addition, the negative relationship between PBCs and access to credit was increased by CRI, which means that credit reference information further reduces the likelihood of PBCs increasing access to credit. This result could be explained from two main perspectives. First, PBCs (independent of CBRs) may be associated with misinformation from credit referencing. Second, if a business receives much inappropriate information in credit referencing, this may affect the business's ability to ace its loan interviews and demonstrate creditworthiness.

According to some researchers (Rocha et al., 2010; Riestra, 2002), this is so because loan interviews are meant to provide the creditor with information about the borrower's ability to repay previous loans and the nature of the relationship between the borrower and the referencing credit system. So, if the borrower does not have the correct information about itself from the credit referencing system, it may provide responses that may rather discourage the provision of credit facilities by the creditor or financial institution. The above thoughts are congruent with the theory of information asymmetry as adopted in this study. The theory asserts that inequality in access to credit referencing information makes it difficult for the SME to access finance because the business cannot use the correct information at the right time. In the light of this theoretical argument, it is possible that a business that fails to provide collateral security and has no convincing records but has provided all information associated with PBCs has little industry experience, a low asset base, and therefore has no little access to credit reference information. This idea is backed by the credit reference information theory that assumes that sufficient operational experience and social capital (e.g. people who can guide the business to use credit referencing information) must use credit referencing information effectively.

Other researchers (Brown et al., 2009; Uchida, 2011; Behr and Sonnekalb, 2012) have opined that credit referencing information can either be beneficial or harmful to a business applying for credit facilities. Uchida (2011) specifically posited that failure to repay previous loans reflects poorly on the business, due to which information from credit reference bureaus can thwart the effort of such businesses to secure loans. Similarly, SMEs that have a bad loan

repayment record would be negatively affected by the credit referencing system, as a result of which these businesses may instead be harmed by information from the credit referencing system. Brown and colleagues also observed that SMEs that had defaulted would instead try to avoid the credit reference system since they know information from credit reference bureaus would not favour them. Thus, they lose valuable information and are ill-informed about things they should know in the industry. With this understanding, it can be said that PBCs in this study's sample were associated with SMEs, which were not favoured by the credit referencing system. Because data were collected during the spread of COVID-19 when many SMEs may have been unable to repay loans, most participating SMEs may have been negatively affected by the credit referencing system in their potential state of indebtedness. In any case, this study shows that PBCs alone are likely to affect access to credit if business characteristics are considered negatively.

7.3   Perceptions Regarding Lending Methodologies used by Banks

An analysis of qualitative data was undertaken to confirm the findings from the quantitative data on bank lending methodologies. The analysis of qualitative data aimed to understand the lending methodologies used by the banks for SMEs lending. It supports a triangulation approach because it allows the researcher to confirm the quantitative analysis or results from the hypothesis testing. The analysis reveals two themes, which can be referred to as security methodologies or criteria and supplementary methodologies. The security methodologies are criteria of lending that are necessary to ensure that borrowers repay their loans and include collateral security of any appreciable value. Also, part of the security methodologies is a set of relevant business records that indicate whether the SME has the culture of saving regularly and maintains up-to-date records. The security methodologies are as good as CBRs found in the quantitative analysis, which suggests that this study's qualitative and quantitative analysis provides consistent findings. Since the findings of the qualitative analysis are based on banks, whereas the quantitative analysis is based on customers (SMEs), it can be said that the two groups provided the same opinions regarding the lending methodologies used by banks. This consistency in the result signifies the credibility of the results. Previous researchers and experts (Creswell and Clark, 2017; Creswell, 2013; Allwood, 2012) have opined that the consistency between qualitative and quantitative findings is the strength of triangulation and adds to the reliability of findings.

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The second theme found in the qualitative analysis is a set of lending methodologies that represent the PBCs found in the quantitative analysis. Credit risk managers emphasised that personal and business records of the potential borrower are important because they serve as supplementary information to CBRs and aid debt recovery; however, they are not as critical as CBRs because they do not directly impel or encourage borrowers to repay their loans. This result agrees with some opinions regarding the limitations of borrowers' individual information. Kessey (2015), for instance, reasoned that PBCs could only help the bank locate defaulting borrowers and track their current activities. Castro (2013) further revealed that, while PBCs can guide the creditor to develop a trail towards the borrower in debt recovery, it is not worth any collateral security that would encourage borrowers to meet their obligations, which includes repaying their loans promptly. Finally, Mileris (2012) contended that there is a higher probability that borrowers would not repay their loans if the bank relies only on business and personal records to provide credit facilities without holding collateral from the borrowers. Thus, though PBCs play a role in the lending process or recovery of debts, they do not necessarily safeguard loans.

The consistency between the qualitative and quantitative analyses has some implications that are worth discussing. First, it can be said that results from the qualitative analysis have the same backing from the literature used in this study since they are consistent with the quantitative. However, this idea applies only to the factor analysis because the qualitative analysis only explored the lending methodologies and identified themes formed by these methodologies. In the context of factor analysis, these themes represent factors or the theoretical dimensions of lending methodologies (Keleva, 2016; Asiamah et al., 2018). That is to say that the consistency between the two analyses cannot be assessed or verified because the qualitative analysis did not explore the relationships between the study variables as done in the quantitative analysis. As such, the consistency found between the qualitative and quantitative approach employed in this study is limited to the exploration of lending methodologies, which provided two underlying factors or domains. This assertion brings to mind the second implication: the possibility of this study providing a theoretical basis for using factor analysis to explore lending methodologies in future research. In this regard, the two domains or themes found in this study could serve as a basis for measurement and model estimation towards

computing key reliability and validity statistics. For this reason, future researchers may find it easier to validate measures of lending methodologies used in this study.

The results of this study also have implications for practice. The evidence that banks significantly use the two domains of the lending methodologies unfolds a need for SMEs to prepare to satisfy all lending criteria associated with the two dimensions. This is to say that SMEs must be ready to provide collateral security, information on their business activities, and records on their banking experience. Being prepared to meet these criteria increases the likelihood of securing a loan. This viewpoint is supported by Beck et al. (2018), who opined that failing to meet only one criterion out of many criteria could still lead to failure in securing credit facilities. The findings also suggest that business characteristics significantly impact the association between lending methodologies and access to credit facilities. This result has implications that are similar to the preceding implications. For instance, an SME that had existed for several years may have more industry and banking experience. As a result, such a business could leverage a stronger financial and asset base to secure capital. This is rightly so because the business needs more time to accrue loan repayment experience, relevant business records, and social capital such as social networks and support (Beck et al., 2018; Castro, 2013), all of which contribute to access credit facilities. For this reason, SMEs ought to preserve their industry and banking experience by maintaining steady growth, keeping a healthy relationship with bankers and individuals, and building an asset base that may attract creditors. Figure 7.1 represent a framework that has been developed to help SME firms improve on access to finance

| Stage | Stage 1 | Stage 2 | Stage 3 | Stage 4 |

| Main steps | Understanding methodologies | Liaising with bankers | Utilizing information from credit reference bureaus | Self-evaluation |

| Actions | -Review documents from bankers

-Identify lending methodologies prioritized by bankers | -Get more information from bankers

-Understand their relationship with credit reference bureaus | -Take advantage of CRI in circulation

-Learn from defaulters in the database of credit bureaus | Find out how much plans and expectations |

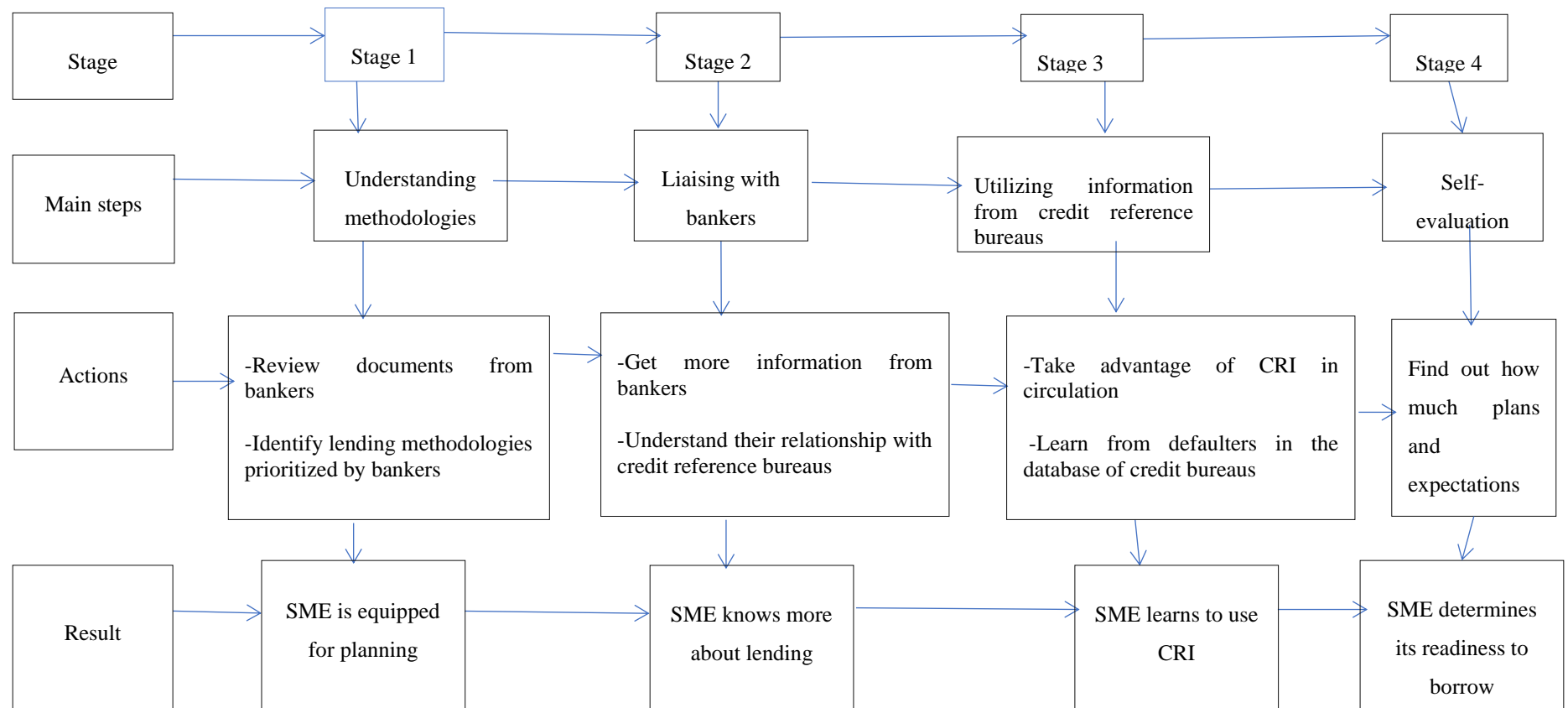| Result | SME is equipped for planning | SME knows more about lending | SME learns to use CRI | SME determines its readiness to borrow |

Figure 7.1: A framework of recommendations by which SMEs can get better prepared to borrow from banks

Source: The Researcher's Construct (2021)

Figure 7.1 is a framework of steps that SMEs can take towards successful loan applications. As the findings of this study indicate, SMEs would have to manage a good relationship with three main stakeholders. The first stakeholders implied by the lending methodologies are banks and their credit risk management. It is necessary to deal with the credit risk management team because it exercises oversight over-lending and the bank's engagement with credit reference bureaus. The second group of stakeholders is credit reference bureaus, which regulate or determine how CRI affects SMEs. The final group of stakeholders are other SMEs that have either successfully acquired loans or are loan defaulters.

The framework shows various stages and steps involved in dealing with the various stakeholders. The expected results of completing each stage are also indicated. At stage one, the business can improve its understanding of the current lending methodologies regarding how much banks prioritise them and which specific ones they can meet. This provides a basis for preparing towards meeting lending criteria they cannot currently meet. Training of staff and perusal of relevant documents from the banks are the key steps at this stage. At this stage, the SME is equipped to prepare towards meeting all lending criteria tied to the lending methodologies. As the confounding variables suggest in this study, SMEs would have to consider their characteristics such as age, capital, asset, and size to determine how fast they can prepare to meet the lending methodologies of their bankers. For instance, a young SME without enough banking experience and capital may have to give itself a substantial amount of time to prepare and master the lending sector.

At the second stage, the SME could develop a relationship with its bankers and prioritise lending criteria and methodologies. The SME would also have to know what the bank expects from its potential borrowers and factors that increase an SME's chance of receiving a loan facility. Moreover, there is a need for the business to know when and how the bank sends information about defaulters to credit reference bureaus. This step sets the basis for stage 3, which focuses on the effective use of CRI.

At the third stage, the SME is expected to use information from banks at stage 2 to develop a plan towards effectively using CRI. More so, SMEs ought to develop a relationship with credit

reference bureaus to understand and monitor the flow of CRI, those being affected, and how to take advantage of the information available. This is the stage where the SMEs can identify defaulters and their characteristics, enabling them to take lessons from defaulting businesses.

The final stage provides an opportunity for the SMEs to review their preparedness based on actions taken at stages 1, 2, and 3. At this stage, the business could assess whether it has met the plans developed at stage 1 and met all criteria for lending. If all the criteria are still not met, then the process (cycle) could be repeated. In any case, accessing credit from banks in a developing country environment should be considered a daunting task that can only lead to expectations only if based on a long-term learning and relationship development process. SMEs are less likely to access loans without building relationships with stakeholders, including social contacts or capital.

7.4   Summary of the Discussion

In harmony with the literature or specific reported studies, this study found that Ghanaian banks' methodology relating to collateral security is the most frequently used. Thus, the evidence that methodologies relating to collateral security are the most frequently applied to SMEs in Ghana has been supported by local and international studies. Similarly, it was found in the literature that BPCs as a methodology is a necessary part of the lending methodology but does not secure the bank as much as collateral-related methodologies do. Both local and international studies also support this result. Further backing the extant literature is the significant association between lending methodologies and access to credit facilities. Thus, the current study builds upon the evidence that lending methodologies have a significant effect on whether SMEs would have access to credit or not. CRI was also found to moderate the relationship between lending methodologies and access to credit facilities. This result is supported by commentaries in the literature but is the only identifiable empirical evidence based on primary data. As such, it demonstrates the importance of the current study.

Furthermore, this study employed a resilient statistical methodology in which potential confounding variables were adjusted to test the primary relationships. By this methodology, this study demonstrates how future researchers can adjust for confounding variables and potentially provides more accurate effect estimates. A key practical implication of the findings of this study is that SMEs would have to develop a culture of managing their reputation as

determined by the credit referencing system. Banks may also have to support SMEs to use credit referencing information and safeguard their reputation in the face of activities of credit reference bureaus.

CHAPTER EIGHT

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

8.1   Introduction

The current study aimed to examine the relationship between credit referencing, lending methodologies, and access to credit facilities among SMEs in Ghana. The previous chapter presented a discussion of the findings to provide practical and theoretical implications of the study and ended with a framework intended to help SME firms create a better relationship with lenders and better prepare when applying for loans. In this chapter, the study's conclusions are presented based on the findings presented in the seventh chapter. Recommendations for policymakers, SMEs, and financial institutions are also reported. Limitations of the study and future research suggestions are also presented. Before presenting the conclusions of his study, the following section presents a summary of key findings.

8.2   Summary of findings and achievement of the study objectives

The findings of this study are summarized in this section. The study focused on the achievement of the following specific objectives: (i) to examine the lending methodologies used by banks to evaluate SME credit proposals; (ii) Assess the effect of lending methodologies on SME's access to finance in Ghana; (iii) To examine the effect of credit referencing information on SME's access to finance in Ghana and (iv) To determine the combined effect of credit referencing information and lending methodologies on SME access to credit. To achieve the objectives as stated above the mixed-method approach was used. In the qualitative analysis, thematic analysis was conducted to understand the lending methodologies used by banks. In quantitative data analysis, factor analysis was used to assess the psychometric properties of the measurement scale, and descriptive statistics were used to summarise the data. Pearson's correlation test and multiple linear regression analysis were used to test the hypotheses. The section presents the findings of the study with emphasize on the study objectives that have been achieved.

The extent of application of lending methodologies: Data analysed confirmed that the two domains of the methodologies, namely Collateral Based Records (CBRs) and Personal Business Characteristics (PBCs), were applied to the participants to a great extent. The average scores associated with these dimensions were significantly higher than the median of the

measurement scale. Responses from the qualitative analysis suggest that CBRs as a methodology were more applied, but financial institutions also applied PBCs. Applying the two methodologies is necessary as they play unique roles in lending, though CBRs better cushions banks against default. The implication for this is that banks use both transaction-based and relationship-based lending methodologies that are applied mainly by banks in Ghana though transaction-based lending is the most applied. The reliance on transaction-based lending implies that SMEs that do not keep financial records have a high probability of having their loan applications not admitted for assessment and hence will be denied credit.

The relationship between lending methodologies, CRI, and access to credit: After adjusting for the confounding variables, CBRs positively affected access to credit, but PBCs and CRI had adverse effects on access to credit. Without adjusting for the confounding variables, only CRI had a positive effect on access to credit. Moreover, while access to credit increases with CBRs, it reduces as PBCs and CRI increase among SMEs. The implications are that banks depend more on collateral to grant credit, but most SME firms in Ghana require assets that banks demand as collateral; hence the SMEs continued lack of access to credit.

The moderating role of CRI in the relationship between lending methodologies and access to credit: After controlling for the confounding variables, CRI did not moderate the relationship between lending methodology and access to credit. As explained earlier, confounding variables are other variables even though not considered in the research analysis, which affects the dependent variable and may cause either an increase in variance or introduce bias. After adjusting for the confounding variables, CRI positively moderated the relationship between CBRs and access to credit, which means that the intervention of CRI increased the relationship between CBRs and access to credit. CRI increased the relationship between PBCs and access to credit after adjusting for the confounding variables. Thus, the relationship between the whole construct of lending methodologies and access to credit was not moderated by CRI, but CRI moderated the relationships between its dimensions and access to credit.
Analysis of the qualitative data showed much consistency with the quantitative data implying that banks rely on both relationship lending and transactional lending methodologies applied in assessing loan application and even regards the methodologies as complementary to each other. However, it was also observed from the analysis that though CBRs and PBCs help

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mitigate help improve access to credit, CRBs is less reliable in predicting the risk profile of bank customers. This reinforces the earlier finding of objective four. Thus, firms assessed purely with hard information after having provided collateral have a higher probability of being denied a credit facility by banks. However, firms assessed with all two lending methodologies (i.e. CBRs and PBCs) and adjusted for mediating variable (CRI) have a lower probability of being denied credit. The implication is that should bank make maximum use of credit reference information; it will help reduce asymmetric information between the banks and the SME borrowers, thereby increasing access to credit.

8.3   Conclusions and contribution of the study

The current study also contributes to the literature on SME access to finance by identifying the distinctive problems encountered by small business owners in their quest to source finance for their businesses, the distinction is important in that SMEs especially those in developing economies like Ghana mostly depend on informal sources of funding and thus do not fully appreciate the lending methodologies and the demand from banks and other formalised lending institutions. The study also brings to light that determinant of credit constraints for formalised borrowing channels are different from that of informal channels. The study showed that although the determinants of access to credit may constrain most SME owners from accessing credit, the introduction, use, and application of credit referencing information in conjunction with the identified lending methodologies largely help to reduce the problems of information differences that have been identified in several empirical pieces of literature from several countries as the most difficult hurdle impeding SME access to credit. The following conclusions are therefore arrived at based on the study objectives.

Banks' extent of use of methodologies: the study observed that banks employed two lending methodologies, namely CBRs and PBCs. The use of CBRs was focused on ensuring that SMEs provided the bank with collateral security in the form of personal assets (e.g. a car or house). This aspect of lending methodology also emphasised the need for the SME to have banking experience and the ability to repay a loan facility. On the other hand, PBCs utilisation aims to link a loan facility to the identity of the borrowing SME. Without this aspect of the lending methodology, the creditor or bank has no information on which to recover debts. Therefore, though CBRs was applied to a greater extent, both methodologies were used by the banks.

The study also concluded that the banks use CBRs and PBCs as cardinal lending methodologies. CBRs are more frequently used by banks and is the ideal way the banks secure their loans. Without collateral security, SMEs that are not committed to repaying their loans may default, resulting in high credit risk in the banks in the form of non-performing loans. On the other hand, PBCs play a unique role by providing access to information (about SMEs) needed to recover loans. Thus, both lending methodologies play a complementary role in SME lending.

The relationship between lending methodologies, CRI, and access to credit: It is concluded that access to credit increases with the utilisation of CBRs if SMEs' characteristics such as age, asset, and size are adjusted for. As PBCs utilisation and access to CRI increase, access to credit decreases, but this relationship owes its strength to the SME characteristics adjusted for. Thus, whether or not a lending methodology would enhance access to credit depends on the attributes of SMEs. Therefore, it is concluded that the lending methodology and CRI do not influence access to credit without considering or adjusting for key SME characteristics. By implication, SMEs may have to improve their business attributes by enhancing their size (in terms of the number of employees), asset, capital, and industry experience to increase access to loans.

The moderating role of CRI in the relationship between lending methodologies and access to credit: Another conclusion drawn was that CRI moderated the relationship between the two lending methodologies and access to credit, which means that CRI lends support to the ability of the SME to access credit facilities through the lending methodologies. Moreover, the above moderating influences are driven by SMEs' attributes. While CRI increases the positive relationship between CBRs and access to credit, it increases the negative association between PBCs and access to credit. That is, CRI makes it more unlikely for SMEs to access loans through PBCs. It is, therefore, concluded that SMEs which have more years of experience, assets, capital, and employees are more likely to meet the lending requirements of banks to access credit. This conclusion supports the idea that SMEs should improve their business attributes and image to enhance their creditworthiness.

Based on the above conclusion, Fig.7.1 is a framework culminating from the study's findings developed to help improve SME access to credit. It is envisaged that SMEs that follow the

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stages in the framework will be better prepared and well qualified to meet the requirement demanded by a bank and other lending institutions to increase access to credit. A final step towards making the most of CRI is liaising with banks and other financial institutions to understand information flows between them and credit reference bureaus. CRI is a product of continuous engagement between banks and credit reference bureaus. That is to say that the best form of CRI exists between credit reference bureaus and their partner banks.

For this reason, SMEs may have to draw closer to their banks to know information relayed between these banks and their credit reference bureaus. Because banks tap into the services of credit reference bureaus to reduce credit risk and loan defaults, they would allow their customers to know about the information they share with credit reference bureaus. Moreover, CRI is created for the public, especially customers, so it is not confidential in any way. This being so, SMEs ought to take advantage of the open reversible flow of information between banks and their credit reference bureaus to identify when, how, and why CRI is used. This effort would give SMEs first-hand knowledge regarding what to avoid and do towards leveraging CRI to secure credit facilities.

8.4   Recommendations

This section presents recommendations in line with research findings to guide lending and borrowing. The recommendations provided are informed by the study's main findings and are expected to enable SMEs to improve their creditworthiness and their ability to secure loans. They are also directed at financial institutions that may have to revise their credit management policies and strategy. The specific recommendations based on the first objective are as follows:

8.4.1   Meeting the lending methodologies

The first objective of this study was to identify the lending methodologies used by banks to provide credit facilities to SMEs. With this objective, the researcher also sought to investigate the extent of using the lending methodologies. Generally, findings from this objective provide vital lessons for enabling SMEs to better meet the lending methodologies in their effort to access credit facilities from banks. This is rightly so because knowing the specific lending methodologies and the extent to which they influence lending are requirements for meeting these lending methodologies and knowing how to prepare to apply for credit facilities. Based

on the findings of the first objective, therefore, the specific recommendations to SMEs are as follows:

8.4.1.1 Improving knowledge of lending methodologies used

The analysis of the first objective reveals that banks use two lending methodologies in lending to SMEs. Going forward, SMEs ought to know these methodologies, their differences, and how well they are currently prepared to meet them should they decide to apply for credit facilities. Knowing the methodologies means that SMEs have to know the elements of each methodology in terms of their practical feasibility in their context. Therefore, the critical question SMEs would have to ask themselves is: how does each element of the methodologies relate to us? Can we satisfy these elements given out the current situation, or do we have to prepare for meeting them in the future? Asking and answering these questions would enable the business to assess its ability to meet the lending methodologies critically.

It is possible that the SME can meet the second methodology (i.e. PBCs) but is unable to meet the first methodology (i.e. CBRs), possibly because it is a starting business that needs time to enhance its revenues and banking experience. If so, by understanding each methodology, its underlying elements, and the extent to which it is applied, the business can begin to prepare to meet methodologies that it cannot currently meet. To develop a deep understanding of these methodologies, SMEs do not have to only study and appraise them in isolation; they need to understand them from the banks' perspective. As such, two steps would have to be taken: (a) the SME should consider all elements of the methodologies and tick those that they currently meet, and (b) find out from their bankers how the methodologies are applied and what would be expected of them to meet the methodologies. This way, the business is well informed to prepare for meeting the methodologies in the future.

8.4.1.2 Understanding the extent of application of lending methodologies

It is necessary to understand the extent of the application of the methodologies. The current study shows that CBRs is more frequently used, but both methodologies influence lending decisions. By knowing the extent of use of a methodology, the SME may decide to prioritise some elements in their effort to prepare to apply for credit facilities. For example, it may become evident that collateral security and banking experience are the most important aspects of the methodology. If so, the SME may decide to first work towards building valuable

collateral security and developing a banking relationship with an appropriate bank. This idea reveals that the strength of the relationship between a company and its bankers is determined by how often the two parties interact. The ideal means of interaction include regular bank transactions and deliberations over mutual concerns such as how the lending methodologies are applied. For this reason, an SME that aims to deepen its relationship with its bankers would have to undertake transactions with its accounts more frequently and discuss its future financial plans with the credit risk team.

It is also important to note that understanding the extent of the application of lending methodologies may come from previous experience and interactions with the bank. The SME should notice what led to its failure to secure a loan in previous attempts, focusing more on the importance of some lending methodologies by the bank. This effort would enable the business to understand the practical process rather than information based on personal opinions and casual discussions with the banks. Regular communication with the banks regarding future financial plans and current credit risk practices can enable the business to develop a cohesive relationship with the bank and further understand why some lending methodologies were applied in a particular way in the past.

8.4.1.3 Aligning business operations with the lending methodologies

Developing and strengthening its relationship with the bank sets the foundation for doing things right to improve creditworthiness. With a strong relationship with its bankers, the business would access relevant information for aligning operations with the lending methodologies or the entire lending process. For instance, the business may increase its weekly bank transactions and increase its visits to the banking hall. It may also want to visit the credit risk management team often to discuss future plans and report the current progress the company is making financially. These activities are the primary steps for aligning the business's operations with the lending process to meet lending criteria in the future.

Aligning the business's operations with the lending process does not require a change in corporate policies; it is simply a way to modify the financial and banking practices of the business, given the bank's lending methodologies. So, apart from the above steps, SMEs can also adjust their expenditure to ensure that more revenues generated go to the bank or into securing valuable collateral security for borrowing purposes. This recommendation particularly

applies to new SMEs that need loans to grow but cannot secure credit facilities because of their low banking experience and lack of collateral security. As the next section indicates, getting prepared to secure a loan is not limited to the bank; other stakeholders must be involved.

8.4.2 Making judicious use of CRI by SMEs

An analysis of the second research objective showed that PBCs and CRI are negatively associated with access to credit facilities, whereas CBRs were positively associated with credit access. These findings suggest that CRI and PBCs would somewhat hinder access to credit after considering customer characteristics. On the other hand, access to credit facilities increases as the application of CBRs increases. In this section, recommendations are made in line with the implications of the findings.

While SMEs need to prepare to meet all lending criteria and methodologies, they need to ensure that CBRs are always associated with their loan application. In other words, they ought to provide collateral security, business records (on banking), and PBCs to reduce the risk of not getting access to loans. This is the case because supplying the bank with only PBCs is unlikely to convince banks to provide credit facilities. This idea gives credence to the need for SMEs to gradually prepare to apply for loans by developing collateral security and a reputation that translates into admirable business-related records. However, it must also be borne in mind that loan applications cannot be successful without including PBCs, so CBRs need to be provided alongside PBCs.

The negative relationship between CRI and access to credit implies that CRI can rather discourage access to credit if business characteristics are adjusted for. For example, CRI would result in failed loan applications if it does not favour the business, possibly due to a previous loan. It can also result in failed loan applications if it is not adequately understood or used. With these possibilities in mind, SMEs would have to take some steps to take advantage of CRI.

SMEs must ensure that they do not default in paying back their loans. That is, SMEs must avoid loan defaults, especially in an economy where credit reference bureaus regulate lending and borrowing activities. As mentioned early on, borrowers' lending and borrowers' ability are monitored by credit reference bureaus in Ghana. Moreover, financial institutions annually report loan defaulters to credit reference bureaus for monitoring purposes. Since these bureaus share their databases with banks for making banking decisions, previous loan defaults by an

SME would always be detected by a financial institution. If so, no level of CRI available to the business can support access to credit; no bank would lend to a defaulting business. As such, SMEs must focus on avoiding defaults by settling all their debts and securing clearance from their financiers before applying for another loan.

It is also necessary for SMEs to make judicious use of available CRI. Undoubtedly, not understanding CRI available for SMEs might lead to its misuse. Therefore, the basis of making the most of CRI is ensuring that key stakeholders of the business understand it. An SME can understand CRI if it trains its key staff to identify and understand available CRI. Training should also enable the business staff to understand the scope of CRI so that this information is not partially identified and used. For instance, CRI may comprise three aspects of the financial system, namely borrowers, defaulters, cleared borrowers (i.e. businesses that acquired loans and successfully repaid these loans), and changes in the financial system in terms of interest rates. Knowledge of these domains of CRI would encourage SMEs to take the necessary steps. For example, a business could study all businesses that have successfully paid their loans to identify their attributes (e.g. age, capital size, assets) and know what possibly enabled them to repay their loans as scheduled. From this perspective, SMEs in good standing with lenders can be used as models to develop a loan repayment scheme.

Finally, SMEs would have to sufficiently and adequately use CRI to generate relevant knowledge towards borrowing. A way to use CRI is to regularly visit the websites of credit reference bureaus or engage these bureaus in their activities. In this vein, SMEs can regularly participate in counselling sessions and seminars organised by credit reference bureaus. Secondly, SMEs need to learn from SMEs in the bad books of credit reference bureaus. This step is necessary because it would enable the business to watch out for and avoid traps (i.e., factors that make it unappealing to a business to repay its loans as scheduled), leading to loan defaults and ensuring that they avoid being labelled negatively by the bureaus. Arguably, participating in counselling sessions organised by credit reference bureaus, learning from businesses that have successfully paid their loans, and knowing what may have caused some businesses to get into the bad books of credit reference bureaus are primary steps towards the proper use of CRI.

8.4.3 Promoting financial inclusion for informal SMEs.

A recommendation is also made to policy-makers such as governments and its agencies such as the Bank of Ghana (BoG) to enhance policies that seek to promote financial inclusion. By facilitating to bring financial technology companies, SMEs who operate informally as the literature has identified can be financially included through the use of financial technology (FinTech). This will help address the ever-increasing demand by informal SMEs for financial inclusion. A fully digitized financial infrastructure will help promote remote accessibility that will eventually lead to cheaper financial services provision. Also, financial information can be easily be captured from these informal SMEs thus enhancing their creditworthiness for integration into the formal banking system.

Also, the Ghana Alternative Stock Exchange (GAX) which was specifically established purposely for SMEs that demand long-term capital should be well resourced to improve its promotion drive to adequately inform SMEs about its existence and purpose. When this is done credit constraint issues encountered by SMEs such as poor records keeping, lack of transparency, and lack of collateral which have been identified in earlier studies as well as collaborated by this current study may be done away with to help improve access to credit through equity. As an alternative financial source, the GAX is well-positioned to educate SME firms will enhance the growth of SME firms as projects hitherto considered by banks as risky or too small to finance will equity as an alternative source to debt financing (OECD, 2015).

Finally, the researcher proposes that if SME owners would adopt the framework as in figure 7.1 and follow the steps as depicted in the framework it would lead to improving the success of loan applications.

8.5   Study Limitations

Though the study was limited to Accra because the head offices of banks in Ghana are located in Accra, focusing on Accra means that the study has a limited geographical scope. Of course, Accra is just one of 16 regions in Ghana. This is to say that findings in this study do not necessarily reflect conditions in other regions. As such, policymakers and companies outside Accra should apply the results of this study with caution. Secondly, the items used to measure lending methodologies were adapted from the literature; however, these items do not belong to a standard scale previously validated based on recommended protocols. For this reason, the

researcher had to assess the psychometric properties of the scales. Even so, this effort does not standardize the scales for future research.

The selection of study participants for the quantitative aspect of the study based on selection criteria excluded some potential participants from the study. For example, all experienced SME representatives that could not speak and write in English were excluded. That is, the rich experience and inputs of such individuals were lost. Finally, the conceptual model tested in this study is not exhaustive. As indicated in the next section, some variables need to be introduced into the model to improve the understanding of researchers and policy-makers regarding how access to credit is affected by lending methodologies. As such, variances of the regression models fitted may have been underestimated since the introduction of more variables could have increased these variables (Garson, 2012). Based on these limitations, directions for future research are suggested in the next section.

8.6   Future Research Directions

Given this study's limitations, some future research actions need to be taken. Though the head offices of banks in Ghana are located in Accra, which made it necessary for the current study to be focused on Accra, future research is needed to extend the scope of the population, at least for SMEs. Many of Ghana's SMEs operate outside Accra, which means that involving them in similar future studies is necessary to provide findings that reflect a Ghanaian situation and could be generalised to Ghana. Future studies are expected to determine and use representative powered samples because the study sample was non-powered (i.e., the sample size was not computed based on relevant statistics such as effect size and power). This effort would enhance the external validity of the findings.

The paucity of studies assessing the psychometric properties (i.e., validity, reliability) of scales measuring lending methodologies and CRI requires that future research focused on validating these scales is necessary. In addition, scales that at least measure these constructs in the specific context of Ghana ought to be validated to provide a standard tool for Ghana and other specific countries. With this in mind, the exploratory factor analysis used in this study to assess scale reliability and validity could be replicated and built upon in future research.

Finally, future researchers would have to enrich the conceptual model tested in this study to improve stakeholders' understanding of the relationship between lending methodology, CRI, and access to credit facilities. For example, future researchers could incorporate into their

studies determinants of access to CRI among SMEs since these determinants can differ between SMEs and cause unequal access to CRI. Thus, it is necessary for future research to investigate equity in access to CRI and whether unequal access to this information among SMEs affects the ability to meet lending criteria and access credit from banks and other financial institutions. The study could further be improved by considering possible antecedents to access to credits and meeting lending criteria. For example, social networks (i.e., blood relations, friends, acquaintances) within banks and financial institutions could make it easier for SMEs to access meet lending criteria and access credit, but this potential role has not been considered in the current study. A consideration of this role in future research is important.

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APPENDIX A: SME FIRMS SURVEY INSTRUMENT

QUESTIONNAIRE ON SMALL BUSINESS ACCESSIBILITY TO FINANCE IN GHANA, 2020

Dear Respondent,

My name is **Kofi Nyarko Gyimah**, a Ph.D. candidate at the University of KwaZulu Natal in South Africa. I am conducting a study on the influence of credit referencing and lending methodologies on SMEs' access to credit facilities. You are entreated to complete this questionnaire in connection with this study. Please note that this study is for academic purposes only and under no circumstance will your information be used for other purposes. The information you provide will be anonymized so that it will not expose your identity and business.

Respond to all questions by ticking an appropriate option that best describes you and your business. If possible, write your responses. In case you need more information on how to complete this questionnaire, call the researcher on **0245071936** or email kngyimah@pentvars.edu.gh. Thank you for your support.

SECTION A: DEMOGRAPHIC AND FIRM CHARACTERISTICS

1. What is your gender:

Male   [ ]

Female   [ ]

2. Age: 18-25 yrs [ ] 26-35 yrs [ ] 36-45 yrs [ ] 46-55 yrs [ ] over 55 yrs [ ]

3. Qualification: MSLC [ ] High School [ ] Vocational [ ] Bachelor Degree [ ]

Others (Specify) …………………………………………………………………..

4. What best describes the ownership of your firm?

Sole ownership   [ ]

Partnership   [ ]

Co-operative   [ ]

Others (Specify) ……………………………..

5. What best describes your core business sector?

Wholesale or retail trade   [ ]

Manufacturing   [ ]

Agro- Business   [ ]

Service   [ ]

Construction   [ ]

Others (specify) ………………………………

6. How many employees have your firm?

1-9 { } 10-19 { } 20-29 { } 30-39 { } 40 and over { }

7. How long has your business been in operation?

1-5 yrs { } 6-10 yrs { } 10 20 { } 20 and over { }

8. How long have you been a customer to your bank?

1-5 yrs { } 6-10 yrs { } 10 20 { } 20 and over { }

9. What was the estimated value of your firm's fixed assets (building, machinery, equipment, furniture etc.) in the year 2019?

Less than ¢50,000 { } ¢500,000 - ¢750,000 { } ¢750,000 - ¢1,000,000 { } ¢1,000,000-¢1,500,000 { } More than ¢1,500,000 { }

10. What was the estimated value of the firm's current assets (cash, accounts receivables, deposit accounts, inventory value, etc.) in the year 2019?

Less than ¢500,000 { } ¢500,000 - 750,000 { } ¢750,000 - ¢1,000,000 { } ¢1,000,000 - ¢1,500,000 { } More than ¢1,500,000 { }

11. What was the estimated value of your annual sales for the year 2019?

Less than ¢500,000 { } ¢500,000 - 750,000 { } ¢750,000 - ¢1,000,000 { } ¢1,000,000 - ¢1,500,000 { } More than ¢1,500,000 { }

12. What was the estimated value of the firm's net income for the year 2019? Less than ¢500,000 { } ¢500,000 - 750,000 { } ¢750,000 - ¢1,000,000 { } ¢1,000,000 - ¢1,500,000 { } More than ¢1,500,000 { }

SECTION B: LENDING METHODOLOGIES

Please indicate on a scale of 1 to 5 (where **1 – strongly disagree; 2 – disagree; 3 – somehow agree; 4 – agree; and 5 – strongly agree**) the degree to which you agree or disagree to the following statements about your experience when you applied for a loan from your bank.

#	Statement	1	2	3	4	5
1	I was asked if I had a collateral					
2	I was asked to provide my balance sheet information					
3	I was interviewed on the policy, philosophy and performance of my business					
4	I was asked to provide a copy of my business plan					
5	I was asked to provide or discuss my financial performance target					
6	I was asked about the historical records of my sales					
7	I was asked about any debts I had					
8	I was asked about the recognition of my business					
9	I was asked about my age					
10	I was asked about my gender					
11	I was asked if I was married					
12	I was asked about my highest education					
13	I was asked to indicate my experience in the business					
14	The number of years the business had been in operation was ascertained					
15	I was made to provide information on the ownership structure					
16	I was asked about the size of my business					
17	I was asked to describe the structure of the industry I operated in					
18	I was asked to indicate the number of years I had banked with the bank					
19	I was asked to indicate if I had received a loan from the bank in the past					
20	I was asked to indicate how many times I had received a loan in the past from the bank					

SECTION C: SMEs ACCESS TO CREDIT

1. Have you ever received a loan from your bank(s)?

Yes   [ ]

No   [ ]

2. How often had you received a loan from your bank?

Not at all   [ ]

Once in a while   [ ]

Once a year   [ ]

Several times in a year   [ ]

3. What is the total amount (in Ghana cedis) you have received a loan from your bank(s)?

Less than ¢2,000 { } ¢2,000 - 5,000 { } ¢5,001 - ¢10,000 { } ¢10,001 - ¢15,000 { } More than ¢15,000 { }

SECTION D: CREDIT REFERENCING INFORMATION

Please indicate on a scale of 1 to 5 (where **1 – strongly disagree; 2 – disagree; 3 – somehow agree; 4 – agree, and 5 – strongly agree**) the degree to which you agree or disagree to the following statements about credit referencing.

#	Statement	1	2	3	4	5
1	The procedure for obtaining a bank loan has been simplified by the introduction of the use of credit referencing information					
2	Banks are responsive to SME financing needs.					
3	Sharing of credit information has reduced loan processing costs and increased lending volume significantly					
4	Sharing of credit information has reduced interest rates charged on loans by commercial banks					
5	Credit information sharing from Credit Reference Bureaus rewards and promotes a good credit track record for firms.					
6	Credit information sharing acts as a deterrent to loan default.					
7	Credit information sharing has impacted positively on loan repayment					
8	Credit information sharing has effectively reduced non-performing loans on the institution's financial statement.					

9. What more do you have to say about credit referencing? Please specify

………………………………………………………………………………………………

End of the survey, thank you!

APPENDIX B: INTERVIEW QUESTIONNAIRE GUIDE FOR SME FINANCING SURVEY IN GHANA

SURVEY ON SMALL BUSINESS ACCESSIBILITY TO FINANCE IN GHANA, 2020

A1. Are you the owner of this firm?

A2. How long have you been operating this business?

A3. How have you financed this business?

A4. How do you perceive the business atmosphere in Ghana?

A5. What is your biggest problem operating this business?

A6. What do you see as the most important limiting factor to get external financing for the future growth of the business?

A7. What do you think can be done to improve the fortunes of businesses like yours?

A8. Do you think your bank understands your needs as an SME business?

A9. How often do you visit and interact with your bank?

A10. How long does it take your loan application to be processed?

A11. How long does it take to receive the money when loan is approved?

A12. If your loan application has ever been denied, were you informed of the reason for that?

A13. If yes, what reason was assigned to the application been denied?

A13. What other thing would you want your bank to be doing for your business apart from helping with finance your business?

A14. How does your bank train or advise you or your staff on how to manage the business finances?

A15. Do you think government and other agencies have been supportive enough to SME businesses in Ghana?

A16. In your opinion, are there clear policies and strategies to promote SMEs?

A17. What in your view should be done to help improve finance to SME firm in general?

APPENDIX C: GATEKEEPERS LETTER

NATIONAL BOARD FOR SMALL SCALE INDUSTRIES

In case of reply, the
number and date of this
letter should be quoted

Our Ref:. NBSSI|ADM|R11-94|09

Your Ref:...

NBSSI

(Ministry of Trade & Industry)
Head Office
P. O. Box M 85
Accra - Ghana
Tel: 0302 668 641 / 2
Email: info@nbssi.gov.gh
Email: ed@nbssi.gov.gh

Date:..

29th July, 2020

**GYIMAH NYARKO KOFI
PENTECOST UNIVERSITY
P. O. BOX KN 1739
KANESHIE, ACCRA.**

Dear Sir,

**PERMISSION TO UNDERTAKE RESEARCH WITH NBSSI CLIENTS**

Your letter on the above subject matter dated 28th July, 2020 refers.

We write to inform you that National Board for Small Scale Industries (NBSSI) has granted you the permission to undertake your Ph.D Research on the topic "Credit Referencing, Bank Methodologies and SME Access to Finance in Ghana".
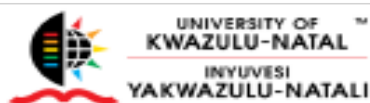
You are permitted to gather data from the Clients of the Board for your study within the Greater Accra Region of Ghana.

We would be interested in having a copy of the research outcomes for our Knowledge Centre.

Thank You
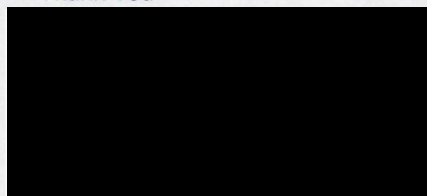
APPENDIX D: ETHICAL CLEARANCE APPROVAL LETTER

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

30 October 2020

Mr Kofi Nyarko Gyimah (217079806)
School Of Acc Economics&Fin
Westville Campus

Dear Mr Gyimah,

Protocol reference number: HSSREC/00001563/2020
Project title: Credit Referencing, Bank Lending Methodologies and SME Access to Finance in Ghana
Degree: PhD

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 30 June 2020 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted FULL APPROVAL on the following condition:

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

This approval is valid until 30 October 2021.
To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

All research conducted during the COVID-19 period must adhere to the national and UKZN guidelines.

HSSREC is registered with the South African National Research Ethics Council (REC-040414-040).

Yours sincerely,

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Professor Dipane Hlalele (Chair)

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