



**COLLATERAL REQUIREMENT AND ACCESS TO LOANS BY SMALL- AND
MEDIUM-SIZED ENTERPRISES IN GHANA: THE EFFECTS OF INFORMATION
ASYMMETRY AND MORAL HAZARD**

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**By
SETH KWAKU AMEGAGO
(PhD16C1014)**

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DECLARATION

I, **Seth Kwaku Amegago**, hereby declare that this dissertation is the product of original research conducted by me under the supervision of Dr. Johnson Okeniyi. I also declare that this dissertation has not been submitted to any other Institution for assessment, publication, or for any other purpose. Where the works of other people have been used, references have been duly cited. It is in this regard that I declare this work as originally mine. It is hereby presented in partial fulfilment of the requirements for the award of the Doctor of Philosophy Degree in Business Administration at the Nobel International Business School.

..... Date:

Seth Kwaku Amegago

(PhD16C1014)

..... Date:

Dr. Johnson Okeniyi (Supervisor)

ABSTRACT

Small and medium-sized enterprises (SMEs) play critical roles in a country's socio-economic growth by providing business opportunities, creating jobs, and reducing poverty. However, these SMEs face specific challenges in obtaining funds from banks and other financial institutions worldwide, especially in developing countries. The majority of empirical studies on SME financing constraints are conducted in developed economies with limited applicability to developing countries such as Ghana, which have a different level of economic and financial growth. The primary aim of this research was to look at how bank collateral requirements affect SMEs' access to loans in Ghana. This is because in developing countries, banks are the primary source of external funding for SMEs.

The research is situated on credit rationing, financing constraint, resource-based and adverse selection theories. The conceptual structure of the study was built on academic works on SME financing. The study looked at and quantified the impact of critical factors to the firm and owner (collateral requirement, information asymmetry and moral hazard) on SMEs' access to bank loans from both SMEs' and banks' perspectives.

The thesis uses a quantitative method approach to examine SME financing constraints using primary data obtained in the form of cross-sectional data from a field survey of SME owners/managers in Ghana. The study's target population was unknown number of SMEs in Accra and Tema which had applied for bank loans. Using purposive sampling, a sample size of 500 SME owners or managers was drawn based on two guidelines and a recommendation in factor analysis from literature. A multiple linear regression model and hypotheses testing were used to analyze the data empirically. The quantitative data were analyzed with the help of the Statistical Package for Social Science Version 23 and Amos version 23, supported by factor analysis and structural equation modelling (SEM) which helped in generating descriptive and inferential statistics. The study discovered that collateral requirement and its associations with information asymmetry and moral hazard were important factors in deciding SME access to bank loans. According to the findings, there is a negative relationship between collateral requirements and SMEs' access to loans in Ghana. Variation in SMEs' access to loans in Ghana can be explained by collateral requirement, the interaction of collateral requirement with information asymmetry, and the interaction of collateral requirement with moral hazard, according to regression analysis. For originality, this is the first comprehensive study in Ghana involving

collateral, information asymmetry and moral hazard.

The study is novel because it is the first to develop a measurement scale for moral hazard in any SME study. Also, it is the first in studies involving SMEs in the finance and management categories to develop a 2x2 matrix to link all the variables for easy analysis. The introduction of the 2x2 matrix in the study will greatly enhance the main theory underpinning the study, credit rationing theory, as well as the other supporting theories. Practically, SMEs that can provide collateral should continue to do so and those that may not must provide quality information to the banks, using the resource-based theory, to enhance their chances of access to loans. The focus of the banks on a high level of collateral requirement not only restricts credit to SMEs in Ghana, but can penalize the banks as well, as lending to small businesses is seen as a lucrative area of operation globally. Just as the Bank of Ghana has developed collateral policy, they should consider enacting “Mandatory Information Disclosure” policy as well to help mitigate information asymmetry and moral hazard. A limitation in this study is the inability of the researcher to have access to loan lists of SMEs from banks. However, the researcher used some basic criteria (e.g. registered businesses by the Registrar General and SMEs which applied for loans from any universal bank) to determine the target respondents.

The researcher recommends a similar future research on SMEs in Ghana in which information asymmetry will be considered as a mediator and moral hazard as a moderator and perform both moderated mediation and mediated moderation.

Keywords: Collateral Requirement, Information Asymmetry, Moral Hazard, Access to Loans, Small and Medium-sized Enterprises.

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DEDICATION

This work is dedicated to my wife, Rejoice and children: Nina-Nunya, Delanyo and Novisi.

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LIST OF ABBREVIATIONS OR ACRONYMS

AGI	Association of Ghana Industries
APEC	Asian-Pacific Economic Cooperation
APR	Annual Percentage Rate
AVE	Average Variance Extracted
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CR	Collateral Requirement
EC	European Commission
EFA	Exploratory Factor Analysis
EU	European Union
GDP	Gross Domestic Product
GVCTF	Ghana Venture Capital Trust Funds
IA	Information Asymmetry
IBES	Integrated Business Establishments Survey
IFI	Incremental Fit Index
ILO	International Labor Organization
IQ	Intelligence Quotient
IS	Information Symmetry
MASLOC	Micro-Finance and Small Loans Center
MENA	Middle East and North Africa

MFI	Micro-finance institution
MH	Moral Hazard
MLR	Multiple Linear Regressions
MSEM	Micro, Small and Medium Enterprise
NBFI	Non-bank financial institution
NBSSI	National Board for Small Scale Industries
NFI	Normed Fit Index
NPLs	Non-Performing Loans
PCA	Principal Component Analysis
RBT	Resource-Based Theory
RFI	Relative Fit Index
RMSEA	Root Mean Square Error of Approximation
SEM	Structural Equation Modelling
SFL	Standard Factor Loading
SME	Small and Medium Enterprise
SMELs	SME Loans
SSA	Sub-Saharan Africa
TLI	Tucker Lewis Index
UK	United Kingdom
USA	United States of America
USITC	United States International Trade Commission

VIF Variance Inflation Factor

WBES World Business Environment Survey

Chapter 1

Introduction

1.1 Background to the Study

Small and Medium Enterprises (SMEs) contribute significantly towards economic development and have been described as the driving force behind the prosperity of emerging economies (Ayodeji & Balcioglu, 2010; OECD, 2017). In Ghana, for example, SMEs contribute significantly to Gross Domestic Product (GDP) and account for most businesses as explained later in the background to the study and statement of the problem.

According to the World Bank's Enterprise Survey (2013), 72 percent of smaller enterprises and 52 percent of medium enterprises were constrained by access to credit while only 23 percent of larger companies indicated they are credit constrained. For proportions of loans requiring collateral, for example, Ghana was at 79.5%, compared to Sub-Saharan Africa (SSA) average of 80.8% (Demirguc-Kunt et al., 2015; IMF, 2014). Consequently, bank financing will depend upon whether the lending can be secured by collateral (Farinha & Felix, 2015; Kirschenmann, 2016). Also, Johnsen and McMahon (2005) stated that other factors held constant, firms with more intangible assets need to borrow less, compared with firms with more tangible assets because of the collateral factor.

Two of the main constraints for credit rationing are information asymmetry and moral hazard from theory and practice. The argument, therefore, is that if SMEs put in place measures not to indulge in information asymmetry and moral hazard, they could reduce the perception of risks that characterize their operations and make them investment-ready which could subsequently make the banks lower the collateral requirement or not require it at all. Such SMEs will have the confidence to access loans as they believe they will be successful (Luong Evans, 2010; Berger et al., 2011; Kihimbo, Ayako & Omoka, 2012).

When the firms with low credit qualities get the loans, they could invest the borrowed funds for their selfish interests, leading to the problem of moral hazard (Bakker, Klapper & Udell, 2004). Furthermore, it confirms that information asymmetry is a problem for financiers and is culminating in high transaction costs (Beck, 2007).

The unreliability of the relationship between banks and small and medium enterprises (SMEs) is that of the inability of the banks to obtain enough information from the SMEs as well

as the weak and unreliable financial structures of the SMEs. As a result, banks find it difficult dealing with the SMEs by way of assisting them with financial supports (Demirgüç-Kunt & Detragiache, 1998). This assertion was supported by Mushinski (1999) who indicated that credit markets in emerging economies are imperfect, not only as a result of only moral hazard and adverse selection problems but due to the costs involved in monitoring and enforcing contracts as well.

Moreover, SMEs are gaining widespread acceptance as major drivers of economic growths (Olatunji, 2013). Therefore, to reduce the problems of information asymmetry and moral hazard, banks require collateral from the SMEs. However, this same collateral can increase the moral hazard of the borrower (SME) by encouraging him/her (the enterprise) to engage in other highly risky or non-income generating activities (Menkhoff, Neuberger & Rungruxsirivorn, 2011). Furthermore, the bank may allocate less resources to screen and monitor businesses that they lend to with collateral with the mind that the collateral themselves will help reduce the credit risk (Manove, Padilla & Pagano, 2001). This is a “lazy bank hypothesis” that high collateralization weakens the bank’s incentive to evaluate the profitability of an investment project (Manove et al., 2001).

However, collateral may help transform the incentives of the borrower, change the bank’s risk and finally modify the equilibrium of the allocation of the credit (Menkhoff, Neuberger & Rungruxsirivorn, 2012; Hainz, Weill & Godlewski, 2013; Rahman et al., 2017). Consequently, one of the best approaches to tackle information asymmetry and moral hazard problems will be to study and know the underlying factors (ie. factors that could motivate an SME to engage in hidden information and/or action) in order to formulate policies and persuade all stakeholders to implement the policies to help reduce the menaces (Guiso & Minetti, 2010). By so doing, demand for collateral by banks could reduce since, already, most SMEs are incapable of raising significant and valuable assets to collateralize loans (Menkhoff et al., 2012; Kihimbo et al., 2012). This is largely due to the perception that the findings are likely to help lenders, especially in Ghana, to locate more credible SMEs which are needed in every economy for better and efficient financial assistance (Blazy & Weill, 2013; Agostino & Trivieri, 2017).

Unlike previous studies that looked at information asymmetry and access to finance (Griffins, 2002), perceived risk and access to finance (Luong Evans, 2010) and the reasons why banks ask for collateral in SME lending (Blazy & Weill, 2013), all of which used secondary data;

this study uses primary data from SME owners and managers.

Since psychological research suggests that perception and behaviour are linked (Brewer et al., 2007), the results of a study of the relationship between collateral requirement, information asymmetry, moral hazard and access to loans have important policy implications. For instance, if no connection is identified, it may mean that SME owners/managers are unaware of how collateral requirement, information asymmetry and moral hazard affect their ability to obtain loans. In terms of policy implications, this could imply that SME owners/managers would need some training in order to increase their access to loans. However, if an association is established, questions must be raised about why SME owners/managers are not taking steps to address collateral requirement, information asymmetry and moral hazard in order to increase their chances of getting a loan.

A number of conceptual frameworks in business literature attempt to capture aspects of a wide range of issues affecting access to SME loans. However, the importance of these frameworks and factors seem to be contextual and depend on the business environments such as the country and economy the SMEs operate in. In other words, while one constraint could be of great importance in one country and economy, it might not necessarily be of equal importance in another country and economy (Benzing, Chu & Kara, 2009; Kader, Mohamad & Ibrahim, 2009; Krasniqi, Shiroka-Pula & Kutllovc, 2008; Lin, 2006; Simpson, Padmore & Newman, 2012).

Moreover, there are limited studies which directly examine collateral, information asymmetry and moral hazard and access to SME loans in one study. This inevitably creates a need for more empirical studies to investigate how collateral, information asymmetry and moral hazard will simultaneously relate to access to SME loans in each individual country and in a specific economy setting.

Worldwide, the roles that SMEs play in the growth of economies are important. Significantly, they help in economic growths through job creations (Chandler, 2012; Neumark, Wall & Zhang, 2011; Wit & Kok, 2014), lowering poverty levels (Beck, Demirguc-Kunt & Levine, 2005), creation of new ideas and ways of doing things (Hemert, Nijkamp & Masurel, 2013; Lee et al., 2010) and income generation, labor absorption and contribution to Gross Domestic Products (GDPs) (Aremu & Adeyemi, 2011; Muhammad et al., 2010; Subhan, Mehmood & Sattar, 2013).

According to Ayyagari et al. (2011), it has been estimated that SMEs contribute to 95%

of enterprises in the world and make up 60% of the private sector employment. In both emerging and leading economies, SMEs account for, approximately, 90% of businesses in various sectors of the economy and contribute, significantly, to the GDPs of these economies (Muriithi, 2017). For instance, in the Republic of South Africa, it is estimated that 91% of the formal business entities are SMEs. They also contribute between 52 and 57% to GDP and provide about 61% to employment (Abor & Quartey, 2010; Gbandi & Amisshah, 2014).

In developed nations such as the United States of America (USA), a report by USITC (2010) reveals that SMEs play the role of innovation development of goods and services (Lee et al., 2010; Hemert et al., 2013). In Malaysia, the contribution to GDP of 36.3% by SMEs is higher than the overall GDP growth of the entire country (NSDC, 2013). More jobs are created by SMEs to contribute to economic growth and alleviate poverty (Beck et al., 2005; Wit & Kok, 2014).

Undoubtedly, the contributions of SMEs to the growth of emerging and developed economies are significant. However, the growths and contributions of SMEs will not be sustained if they do not get financial supports for both the existing and new businesses. Mensah (2004) claims many agree that the single most influential factor preventing SME development is lack of finance. SMEs rely on financing from banks in the form of loans to strengthen their businesses as a result of their failure to tap the equity capital market (CBN, 2005; Etuk, Etuk & Michael, 2014). The small nature of loans by micro-finance institutions (MFIs) may not serve as enough financial support for SMEs, hence their heavy reliance on the formal banking sector for loans (Vera & Onji, 2010; Quartey et al., 2017). For instance, access to bank finances by SMEs in Asia and the Pacific through credit lending has increased, considerably (ADB-OECD, 2014).

The use of collateral as a lending strategy (transaction strategy) is viewed as one of the signaling devices to differentiate more risky SMEs from the fewer less risky ones (Blazy & Weill, 2013; Agostino & Trivieri, 2017). Anyieni (2014) found that ninety-four percent of the banks in the sample surveyed required collateral from their SME borrowers.

Again, collateral use by banks helps reduce the problems of information asymmetry and moral hazard. In the case of information opaqueness (information asymmetry) by the SMEs, banks grant loans at low interest rates to quality SME borrowers who are willing to pledge higher collateral to prove their creditworthiness and vice versa (Jimenez & Suarina, 2004; Voordeckers & Steijvers, 2006; Brick & Palia, 2007; Steijvers, Voordeckers & Vanhoof, 2010; Bharath et al.,

2011). However, Menkhoff et al. (2011) asserted that collateral has ways of reducing the probability of potential losses of the lender but increases moral hazard by encouraging the borrower (SME) to engage in other highly risky or non-income generating activities.

Given that collateral is supposed to have a mitigating impact on information asymmetries, the credit rationing problem can be solved by collateral. Several theories on collateral have been developed over time as information asymmetry mitigation method. In general, theories can be broken down into two major groups, depending on the type of information problem solved (Leland & Pyle, 1977). A first class of theoretical models considers collateral as a screening instrument, minimizing the issue of adverse selection. As viewed by the bank, the entrepreneur's ability to pledge collateral positively affects the standard of the credit request. Collateral has a "signaling function:" the borrower signals the real value and confidence in the project's quality to the bank (Menkhoff et al., 2012; Duarte, Gama & Esperança, 2017). It is concluded within this strand of theoretical literature that low-risk borrowers pledge more collateral than high-risk borrowers in equilibrium. A second group of theories regards collateral as an incentive tool, minimizing the question of moral hazard (Chen, 2006; Hanedar, Broccardo & Bazzana, 2014; Arifin & Priyono, 2020). These theories predicted the reverse, contrary to the previous strand of literature discussed: high-risk borrowers pledge more collateral than low-risk borrowers. After the loan has been granted, collateral can be used to stop the high-risk business from going from a lower to a higher risk project or making less effort to realize the proposed project (Arifin & Priyono, 2020). Any risk shifting actions by the (high-risk) SME after receiving the loan will be avoided due to the risk of losing the collateral pledged.

Borrowers who offer collateral and engage in highly risky activities (that are not known to lenders) expect to yield higher returns. Such borrowers could have higher default risk and a higher tendency to exercise moral hazard. As default increases, the probability of access to SME loans will decline. Thus, there is a strong connection among collateral requirement, information asymmetry as well as moral hazard and access to SME loans. Could this be the case in Ghana as well? To understand the dynamics of how collateral requirement could be affected by information asymmetry and moral hazard in Ghana in order to address the challenges of access to SME loans in the country, there is the need for a research involving these constructs which has never been conducted before.

This study has several advantages over the earlier ones. Firstly, in some of the empirical

literature, for instance in the study of Blazy and Weill (2013), information asymmetry is not a major factor in a bank's decision to make a loan to a small business. In the current study, the role of information asymmetry in the bank's decision to advance loans to SMEs is highlighted.

Secondly, almost all the earlier empirical literature looked at information asymmetry from the demand side only. For example, Wu, Song and Zeng (2008) asserted that it is challenging to gather accurate information on creditworthiness of SMEs. However, information disparity is associated with the mismatch of information between borrowers and lenders (Takagi, 2002; Uesugi & Ono, 2009). For instance, Jaworski (1992) measured information asymmetry between subordinates and superiors from both sides, meaning there can be pieces of expected information from the supply side that could be vital.

Thirdly, a review of extant literature could not reveal any measurement scale for moral hazard. Therefore, careful attention was paid to scale development (Nunnally, 1978; Abel, Buff & Burr, 2016).

Finally, while some studies have relied, exclusively, on only correlational analysis (Mole & Namusonge, 2016) or correlational and multiple regression analyses (Kira, 2013; Osano & Languitone, 2016) to test hypotheses, this study included structural equation modelling (SEM) as well to analyze the relationships among the variables. This approach made gaining insights into potential relationships among the variables possible while controlling for measurement error. These are important contributions to literature.

1.2 Statement of the Problem

Access to funding is crucial for SMEs' sustainability, growth and advancement (Beck, Demirguc-Kunt & Singer, 2013; Holmes et al., 2003). To qualify for an accessible and competitive financial supply is essential for SMEs to help them expand and succeed in the market. However, a considerable academic knowledge suggests that SMEs are confronted more with barriers than larger companies when it comes to investment and accessing finance (Berger & Udell, 2006; Cassar, 2004; Hyytinen & Vaananen, 2006). Previous research echoed that SMEs' basic challenge why their businesses fail is insufficient financial capital due to their inability to have access to finance (Coleman, 2000; Gregory et al., 2005). This limited exposure to funding was due primarily to SMEs' information obscurity, coming from an information disparity between them and financiers (Brent & Addo, 2012; Roberts, 2015). The high information obscurity of SMEs makes it impossible for them to secure debt funding from

financial institutions as speculative debtors (Kirschenmann & Norden, 2012; Sarapaivanich, 2006; Sarapaivanich & Kotey, 2006). SME information asymmetry is serious and glaring in emerging economies (Ezeoha, 2008; Green, Kirkpatrick & Murinde, 2006). However, SMEs need loans to strengthen their businesses (Etuk et al., 2014). Loans impact on growth and performance of any business (Osoro & Muturi, 2013).

From an economic perspective, SMEs are not just contributors to their economies (for example about 70% to Ghana's GDP (Abor & Quartey, 2010)) but also consumers of financial supports from the same economies in the form of loans from lending institutions (Etuk et al., 2014). This, therefore, requires them to play important roles such as bearing in mind the "duty of care" to the lenders if they are to place themselves with purchasing power in such a market because their demand for loans will intensify their lending institutions' activities just as their own activities will be stimulated by their clients' demands (Evans & Jovanovic, 1989; Jappelli & Pagano, 2005; Osoro & Muturi, 2013).

Financing constraints of SMEs go beyond the scarcity of finance and the circumstances by which the financial institutions make funding available to the SMEs (Klonowski, 2012; Tagoe, Nyarko & Anuwa-Amarh, 2005). As summed up by the financing constraint theory (Evans & Jovanovic, 1989; Appiah et al., 2018), the more quanta or fewer quanta of capital enterprises can have access to depend on how they overcome their internal borrowing constraints. The amount of debt capital that a lending institution can extend to an enterprise depends on the capability and capacity such as size, age, value of collateral, sales turnover, profit of the enterprise (Inessa & Mylenko, 2003; Jappelli & Pagano, 2005). Research in the field of collateral, information asymmetry and moral hazard and their impacts on access to SME loans is quite rare, if not nil, in Ghana although this cannot be said in the developed and some other developing economies. Many studies established that access to loans by SMEs was related directly to their physical attributes explained in terms of their sizes and ages as supported by empirical studies (Ackah & Vuvor, 2011; Abor & Quartey, 2010; Adomako-Ansah, 2012).

Again, most of these earlier studies looked at owner characteristics as constraints to external finance. For example, characteristics of owners of SME which include age, gender, educational background and executive experience have been established to affect a company's access to external finance (Cassar & Holmes, 2003; Coleman, 2000; Neeley & Auken, 2009).

While one constraint could be of great importance in one country and economy, it might

not necessarily be of equal importance in another country and economy (Benzing, Chu & Kara, 2009; Kader et al., 2009; Krasniqi et al., 2008; Lin, 2006; Simpson et al., 2012). However, collateral requirement, information asymmetry and moral hazard are fundamental to lending decisions, irrespective of the country and credit institution involved and so could be threats to all financial institutions like banks, especially those in Sub-Saharan Africa. The closest the earlier researches in Africa (Gichure, 2016; Osano & Languitane, 2016) and, perhaps, in Ghana (Adomako-Ansah, 2012), specifically, came to the current study was for some of them to use only the theories of information asymmetry and moral hazard (or adverse selection) as foundation theories in their studies with most of them not or none addressing the impacts information asymmetry and/or moral hazard as constraint(s) could have on access to SME loans.

Since commercial banks view SMEs as high risk borrowers, they demand excessive collateral or charge high interests or avoid dealing with SMEs altogether (Kundid & Ercegovac, 2011). Furthermore, SMEs are very vital to the Ghanaian economy. SMEs in Ghana have played a major role in the reduction of poverty from 51.7% in 1993 to 39.5% in 1999 and also reducing extreme poverty from 36.4% to 27% over the same period (UNDP Action plan, 2010). Quainoo (2011) and Abor and Quartey (2010) submit that SMEs provide about 85 percent of manufacturing employment; contribute about 70 percent to Ghana's Gross Domestic Product (GDP) and account for over 90 percent of businesses, according to available data from the Registrar General's Department. In spite of the tremendous contributions to the economy, SMEs in Ghana have a lot of difficulties when accessing funds from financial institutions for their business dealings.

According to Abor, Agbloyor and Kuipo (2014) on supply and demand for finance of SMEs in Ghana, the success ratio for large firms applying for bank loans was 69 percent as against 45 percent for small-scale enterprises and 34 percent for micro-enterprises. There have, certainly, been improvement but access to loans from banks without collateral still remains a major challenge among SMEs in Ghana. Collateral was demanded from almost 75% of sample enterprises that require loans in a research involving demand and supply of finance for small firms in Ghana. Out of the 65% of the SMEs which applied for the loans, a large number of them had their applications turned down by the banks citing not enough collateral, such as lands and houses, as the number one concern (Ackah & Vuvor, 2011; Domeher, Musah & Hassan, 2017).

In context, the key loan access constraint among SMEs in Ghana is collateral. In the

situation where certain small and medium-sized enterprises are able to provide collateral, they frequently end up being insufficient for the sum they need to embark on their enterprises as asset-backed collateral for small and medium-sized enterprises is typically rated at far below market values to ensure that the loan is secured realistically in the event of default due to the uncertainty surrounding the sustainability and development of small and medium-sized enterprises (Irwin & Scott, 2010; Wangmo, 2016).

A major reason for this could be supported with a study by Jaffe & Russell (1976) who posited that “pathologically” honest borrowers are difficult to be distinguished from economically rational borrowers. Even some SMEs can provide the collateral but they could still be discriminated against. A major reason, again, for these occurrences could be supported with a study by Jimenez and Saurina (2004) that there are optimistic businesspersons who underestimate their chances of going bankrupt and are willing to provide all the collateral they are asked to in order to obtain finance for their projects. However, collateral is regarded as an instrument ensuring good behaviour on the part of borrowers, given the existence of a credible threat (Han, Fraser & Storey, 2009; Hanedar et al., 2014). It is in view of these issues that it is considered worthwhile to test the theoretical assertion whether collateral requirement is due to information asymmetry and moral hazard by banks of SMEs in Ghana.

From theoretical reasoning, it could be deduced as follows:

- (1) Collateral requirement could impact either positively or negatively on the chances of access to SME loans (Menkhoff et al., 2011; Hainz et al., 2013).
- (2) Information asymmetry could provide the SMEs with enough leeway to maximize what could benefit them only by behaving opportunistically (Mthimkhulu & Aziakpono, 2012; Kloyer et al., 2018).
- (3) Moral hazard could provide the SMEs with enough leeway to misbehave after acquiring the loans or invest the loan in highly risky ventures (Ramsundar & Shubhabrata, 2013; Khurana, 2015).
- (4) Information asymmetry and moral hazard could jointly provide the SMEs with enough leeway to misbehave after acquiring the loans or behave opportunistically by investing the loan in highly risky ventures (Takagi, 2002; Uesugi & Ono, 2009).

After extant literature review, these studies (Igawa & Kanatas, 1990; Hainz et al., 2013; Blazy & Weill, 2013) are important in this research area and recommend for more assessments

relating to the current research subject. The current author, therefore, deem it interesting to study the moderating or interaction effects of information asymmetry and moral hazard on the relationship between collateral requirement and access to SME loans as an important way of unraveling conflicting findings and/or adding new insights to empirical literature.

1.3 Research Aim and Objectives

The aim of the study is to look at how bank collateral requirements affect SMEs' access to loans in Ghana, the interaction of information asymmetry and moral hazard and, then, develop a framework (2x2 matrix) to help address the SMEs' internal complexities.

Fervently related to this research for all stakeholders in the SME sector in Ghana to note is, sharing of quality information (objective and subjective) could reduce collateral requirement as well as moral hazard and boost loan accessibility by SMEs. Therefore, the specific objectives of the study are:

- a. To evaluate the relationship between collateral requirement and access to SME loans in Ghana.
- b. To examine the impact of the interaction effect of information asymmetry on the relationship between collateral requirement and access to SME loans in Ghana.
- c. To assess the impact of the interaction effect of moral hazard on the relationship between collateral requirement and access to SME loans in Ghana.
- d. To examine the impact of the interaction effects of both information asymmetry and moral hazard jointly on the relationship between collateral requirement and access to SME loans in Ghana.

1.4 Research Questions

From the research objectives outlined above, the study is guided by the following research questions:

- a. What is the relationship between collateral requirement and access to SME loans in Ghana?
- b. What is the impact of the interaction effect of information asymmetry on the relationship between collateral requirement and access to SME loans in Ghana? Is the impact low or high?
- c. How will interaction effect of moral hazard impact the relationship between collateral requirement and access to SME loans in Ghana? If any impact, is it low or high?
- d. How will interaction effects of information asymmetry and moral hazard simultaneously affect

the relationship between collateral requirement and access to SME loans in Ghana? Will the effects be low or high?

1.5 Justification of the Study

Firms across countries have different financing structures, determined by both firm-specific characteristics and countries' institutional environment, including their financial development. However, information asymmetry, moral hazard and collateral requirement are fundamentals to lending and so are threats to all lending institutions. These factors could be negatively affecting loan portfolio qualities and, therefore, need further research to bring their negative effects under control to enable more SMEs to acquire more loans in order to develop and positively affect their economies.

Most SME financing studies were undertaken in countries which have advanced banking structures, for example, Australia (Johnsen & McMahon, 2005), America (Allee & Yohn, 2009) and Europe (Hall, Hutchinson & Michaelas, 2004). Moreover, these studies focus on the top echelon of the SME continuum (medium enterprises), leaving out the lower end (micro and small enterprises) that is a large portion of the SME markets in developing countries (Beck et al., 2013; Berger & Udell, 2006, Holmes et al., 2003).

Writers like Osei-Assibey, Bokpin and Twerefou (2012) together with some foreign organizations have questioned whether these empirical studies conducted in highly developed countries and matured economies are applicable to SMEs in developing countries. Due to underdevelopment of financial and legal structures in developing economies, access of SMEs to foreign funding is more difficult (Beck, Demirguc-Kunt & Martinez Peria, 2008; Mateev, Poutziouris & Ivanov, 2013). The banking sector in developed economies is stated to support SMEs while in the developing economies; the sector is underserved (Holmes et al., 2003; Ramlee & Berma, 2013). The Ghanaian banking sector being an important but an understudied area with very little literature and knowledge about information asymmetry and moral hazard of small businesses and their effects, there is the need for the study in order to create awareness, add to academic literature and also for this study to serve as a reference point for academia for further research. While the banks could see this study as enlightenments on what to do more to take advantage of the SME sector for more businesses and earnings, the SMEs can also use it as a point of reference to improve their chances of accessing funds from the formal financial institutions in Ghana.

There are still major issues to overcome in the quality of financial intermediation in order to increase credit to more credible SMEs that may not have sufficient collateral. Therefore, the study generally will help overcome some market failures that undermine the ability of credible SMEs to access credit, perhaps, without collateral by helping improve the quality of financial intermediation.

In summary, the reason which is aimed at reducing the impacts of information asymmetry, moral hazard and collateral requirement on loan access by SMEs basically has been linked to the importance of improving sharing of information between the lenders and SMEs in order to improve on loan access by the SMEs. Therefore, it is imperative examining the effects of collateral requirement, information asymmetry and moral hazard of SMEs on loan access. This is because it is not easy, if not impossible, for financial institutions which assist SMEs with loans to see in advance all possible implications of information asymmetry, moral hazard and collateral requirement at the same time on the loan acquisition process. Bank officials involved in loan appraisals and approvals need to know when situations of information asymmetry and moral hazard are perceptible, either involving them or the SMEs, so that they can take good decisions in favor of the bank. Like any other professionals, loan officers as well as credit committee members and the board sub-committee on credit of any lending institution must make responsible judgments or take credible decisions even if it involves their own self interests. It follows that both banks and SMEs must be aware of the challenges that information asymmetry, moral hazard and collateral requirement could pose to the chances of loan access.

1.6 Contribution of the Research to Knowledge

This research contributes to the existing body of knowledge by helping SME owners to realize that “they are their own enemies” as far as access to loans is concerned. The aim of the study is to reveal that the most important constraints which make banks to require for collateral from SMEs, which in turn is a major challenge for the SMEs to access loans, could be information asymmetry and moral hazard and overcoming them could mean fewer or no requirement for collateral by banks. Therefore, SME owners and/or managers must evaluate their conducts and/or business practices and improve on the loan granting requirements needed to access loans in the Ghanaian banks, especially the risk associated with the practices and characters of the owners and/or managers. The findings of the study, therefore, will contribute to knowledge, theory and practice.

The study establishes the joint effects of the financial market constraints (collateral requirement, information asymmetry and moral hazard) on access to loans by SMEs. To the body of knowledge, the study contributes and adds on the existing literature of the constraints faced by SMEs in a number of ways. For example, Beck (2007) examined the effects of collateral requirements on access to finance by SMEs. Beck and Demirguc-Kunt (2006) studied the effects of information asymmetry on access to finance by SMEs. Some other empirical studies have looked at the impact of information asymmetry on collateral requirement (Chakraborty & Hu, 2006; Jimenez, Salas & Saurina, 2006; Voordeckers & Steijvers, 2006; Brick & Palia, 2007; Steijvers et al., 2010; Bharath et al., 2011; Agostino & Trivieri, 2017). Boot, Thakor and Udell (1991) and Niinimäki (2009) studied the effect of collateral on moral hazards during accession of SME loans but little attention was paid to the effect of moral hazard on collateral. However, none of these previous studies examined the overall effect of these market failure constraints (collateral requirement, information asymmetry and moral hazard) on access to loans by SMEs. This, the current study has done by revealing further the interconnections among the key constraints which are necessary and sufficient for access to loans, not only by SMEs but all businesses, in Ghana.

Also, the study's contribution is significant for analytical methodology. Empirical research has been hampered by the almost insolvable problem of directly measuring moral hazard. Therefore, there exists a methodological gap in previous studies, so there is the need to develop measurement scale or derive a proxy for moral hazard. The author, by contrast, was able to derive and exhibit an operational proxy variable of borrower opportunism for moral hazard, based explicitly on the theory of rational borrower behaviour. This is likely to be a pioneer in the study of demand-side moral hazard involving access to SME loans.

Again, lending institutions could also be contributing to information asymmetry. However, scanty or no empirical studies exist on supply-side information asymmetry. There is the need to explore information asymmetry from the supply-side as well which this study has done by developing measurement scale to solicit for supply-side information.

The study also improves the methodologies used by previous scholars who had used simple regression analysis by using structural equation modelling (SEM) as well as multiple linear regression analysis. The previous studies had only examined the casual effect while this study has established the linear predictor equations of the relationships. Furthermore, the

previous studies were done in developed economies with high end enterprises such as medium while this study has been done in an emerging economy with low end enterprises such as small. In addition, the study analyzed the moderating/interaction effects of information asymmetry and moral hazard on a market failure constraint of collateral requirement and there is likely no other study like this done in an emerging economy.

The study reliably contributed theoretically to Ghana's SME funding literature. Basically, the aim of the study was to find proof of the difficulties that small business owners/managers face in getting a loan. Collateral requirement was found to be an important factor influencing SMEs' access to loan, according to the study. The research also discovered that information asymmetry and moral hazard are two entrepreneurial characteristics that affect SMEs' access to loan. Furthermore, the findings revealed that in the context of Ghana, the following theories are very relevant: credit rationing theory, financing constraint theory, resource-based theory and adverse selection theory.

According to popular belief, majority of Ghanaian SMEs tend to fund their investment needs with internal funds more or rather than external funds. Personal finance and sponsorship from family and friends are preferred over bank loans because they might not have the needed collateral. Also, those who can provide collateral do so in order to access loan. All these efforts provide some supports for the application of the resource-based theory. Those who need more financial supports in addition to the personal finance and funding from family and friends but could not provide the needed collateral are constraint and could have their credit applications turn down, providing support for financing constraint theory. A loan amount that one SME could not access due to whatever reasons may be quickly accessed by another SME which could meet the credit requirements of the bank thereby creating more demand leading to credit rationing, hence the relevance of credit rationing theory.

Furthermore, Ghanaian SMEs that can provide the needed collateral but could be perceived by the banks to be information opaque and/or morally hazardous could be denied access to the loan. By so doing, creditworthy SMEs could be denied the loan, providing support for the relevance of adverse selection theory in this context. Since there are no studies that explored the direct and indirect relationships between collateral requirement and loan access with moderators/interactions from Ghanaian banks, this study's examination of the application of the mentioned theories to SMEs in Ghana and the use of moderators/interactions in the study of the

collateral requirement and access to loan dyad are significant contributions. The decision maker and market characteristics, in particular, influence the degree to which access to loan from Ghanaian banks to SMEs is affected.

There are no scholarly works available in one study in relation to emerging economies like Ghana on the collateral requirement, information asymmetry, moral hazard and access to SME loans thereby creating a lacuna. To the knowledge of the author, this is the first empirical study on SMEs in Ghana to explore SME funding constraints of collateral requirement, information asymmetry and moral hazard by relating it to accessing bank loans. In other words, research on the Ghanaian SME field is restricted to analytical studies based on constraints which are general (firm and owner characteristics) faced by the SMEs without concrete studies to determine the theoretical statement that “collateral requirement is conditional on information asymmetry and moral hazard.” After searching and analyzing literature for the study, the author did not find any published work using matrix analysis to construct scenarios concerning SME financing. Thus, from a theoretical viewpoint, this is the first scholarly research which is focused on theoretical contexts relating to Ghana and her particular social and economic climate. The research is focused on economic theories of credit rationing, financing constraint, resource-based and adverse selection to determine structures and overall conceptual model.

Practically, the results have significant implications for key stakeholders (SMEs, banks and government). Access to loans by SMEs is a critical factor in boosting the growth of the sector. This is particularly important since the sector offers employment to millions of Ghanaians and contributes significantly to the economic development of the country. The role of information asymmetry and moral hazard as conditions in easing collateral requirement and boosting access to loans for SMEs is an important area to all stakeholders. The research presents perspectives to help SMEs consider the causes and negative consequences of information asymmetry and moral hazard and determine their roles to increase debt usability. Steps must be taken at the SME level to minimize information asymmetry and moral hazard with the banks in order to boost financial integrity in the market.

Notwithstanding the high risks and costs relating to SME funding, the SME field provides a wide and lucrative market due to their numbers and their economic and social importance. Therefore, this thesis would encourage the banks to establish various frameworks for evaluating clients (for example, continuous training and sensitization on information asymmetry

and moral hazard) which could help in order to gain from the big and successful SME business advantage. The findings of the study will benefit policy formulators by highlighting the awareness of the extent to which the forces of information asymmetry, moral hazard and collateral requirement drive the process of financial intermediation. For example, the state should define legal and institutional policies for the protection of lenders so that banks can demand specific information about a borrower in order to reduce the problem of information asymmetry and moral hazard.

The results have functional significance in designing well-examined and established policy-level steps to overcome SMEs' information asymmetry and moral hazard constraints and the banks' related collateral requirement affinity to help boost growth in the sector. The study offers practical perspectives to help policymakers consider the need of SMEs in terms of loans and plight of financial institutions in order to provide a beneficial funding climate for them all.

Despite Ghana's "small-sized" economy, it shares many similar characteristics of the SME sector with almost all African developing countries. SMEs in developing countries face such common obstacles and restrictions. Therefore, the results of the study that include a clearer understanding of the funding constraints of collateral requirement, information asymmetry, moral hazard and access to SME loans in Ghana are relevant to other developing countries. The study offers insights to emerging economies that position the growths of SMEs as economic drivers. The study's importance applies to legislative consequences for policymakers, SMEs and financial institutions in these developing economies. The conclusions from the study could be used as a guideline in policy formulation and initiatives to help resolve the difficulty of accessing loans by SMEs.

1.7 Limitations and Assumptions

The biggest challenge was collecting information from the SME owners as most of them were afraid to share any knowledge that they felt was private. For example, because of the fact that the survey was soliciting for information on issues concerning moral hazard, there was a bit of difficulty in the frankness of the SMEs in answering the questions. The researcher resolved this restriction by using the university's introduction letter to assure the respondents that the knowledge presented will only be used for academic purposes. Consequently, they willingly respond to the questions to elicit valid responses.

Also, the data of the study were collected in Accra and Tema which are urban cities; thus

the results could be difficult to reproduce in rural areas because the SME owners in rural areas may have different borrowing characteristics. Therefore, research in rural areas throughout the country is necessary to validate the results of this research. Again, some respondents took more time to provide answers to the questionnaires and some misplaced their versions of the questionnaires and had to be supplied with new ones thereby expanding the data collection cycle beyond the time planned. Another drawback is that the SMEs are too many, even in only Greater Accra region, so to address this obstacle, the study targeted only registered SMEs which applied for loans from any of the twenty-three (23) universal banks only. The independent variable could only describe 20.6 percent variance in the dependent variable, which means that there were other significant independent variables left out in the analysis. There are a large pool of registered SMEs which are doing business with non-bank financial institutions (NBFIs) and a large pool of non-registered SMEs which are doing business with both universal banks and NBFIs so these segments are proposed as further research fields.

1.8 Summary of Methodology Adopted

The importance of studying the relationship between collateral requirement and loan availability by Ghanaian SMEs, as well as the implications of information asymmetry and moral hazard, is well established in the literature. The study involved a scientific approach to identify relationships among the variables. Questionnaires were designed and used to collect the data. Furthermore, the study involved variables which are very essential because they are the phenomena that are classified and quantified, hence the use of the quantitative method. Numerical data was obtained and analyzed using statistical methods. However, there was a researcher-participant engagement. Also, the questions were measured and scaled using a Likert scale to solicit for the opinions of the respondents on the subject matter. Therefore, in a restricted way, qualitative method (expert views) was combined with a mainly quantitative data analysis process, giving it a mixed science taste. Hence, the study has the post-positivist paradigm functions.

The study is cross-sectional. Applying the quantitative method, the study further adopts a combination of its extended components of survey and correlational designs. With purposive sampling, data are obtained from a questionnaire survey of a sample of 500 SMEs in Accra and Tema (Ghana), with unknown population, registered with Registrar General and doing business with any universal bank for at least a year. The sample size is decided based on two guidelines

and a recommendation in factor analysis (Comrey & Lee, 1992; MacCallum et al., 1999; Basheer et al., 2019). The main statistical methods used were the structural equation modelling (SEM), factor analysis, correlation and regression tests, supported with contingency table analysis. The magnitude/strength of the association between the independent and dependent variables is assessed using a Hierarchical Moderated Multiple Regression model.

1.9 Definition of Terms

Moral hazard: It is an ex-post activity that happens when investors do not stick to the original investment contracts and that may lead to more costly economic activities but with likely better returns (IFC, 2014).

Information asymmetry: This involves a contractual situation in which one party has more or better information, which is to help in quality decision making, about a contract than the other (Jones, 2016).

Collateral: They are properties or other assets that borrowers offer lenders to serve as sorting devices for the borrowers' ex-ante and ex-post riskiness for securing loans and could be forfeited in the event of a default. Again, collateral can refer to security deposited with the bank by the borrower as a guarantee to cover the risk of default (Voordeckers & Steijvers, 2006).

Small and Medium Enterprises: They are business entities in the formal and informal sector employment groupings as follows: micro; 1-9 employees, small; 10-29 employees and medium; 30-99 employees, in the case of Ghana, (Siaw, 2014).

Access to Loan: It is the flexibility and the ease with which SMEs get credit facilities from banks in terms of frequency of access to the loans (Claessens, 2006; Akudugu, Egyir & Mensah, 2009). Furthermore, access to finance (which includes access to loans), generally, refers to how available is the supply of quality financial services at a competitive cost (Claessens & Tzioumis, 2006).

2.0 Structure of the Thesis

The study is organized in six chapters, accompanied by an introduction of each chapter.

Chapter One presents the background of the research together with the identified research problem and research questions. The chapter summarizes the significance of the study, its academic and practical contributions, limitations and assumptions.

Chapter Two presents a detailed literature review of relevant concepts concerning access to SME loans, moral hazard, collateral requirement and information asymmetry. It starts with the

definition of SMEs and continues with an overview of SMEs in Ghana, as well as a detailed review of the relevant literature on the research subject. It discusses the theoretical perspectives, pointing out conceptual linkages across theories and forms the basis for identifying the hypotheses of the research. It also includes an analytical synthesis covering all known literature on the problem and a critical evaluation of empirical studies on the research subject. Additionally, a 2x2 (2 by 2) matrix was developed, scenarios were discussed and assessed to help put in perspective the chances of SMEs' loan accessibility, based on the collateral requirement, information asymmetry and moral hazard, in order to help place them in categories.

Chapter Three elaborates on the methodology, research paradigm, research design and approach, sampling process, sample size, collection instruments, data collection methods the study adopted and demography of the participants. The methods and tools that were used to analyze the data were also identified. Ethical considerations were also discussed.

Chapter Four analyzes the research findings in respect of their statistical significance. It includes answers to each research question as well as any unexpected insights detected.

Chapter Five focuses on the findings by relating each finding to the corresponding study objective and the implications. The chapter also places the research and its findings in the body of literature by pointing out how the work is similar to or different from existing studies on the subject.

Chapter Six consists of conclusions and recommendations. It also discusses the implications for future studies.

Chapter 2

Review of the Literature

This section looks at the earlier related research studies done on collateral requirement, information asymmetry as well as moral hazard in relation to access to finance or loans by SMEs. The chapter has 23 sections in all as follows: a brief on small- and medium-sized enterprises (SMEs) in 2.2, overview of SMEs in 2.3, Ghanaian SME categories in 2.4, financial institutions and SME performance in 2.5, lending strategies in 2.6, collateral-based lending as a “mixed” lending strategy as well as constraint in 2.7, gaps in access to SME loans literature in 2.8, measurement of access to finance in 2.9, collateral requirement in 2.10, information asymmetry in 2.11, moral hazard in 2.12, empirical literature in 2.13, literature on the combined constructs (collateral, information asymmetry and moral hazard) in 2.14, critique of the existing literature relevant to the current study in 2.15, alternative financing mechanisms in 2.16, theoretical contexts in 2.17, theoretical framework in 2.18, matrix analysis of the constructs in 2.19, conceptual model in 2.20, hypotheses in 2.21, measures of the constructs in 2.22 and control variables in 2.23

2.1 Introduction

Studies such as Woldie, Mwita and Saidimu (2012) and Appiah et al. (2018) highlighted many constraints faced by businesses when seeking to access financing from banks. Also, literature described multiple key factors as explanations for this issue (Woldie et al., 2012; Isern et al., 2009; Beck et al., 2008; Deakins, Whittam & Wyper, 2010) which are categorically split into demand and supply side factors. It is important to remember that most literature reflects on the restrictions on the investors and only little on the financiers, showing that the challenges are more with SMEs than with lending institutions.

2.2 Small and medium-sized enterprises (SMEs)

Small and medium scale enterprises are gaining widespread acceptance as viable drivers of economic growth (Olatunji, 2013). Globally, SMEs account for the highest number of registered companies and make significant contributions to economic growth and prosperity. In Ghana, statistics from the Registrar General’s Department indicates that about 90 per cent of businesses registered are micro, small and medium enterprises. This is corroborated by the Association of Ghana Industries (AGI). According to the AGI, out of about 1200 registered

members, about 25% of members are medium and large-scale industries while the remaining belongs to the micro and small-scale categories (GSS, 2017).

2.3 Overview of SMEs

The notion of SMEs was introduced into the development landscape as early as the late 1940s and the primary aim was to improve trade, entrepreneurship and industrialization in the present developed nations (OECD, 2004). In contrast to large businesses, SMEs are businesses that are basically privately owned and operated with a small number of personnel and a relatively low volume of sales (Nkuah, Tanyeh & Gaeten, 2013). There is no universally accepted definition of small and medium-sized enterprises. SMEs can be defined based on certain criteria including turnover, number of employees, profit, capital employed, available finance, market share and relative size within the industry. Thus, the definition of SMEs varies and is dependent upon whose point of view (Senderovitz, 2009). According to OECD (2004), SMEs' characteristics reflect not only a country's economic but, also, cultural and social aspects.

In relation to the size of an economy, its corporate sector structure and other relevant policy frameworks, the definition of SMEs differs from country to country (Ayyagari, Beck & Demirgüç-Kunt, 2007; Beck, Demirgüç-Kunt & Maksimovic, 2008; Abor & Quartey, 2010). Furthermore, other criteria of defining SMEs include total investment, sales turnover, total number of employees etc.

To the European Union (EU), an SME is a company with an employee population of 250, a turnover of up to 50 million euros or balance sheet of up to 43 million euros (EC, 2008). In Sweden, ninety-nine percent of firms have employee population of 50, hence considered as SMEs (Nutek, 2004). Chowdhury, Alam and Arif (2013) report that SMEs in industrialized countries are based on number and are defined as follows: Small - firms that have 99 or fewer workers; Medium – firms that have between 100 and 499 workers; Large – firms that have 500 or more workers. For developing countries, the classifications were given as Micro - firms with less than 5 workers; Small - firms with 5-19 workers; Medium- firms with 20-99 workers; Large – business firms with 100 or more workers.

For the purposes of categorizing SMEs, the OECD uses the following convention: micro; 1-4 employees, very small; 5-19 employees, small; 20-99 employees, medium; 100-500 employees. Broadly, an SME is described as a firm with fewer than 500 employees in OECD countries. (Ayyagari, Demirgu,-Kunt & Beck, 2003).

According to the World Bank's Regional Program on Enterprise Development, the SME sector is classified as micro; less than 10 employees, small; 10-49 employees, medium; 50-200 employees. This was based on data on the share of employment held by SMEs for eight African countries (Ayyagari, Demirgu,-Kunt & Beck, 2003).

The concept of SME varies across OECD and Asian-Pacific Economic Cooperation (APEC) economies but it is most generally focused on the number of employees. An SME, usually, hires less than 100 people with a maximum of about 500. Generally, the vast majority of SMEs (roughly 70%) employs fewer than five people or is self-employed. In China, the concept of a small and medium-sized enterprise (SME) is very broad and can include relatively large enterprises. The regulatory concept (and thus the compilation of SME export statistics) is based on the industry category and is specified in terms of staff, revenue, and properties. An industrial SME, for example, has up to 2,000 employees while a small company has less than 300 and a medium-sized business has between 301 and 2,000. As a consequence, a SME in China may be very high in comparison to a SME in Europe or the United States. However, due to the high labor intensity of production and China's massive scale, these businesses remain small. Furthermore, the concept of a small business in China has changed at least four times since the 1950s, making historical comparisons difficult (Hall, 2007).

According to the International Finance Corporation (IFC), MSMEs (Micro, Small and Medium Enterprises) are businesses with less than 300 staff and gross assets of less than \$15 million. MSMEs are classified as businesses with fewer than 20 employees in smaller economies. By the definition of the International Labor Organization (ILO) and the United Nations Development Program (UNDP), a micro-enterprise has less than five workers, including the owner; a small enterprise has five to twenty employees; a medium enterprise has 21 to 99 employees; and a large enterprise has more than 99 employees (UNDP, 2001).

Further, SMEs are described by the European Commission (EC) as businesses with 10 to 250 employees and a turnover and balance sheet total of two to fifty million euros (Cofie, 2012). They are classified as businesses with a turnover of less than £25 million, less than 250 employees, and gross assets of less than £12.5 million in the United Kingdom (Bond, Platz & Magnusson, 2012). Also, in the United States and the European Union (EU), small businesses are commonly described as having less than ten employees (Bond et al., 2012).

In Ghana, various institutions such as the Ghana Statistical Service (GSS) and National

Board for Small Scale Industries (NBSSI) define SMEs using different criteria (Ackah & Vuvor, 2011). For instance, the Integrated Business Establishments Survey (IBES) I and II by GSS (2015) and GSS (2016) respectively defined micro establishments as those employing up to 5 employees, small-sized establishments as those with 6-30 employees and medium-scale enterprises as those employing between 30 and 100 workers while large-scale enterprises as those employing more than 100 employees (GSS, 2017). Similarly, the NBSSI uses the number of employees and value of fixed assets as two criteria in defining SMEs; micro-enterprises are those that employ up to 5 people with fixed assets not exceeding \$10,000, excluding land and buildings whereas small enterprises employ between 6 and 29 with fixed assets not exceeding \$100,000, excluding land and buildings. Thus, SMEs are those enterprises employing 29 or fewer workers, by the definition of NBSSI.

Based on the criteria of NBSSI, Adjei (2012) defines a small enterprise as one that employs less than twenty-nine people and has a plant and machinery value of less than ten thousand Ghana Cedis (excluding the building and vehicle). However, considering fluctuations in the value of the domestic currency, asset heterogeneity, and turnover variations, utilizing these variables to distinguish the size of operations of firms may not seem to be quite acceptable. Furthermore, Abor and Quartey (2010) point out that valuing fixed assets is a challenge, and that the ongoing depreciation of the local currency against major trading currencies often renders certain concepts obsolete. As a result, this research uses a description of SMEs based on the number of employees (Amonoo, Acquah & Asmah, 2003). Broadly, the most common metric used to classify companies by size in the country is the number of workers. They are used as a measure of size because it is accurate and easily applicable and can be used for comparative purposes (Voulgaris, Doumpos & Zopounidis, 2000; Siaw, 2014). Based on the reasons outlined, SMEs are grouped as follows; micro 1-9 employees, small 10-29 employees and medium 30-99 employees. Many researchers such as UN Advisor Group (2008) have used similar or this classification in Ghana as well, based on similar reasons adduced earlier (Siaw, 2014).

2.4 Categories of SMEs in Ghana

In Ghana, SMEs are classified into urban and rural enterprises (GSS, 2011). The urban SMEs can be further divided into two as “organized” and “unorganized” enterprises. The organized ones mostly have registered offices and have their employees on payrolls whereas the unorganized SMEs characteristically consist of artisans whose places of work are open spaces,

temporary wooden structures or at home and they employ a small number of or, in some cases, no salaried workers but only helping hands (Avevor, 2010). Most of the time, they use family labor such as relatives and maidservants and apprentices (Torgbor, 2014).

Rural enterprises largely consist of family groups, individual artisans, women engaged in food production from local crops (Torgbor, 2014). The major products in this sector that the SMEs are involved in are soap and detergents, fabrics, clothing and tailoring, textile and leather, village blacksmiths, tin-smiting, ceramics, timber and mining, bricks and cement, beverages, food processing, bakeries, wood furniture, electronic assembly, agro-processing, chemical-based products and mechanics among others (Avevor, 2010; Ahiawodzi & Adade, 2012).

By way of financing, small and medium-sized businesses such as enumerated above in a country like Ghana, mostly, have access to credit through the microfinance system. The classification of credit facilities given to SMEs as "micro" lends credence to this claim (Waari & Mwangi, 2015). As a result, the difficulties that SMEs face in obtaining credit are best seen through the lens of microfinance.

To understand the concept of "microfinance," it will be easy for one with knowledge on the prefix "micro." The term "micro" as defined by the Oxford dictionary, simply, is "extremely small." According to Idowu and Salami (2011), the word "micro" refers to anything that is quite limited in size or value. Then, in the microfinance literature, the term "finance" refers to a variety of services (such as lending, savings management, and financial consulting) provided by financial institutions. Therefore, the sense of the word "microfinance" is clear from these descriptions and explanations. However, it is worthwhile to consider various writers' definitions of this word as well.

Microfinance can be characterized as a financial operation that provides small and collateral-free loans or financial services to people with low incomes, little assets, and who are unable to obtain loans from traditional commercial banks due to high collateral requirements and stringent security requirements (Asghar, 2018). According to Ayuub (2013), microfinance is a process of providing financial services such as lending facilities, savings opportunities, money transfers, and health and business insurance to low-income earners who are overlooked by commercial banks. Accordingly, microfinance can be said to be the provision of financial services, including loans or credit facilities, to low-income earners with the intention of alleviating the lack of access to such services from the commercial banks.

In view of the definitions above, the mission of microfinance is to provide financial services to poor people, rural dwellers, and their businesses. Microfinance also seeks to strengthen the financial status of low-income individuals and SMEs (Adu-Okoree, 2012). As a result, Ashun (2010) claimed that microfinance is for SMEs and the disadvantaged. According to Ferka (2011), the aim of microfinance is to make financing of SMEs easier.

In general, financial institutions such as commercial banks, rural and cooperative banks, savings and loans firms, and other financial institutions provide microfinance services (Ajagbe & Bolaji, 2013). However, commercial banks only do a limited amount of microfinance while savings and loans firms, rural and community banks, and other smaller financial service providers (i.e. microfinance companies) do more (Asghar, 2018; Otoo, 2012). Nonetheless, according to Asghar (2018), majority of commercial banks' business customers and potential business customers in developing countries are SMEs or small businesses in need of microcredit. Consequently, commercial banks in these countries actively participate in microfinance (Ashun, 2010; Asghar, 2018). For example, in Ghana, microfinance services are primarily provided by savings and loans firms, rural and community banks, and microfinance institutions. However, commercial banks such as Stanbic Bank, Standard Chartered Bank, Ghana Commercial Bank etc. prioritize microfinance and SMEs lending (Otoo, 2012; Larbi, 2014).

In developing countries like Ghana, the microfinance literature offers two microfinance models. The first model involves providing microfinance services focusing on lending to SMEs and individuals (Larbi, 2014). "Individual lending" is the term used to describe this model (Lakwo, 2006). Individual lending is characterized as a single-client lending for which the borrower is solely responsible for repayment. Furthermore, the credit facilities are granted to individuals based on their ability to guarantee consistent repayments. This insurance is based on their ability to meet all lending requirements. According to Larbi (2014), the individual is not a member of a collective or group and so provides collateral and/or a guarantor before the loan can be accessed. He went on to say that the individual client will be required to show current payslips as evidence of a steady stream of income and/or bank statements as proof of savings. The person will also have to allow the financier to inspect his business in order to better prove he is creditworthy and place of residence for easy tracking.

The second microfinance model is "group lending" (Larbi, 2014). The lending or microfinance institution may use the group lending strategy to lend to a group of people rather

than an entity. This model allows the lending or microfinance institution to provide microfinance services and loans to a larger number of people. Members who are interested form a self-selected group of five to ten people (Okibo & Makanga, 2013). Individuals in the group are granted the loans or the group as a whole is granted a lump sum for onward lending to members. Total loan repayments are the responsibilities of all the members of the group (Lakwo, 2006).

Generally, banks and customers are thought to prefer the second type of microfinance to the first. To the customers, it is beneficial because it makes credit more accessible (Larbi, 2014). This model, from the viewpoint of lenders, allows customers to properly repay loans and their interests (Okibo & Makanga, 2013; Larbi, 2014). As a result, the group lending model is more dependable for both beneficiaries and financiers.

Thus, microfinance accessibility is through either individual or group lending (Olumuyiwa & Oluwatosin, 2012). Consequently, customers and the general public benefit from microfinance which can be achieved individually or in groups. However, this does not imply that microfinance is limited to lending. Savings management, financial consulting, and entrepreneurship growth programs are among the services provided. Therefore, people benefit from microfinance through group or individual lending, savings management, financial consulting services, and entrepreneurial development programs.

Despite the fact that microfinance is a mechanism in which SMEs have access to credit, every economic system has barriers to accessing these credit facilities. These impediments are, in theory, restrictions that must be removed in order for the SMEs sector to expand to its full potential. Any firm, no matter how big or small, faces constraints. Challenges in obtaining credit are examples of these constraints for small and medium-sized businesses. This idea and thinking is in harmony with the credit constraint theory and other relevant theories discussed, later, in the chapter.

2.5 Financial Institutions and SME Performance

Financial institutions provide external financing to SMEs. Financial institutions have packaged different credit facilities that are aimed at different forms of businesses. These products when offered to SMEs help them improve their performance by raising productivity, improving returns on investment and increasing incomes (Ngunjiri, 2012). Studies like Osoro and Muturi (2013) have shown that the availability and access to external financing has positively impacted the growth and performance of businesses of any kind.

Beside the provision of financing, financial institutions also provide training and other support services to SMEs. According to Ejembi and Ogiji (2007), there is still less knowledge on financial management by SME managers and/or owners despite the huge importance that this has on sound decision-making. The training that some of the financial institutions provide to their clients help entrepreneurs to understand basic issues like record keeping which in turn help them better understand their business operations. Training entrepreneurs adds to their skills, change their attitudes on how they perceive and conduct business activities and, in turn, enhance the ability of their firms to perform better. A financially literate entrepreneur can make better decisions regarding utilization of other financial services like saving more, taking full advantage of credit facilities and mitigating risks through the utilization of insurance services (Andoh & Nunoo, 2011).

2.6 Lending Strategies

Recent literature on the various classes of lending strategies focuses on two major types of giving credit to clients. Banks adopt different lending strategies to determine whether to lend to SMEs and how much to lend, if possible. These are giving the credit through relationship building and basing the credit criteria on account transactions (Berger & Udell, 2006; Kysucky & Norden, 2016). Financial institution restructuring will expand the use of transaction lending techniques centered on empirical facts (Berger & Udell, 2006; Berger, Rosen & Udell, 2007).

In lending relationship, the financial institution relies mainly on soft information gathered by engaging the SME, its owner and the local community over time to resolve the problems of obscurity. In large part, this information is gained by the loan officer by direct communication with the borrower and through observing the success of the SME in all facets of its banking relationship. This soft knowledge can provide an evaluation of the SME's potential prospects from past contacts with suppliers, consumers or neighboring enterprises of SMEs (Kysucky & Norden, 2016). As noted, since it is not easy to observe, check or transfer to anyone, this soft knowledge will always remain confidential to the loan officer (Servin, Lensink & Van den Berg, 2011). Relationship lending dominates in economies where the likelihood of strategic default is high because of an underdeveloped financial system with low transparency and weak legal enforcement (Egli, Ongena & Smith, 2006).

Transaction lending strategy, on the other hand, involves the provision of adequate hard information by the SME as a basis for screening and monitoring by the bank (Song & Zhang,

2018). Transaction-based lending strategy is primarily based on the borrowers' hard and quantitative information such as the strength of the financial statement or the value of their assets which are relatively easy to document and transfer. Transaction-based lending is based on the easy verification of information even though it can be applied to any kind of loan (Berger & Udell, 2006). Berger and Udell (2002 and 2006) and Berger (2015) opine that this type of lending, as used by financial institutions, is viewed as a set of distinctive transaction strategies and not a sole homogeneous approach.

However, while transaction-based lending strategies and hard data are more suitable for transparent businesses, relationship lending strategies and soft data are used for opaque borrowers that have more extreme information asymmetries and can be particularly useful to the general borrowers when information asymmetries are rampant (Bartoli et al., 2013; Ferri & Murro, 2015; Beck et al., 2015). Moreover, hard data is less accurate in predicting a firm's risk profile in the face of uncertainty while constantly modified soft data is better tailored to the characteristics of borrowers (Berger & Udell, 2006; Rajan, Seru & Vig, 2015).

Given these assumptions, firms aligned with transaction-based main banks are more likely to face credit restrictions while firms aligned with relational financial intermediaries are less likely to face credit restrictions. Consequently, soft information can be hardened by integrating soft qualitative data into transaction-based lending strategies as some recent studies have highlighted (Bongini, Di Battista & Nieri, 2015; Udell, 2015; Filomeni, Udell & Zazzaro, 2016).

There are four major categories of transaction-based lending strategy, mainly; financial statement lending, asset-based lending, fixed asset lending and credit scoring (Berger & Udell, 2006; Berger & Black, 2011).

Financial statement lending is a lending strategy which is extended primarily based on hard information contained in financial statements. In financial statement lending, the power of the financial records of the borrower is considered paramount and the bank's loan decision depends on how financially sound the customer can be assessed to be as shown in economic and financial ratio figures derived using the income statements and the statement of the financial position of the business. For the bank to be assured of authentically hard information, a well-known accounting firm must prepare an instructive financial statement on the borrower according to the well-accepted accounting standards. Banks underwrite commercial loans using

the financial statement lending strategy for firms with a strong financial condition based on an assessment of verified (i.e. audited) financial statements (Berger & Udell, 2006; Berger & Black, 2011; Berger et al., 2011; Minnis, 2011).

Asset-based lending is a transaction-based lending strategy in which financial institutions address the opacity problem of borrowers by focusing on a subset of the firm's assets, which are pledged as collateral (or floating collateral), as the primary source of repayment. This strategy provides working capital financing secured primarily by accounts receivable and inventory which are closely monitored. The amount of credit extended to the borrower is linked on a formula basis, using hard data, to a dynamically-managed estimation of the liquidation value of the assets used as collateral. The value of collateral is assessed daily in the case of accounts receivable and, typically, weekly or monthly for inventory and linked to the size of the credit available so that the liquidation value of the collateral always exceeds the credit exposure (Mester, Nakamura & Renault, 2007; Augusto, Martínez Pería & Schmukler, 2010; Levy-Yeyati, Martínez Pería & Schmukler, 2010; Alan & Gaur, 2018). The use of collateral itself, however, does not distinguish asset-based lending from the other lending strategies. The pledging of accounts receivable and inventory is often associated with financial statement lending, relationship lending and credit scoring where collateral is used as a secondary source of repayment. Under asset-based lending, in contrast, the extension of credit is primarily based on the value of the collateral rather than the overall creditworthiness of the firm.

Fixed-asset lending strategies involve lending against assets that are long-lived and are not sold in the normal course of business (for example, equipment, motor vehicles and landed properties). The underlying assets in fixed-asset lending are pledged to the lender as collateral, much like asset-based lending, based on receivable accounts and inventory. However, unlike accounts receivable and inventory, a serial number or a deed identifies the pledged properties, virtually and always, in a unique way (Deed of Mortgage in the case of landed properties). The long life and particular recognition of fixed assets contribute to very distinct processes of underwriting, contract arrangements and methods of monitoring. The emphasis is on calculating the market value of the asset at the underwriting level. This is also in the form of a formal valuation for facilities and landed properties. Usually, the contract arrangement defines an original loan-to-value ratio of less than one. It also usually includes setting a timeline for loan amortization with a final maturity lower than the asset's lifetime. The schedule guarantees that,

over the life of the loan, the ratio of the remaining loan balance to the asset's liquidation value is less than one. This contract arrangement also applies to the subscription phase in which the primary financial analysis relies on coverage ratios that calculate the willingness of a business to fulfill the amortization schedule (i.e. debt service). The presence of collateral (i.e. the ownership of collateral by the borrower) could make monitoring not too vigilant and problematic in fixed-asset lending, unlike diligently monitoring asset-based loans. The borrower can only sell a fixed asset by transfer of title which can only occur if the lender agrees to release the lien. Monitoring the borrower's ability to pay (i.e. its cash flow) is tied to the observation of timely repayment as specified by the amortization schedule. Failure to meet a required repayment signals inadequate cash flow and triggers a default on the loan (Berger & Udell, 2006; Berger et al., 2011; Motta & Sharma, 2020).

Credit scoring is a transaction-based technique, particularly for small companies, based mainly on hard details about the owner of the SME as well as the company. Information about the owner is mainly personal customer information collected from consumer credit bureaus. This is paired with data obtained by a financial institution on small and medium-sized businesses, mostly from commercial credit bureaus. A loan performance prediction model that yields a score or summary statistics for the loan is used to analyze the data. The models are typically configured for loans up to the amount recommended by the credit policy of the lending institution. This strategy may be applied to very opaque SMEs, given that much of the information is based on the personal history of the owner rather than the SME (Abdou & Pointon, 2011; Bartoli et al., 2013; Thomas, Crook & Edelman, 2017; Song & Zhang, 2018; Pławiak, Abdar & Acharya, 2019).

Furthermore on relationship lending, contrary to transaction-based lending, soft information is gathered about the firm and its management team over a time period so that the creditworthiness of the company can be examined (Berger & Udell, 2005; Uchida, Udell & Yamori, 2012). This additional facts provided is collected through deposits, loan provisions and future outlook evaluation of the business. Detailed facts collected about the enterprise or any other facts provided in relation to both internal and external factors affecting the operations of the business can be gathered from other local community members. This information assists relationship lenders to reduce the opacity of the firm, hence considered as a better approach than transaction-based lending (Berger & Udell, 2006; Kysucky & Norden, 2016).

Strong relationships, according to Kysucky and Norden (2016), appear to support SMEs in terms of lending outcomes. Bank partnerships that are long-term, exclusive, and synergistic are linked to higher credit volume and lower loan rates. These advantages are more likely in the United States and in countries with a lot of bank competition. They are unrelated to the economic value of SMEs, implying that a higher incidence of partnership lending does not always imply greater benefits for borrowers. Importantly, lending outcomes vary depending on the dimensions of the relationships (Kysucky & Norden, 2016).

The distinction between relationship lending and transaction-based lending can be identified through the size of the financial institutions. According to Kysucky and Norden (2016), local and small banks are more associated with lending based on relationship and the provision of additional information. In the opinion of Uchida et al. (2012), provision of soft information is substantially higher with firms who borrow from financial institutions in small communities and also in the absence of the rotation of loan officers over a time period. Likewise, Berger and Udell (2014) mentioned that soft information is managed well by small banks as compared to their larger counterparts. Large banks in the U.S. have been found to lend to borrowers who are distant and interact remotely with the banks, thus have a brief and partial relationship. In the Japanese context, related findings from Uchida, Udell and Watanabe (2008) indicate that large banks lend to larger firms and borrowers of small banks have active relationships with the banks.

2.7 Collateral-based Lending as a “Mixed” Lending Strategy and Constraint

Conventionally, collateral which is a driving component of all the four sub-category lending strategies (financial statement, asset-backed, credit scoring and fixed-asset) of transaction-based lending strategy, could be used in conjunction with relationship lending strategy as well, depending on the credit policy and risk appetite of the lending institution.

According to studies by Beck, Demirguc-Kunt and Martínez Pería (2011), financial assessment is the most important approval criterion across countries. However, in developing countries, the firm's credit background and owner attributes are key factors while in developed economies, the second important factor is the size of the loan. For banks in developing nations, the second most relevant criterion is a company's financial background with the bank, followed by the owner's characteristics and collateral. While collateral is not a definitive requirement for lending, some 87% of banks in developing countries need collateral for lending (Beck et al.,

2011),

Theory has it that collateral could be used as one of the signaling devices to differentiate more risky borrowers from the fewer less risky ones. This could make collateral requirement a fundamental determinant for all loans since it might not be easy for the bank to differentiate information asymmetric borrowers from information symmetric ones. Again, it could mean that despite the type of lending strategy (whether relationship or transaction-based) being adopted by the lending institution, collateral requirement could even be its topmost criterion.

In the pledging of assets in lending strategies such as credit scoring and financial statement lending, collateral is used as a secondary source of reimbursement (Baiden, 2011). Considering asset-based lending, the value of the collateral is used as a premise for credit extension instead of the firm's creditworthiness. Credit policy and/or a model which evaluates the liquidation value of the collateral assets helps to assess the amount of credit to be granted.

Kinyua (2013) found that SMEs can be able to improve access to loans through negotiations for better lending terms and conditions and increase of collateral requirement, Cull and Xu (2005) established that lack of collateral is the major cause of the SMEs' inability to access finance, Mullel and Bokea (2000) asserted that clients with little or no resources to provide as collateral are denied financing by the lenders, a research conducted in Bangladesh verified that collateral-based lending was listed as one of the key factors leading to reduced accessibility to funding (Quader & Abdullah, 2009), inadequate or undervalued collateral was one of the reasons why Sri Lankan banks did not lend to the SME market (Gamage, 2015; World Bank, 2010), by means of collateralized loans, banks have reduced the credit risk exposure created by issues of information asymmetry, in particular the moral hazard that is prevalent in SMEs, asset-based lending decreases banks' risk exposure, providing them with an option to recover their investment, even though it does not increase the borrower's repayment potential (Daniel & Nicolae, 2011), banks are more comfortable funding firms with sufficient tangible assets in order to mitigate the risks of information asymmetry (IFC, 2012; Kushnir, 2010; Maas & Herrington, 2006), collateral can solve problems derived from asymmetries in valuation of projects, uncertainty about the quality of projects and the riskiness of borrowers, and problems related to the cost of monitoring or supervising borrowers' behaviour (Coco, 2000), Barbosa and Moraes (2004) concluded that when collateral requirements are in place, the borrower may not divert funds towards private use or extract the surplus from the project since that sort of action

would increase the chance of losing the assets pledged as collateral.

Fundamentally, collateral have a primary role in debt contracts. For instance, Bigsten et al. (2000) observed that about 90% of small firms are denied credit from the formal financial sector due to their inability to fulfill conditions such as collateral security. When Beck et al. (2006) use the World Business Environment Survey (WBES) to study 12 financing obstacles, one of their findings was that collateral requirement was the third most important of these obstacles. Collateral can determine whether the SME gets finance (Han et al., 2009; Rahman et al., 2017). Result of other studies have it that collateral requirement is even higher in less developed markets (Bae & Goyal, 2009; Behr, Entzian & Güttler, 2011; Menkhoff, Neuberger & Suwanaporn, 2006; Menkhoff et al., 2012; Rahman, Rahman & Kljucnikov, 2016). Nowadays, collateral is a common contractual function of banking to reduce the risk of lending due to information asymmetric issues. For example, according to the Board of Governors of the Federal Reserve System's Survey of Terms of Business Lending (released in August 2017), 62.4 percent of all commercial and industrial loans made by all banks in the United States, 67.2 percent of the value of corresponding loans made by domestic US banks and 89 percent of the value of loans made by small domestic banks were backed by collateral. Similarly, 79 percent of loans originated in 139 developing countries needed collateral, according to the World Bank's latest Enterprise Survey (Papadimitri, Pasiouras & Tasiou, 2020). High importance of collateral requirement results into a problem for relatively poor borrowers in emerging markets because their ability to provide collateral is comparatively low. Steijvers and Voordeckers (2009) summed it all that collateral requirement is part of many, if not most, business loan contracts in even mature markets due to opaque information and weak enforcement.

Collateral requirement is for the good of both the lender and borrower. As asserted by Rahman et al. (2017), collateral acts as a signal by enabling the bank to mitigate or eliminate the adverse selection problem caused by the existence of information asymmetry between the bank and the borrower at the time of the loan decision. However, in a loan acquisition process, where there is a likelihood of information asymmetry, not only can collateral help to locate credible SMEs by lenders but can lead to moral hazard as well during the use of the pledged collateral. Also, in a lender-borrower relationship, information asymmetry can significantly change how credit could be available in respect of what could be socially available (de Meza & Webb, 2000, Cotugno, Monferra & Sampagnaro, 2013; Agostino & Trivieri, 2017). Supporting the loans with

collateral may help alleviate these distortions by reducing the information asymmetry and moral hazard challenges.

Generally, collateral has been widely accepted as an important requirement for access to loans because it is believed that it will help to mitigate the problems of information asymmetry such as adverse selection since it could serve as a substitute for inaccurate information (Voordeckers & Steijvers, 2006; Steijvers, Voordeckers & Vanhoof, 2010; Mody & Patro, 2011; Menkhoff et al., 2012). Consequently, the use of collateral by lending institutions helps to reduce the problems of moral hazard by ensuring good behaviour on the part of borrowers (Ghimire & Abo, 2013; Rahman et al., 2017). In addition, collateral may help transform the incentives of the borrower, change the bank's risk and finally modify the equilibrium of the allocation of credit.

On the other hand, collateral requirement might not be sufficient to reduce information asymmetry. Due to weakly protected creditor rights in China, collateral plays a limited role in overcoming asymmetric information (Lin, 2011). Similarly, relying solely on the promise of collateral by SMEs to resolve the moral hazard problem might not be adequate. Collateral, for example, can encourage borrowers to participate in high-risk projects or non-income-generating activities (Menkhoff et al., 2011; Lin, Lee & Chen, 2011). Furthermore, when a third party supplies SMEs' collateral, moral hazard is encouraged (Menkhoff et al., 2011).

Nevertheless, collateral requirement on a loan contract for SMEs are, particularly, important compared to large firms. The absence of physical assets to be pledged as collateral to a bank can cause SMEs to be restricted to credit (Menkhoff et al., 2006). Since SMEs are also established and run by individuals, the private wealth of its owner is likely to affect their business performances as compared to large firms (Tirole, 2010). The private wealth of SME owners (borrowers) can help facilitate bank financing since the business asset is inseparable from the personal wealth, hence personal asset can be pledged as collateral to the banks for loans (Duarte et al., 2017).

Several studies such as Kysucky and Norden (2016), Gama and Duarte (2015) and Rahman et al. (2016) indicate that collateral requirement can be lowered by the bank-borrower relationship. The existence of lending based on relationship increases access to information and assists lenders in a better way to give a forecast of the project success, thus minimizing the collateral requirement demanded from borrowers. As a result of acquiring soft information from borrowing firms through a frequent visit by banks, labor intensity and loan process cost are

increased through relationship lending (Petersen & Rajan, 2002). The increased default rates and less restrictive loan screening process make relationship lending riskier than transaction-based lending (Jimenez & Saurina, 2004). According to Jimenez, Salas & Saurina (2009), the perfect substitute for collateral is accounting-based hard information which assists the loan appraisal process to be transparent and reliable. There are, also, internal issues of the firm, issues of demand and supply as well as the internal and external factors of the loan as a result of collateral (Rahman et al., 2017).

2.7.1 Basel II Capital Accord

Collateral requirement for almost all types of lending strategy and almost all loans could be due to the consolidation of the financial sector and implementation of the Basel II Capital Accord. The Basel II Capital Accord is expected to raise the significance of liquidity for opaque enterprises. Contrary to the Basel I Capital Accord, which considered all corporate loans similarly (Jacques, 2008), Basel II stipulates that banks involved in at-risk loans must maintain higher sums of capital to protect their solvency and general stability of the economy (Gleeson, 2010). In this sense, banks would choose collateralized loans to reduce their loan portfolio risk (BIS, 2014). Consolidating and implementing the arrangement means informational opaque SMEs would have to focus even more on collateral (Inderst & Mueller, 2007). This increasing importance of collateral in bank lending seems to have sparked interest in this research subject, in addition to an increase in the number of academic collateral studies.

2.8 Gaps in Access to SME Loans

The financing gap is defined as the gap between the demand from SMEs for funds and the availability of funds (Park et al., 2008). Similarly, Mazanai and Fatoki (2012) define funding gap as the difference between the demand of SMEs for funds and the supply of funds (Mazanai & Fatoki, 2012). The gap occurs because of SMEs characteristics and market failure on the supply side (Park et al., 2008). This assertion confirms Holmes, Dunstan and Dwyer (1994) who established that small businesses can encounter a funding gap due to inadequate collateral and financial details. Further, Park, Lim and Koo (2008) argue that the main challenges of financing differences for SMEs can be seen in the enterprises and owner or manager traits and supply-side industry imperfections. Also, Park et al. (2008) suggest that the key explanations behind SMEs' lack of access to capital are as a result of their systemic features and the stock market imperfection of financial suppliers. Thus, the funding gap can occur due to uncertainty

associated with asymmetric information and agency concerns that raise lending risks.

Banks function under moral risk, and adverse selection threats and so can charge high interest rates, thereby driving out low-risk borrowers who qualify for credit (Mazanai & Fatoki, 2012). Overall, the bank will participate in credit rationing and not respond to credit demand so that a large number of applicants for loans will be left without access to funding, even though they can pay high interest rates (Alfo & Trovato, 2006).

According to Rahman et al. (2017), credit rationing happens when some borrowers earn loans whereas others don't. Credit rationing arises either financially as a result of only market imperfections and asymmetric information or willingly by creditors (self exclusion). At financial side, credit rationing happens as there is more demand for credit than supply at the present interest rate. Self-rationing literature is scarce. However, in circumstances where credit rationing is by self, Arora (2014) defines borrowers such as those as non-credit seekers on personal, cultural or social grounds or could be classified as discouraged borrowers.

Credit rationing focuses on financing discrepancies in SMEs and banks claim that current information asymmetries and agency problems can contribute to credit rationing conditions (Rahman et al., 2017). These information asymmetries can cause two big problems: restricting financial lenders details of the financial conditions of the SME and the actual status of the investment proposal (adverse selection). The second issue would have the bank work under moral hazard. Alfo and Trovato (2006) established that these factors would lead banks and other capital market lenders to refuse to finance projects that would generate discrepancies between demand and availability of funds. The reason for conducting this thesis, therefore, is to fill the awareness gap in SME financing in developing countries in general and Ghana in particular by exploring how collateral requirement alone affects access to SME loans in Ghana and when information asymmetry and moral hazard interact the relationship.

2.9 Measurement of Access to Finance

Access to finance (which includes access to loans), generally, refers to a situation where quality financial services are available at a fair cost (Claessens & Tzioumis, 2006). However, the measure of access to finance depends largely on what one considers to be 'quality' services and 'reasonable' costs. Consequently, a number of different ways have been developed and used by researchers to measure access to finance by SMEs. For example, Beck et al. (2008), using data gathered through survey of bank regulatory bodies and other sources, constructed a list of

banking sector outreach indicators including geographical branch penetration, loan accounts and deposit accounts per capita. Other measures such as frequency of acquisition and loan size have also been used to measure access to finance (Zarook, Mafizur & Khanam, 2013; Nanyondo et al., 2014).

However, using ‘frequency of acquisition’ to measure access to finance can be criticized because SMEs may not borrow from one financial institution. In reality, small and medium-sized companies tend to borrow where circumstances are favorable, regarding the availability of financing and ease of accessing the funding (Arora, 2014). For example, they can borrow to buy assets or to raise working capital so the justification for borrowing can dictate how much SMEs require (OECD, 2014; WBES, 2012). The size of loan method to calculating access to finance was also criticized on the grounds that the size of the portfolio of loan could be high only when a handful of SMEs access funding (World Bank, 2014; OECD, 2014).

Out of the many approaches, two were commonly used to assess access to finance by SMEs (BDRC, 2014; 2015; BIS, 2014; World Bank, 2014). The first approach ascertains how frequent finance is accessed by dividing the number of SMEs that indicate that they operate either a loan account, deposit account or both by the number of SMEs surveyed (BIS, 2012; Arora, 2014; BIS, 2014; BDRC, 2016). However, this approach has also been critiqued on the basis that it ignores voluntary exclusions (Kostov, Arun & Annim, 2012; Arora, 2014; World Bank, 2014; IFC, 2014). Self-exclusion means no finance-seeking SMEs for some peculiar reasons such as personal, cultural or social. Since this approach relies on the evidence of whether the SMEs are in receipt of some funds as evidenced by a loan or deposit account without ascertaining whether the SME applied for finance in the first place, this will be referred to as the ‘received’ approach.

The second approach measures access to finance as the SMEs applying for and obtaining funding (Beck & Torre, 2007; Butler & Cornaggia, 2009; Arora, 2014). This approach measures effective access to finance. Under this approach, all SMEs not applying for funding (also called non-borrowers) are excluded from how to determine the rate of financial access (World Bank, 2014; IFC, 2014; ACCA Global, 2014). Those SMEs that applied and received funding are said to have accessed finance and the ones that applied and were unsuccessful are considered not to have accessed finance. The rate of access to finance under this approach is determined by dividing the number of SMEs that applied and received funding by the total number of SMEs

that applied for funding. The key value of this strategy is that it takes into consideration voluntary exclusions (Arora, 2014). One drawback of this method, though, is that it does not make a case for the SMEs that submitted and were granted the maximum amount and those that received a fraction of the amount of loan demanded. This study adopted the second approach in its data collection exercise.

2.10 Collateral Requirement

Collateral is a form of a tangible support which can be assigned to a lender by a borrower against a credit that is granted for it to serve as a second source of assurance for the repayment of the loan, in the event of any contract redemption violations. Resources including plants, equipment, land, houses, accounts receivables and, sometimes, stocks (either work in progress or finished work) are acceptable as likely types of collateral that the lenders can sell if default occurs (OECD, 2014). Collateral requirement, therefore, involves the lender, by convention and/or its policy, asking the borrower to pledge properties belonging to the business and/or the business owner to be used to protect the interest of the lender in case of any negative eventualities.

In emerging economies, lenders' requirements of borrowers to provide collateral are stringent because the economic and financial environment in these countries is characterized by opaque information and weak enforcement (Hainz, 2003; Menkhoff et al., 2006). In such economies, borrowers comparatively find it very difficult to own assets which can be accepted for use as collateral. This makes firms in such economies to find it very difficult to access external financing (Menkhoff et al., 2006; 2012). Therefore, issues of collateral requirement are crucial for SMEs in order to access external financing.

In a lender-borrower relationship, collateral is also needed to help determine the size or amount of loan to be lent to a customer, based on the credit information provided and the risk appetite of the lending institution. Collateral must be evaluated properly to help determine the actual ratio of the loan size to the collateral because factors such as the expected rate of depreciation or appreciation, the expected price stability and how much cost could be involved in the liquidation of the collateral must be considered. The highest amount of loan to be approved and disbursed, which will just be a fraction of the current market value of the collateral, could increase as the collateral values increase. However, in practical terms, the ratios are not the same for countries, lending institutions within countries, borrowers within one institution and by

collateral types at stake. For instance, using the World Bank Enterprise Survey finance database to check if finance is robustly a restraining factor for entrepreneurs in Sub-Saharan Africa (SSA), it was found that proportions of loans requiring collateral were 77.4% for all countries, 79.3% for SSA, 79.8% for East Asia & Pacific and 82.8% for Eastern Europe & Central Asia (Legas, 2015).

Researchers such as Berger et al. (2011), Mody and Patro (2011) and Menkhoff et al. (2012) have come out with extant literature which suggest that collateral are efficient solutions to the challenges of information asymmetry as far as the quality of borrowers are concerned. From other streams of literature, competition among banks affects the degree of collateral requirements (Voordeckers & Steijvers, 2006; Jimenez, Salas & Saurina, 2011; Hainz et al., 2013). Also, in a study by Hainz et al. (2013), they investigated the relationship between collateral and bank competition by considering several countries as their sample with fewer than half as emerging economies. With a theoretical model, they established that screening contracts approach was used to finance firms located near banks and firms that were not closer to banks were required to pledge collateral. Consequently, it was established that with the increase of bank competition, firms financed by screening contracts approach increased proportionally and the requirements for collateral subsequently decreased. The predictions were tested empirically, using a sample of 4,931 bank loans from 70 developed and emerging economies in a cross-country analysis. The results supported the theoretical prediction that collateral is more likely to be required with a lower bank competition. Due to the high degree of occurrence and prevalence of information asymmetry and lower degree of bank intermediation in emerging economies, there are recommendations in the literature that further investigations of collateral requirements in such economies should be addressed.

Generally, collateral is crucial in all bank transactions because it helps the bank to get its loaned funds back, if the borrower defaults by disposing of the collateral off and using the proceeds to clear the loan balance. It is believed that factoring in collateral in loan transactions or contracts results in additional costs for lenders and borrowers. On the parts of lenders, the costs to be incurred will come from screening and repossession (Inderst & Mueller, 2007). As a result, these activities could reduce the income of the banks (Bester, 1987). On the other hand, backing loans with collateral could also increase the profit of the lender. For the borrowers, the provision of collateral will make them incur costs for valuing and mortgaging the assets. Economically,

borrowers could suffer from opportunity costs since the assets to be held up as collateral could have more productive uses during that period of hold-up than being used as such (Mody & Patro, 2011).

However, it is perceived that if collateral serves as an incentive to the borrower, he or she will be disciplined enough to use the loan economically and productively rather than investing it in high risk businesses because of potential high returns. If the borrower tows this line, it helps in the reduction of moral hazard risk for the lender (Manove et al., 2001). Unfortunately, many SMEs are handicapped as far as acquisition of collateral are concerned. This means SMEs, especially start-ups, will be mostly affected and could suffer from credit rationing because of the policy of collateralization by most lenders.

Another challenge for SMEs resulting from the demand of collateral, even for those that have collateral, is the falling prices of collateral which have put borrowers in disadvantageous positions. In other words, devaluation of collateral could be one of the main reasons why small firms may not be able to apply for loans or get them approved (Holton et al., 2014). According to a report by World Bank (2008), the expectation was that, on average, smaller firms should pledge 152% and medium firms 154% of the loan amount as collateral. For the European Union (EU) countries, the requirement is 100 to 120 percent of the loan value, on average.

Gonas, Highfield and Mullineaux (2004) studied the effect of information asymmetry by considering information on borrowers, lenders and contract terms of 7,619 loans that had been approved in the United States of America (USA). To help them measure the quality and quantity of the information, the researchers selected the borrowers from exchange-listed companies or had a credit scoring grade. Their observation was that firms without a rating grade more often pledged collateral than rated firms. The study also measured information on the basis of whether borrowers were registered in the US. It was established that borrowing firms from the US pledged less collateral than the firms which were not resident in the US. The findings had gone to confirm the assumption that information asymmetries are positively related to the pledge of collateral.

Due to information imperfections and costly control mechanisms, banks use collateral as the criteria for loan selection (Green, 2003). Due to the existence of asymmetric information, banks base their lending decisions on the amount of collateral available. Collateral acts as a screening device and reduces the risk of lending for commercial banks. By pledging an asset, a

borrower signals the quality of the project to be financed and the intention to repay. In the case of default, collateral serves to put the lender into a privileged position with regard to other creditors (Green, 2003). Financial institutions are more likely to approve loans to firms that are able to provide collateral. Small firms are disadvantaged in this regard, due to the fact that they lack collateral security and also they lack a proven credit track record. Therefore, SMEs may be constrained to access finance due to the fact that they may fail to furnish collateral security (Guiso & Minetti, 2010; Rahman et al., 2017).

The bank's credit rationing behaviour may, theoretically, be influenced by a number of factors which include the borrower's observable characteristics, firm characteristics and loan characteristics (Jiménez & Ongena, 2012). The optimal loan size will be determined by the bank taking into account the bank's evaluation of the probability of repayment, the marginal cost of granting the loan and the value of collateral offered. The value of the collateral offered by a firm also influences the credit rationing behaviour of the bank (Bryant, Hooper & Mann, 2010). Collateral serves as the last resort for recovery of the loan in case of default where the bank can sell the collateral obtained to recover the balance (or part) of the loan. Collateral reduces the information asymmetry between the SME and the financial institution (Berger et al., 2011).

Given the difficulty by SMEs to raise adequate collateral, they are therefore adversely affected by the bank's credit rationing behaviour. SMEs are characterized as small and medium with little internal financial resources and a lack of assets to guarantee repayment of bank loans.

2.11 Information Asymmetry

Information asymmetry, one of the moderators/interactions in this study, involves a contractual situation in which the two parties doing the transaction do not have access to full or adequate information about the contract to help in quality decision making. Existence of information disparity is one of the main reasons for which most lending institutions, especially commercial banks, are not willing to assist SMEs with loans. This is because it is challenging to gather accurate information on creditworthiness of SMEs (Wu et al., 2008).

The phenomenon of information asymmetry, most of the time, results in credit rationing in loan markets (Menkhoff et al., 2012; Hanedar et al., 2014; Rahman et al., 2017). The degree of information asymmetry affects the positive link between collateral and the loan spread, implying that greater degree of information asymmetry reduces this positive relation (Godlewski & Weill, 2011). Information disparity creates a situation where in a contract; one partner has advantage

with more advantageous information than the contractual partner (Nel, Smit & Brummer, 2018). Basically, how does information asymmetry come about in a lender-borrower situation? It does, probably, when business owners of businesses have more superior knowledge about the prospects of their businesses, business plans and cash flows than the lender thereby creating a possible situation of financial impairments (Nel et al., 2018).

Deakins et al. (2008) opine that the issue of information asymmetry is more serious with SMEs, especially start-ups. Their assertion is that at the formation stages of the SMEs, not much information will be available. They might not be mostly transparent in their dealings and have parts of their assets to be knowledge-based because it is exclusively associated with the owner and/or manager.

For most of the SMEs, particularly the manufacturing or technology-based ones, the owners might not be willing to bring forth full and relevant information concerning the opportunities they identify for fear of others getting to know and taking advantage of them. In addition, most SMEs lack business plans, operations manuals, financial data as well as critical business and financial skills that the lending institutions require to base their lending decisions on. These factors make it challenging for the banks to assess and analyze the creditworthiness of the individual businesses and their owners (Mthimkhulu & Aziakpono, 2012).

Information adequacy and reliability are important intangibles for easy access to debt financing because any situation of information asymmetry could cause credit rationing as far as lenders are concerned (Menkhoff et al., 2012). This argument is situated on the basis that reducing information asymmetry will assist the financial institution to be able to estimate the default risk, size of loan and, also, classify loan customer properly (Ofonyelu & Alimi, 2013). Apart from information asymmetry preventing most SMEs with good potentials for growth from having access to formal and alternative finances, it pushes banks to decide not to assist SMEs financially or ration credit to them (Jin & Zhang, 2019). With information asymmetry, banks have to go the extra mile to gather more information on the SMEs in order to minimize the risk of adverse selection which could result in competitive rates for lending (Matthews & Thompson, 2014).

By the assertion of Griffins (2002), when information is of low quality and inadequate, it makes it difficult for SMEs to access loans from formal sources. Put in another way, Nanyondo et al. (2014) studied and reported that SMEs which are prepared to declare higher quality

information on them to financiers, most of the time, go for debt financing that represents having greater access to external finance. Generally, there is the likelihood that there could be substantial cost reduction in either formal or alternative financing for SMEs provided they are ready to make available adequate and accurate information which relate to their business engagements, collateral and any other information that the lending institutions will require before any credit decision is taken. The reason is these pieces of information on the operations of the businesses could lead to the reduction of information asymmetry risks (Mody & Patro, 2011; Menkhoff et al., 2012).

Mostly, lending institutions focus all credit decisions on the pieces of information provided by the SMEs and their authenticity, meaning cost of debt could be probably higher for the SMEs due to the perception that they are riskier to deal with (Kassekende & Opondo, 2003; 2012). On the basis of this, Rahman et al. (2016) and Rahman, Rahman and Belas (2017) asserted that accurate and sufficient information on the firm is vital since it helps to insulate information disparity between the firm and the bank which could go a long way to determine the cost of finance.

In the absence of certification of relevant credit information on the firms with the intentions of borrowing from the banks, the probability of accessing the loans will be slim. This is because with the existence of information asymmetry, apart from adverse selection problems, financiers are likely to take on additional costs stemming from credit analysis and monitoring. Therefore, there is likely to be credit rationing in the situations where there is insufficient information since financiers may not be ready to give loans to such firms (Mody & Patro, 2011; Menkhoff et al., 2012).

Deakins et al. (2008) advanced four reasons that constrain access to small enterprises which include: asymmetric information, lack of collateral, poor lending relationship and the subsequent credit restriction. Hence, one of the constraints for credit rationing is asymmetric information. A prerequisite for the efficient allocation of resources by market forces is that all participants share the same relevant information (Guiso & Minetti, 2010). This is not the case in financial markets. Arguably, borrowers will always know more about the viability of their projects and their ability and willingness to repay than lenders. Thus, the lenders are faced with uncertainty both with respect to the expected rates of return of the project they are financing and with respect to the integrity of the borrower.

The problem of asymmetric information is more acute for small businesses than for larger ones because of lower information standards and the greater variability of risk (Menkhoff et al., 2012). Since information on small businesses is limited and costly to gather, financiers may overprice the cost of capital, demand excessive collateral cover or withdraw altogether from serving small firms (Beck et al., 2008; Guiso & Minetti, 2010). However, some lending institutions take advantage of the existence of information mismatch, which are likely to lead to adverse selection and moral hazard, to charge higher interest rates and also require high collateral from the SMEs (Barth & Lang, 2008; Popa, Blidisel & Bodgan, 2009).

2.12 Moral Hazard

More generally, moral hazard arises when a party with more information about its actions or behaviour has a propensity or motivation to behave improperly from the viewpoint of the party with fewer details (Rowell & Connelly, 2012). Moral hazard, also a moderator in the study, can happen if someone takes decisions or acts in ways which lead to the occurrence of risks but another person suffers for that risk. In the opinion of Khurana (2015), moral hazard could happen if the actions of a partner in a financial transaction could lead to negative consequences to the other partner.

Generally, moral hazard (the risk of benefactor opportunism after entering into the contract) was described by the principal-agent theory (Irwin & Scott, 2010; Van Caneghem & Van Campenhout, 2012). As a result of that theory, moral hazard deduces from information asymmetries of hidden information and hidden action. For the hidden action, the banks cannot observe the behaviours of the SMEs. For the hidden information, the banks can observe the behaviours of the SMEs but cannot assess the quality of those behaviours. Whichever way, the banks cannot relate their results to the works of the SMEs.

Moreover, for both information asymmetry and moral hazard, the SMEs can hold onto information and efforts without any detection (Rahman et al., 2017; Arifin & Priyono, 2020). This, therefore, means that without being aware of it, banks which cannot observe the behaviours of SMEs risk granting loans to clients who are not creditworthy. In general, moral hazard happens if one party to the transaction who engages in hidden information and hidden action is not motivated to behave appropriately as in the opinion of the party who is at the receiving end of the information (Rowell & Connelly, 2012).

As asserted by Ivashina and Scharfstein (2010), many lenders could suspect that

borrowers would renege on their loan repayments in the future and, by this, would not consider the loans much worthy. However, due to competition among lenders and the perception that the SME sector is a niche, lenders might not bother so much with the probable consequences of granting these loans in the long run. After selling the loans, any risk would not be borne by the originators because there may be little or no incentive at all for them to be wary of the consequences of default. This means, one partner decides on how much risk to take but if the consequences are unfavorable, the other partner carries the cross. This could give the first partner who will be insulated from the consequences of his actions to act differently from how he would if he were to bear the brunt of the negative effects (Ramsundar & Shubhabrata, 2013).

Mostly, moral hazard occurs with borrowers. In support, lenders assert that borrowers may not act prudently when they are on their own investing or spending borrowed funds. That may be the reason why credit card companies, for example, most of the time place limits on the amount that card-bearers can spend, using their cards, because the limits prevent borrowers from spending borrowed funds anyhow which could create repayment challenges.

If a firm decides not to be much cautious in its lending transaction contracts, this could increase exposure to more risk and negatively affect the lending institution. If this happens, the probability of moral hazard occurring is very high (Bhaird & Lucey, 2010; Moro & Fink, 2013; Rowell & Connelly, 2012). In the same vein, a moral hazard situation is likely to occur if a loan transaction is entered into and the borrower diverts and invests the loan in riskier businesses. This will then constitute concealment of such behaviours from the lenders, constituting hidden action (Beck & De La Torre, 2007; Holmes et al., 2003). If the agent, in this case the SME, engages in ventures which are highly risky at the blind side of the principal, for instance the bank, this could expose the bank to more risk thereby constituting moral hazard. Therefore, the concept of moral hazard is as a result of secret actions from debtors as well as the more common issue of concealed information concerning the mismatch of information between loan customers and lenders (Takagi, 2002; Uesugi & Ono, 2009).

Practically, non-performing loans (NPLs) of lending institutions increase as a result of moral hazards, leading to increases in the cost of credit and tracking of investments (Zhang et al., 2016; Accornero et al., 2017). To reduce these risks, the lender may ask for high collateral in order to commit the owners of the firms to repayments of the loans (Matthews & Thompson, 2014; Rahman et al., 2017). This means, moral hazard can contribute to and/or result from

collateralization of loans. Hence moral hazard can prevent the realization and propensity of access to loans.

2.13 Empirical Review

The topic under study requires knowledge from other units and/or areas of study and, therefore, requires the synthesis of all these ideas of findings and how the current study will address the gaps created by the earlier empirical works. The purpose of the empirical review is to, briefly, reveal what is already known, then, what is not known and must be known. The section further critiques the existing literature relevant to the current study and moves on to explain what the current study is contributing differently.

2.13.1 Determinants of Access to Finance

Empirical literature on how to acquire funding and its determinants differs to a large extent on the scope and the measurement approaches. For example, some studies are limited to the measurement of finance (BIS, 2012; World Bank, 2014; BDRC, 2015) while others, mostly, based on developing countries (Fatoki & Odeyemi, 2010; Nanyondo et al., 2014) tend to cover both the access to finance and its determinants.

According to Sarapaivanich (2006) and Park et al. (2008), the financing difference can result from demand-side or supply-side issues. Park et al. (2008) further suggest that the underlying reasons behind the denial of access to funds by SMEs may be a mixture of supply-side and demand-side reasons.

Supply-side restrictions predominate if sufficient financing sources are not available on terms ideal for creative SMEs (Sarapaivanich, 2006). Therefore, Sonne (2010) argues that the funding gap is caused by the inability of central or conventional financial institutions like banks to provide finance.

Alternatively, demand-side limitations arise if entrepreneurs cannot utilize current and available investment resources due to scarcity of viable ventures or lack of convincing business strategies (OECD, 2004). It can also stem from entrepreneurs' inability to access available funds for reasons such as losing leverage over their companies, interests, perception, expertise and growth incentives that can moderate and/or amplify funding constraints.

In literature, many demand-side variables were described as affecting SMEs' access to finance. Storey (2004) described entrepreneurs' characteristics, characteristics of SMEs and the form of approach correlated with growth as key components for evaluating SMEs' access to

finance. Roper and Scott (2007) identified firm characteristics as factors that influence access to external finance, Momani, Alsharayri and Dandan (2010) and Sorooshian et al. (2010) further pointed out firm characteristics and entrepreneurial characteristics as factors affecting access to finance by SMEs. Olawale and Asah (2011) have also observed that firm and entrepreneurial characteristics impact SMEs' access to finance. Pandula (2011) conducted an observational study into access to bank finance for SMEs. Variables described as affecting access to finance were firm characteristics, owner characteristics and financial characteristics. Sarapaivanich (2006) also grouped demand-side variables as entrepreneurial characteristics, business characteristics and information ready to be those that influence access to finance. Ingólfsson (2011) suggests that demand-side variables offer an alternate rationale for firms' capital structure and further indicates that demand-side factors can influence a firm's tendency for external financing. While some studies on how to access finance are exclusive to a single country, some others involve data from a number of countries on the assessment of accessibility.

2.13.2 Firm and Owner Characteristics in a Single Country

The study by Fatoki and Odeyemi (2010) focused on the variables of buying on credit by newly established South African SMEs. The findings suggest that managerial competency, business size, insurance and incorporation are significant determinants of access to trade credit. Le (2012) used WBES data to investigate what determine the access to finance by SMEs in Vietnam. The finding suggest that the value of machinery owned by the SMEs, proportion of the SMEs working capital financed by the bank and percentage of national sales were related positively with access to funding. However, they established that overdraft facility was negatively associated with access to finance.

Empirical investigations by Ortiz-Molina and Penas (2008) indicate that short-term loans promote SMEs' access to credit and minimize information asymmetry issues. Similar trends were found in other nations as banks are more likely to offer SMEs short-term loans (Ghimire & Abo, 2013). They reported that bank loans are mostly issued at 77.41 percent in the short-term, 16.17 percent in the medium-term and 1.86 percent in the long-term.

In other parts, SMEs' ability to obtain loans can also depend on loan tenure. Furthermore, market characteristics such as age, size, industry, owner education, resources and organizational structure are key determinants in receiving bank credits (Degryse et al., 2012; Brent & Addo, 2012; Osei-Assibey et al., 2012). In terms of size, banks prefer to issue larger firms more credit

than smaller firms. Additionally, new start-ups may not have the requisite degree of experience and performance background. Rahman et al. (2017), again, argued that loan approval is characterized by capacity, internal management and degree of capitalization. Musamali and Kipkirong Tarus (2013) analyzed the impact of firm influences on access to finance using a study of 103 Kenyan SMEs. They found that ownership structure, firm size, business form and business age influence SMEs' access to finance.

Han (2008) studied the effect of firms' business and entrepreneurial characteristics on credit availability and found that some of the entrepreneur's characteristics (education, experience, personal savings) and business characteristics (age, size, location, industry) had a significant effect on bank's decision-making concerning loans. Olawale and Asah (2011) examined the influence of the enterprise's financial access characteristics in South Africa and identified two key characteristic categories (business and entrepreneurial characteristics) to be affecting the provision of bank financing to SMEs. The business characteristics concern firm's age, size, location, structure, sector or economic engagement. A firm's age is one of literature's shaping attributes. In support, Klapper, Laeven and Rajan (2012) observed that young businesses (under four years) rely more on internal funding than on bank financing.

2.13.3 Multiple Country Studies

Triki and Gajigo (2014) carried out data collection to find out SMEs' links to private and public capital using over 900 private banks contacted with the questionnaire through email in a period from 2011 to 2012 across (42) countries in Africa. The results showed that SMEs have an average higher access to finance in countries like Botswana at (57.6%), Namibia at (58.5%) and South Africa at (54.9%). For SMEs in Ghana, the average higher access to finance was 10.3%. Ghana's average higher access to finance was low relative to Botswana, Namibia, South Africa and others above 10.3%. However, the results indicated that among the 42 countries surveyed, Nigeria, Malawi and Mozambique have the least access to finance rates among SMEs of less than 0.1%, followed by Uganda with access to finance rate of 1.1%.

In another study, Calice, Chando and Sofiane (2012) carried out a study on SME financing by banks among countries in East Africa (Kenya, Tanzania, Uganda) and Zambia with an aim of establishing bank's involvement with SMEs. The results showed that Ugandan SME sector has the least among the four countries' aggregate access to finance with an average of 42% of the banks' loan portfolios. Ayyagari, Beck and Demirguc-Kunt (2012) also investigated

access to finance by SMEs using panel data from 120, 000 SMEs selected from 125 emerging economies for the period 2006 to 2010. Descriptive statistics showed that bank financing is the most available form of external financing for SMEs in those nations which have access varying from 44% to 58%.

2.13.4 Information Readiness

In Uganda, Nanyondo et al. (2014) investigated the relationship between financial statements quality, information asymmetry, perceived risk and access to finance by Ugandan SMEs. The results indicate that there is a positive and significant association between financial statements quality and access to finance but an adverse relationship between information asymmetry and access to finance. However, the study found no connectedness of perceived risk with access to finance. Another study by Calice et al. (2012) investigated obstacle to the development of SME lending in Kenya. A large majority of banks in the country (88 percent) considered lack of adequate information the most important deterrent to their involvement with the SME segment. Amongst Kenyan banks, the lack of quality information was the biggest SME-specific hindrance and obstacle to SME lending, cited by 100 percent of the banks. Such is the perceived extent of the problem that some of the banks mentioned that they have allocated internal budgetary resources to assist SMEs through the extension of training services.

Further, Beck et al. (2008) studied hindrance of lending to SMEs by banks in Tanzania. The banks cited the information scarcity as the most challenge when considering credits to SMEs. This, according to most Tanzanian banks, affected the quality of information provided by SMEs, amongst other things with 75 percent of Tanzanian banks mentioning information scarcity as a significant obstacle to their dealings with SMEs. One Tanzanian bank mentioned that they had allocated significant resources to training their SME clients in order to improve both their business skills and quality of information submitted.

2.13.5 Financial Characteristics

Zarook et al. (2013), in Libya, investigated whether financial performance matters regarding accessing finance. They concluded that financial performance (expressed as a ratio of liabilities to assets, presence of profit and return on capital employed) has no relationship with access to finance.

2.14 Collateral, Information Asymmetry and Moral Hazard

The only article which has a resemblance to the current study was by Igawa and Kanatas (1990). They looked at the same three constructs; “asymmetric information, collateral and moral hazard” and argued that in a credit market characterized by a priori asymmetric information, collateral not only can identify credit applicants but also can result in moral hazard involving the borrower's use of the pledged assets. Therefore, the borrower's other alternatives are to apply for unsecured bank credit and be priced as "average," or to acquire financing by selling an asset and subsequently renting it for continued use. They adopted financial mathematics to develop a model, based on theorems and corollaries that they used in their analysis and concluded that self-financing and unsecured credit were preferred by the intermediate and lowest quality groups.

Another study which is partially similar to the current study is by Blazy and Weill (2013) on “why do banks ask for collateral in SME lending?” Following the common use of collateral in SME lending, their aim was to test empirically the three major theoretical reasons for using collateral: reduction of loan loss in the event of default, adverse selection and moral hazard. They used a unique dataset of 735 bank loans granted to distressed French SMEs, which contains complete information on the type and value of the collateral and the cause of firm default. They observed that collateral contributed to reduce loan loss in the event of default with differences among types of collateral in terms of the recovered value for a given initial value. However, they concluded that collateral does not solve adverse selection problems as there was the same positive connectedness between collateral and risk premium, nor moral hazard, as secured loans were not associated with a lower probability of moral hazard behaviour. These findings were observed for all types of collateral. Their work suggested that information asymmetries are not of prime importance in the decision of the bank to secure loans to SMEs. The reduction of the loan loss and the observed-risk hypothesis may explain the use of collateral.

2.15 Critique of the Existing Literature Relevant to the Study

The empirical studies reviewed were on the challenges facing SMEs in access to finances from banks and allied financial institutions. Gonas et al. (2004) examined the impact of information asymmetry on collateral requirement in US where firms with no credit rating or were not domiciled in the US often pledged collateral. However, the study only provides the impact of information asymmetry without considering its interaction impact on collateral requirement. Further, the study was carried out in a developed country where the credit market differs

significantly from that of a developing economy such as Ghana. Also, unlike the study by Gonas et al. (2004), all the sampled SMEs for the current study have been taken from the domestic economy.

For Mody and Patro (2011), their study was based on how credit scoring systems related to the reduction of information asymmetries and pledge of collateral in the US. Firms that cannot provide information will obtain bad credit scorings and, therefore, still be required to provide collateral or are credit rationed. Their conclusion was that application of credit scoring systems to screen borrowers helped to overcome information asymmetries and lower the demand for collateral. They concluded that the use of credit scoring tools may reduce credit restrictions, more especially, for firms which are likely to be information asymmetric and also do not have the required collateral because credit scoring systems reduced the need for collateral. The assertion seemed elusive because the scoring tools were based on the information. The existence and the use of credit scoring tools alone will not reduce existing information asymmetries.

On access to loans, Lin (2011) found out that there is limited role of collateral in overcoming asymmetric information due to weakly protected creditor rights. Likewise, Menkhoff et al. (2011) also found out that with collateral, borrowers could engage in risky ventures or non-income generating activities. These examples could be that information asymmetry and moral hazard could worsen separately and jointly the lack of collateral positions of SMEs and, therefore, make it more difficult for already credit restricted SMEs to obtain bank loans. Unlike the current study which sampled SMEs, the sample for the study by Menkhoff et al. (2011) was taken from households which, unlike the SMEs, may not reveal the actual financing gap poses by collateral requirement. Another limitation of the studies of both Lin (2011) and Menkhoff et al. (2011) is that they did not consider the standalone and joint interaction effects of information asymmetry and moral hazard on collateral requirement which the current study did.

Though the study by Igawa and Kanatas (1990) is so similar to the current study because of the use of the same constructs, there are two main differences between their study and the current one. Firstly, theirs was only a conceptual study. Thus, the concepts need to be, empirically, tested. Secondly, while their study used the three constructs as independent variables, the current study used only collateral as the independent variable with information asymmetry and moral hazard as moderating or interacting variables.

In the study by Blazy and Weill (2013), they used collateral, adverse selection and moral hazard as independent variables similar to the current study which has used collateral (requirement), information asymmetry and moral hazard as combinations of independent and moderating/interacting variables. Another differential construct between their study and the current one is that while collateral was needed to cover up loan loss in the event of default (dependent variable), the current study links collateral to loan access as the dependent variable. Their study did not look at the interaction effects of adverse selection and moral hazard on collateral but only used all the three constructs as independent variables. Furthermore, they used secondary data so may not; really, identify the moral hazard causing motives of the SMEs. Measurement scale for measuring moral hazard was scanty, if not nil, in literature. The current study has used primary data and developed measurement scale for measuring moral hazard and has been able to identify some of the motives behind the engagement of SMEs in it.

Consequently, collateral requirement, information asymmetry and moral hazard could continue to pose serious challenges to any banker-customer or investor-investee relationship. Therefore, the relationships among these constructs need more research because they are still and may continue to be some of the biggest threats when it comes to accessing loans, not only by SMEs but by large firms as well. As a result, the concepts of information asymmetry and moral hazard, especially, must be studied further in order to come out with behavioural ways to be used to reduce them rather than the earlier proposed ways such as collateral requirement, credit scoring, minimum net-worth, equity finance, restrictive covenants etc which have not helped minimize the challenges sufficiently. If this study is able to come out with meaningfully and practically proposed solutions, they could form the basis of literature to be used to educate borrowers or SMEs as well as lenders sufficiently on the importance of information asymmetry and moral hazard in relation to the chances of accessing loans from the bank.

2.16 Alternative Financing Mechanisms

Traditional debt finance provides lenders with modest returns and is, hence, suitable for low-to-moderate risk profiles. It primarily supports the day-to-day operations and short-term needs of SMEs with consistent cash flow, modest growth, tried business strategies, and collateral or guarantees. Many SMEs, on the other hand, may lack access to collateral and hence find it difficult to obtain loans through traditional channels. As a result, risk-sharing mechanisms are altered by alternate financing methods to straight debt (OECD, 2013b). These have exploded in

popularity in some countries, drawing the attention of policymakers and regulators who want to address issues about transparency, investor risk awareness, and consumer protection. Crowdfunding, business angels, factoring, purchase order finance and warehouse receipt are some of the external financing options that can be used instead of outright debt.

2.16.1 Crowdfunding

Crowdfunding is a method of raising funds from a wide number of people rather than a small group of specialized investors such as banks, business angels, or venture capitalists, where each person contributes a small portion of the total amount needed. Individuals donate money to a firm through crowdfunding. Crowdfunding is most commonly done through social media, particularly the internet, with the entrepreneur describing his or her firm's activities and goals, sometimes in the form of a business plan, and soliciting funds under certain terms and circumstances. This is the primary difference between crowdfunding and traditional types of finance: the entrepreneur does not require an intermediary, such as a bank, to obtain money and may instead tap into the savings of a huge audience directly. Crowdfunding is not merely a way to collect money. It can also be a useful tool for sharing information with a broad audience, raising awareness about projects and products, soliciting comments to improve them, and gaining recognition that might aid future commercialization (Metzler, 2011).

Depending on the internet platforms, the types of firms, and the projects, the types of contributions made by investors and the associated benefits may vary. Indeed, new features and business models are constantly emerging as new platforms are formed across countries in an environment of low regulation. The sources of funding might range from donations to equity, resulting in processes of varying degrees of complexity and contractual obligations between the enterprise and the individual investor.

Crowdfunding, according to Helmer (2011) and Mitra (2012), can take the following forms:

1. Donations: contributors make financial contributions to charities and non-profit organizations, though for-profit organizations can also benefit from this channel.
2. Reward or Sponsorship: contributors receive a pre-determined incentive or sponsorship, such as a little gesture of appreciation or some form of service, such as public acknowledgement and promotion for their efforts.
3. Pre-selling or pre-ordering: investors contribute funds to assist in the development of a

product or service in exchange for an early version of the product or a discounted pricing.

4. Lending: at the end of the lending period, investors receive both the interest and the principal. There are additional crowd-lending models based on the revenue-sharing principle, in which creditors are paid an amount that includes an agreed-upon share of the debtor's earnings rather than interest at the conclusion of the specified lending period.

5. Equity: through an online platform, a privately held corporation sells securities to the general public. Investors are given a stake of the firm and have the option of gaining voting rights.

Donations, rewards, and pre-selling (also known as "non-financial" crowdfunding) are the most common forms of crowdfunding, accounting for a significant portion of the cash raised by private enterprises through this channel while also delivering non-financial benefits to companies and investors. While these forms of crowdfunding presently dominate the market, lending and equity-based crowdfunding are projected to grow in importance in the future.

Lending-based crowdfunding, also known as peer-to-peer lending (P2P), began as a type of loan transaction in which individuals borrow from and lend money to one another without the involvement of a financial institution through unsecured personal loans. This community lending entails direct communication between the parties and, in many cases, the exchange of information that is visible to other present and potential borrowers via the internet platform, potentially broadening the creditor base. In fact, P2P lending communities work on the premise of "full financing," which means that a loan request is funded only if enough bids are received to cover the total amount sought by the borrower within a set pledge time, which can range from a few weeks to several months (Herzeinstein et al., 2008).

Crowd-lending has, however, grown increasingly and, over time, it is managed by internet intermediaries. In the case of lending platforms, lenders often purchase notes issued by the sites, which then utilize those monies to lend to borrowers (Mistra, 2012). As a result, the online platform serves as an intermediary, collecting loan pledges from the crowd for private projects, releasing them once a target is met, collecting repayment installments from the debtor, and transferring them to each crowd-lender, and so on. The promised funds are moved to an escrow account handled by the platform or a partner bank in some business models. Payments are transferred from the escrow account to the project's account once the threshold pledge is reached (Helmer, 2011).

Peer-to-peer loans are typically unsecured, meaning borrowers do not need to put up any

collateral, though organizations may offer secured loans in specific situations. Nonetheless, the online middleman charges transaction fees and interest on loans, which are based on the borrowers' credit risk, which is determined by accessing credit information from other parties or based on information provided by the borrowers themselves. Credit models are often developed by online platforms for loan approvals and pricing as well as borrowers' credit checks. Indeed, instead of profiting from the spread between deposit and loan, P2P platforms profit from commissions. The longer a loan is repaid, the more costs the borrower will have to pay (Lin, 2009; Chen & Han, 2012). The loans supplied are often unsecured, therefore, crowd-lending or P2P lending might be appealing to small firms that lack collateral or credit history to obtain traditional bank lending.

In the case of equity or investment crowdfunding, an enterprise provides a given percentage of its stock in exchange for a specific amount of money. Crowdfunded enterprises are exempted from the stringent accounting requirements that apply to public companies and, unlike other risk capital providers; crowdfunding investors may have no prior experience making such investments. As Collins and Pierrakis (2012) point out, because the model taps into a segment of the public with an interest in entrepreneurship, non-financial goals, such as becoming a part of an entrepreneurial effort or supporting a specific individual or business will often drive investment.

The valuation of the business is an important phase in this process since it determines the quantity of equity to be given in return for the target money to be raised. In most circumstances, the entrepreneur performs this valuation himself or herself, though the platform may allow for some upward flexibility in the amount of stock issued as the fundraising develops and if the observed investment rate prevents achieving the threshold within the agreed-upon schedule (Collins & Pierrakis, 2012).

Crowdfunding platforms are becoming more sophisticated intermediaries as their expertise and professionalism grow, and they may offer services other than money, such as due diligence, consulting, finding co-investors, or managing a co-investment fund (Helmer, 2011).

Projects with a creative or social purpose, where non-financial rewards are offered in exchange for donations, have been the most effective at generating funds from the crowd since the late 1990s (Collins & Pierrakis, 2012). Nonetheless, crowdfunding has grown in popularity as an alternative form of funding in a variety of other industries, and it is now being utilized to support a wide range of for-profit activities and organizations. Belleflamme, Lambert and

Schwiebacher (2011) emphasize the necessity of community-based experience for crowdfunding to be a viable alternative to traditional funding in this aspect.

For entrepreneurial projects and start-ups that are having difficulty raising funds from traditional sources, such as bank loans, equity crowdfunding can serve as a supplement or substitute for seed financing. Crowdfunding offers the ability to provide equity financing to businesses with higher levels of risk compared to the potential financial advantages they can generate. Crowdfunding investors' non-monetary motives, such as being a part of an entrepreneurial enterprise or enjoying non-tangible rewards, may explain, at least in part, why they are ready to take on more risk or accept lower returns than traditional risk capital investors. Simultaneously, the little sums invested in a number of ventures may allow them to efficiently distribute their risk in a cost-effective manner (Collins & Pierrakis, 2012).

By design and because of regulatory limitations, crowdfunding is suited to start-ups and businesses that request relatively small amounts of funding. However, this is contingent on the participation of larger investors in the process, as there have been instances where the model's ability to raise higher sums has been demonstrated (Collins & Pierrakis, 2012). Large corporations are increasingly investing through crowdfunding platforms, which can provide access to promising start-up businesses. Large corporations have put up crowdfunding challenges in some situations, allowing the most competitive start-ups to match the amounts raised from smaller investors.

Furthermore, crowdfunding may not be acceptable for funding enterprises whose business information and financial data are too sensitive to be disclosed with a large number of potential investors, as arranging non-disclosure agreements with all of them is either impossible or legally very complex. In addition, crowdfunding may not be appropriate for enterprises that require the types of post-investment support that can only be offered by institutional investors, such as those that are extremely capital-intensive in their early phases (Collins & Pierrakis, 2012; Helmer, 2011).

Above all, crowdfunding activities necessitate a stable internet connection, financial sector access (in the form of bank accounts for entrepreneurs and investors), and/or online payment methods to transfer cash. In this regard, a well-functioning banking system can aid the development of crowdfunding platforms by providing payment infrastructure as well as information on the entrepreneurs' creditworthiness. For example, in the case of crowdlending,

platforms may analyze credit history to determine whether or not to accept a project for funding and the interest rate to charge (OECD, 2014c).

While the rapid rate of technological advancements has allowed crowdfunding to spread quickly, the regulatory framework has slowed its spread. The legal limit on the amount of private investors a firm can have is another regulatory impediment to crowdfunding. Crowdfunding, by definition, seeks contributions from a large number of people. As a result, most crowdfunding campaigns do not offer shares as a reward, instead opting for other options like a product or membership (Belleflamme et al., 2011). Regulators have been cautious because of the nature of the business, so far. At the same time, the lack of a clear regulatory framework in relation to a new type of debt or equity issuance has contributed to investor caution, due to concerns about how much protection they have against fraud, public disclosure of sensitive information, and management of a large number of shareholders (Collins & Pierrakis, 2012). Crowdfunding activities, in particular, raise concerns about corporate governance and investor protection, as crowdfunders are likely to receive little protection. In comparison to traditional banking, the industry is more exposed to cyber-attacks, identity and payment data theft, and money laundering (OECD, 2014c). Furthermore, because individual investments are frequently tiny and investors lack experience, there is little desire or capacity to intervene in the event of mismanagement or abuse (Belleflamme et al., 2011).

It should be remembered, however, that the regulatory environment is rapidly evolving. Important regulatory reforms have been proposed or adopted by Bank of Ghana and announced in February, 2021 to provide entrepreneurs and investors greater access to and use of crowdfunding. Exemptions from general norms to protect investors, as well as the installation of ad hoc regulation, are likely to help this method of funding businesses, especially SMEs, to flourish.

2.16.2 Business angels

Angel investors are a valuable source of capital for small firms (Atrill, 2009). Business angels are individuals who provide risk money to unlisted ventures with whom they have no familial ties (Politis, 2008). Today, it is commonly recognized that business angels play an important role in the formation and success of new businesses, both in terms of the financial resources they invest and the business skills and personal networks they have developed over the course of their careers (Mason, 2006; Kelly, 2007).

According to Atrill (2009), business angels invest primarily for financial gain, but non-financial factors also play a role. For example, business angels often enjoy being involved in the growth of a firm and may also have altruistic motives, such as wanting to help budding entrepreneurs or contributing to the local economy.

The amount of money donated by angel investors is believed to be eleven times that of venture capitalists (Morrissette, 2007; Abdulsaleh & Worthington, 2013). Shane (2012) found that between 140,000 and over 260,000 angel investors invested between \$12.7 and \$36 billion in between 50,000 and 57,000 businesses per year, according to data collected from various surveys done between 2001 and 2003. For example, in Germany, a research by Stedler and Peters (2003) found that each business angel's total capital assets ranged from €2.5 million to €5 million, spread throughout a portfolio of between one and five start-ups.

2.16.3 Factoring

It is a supplier short-term financing method in which an enterprise (the 'seller') receives cash from a specialized institution (the 'factor') in exchange for accounts receivable arising from the sale of goods or the provision of services to clients (the 'buyers'). In other words, the factor purchases the right to collect a venture's invoices from its customers by paying the venture the invoices' face value, less a discount. After that, the factor collects payment from the firm's clients on the bills' due dates. The "reserve account" is the gap between the face value of invoices and the amount advanced by the factor. When the factor receives the receivables, less interest and service fees, this is paid to the seller (Dencic-Mihajlov & Milenkovic-Kerkovic, 2012).

It differs from asset-based lending in the following ways: (i) it focuses solely on the financing of accounts receivables, rather than a wider range of assets; (ii) the underlying asset is sold to the factor at a discount rather than being collateralized; and (iii) it is a package of three financial services, i.e. there is a finance component, a credit component, and a collection component because the borrower typically outsources his or her credit and collection duties to the factor. Factoring further differs from traditional bank lending and asset-based lending in that it does not create debt on the balance sheet and does not require repayment of loans. The firm is able to quickly turn accounts receivable into another asset, cash, by selling them to a factor (Berger & Udell, 2006).

One of the most important aspects of factoring is that it addresses the issue of asymmetric information between the lender and the borrower by focusing on the quality of a third party, the

borrower's client. The latter becomes the debtor and pays its obligations directly to the factor who has full responsibility for credit risk and account collection.

As a result of factoring, it is the factor that bears the costs associated with gathering buyer information, which is why factors specialize in specific industry segments in order to create more accurate market knowledge and credit-risk assessments (Soufani, 2001). These expenses can be high in the case of "typical factoring," when a firm sells its whole portfolio of receivables, because the factor must collect credit information and analyze credit risk for a large number of purchasers. As a result, conventional factoring is most common in nations with well-developed financial infrastructure (i.e. credit bureaus, credit registries), which allows the factor to obtain information on a large number of buyers at a reasonable cost while diversifying risk.

In the case of "reverse factoring," the factor only buys receivables from a few of the firm's clients. This increases the factor's risk exposure to a single customer, but the expenses of gathering information and assessing credit risk are reduced, and only high-quality receivables are normally accepted. In this aspect, reverse factoring is particularly well suited to financing receivables from creditworthy firms that are more creditworthy than the seller, such as huge corporations or international conglomerates. To put it another way, factoring may allow high-risk suppliers to shift their credit risk to their best clients. In fact, a reverse factoring arrangement is usually arranged by a major consumer who buys items from a lot of small suppliers. In this situation, the factor promises to finance any of the large firm's receivables resulting from invoices from small suppliers. The advantage for the large customer is that the sellers may agree to more favorable sales conditions in exchange for working capital finance (Berger & Udell, 2006; Klapper, 2006).

Factoring is particularly appealing as a source of working capital financing for high-risk and informationally opaque businesses, as well as businesses with a strong customer base but significant investments in intangible assets that cannot be utilized to get bank loans. The case is because the factor focuses on the creditworthiness of the firm's customers and the legitimacy of invoices rather than the firm's financial statements, fixed collateralized assets, or credit history. As a result, factoring may be especially beneficial for a small business that is having trouble getting bank loans but services larger customers that are considered to be more creditworthy than the company itself. Factoring offers more flexibility than traditional loans (Milenkovic-Kerkovic & Dencic-Mihajlov, 2012).

Factoring can meet the demands of new and young businesses because the extension of working capital is not based on the credit history of the company. However, because they are generally too tiny, have an inadequate client base, and lack a track record in sales and economic management, start-ups with low turnover may be less appealing to factors (Soufani, 2001).

Factoring requires a legal framework that allows for the sale or assignment of accounts receivables as well as the enforcement of the underlying contracts, such as rules that allow the factor to pursue legal action against the client's consumers for assigned receivables. In this regard, a legal reference to factoring, or even a "Factoring Act" that acknowledges it as a financial service, might help to explain the nature of factoring transactions and the outcome in the event of seller or customer default. A shoddy information infrastructure, on the other hand, may deter factoring by placing undue obligations on factors in terms of gathering information about customers' creditworthiness and assessing credit risk. Because the factor must gather information and assess credit risk for all of the firm's customers (or a select group of high-quality buyers), the cost and time required are heavily reliant on the presence of a good credit information infrastructure, such as well-developed credit bureaus or registries.

2.16.4 Purchase Order Finance

Purchase Order Finance (POF) is a type of asset-based finance that allows a company to satisfy a specific customer order, allowing it to capitalize on market opportunities that might otherwise be missed due to a lack of financial resources to buy inputs and produce output.

Purchase order finance is a working capital advance that covers part of the creation of a good or service needed by one or more specific clients, and it funds the production stage of a SME's activities. To be more specific, the SME acquires a validated purchase order from a client through POF and estimates the direct costs required to create and deliver the goods, which may include labor, raw materials, packing, shipping, and insurance. The purchase order is sent to a financier, who determines if the order is from a creditworthy customer or is backed by an irrevocable letter of credit from a reputable bank, as well as whether the SME can make and deliver the goods in accordance with the contract's terms. If the loan is authorized, the financier advances a portion of the entire order value, and the approved charges are normally paid straight to the suppliers. After manufacturing and delivery, the customer's accounts receivables are either transferred to the financier, as in factoring, or the payment is put into an account controlled by the financier. When the financier gets payment, it deducts the amount advanced, plus any interest

or fees, and remits the remainder to the SME, similar to factoring. Purchase order finance, like factoring, helps a small business to transfer credit risk to a more creditworthy consumer, which is usually a larger enterprise or government entity (USAID, 2009).

Purchase order finance can help developing businesses with limited working capital and weak cash flow that receive orders that are greater or more frequent than their present ability to pay suppliers in advance. In this aspect, purchase order finance is rarely a viable alternative to traditional funding. Rather, because it quickly offers huge quantities of additional cash, it can be utilized in conjunction with loan facilities to meet soaring capital requirements caused by rapid growth or peak seasonal sales (Maselli, 2000; USAID, 2009).

At the same time, because the financier is primarily concerned with the creditworthiness of the client who created the purchase order, it can be used by new businesses with little credit history, as well as high-risk and informationally opaque businesses that would not qualify for traditional bank loans. The SME's creditworthiness is often strengthened by the relationship to a larger company placing the purchase order, much as it is with factoring. In this context, as part of the "Supply Chain Finance" arrangements, purchase order finance can be an effective financing mechanism for small businesses engaging in supply chains. Producers, distributors, dealers, and resellers of manufactured items are typically eligible for purchase order finance as a financing method that supports production or distribution activities.

2.16.5 Warehouse receipts

Warehouse receipts (WHR) are an asset-based finance technique that uses commodities stored at a certified warehouse to underpin loans. Commodity manufacturers and traders deposit their goods to a warehouse, which provides secure storage and produces a receipt certifying that it has a specific quantity of a commodity that meets certain specifications. The depositor can then use the receipt as collateral for a loan, with the lender placing a lien on the commodity, preventing it from being sold until the debt is returned (USAID, 2009).

The amount that the enterprise can borrow is often a share (50-80%) of the stored commodity value, similar to asset-based financing. Interest, taxes, and storage fees are all charges that the processes imply for the borrower.

Warehouse receipts can be arranged in a variety of ways: (a) private warehouses, where manufacturing and warehousing are done under one roof. As a result, the same manufacturer (borrower) can issue a warehouse receipt to the lender as security; (b) public warehouses are

facilities where a specialized operator holds goods for third parties for a fee and produces receipts; and (c) field warehouses, in which a collateral management or credit support organization leases a depositor's or a public warehouse for a small charge and assumes possession of the goods to be used as collateral (Höllinger, Rutten & Kiriakov, 2009).

Aside from the warehouse operator, the warehouse receipts system works with specialized service providers, such as those who provide certification and inspection services to both depositors and lenders to guarantee the warehouse satisfies the essential standards for safe and secure storage. In addition, insurance firms typically give protection against warehouse commodity losses.

This system may work to build information on current and potential borrowers, which can be useful to financial institutions over time especially when other credit history information is lacking, because warehouses typically keep records about producers' performance. Furthermore, the system is based on consistent standards so incorporating them into receipts increases market knowledge, minimizing information asymmetry regarding product quality and availability along the value chain.

As a result, warehouse receipts benefits farmers and merchants of storable agricultural commodities including grain, sunflower seeds, and sugar in particular. The system's financial services are combined with additional possible benefits, such as access to reliable storage and hence the ability to sell the product across time, rather than only during harvest periods when commodity prices are likely to be particularly low. In these areas, the use of stored commodities as collateral is a viable alternative to the conventional use of real estate and land as loan collateral (Höllinger et al., 2009). Storage expenses, on the other hand, may be prohibitively expensive for tiny manufacturers. This offers an incentive for small businesses to pool commodities in order to gain access to the WHR system (USAID, 2009).

The warehouse receipts system is based on a legislative framework that safeguards depositors' rights and interests in public warehouses, ensures the transferability of warehouse receipts and their legal equivalence with the stored commodity, establishes clear procedures in the event of a warehouse operator's bankruptcy, and safeguards a collateral lien. Furthermore, the system is reliant on a defined warehouse license framework as well as a well-functioning control and supervision mechanism. There is a Government Regulating Agency in various nations that is in charge of licensing, regulatory, and inspection procedures (USAID, 2009). Warehouse

receipts' operation relies on a well-defined system of grades and standards, as well as depositors and lenders having trustworthy information on commodity market pricing and circumstances. A good market information system lowers uncertainty about the value of the stored items and allows for proper collateral appraisal.

The system requires familiarity with the warehouse receipts mechanism and specialized commodity expertise on the part of lenders in order to monitor market developments and accurately value loans. Building confidence in lending loans against warehouse receipts takes time, as Höllinger et al. (2009) point out, based on the experience of warehouse receipts development in transition countries. Banks may initially only be ready to lend up to 55 percent to 65 percent of the value of the collateral. This figure could rise to 80% or perhaps higher if public trust in the system grows.

Despite these alternative funding options which could be beneficial to SMEs, the issues of information asymmetry and moral hazard must be thoroughly addressed. Information asymmetry and moral hazard cannot be predicted, making them highly uncertain. To promote the development of alternative financing instruments for SMEs, it is critical to address information asymmetries and increase market transparency. These alternative financing strategies could be a better option for SMEs than the traditional bank loans and their stringent requirements. However, businesses, especially SMEs, indulging in information asymmetry or moral hazard, in no time, could ruin their trust, reputation and ethical standards with stakeholders and suffer more from access to loans.

Trust: Trust between SME owners and lenders reduce information asymmetry and, as a result, boost access to credit and the quantity of credit supplied to them (Lehmann & Neuberger, 2001). SMEs can gain by disclosing the information requested by financial institutions by boosting their chances of being accepted, increasing the amount of loan accessible to them, and reducing the amount of collateral or guarantees necessary (Zecchini & Ventura, 2009). Moro, Fink and Maresch (2015) found a positive relationship between the amount of credit obtained and the reduction in information asymmetry, as well as the economic impact of reduced information asymmetry, and discovered that if information asymmetry is reduced by one notch, the amount of short-term credit obtained increases by 12%. This suggests that the extent of information asymmetry and the level of trust between credit providers and borrowers are inversely related. Reduced information asymmetry promotes trust between financial institutions

and credit seekers, resulting in more credit being offered to SMEs and all loan seekers in general (Moro & Fink, 2013).

Reputation: Since the sixteenth century, credit and reputation have been intimately linked (Klein, 1997), with Buckley and Nixon (2009) arguing that excellent credit was essentially synonymous with reputation. Lending money was a show of respect that also indicated the borrower's respect and acceptance. Credit loss resulted in a loss of honor. Even as society became more commercial and transactional, with credit available to a wider variety of individuals, the links between social standing, honor, moral worth, and credit persisted (Buckley & Nixon, 2009). A good reputation can disguise a bad character, whereas a suspected reputation can be redeemed by a good character (Lipartito, 2013). Borrowers rely on their ability to repay debts in a timely manner to have access to future borrowing. According to Bastelaer (2000), an increasing number of financial institutions are lending to the poor on the basis of "social collateral," in which borrowers' reputations or social networks replace traditional physical or financial collateral. As a result, a borrower's reputation is a key factor in obtaining credit from lenders.

Business Ethics: Finally, and perhaps most crucially, increasing pressure on businesses to act ethically while also operating in the most cost-effective, efficient, and successful manner may be the key to overcoming information asymmetry and moral hazard.

Businesses must understand that unethical behaviour may be extremely costly, not only to the firm but also to society as a whole (Abiodun & Oyeniya, 2014). Furthermore, today's main stakeholders are increasingly concerned about the reputation of the businesses in which they have an interest. As a result, small and medium-sized firms (SMEs) have been hit the hardest since they lack the funding, strategic intelligence, and relevant alliances to implement ethical standards (Ononogbo, Joel & Edeja, 2016).

Ethics is a set of moral principles or norms of conduct that focuses on doing the right thing in the right way (Okafor, 2011). Doing what is morally right is what it means to act ethically (Okafor, 2011; Taylor & Bell, 2016). Ethics, according to Abiodun and Oyeniya (2014), is based on broad principles of integrity, transparency, accountability, responsibility, and fairness, and focuses on internal stakeholder issues like product quality, customer satisfaction, employee wages and benefits, as well as local community and environmental responsibilities. The moral standards and principles that influence action and behaviour are sometimes referred to

as ethics (Emerson, 2009). It is the discipline that deals with moral duty and obligations, as well as what is good and harmful. The goal of ethical principles of conduct is to give guidance for human behaviour that will help to preserve a society and its members.

The study of morality and business standards is known as business ethics. Business ethics, according to Twomey and Jennings (2011), is the application of ethics to business practices. Business ethics, according to Velentzas and Broni (2010), is a collection of moral principles and values that govern an organization's behaviour in terms of what is considered right and wrong. As a result, in a company setting, business ethics might be defined as what is considered right and wrong, or good and terrible human behaviour. Business enterprises, regardless of their size, can no longer afford to ignore business ethics (Sraboni & Sharmistha, 2011). With the growing importance of SMEs around the world, they need to take a more ethical approach to business (Sraboni & Sharmistha, 2011). As a result, in order to thrive and remain competitive, corporate organizations and managers must act ethically and safeguard their own business interests (Abiodun & Oyeniyi, 2014).

There is also a growing awareness of ethics, which is causing society to reject enterprises that are proven to be unethical (Ahmad, Amran & Halim, 2012). However, despite the fact that SMEs have a significant impact on the economies of all countries, especially in the fast-changing and increasingly competitive global market, the study of the role and function of ethics in business organizations has unfortunately focused primarily on larger enterprises (Naidoo, Perumal & Moodley, 2009). While many large corporations have built their reputations by adhering to ethical norms, SMEs in industrialized nations are increasingly aware of the importance of working with financiers in a trustworthy manner. However, SMEs in underdeveloped nations still need to learn more about the implications of business ethics and how they might help them. Due to a lack of long-term vision, they may be unable to see such achievements (Mahmood, 2008). Because of the specific possibilities and problems that SMEs face, they are frequently tempted to deviate from ethical norms when dealing with their stakeholders (Sraboni & Sharmistha, 2011). As a result, in today's competitive business environment for SMEs, business ethics must become a requirement.

SMEs should be aware that conducting business necessitates the upholding of basic ethical principles such as honesty, dependability, and cooperation. Businesses will not be able to exist if its executives never tell the truth (Branko, Drago & Zoran, 2015). Good ethics, defined as

being fair, honest, responsible, and upright, helps businesses gain credibility and trust. Stakeholders want to work with firms and business owners they can fully trust with their happiness, needs, and wishes, as well as their money, safety, health, and well-being (Donovan, 2013). As a result, SME owners must view business investment, growth, and sales as arising from a trust circle (Twomey & Jennings, 2011).

Furthermore, when a company has a good reputation, it benefits from a good name and the public notices its good activities. The best way to develop a good reputation is to have an ethical conscience and to be morally conscientious. This necessitates SMEs to be fair and honest, to make decisions and operations with integrity and consideration, to be dependable, and to respond to stakeholders' requests for action and community involvement (Donovan, 2013).

The lack of general ethics among SME owners has a detrimental impact on customer loyalty, brand building, and investment partners, limiting business growth potential (Kalyar, Rafi & Kalyar, 2013). This also develops a stereotype and views among SMEs of a general lack of trustworthiness and repute, hurting their ability to compete with larger enterprises and acquire development finance. As a result, SMEs must understand the nature and importance of business ethics in order to develop strategies and solutions to effectively address current challenges, reduce business failure, increase opportunities for growth, competitiveness, and performance, and improve their overall reputation in industry and community (Donovan, 2013).

In summary, the current study is different in many ways such as topic, theories and method used, scales for measuring the constructs etc from the ones relevant and similar to it. Another mainly theoretical difference between the current study and almost all the earlier ones (both reviewed and not reviewed in this chapter) is the development and application of a 2x2 (2 by 2) matrix or model to do scenario analysis of the constructs. This important model could be used to contextualize some of the results of even the earlier studies. The model will help the banks to quickly place the SMEs under any of the four scenarios they will definitely belong to, based on the three drivers (collateral requirement, information asymmetry and moral hazard) of access to loans, for easy assessment and decision.

2.17 Theoretical Contexts

Research studies are guided by theoretical frameworks to help determine the variables to measure and their corresponding statistical relationships which will throw more lights on the studies and assist in providing general frameworks for the data within the framework of the

issues under consideration (Trochim, 2006). The contribution of theoretical literature is to assist the researcher in the analysis of the data as well as helps in the selection of the necessary research design.

The main theoretical framework used to explain why some SMEs will have access to loans while others will not is the credit rationing theory developed by Stiglitz and Weiss (1981). This theory was supported by three other important theories as follows: Financing Constraint Theory, Resource-Based Theory and Adverse Selection Theory. From the extant literature reviewed, these theories provide foundations and conceptual explanations why borrowers, in general, and Ghanaian SMEs, in particular, are facing challenges accessing loans from banks and, also, what they could do to overcome these challenges.

2.17.1 Justification for the Choice of Theories

According to the literature reviewed, three major factors restrict SMEs' access to and use of loans: collateral requirement, information asymmetry and moral hazard. Information asymmetries, especially, are likely to be more serious in small businesses than in large corporations. That is, SMEs are less transparent. For example, they lack audited financial statements that provide a better image of the business and its expected earnings and are, also, less likely to be able to post collateral. In comparison to SMEs, large corporations have more bargaining power and business resources, making it easier for them to obtain financing (Cenni et al., 2015; Rahman et al., 2017). As a result, SMEs may face credit rationing caused by the difficulties in securing collateral, due to any firm characteristics or as a result of the prospect of large firms creating excess demand for loans. To the bank, collateral may be used as a tool to mitigate informational asymmetries and thus solve the credit rationing problem. Since collateral can reduce informational asymmetries between the borrower and the lender, a higher availability of collateral is expected to increase the supply of bank debt. However, increasing the supply of bank debt for a specific enterprise can increase the likelihood of creating excess demand, and thus the likelihood of credit rationing. As a result, without collateral, credit rationing for any given firm can be more serious. However, it is difficult for most SMEs to meet the needed collateral requirement. This difficulty or failure to meet this requirement is a constraint to access the finance or loan, hence the application of the financing constraint theory. Furthermore, a severe information asymmetry between banks and SMEs can lead to credit rationing which occurs when demands for loans, by the few enterprises with higher availability of collateral or

those which are information symmetric or both, exceed supply.

Rationing of credit can take several different forms. These are weak rationing, in which businesses earn only a portion of the credit they seek (Cieply & De Jardin, 2010; Drakos & Giannakopoulos, 2018) and strong rationing in which businesses are refused and denied credit entirely (Cenni et al., 2015; Demoussis, Drakos & Giannakopoulos, 2017). Also, firms can also be rationed if they have been given credit but fail to use it due to the high cost. Due to the difficulty in meeting collateral requirements, SMEs may experience some form of rationing. Empirically, the phenomenon of rationing has been studied largely by the use of firms, industries, or banking structures (Canton et al., 2013; Cenni et al., 2015; Ryan & Sudarshan, 2020). The current study, equally, used firms and banks hence the choice of the credit rationing theory as the main theory underpinning it. In addition, unlike their relationships with retail customers where they can use standardized products, financial institutions cannot rely on the law of large numbers to leverage scale economies and diversification benefits of SMEs, since there are fewer of them in each sector and their characteristics are more difficult to capture in a few quantitative indicators. Thus, there will be a maximum share of SMEs applying for loans that can be served by financial institutions in a commercially viable manner. Also, the difficulty of the SMEs in meeting the collateral requirement is a constraint in accessing the loan. This is in sync with the financing constraint theory.

Furthermore, when doing business with an opaque SME, a bank faces problems such as adverse selection and moral hazard (Moro, Lucas & Kodwani, 2012; Rahman et al., 2017). However, according to Rahman et al. (2017), collateral can help to mitigate adverse selection and moral hazard concerns in a loan contract by serving as a signaling mechanism for banks to sort out good borrowers from risky ones. This literature, therefore, justified the choice of the adverse selection theory.

Moreover, studies show that firm and borrower characteristics such as size, capacity, experience, gender, and others are important determinants of collateral-based lending (Rahman et al., 2017). These are examples of competitively internal strengths and intangible resources that the firm can take advantage of to avoid, at least, strong rationing. Collateral itself is a resource (tangible) so firms that can provide and, also, meet other lender conditions are likely to access loans hence the choice of the resource-based theory. The reason for the choice of this theory for the study is to make Ghanaian SMEs aware that they have useful characteristics and other forms

of resources (such as personality traits, quality of workforce etc) that are not common which they can take advantage of and access loans with or without collateral.

Finally, when these four theories are compared side by side, it becomes apparent that a firm's inability to recognize its constraints is disastrous and will result in poor performance. Several writers have agreed with this point by stating that the potential of SMEs in many jurisdictions is not fully realized due to the difficulties they face (Avevor, 2010; Cofie, 2012). As a result of the assumptions that underpin credit rationing, financing constraints, resource-based, and adverse selection theories, ignorance of the challenges associated with the management of SMEs is a threat to the sector's desired output and development. As a consequence, there is the need to consider the difficulties that SMEs face in obtaining credit in Ghana from the viewpoints of these four theories.

2.17.2 Credit Rationing Theory

The study adopted the theoretical model of equilibrium with credit rationing of Rahman et al. (2017). The model assumes imperfect market credit where there is information asymmetry such that obtaining accurate information on the borrowers and the monitoring the borrower's action is too expensive for the banks. Further, the model assumes there are many banks operating in the credit market seeking to maximize profit through the choices that they make concerning interest and collateral. Such choices should aim at reducing the probability of default. On the other hand, there exist many potential borrowers who also seek to maximize their profit through the choices of their projects.

Due to information asymmetry the chances of success of the project chosen by the borrowers is not known by the banks but only the borrowers. In addition, a borrower may decide to shift from the project initially agreed upon and which according to the bank have a high chance of success with a normal return and opt for a high return project but with equally high chances of failure. Unfortunately, the bank has no control over such action by the borrower. However, the value of a failed project is similar whether high risk or the risk that the bank uses interest rate to distinguish between bad or good risk.

Assuming borrowers will go for loans of similar size to finance projects with similar returns, borrowers intending to finance high risk projects (thus high return) will be willing to pay for higher interest. A high interest rate will, however, affect the profit of the bank as the number due to the adverse selection effect (which results from a deterioration in the quality of the pool of

loan applicants) and the incentive effect (which results from a change in the behaviour of borrowers to shift from safe to high risk projects) (Okurut, Olalekan & Mangadi, 2011). Thus, equilibrium is achieved in this case at the rate of interest which allows the banks to maximize their profit (Banerjee, Reynolds & Rozendaal, 2008). However, under condition of imperfect credit markets, characterized by information asymmetry, interest rates fail to play the market clearing role of equating demand and supply.

According to the credit rationing theory, banks that advance loans to SMEs are not only interested in the interest they receive on loans but also interested in the risks of such loans. However, the risks arise because of capital market imperfections that limit the availability of finance to SMEs (Gelos & Werner, 2002; Love, 2003; Beck & Demirguc-Kunt, 2006). As a result of credit rationing, it has been suggested that specific characteristics of certain SMEs may be able to explain why some will access finance while others are refused. For example, it has been suggested that collateral can determine whether the SME gets finance (Menkhoff et al., 2012; Rahman et al., 2016; Rahman et al., 2017). This is on the basis that only good risk borrowers are able to secure a loan because they are sure they won't default and lose their properties (Cowling, 2010). Further, regarding the credit rationing theory, the length of the relationship between the SME and bank can also differentiate those SMEs that are likely to be approved for finance. The rationale for this is that banks are able to reduce information asymmetry as the longer such relationships, the more banks become privy to proprietary information which could allow them to originate non-marketable loans, thus, alleviate problem arising from the asymmetric distribution of information between agents in the credit market (Cenni et al., 2015; Rahman et al., 2017). Again, the degree of opaqueness of the SMEs could also determine why credit could be rationed with the result that some SMEs do not access credit.

In the context of the study, the theory backs it in respect to the hindrance of access to loans by SMEs. The theory has demonstrated that information asymmetry results to bank rationing credit requested by SMEs. In this respect, banks perceive collateral as an appropriate tool to remove the barriers. Thus, the collateral may enable the lenders to gain experience with borrowers who may be willing to pledge them. These borrowers may later “graduate” to borrowing without collateral, partly, because lenders assemble sufficient information about them to make loans to them later without special guarantees (Vogel & Adams, 2007). However, SMEs empirical studies have asserted that collateral is a challenge for SMEs. Also, SMEs are,

generally, information asymmetric. As a result, credit rationing can be expected to be tighter for opaque firms because information problems are more severe and, thus; the risk of adverse selection is large (Kirschenman, 2016).

In contrast, De Meza and Webb (2000) as well as Bonnet, Cieply and Dejardin (2016) strongly refute this, claiming that businesses will profit from an excess of credit. They show that asymmetric information in credit markets can result in the opposite; namely: an excess of credit or over-lending, despite the borrower's low quality. Nevertheless, information asymmetry will, thus, lead to more collateral requirement and negatively affect access to loans by SMEs.

2.17.3 Financing Constraint Theory

According to Appiah et al. (2018), the constraint theory of funding indicates that businesses choose to raise or decrease the quantum of foreign funding that they will gain, provided they solve their borrowing limitations. Financers limit debt access funding based on the company's capacity; for example, valuation of collateral against loan, revenue turnover and benefit, number of years and size of the firm (Inessa & Mylenko, 2003; Jappelli & Pagano, 2005). Evans and Jovanovic's (1989) seminal paper produced investigations such as Parker (2002) and Cressy (2002) towards the function of collateral in overcoming credit limits.

Further, Cressy (2006) asserted that collateral can control the credit amount given to a new business by influencing the financial expense (interest rate) or merely reduction in the degree of credit offered. As reviewed in literature, access to finance involves demand by SMEs and supply by banks and credit is, mostly, rationed by suppliers due to demand-side challenges. Demand-side restrictions of finance involve variables like information asymmetry, collateral guarantee, organization age and size that establish credit limits that, specifically, restrict access to financing for debt and maximization of opportunities for investment (Beck et al., 2006; Levine, 2005). On the side of supply, financial restrictions can be launched by rising cost of transactions and efficient loan rates, in addition to other considerations (Beck, 2007).

Nonetheless, Levine (2005) notes that while this is a straightforward matter for a tolerable-risk debtor, for SMEs connected with incomplete financial statements, this raises transaction costs. However, with information asymmetries, orderly placement of loan customers, for example, using expected returns and riskiness varies depending on whether it is situated on collateral requirement, size or age, or business earning (Atif, 2006; Miller & Rojas, 2004; Rahman et al., 2017). Therefore, supply and demand for finance is difficult to compare for both

financiers and investors due to variations in scales for credit scoring for their different parameters (Buera, 2008; Kerr & Nanda, 2009). Financing constraint theory, therefore, illustrates factors driving a reduction or rise in access to financing for debt, involving economic status of stakeholders, demand-side company age and size and supply-side transaction cost limitation.

Regarding the financial status of SME shareholders, for example, net income and capital of the entrepreneur might trigger financial restriction (Cressy, 2002; Kerr & Nanda, 2009). Also, Buera (2008) affirm that SMEs scarcely distinguish individual and company earnings, particularly in sole entrepreneurial instances. Regardless, financiers deem enterprise owner as a net debtor, obligated at the close of the term to repay but not default, irrespective of the status of his economic activities (Coase, 2012). Except where collateral is placed in support of the loan, the financier demands properties of the actual owner in case of non-payment (Duarte, Gama & Esparanca, 2016; Duarte et al., 2017). Thus, the theory of financial constraint presupposes the proportionality parameter where any person may borrow up to a sum equal to their net worth or net earnings (Lian & Ma, 2021). Therefore, the entrepreneur encounters a liquidity limitation where personal net worth and profits do not comply with credit scoring requirements (Beck & Torre, 2007; Chen, 2014).

Another factor that, equally, could make loan access difficult is age of the firm (Brent & Addo, 2012). Theory of financing constraint implies that while businesses expand in the course of time, the value of the initial cap on liquidity would decrease (Cressy, 2006; Beck & Demirguc-Kunt, 2006). This is because earnings elasticity is optimistic against firm age and also relevant statistically (Osei-Assibey et al., 2012; Bruhn, Farazi & Kanz, 2013). The model of financing constraint equally indicates that majority of the new companies are bound to encounter much stronger extreme restrictions that make them revert to personal savings and loans from friends and relatives, particularly when the business is in its formative years (Beck, 2016). However, if financiers perceive less risk after the enterprise is founded, then, they are more likely to supply credit thereby decreasing personal savings position (Buera & Shin, 2013; Brunnermeier, Eisenbach & Sannikov, 2012). In addition, the money volume likely to be accessed by the enterprise is also restricted to individual funds (Chen, 2014; Duarte et al., 2016; Duarte et al., 2017). Therefore, age of firm can dictate access to financing of debt since older firms create more capabilities and can draw buyers.

Prior study by Inessa and Mylenko (2003) demonstrate that with company age, earnings'

elasticity is positive and statistically important, suggesting that if the business gets older, its capacity for external funding accessibility increases. In the same vein, Cressy (2006) and Beck and Demirguc-Kunt (2006) suggest that while companies are in their infancy, it can be difficult to receive equity financing or expand their credit portfolio because they do not have suitable collateral and recognizable market share to help locate suitable guarantors in the case of partnership financing from a bank. Also, Beck (2007) and Bougheas, Mizen and Yalcin (2005) assert that when firms are just starting to develop from their infancy, then financiers cannot accurately assess the degree of risks associated with such young undertakings so it is impossible to allocate some sort of credit to such undertakings without any credit records. However, Jensen and Meckling (1976) in earlier study point out that age might not be a hindrance to only young firms since some firms appear to become complacent with age thereby ignoring their competitive edge.

In furtherance of arguments in support of age as a demand-side factor for access to loan, Chandler (2009) provides another viewpoint that the more a company remains, the more it suggests it can survive tough economic conditions. Consequently, a company will indicate that it does not follow opportunistic conduct by remaining in operation. Also, it ensures that the company and, in particular, owners or employees are experienced enough to address market problems.

Again, older firms can have an overview which can assist lenders to gage the creditworthiness of such firms unlike young enterprises for which securing bank finance is often challenging and costly due to asymmetric information likely to exist between banks and such businesses. In addition, Katz (1982) notes that in following the theory of the firm to clarify foreign finance accessibility focus is imposed on the past records of a business that may influence its potential funding access. In contrast, a weaker and more conservative market memory is associated with older SMEs that could or could not improve the likelihood of obtaining debt financing (Katz, 1982; Loderer, Neusser & Waelchli, 2009).

Another constraint to access to finance is firm size. Some of the firm size studies by Berger and Udell (2006) as well as Lago, Lopez and Saurina (2007) used overall assets, sales turnover or employees' number to quantify size. Purposely for this research, size would be restricted to the count of workers as many writers have commonly operationalized it; examples, Beck and Demirguc-Kunt (2006), Lago et al. (2007) as well as Beck (2007). In this study, firm

size refers to the number of eligible workers conducting different tasks; for example, accountants who professionally put together financial statements representing accountability, completeness and transparency factors (Ayyagari et al., 2007).

In relation to the financing restriction principle, firm size may be the reason why certain firms can obtain and other firms find it difficult to. A case in point is Beck (2007) observed that bigger companies prefer to provide many services and products, an opportunity to draw foreign funding. Also, Cassar (2004) argues that as a result of asymmetric information associated with smaller firms, overcoming these asymmetries with loan suppliers is comparatively more expensive, based on the simple reason that they typically take lower amounts of loans which add to costs of transaction. Furthermore, small firms have fewer options to raise money since most of them have no legal status; thus, capital markets could be out of reach to raise funds by way of shares. Particularly, the greater failure of SMEs to handle risk relative to larger firms is what affects lending to them.

Compared to big companies, SMEs are usually not transparent; less likely to supply collateral and no frequent provision of audited account information that offer a clearer image of the firm and its expected earnings (Beck, 2007). Such SME lending market characteristics suggest that providers of funds need to establish credit-scoring strategies that allow them to select tolerable-risk SMEs which will be willing for possible paybacks (Beck et al., 2005). To pick such SMEs, funds providers would like to assess several characteristics like net loan expenses, projected incomes, risk of loan and capacity for payback (Beck, 2007; Cressy, 2002; Inessa & Mylenko, 2003). However, unlike larger companies, SMEs are limited when it comes to credit rating requirements (Bougheas et al., 2005).

Further, small and medium-sized companies appear to rank on appropriate assets less than bigger enterprises; conservative lenders would prefer not to give credits at interest rate perceived to be higher until these lenders are fairly confident of their abilities to properly calculate expenses, assess the likely risks of an expected income and define estimated incomes of a potential loss (Beck & Torre, 2006; Beck, 2007). Also, Beck (2007) asserted that demand for lending is a favorable feature of projected earnings on investment. Furthermore, in terms of workforce efficiency, big firms are generally more competitive than small businesses because of management efficiency which the financiers consider confident of the firm's financial and analytical capacity to repay debt thereby allowing them more access to debt finance.

On supply side, financing constraint theory demonstrates the pressure of fixed transactions expenses (Evans & Jovanovic, 1989). These expenses such as credit screening costs, distribution and tracking seem smaller as loan size grows (Beck & Torre, 2006). Determining an actual loan demand includes expenses that are partly a function of the loan amount; for instance, loan processing fees, insurance fees, correspondence and transportation fees (Ayyagari et al., 2006). These expenses may not be favorable to SMEs because they borrow less loan amounts than larger companies thereby increasing costs of transaction (Beck, 2007). Moreover, the expense of retaining consumer relationships over time through multiple financial items, including; loans, deposit and savings services, is partially not dependent on the volume and size of financial transactions with the consumer (Beck & Demirguc-Kunt, 2006). Transaction expenses may be set at the financial sector level; for example, in regulatory activities that tend to make the financial institution bear additional expenses like coping with SMEs if the institution's regulatory structure does not benefit certain enterprises (Rajan, Zingales & Kumar, 2001). The impact of fixed costs on financial service access can be strengthened by network externalities in which the amount of consumers currently using the service dictates the potential value towards a new customer (Claessens, Fan & Lang, 2006).

However, unchanged transaction costs are financial institutions' lending expenses and the borrowers' chargeable interest terms. In an environment with unpredictable investment returns, higher administrative loan expenses and the higher loan expenses associated with it could push up the risk that debtors are unable to pay back as a result of undue payback pressures (Beck, 2007; Beck & Torre, 2006). Therefore, increased costs of transaction would just not raise borrowing costs but also limit external access to financing, particularly, for SMEs. In addition, the complex features and comparative opacity of SMEs raise their costs of assessment and control. Unlike other loan types like personal loan or mortgage lending, lending to SMEs is a product with a high-cost.

Additionally, between growing and industrialized economies as well as contrasting traditional and alternative financiers, evidence indicate that smaller credit transfers go with higher operational costs, suggesting funding limitations (Demirguc-Kunt & Levine, 2008). To summarize, unchanged costs can be a major constraint when providing finance, particularly, to SMEs and so are major barriers to expanding debt financing accessibility (Griffins, 2002).

Unlike other loan items that can be reduced to basic transactions, SME loans mostly rely

heavily on partnerships between investors and financiers (Berger & Udell, 2006). As recommendation, SMEs can leverage on economies of scale either by increasing the loan amounts demanded or by raising the volume of deposit transactions in order to improve their performance in credit scores through specialization in high-value payments and savings services (Beck & Levine, 2005; Demirguc-Kunt & Levine, 2004).

2.17.4 Resource-Based Theory (RBT)

The core concept of the resource-based theory (RBT) is to help businesses recognize their useful characteristics and any resources that are not common but can contribute to comparative edge in the market place and improve external resources accessibility (Bouazza, Ardjouman & Abada, 2015; Quartey et al., 2017; Appiah et al., 2018).

As asserted by some researchers, resource-based theory assists businesses to recognize various types of resources like collateral and human competencies which are likely to boost their credit standings and simplify external funding for them (Quartey et al., 2017; Bhaird & Lucey, 2010; Bougheas et al., 2005). Studies have it that all businesses have special resources that can offer them strategic advantages, if they are tapped and used (Abood, Aboyasir & Ajloni, 2014). A similar conclusion was arrived at by Appiah et al. (2018) that continuous resource and capacity-based competitive advantage is important and unique to firms. These capabilities and expertise can thus be described as packages of tangible and intangible assets; for example, managerial skills, operational procedures and routines as well as the information and knowledge it has control over. Resource-based theory explains that certain firms can obtain financing on the basis of reasons such as: firstly, Coase (2012) emphasizes the importance of how long a business has lived that can affect financing access. As an example, a well-known and stable firm has built-in internal infrastructure and skills and is presumed to have formed financier associations, market support and brand royalty that are probable to draw it to funds providers; secondly, the theory establishes the importance of intellectual capital to boost financial access. Intangible assets like the skills of the owner/manager in relation to attributes and expertise of leadership are basic resource-based traits which could allow firms to create partnerships and attract financing, particularly, in connection to credit extension (Coase, 2012; Bouazza et al., 2015; Bhaird & Lucey, 2010) and thirdly, resource-based theory emphasizes the aspect of actual supply of physical resources; such as, plant, machinery and equipment (collateral), emphasizing that if the values of such assets are well-determined and made known to funds providers, then, debt funding

access should not be difficult (Mac an Bhaird, 2010).

Consequently, such resources are special, limited and extraordinary to businesses; that is why some of those in the same business can access financing when their competitors are refused credit (WBG, 2015; Quartey et al., 2017; Appiah et al., 2018). This means that resource-based theory's internal resources, tangible or intangible, boost firm efficiency and have strategic advantage, if completely used, and thereby draw external resources. Therefore, managing these intangible (valuable capacities, human capital, goodwill) and physical (equipment, machinery and plant, etc.) assets create a positively signaling impact on the firm's operations for the market and can draw funds providers' interests in the enterprise (Popa, Blidisel & Bodgan, 2009; Quartey et al., 2017; Appiah et al., 2018).

Further explanation of the resource-based theory asserts that the physical and non-physical resource opportunities can improve financial access, based on two reasons (Barney, Ketchen Jr. & Wright, 2011). First, resources have values and, second, each firm's resources are unique. However, Barney's definition of 'values' may be an ambiguous criterion in assessing a firm's competitive edge. Rather, whether the resource is useful or not useful, its viability should be measured and it should take the form of a financial asset, irrespective of whether it is physical or not. This is because the economic value of any assets should be determined by the decreased value relative to the projected potential income stream (Akio, 2005).

In support of the resource-based theory, a company's desirable asset is known to have the potential to constantly reconfigure its strategic edge (Barney et al., 2011; Kraaijenbrink, Spender & Groen, 2010). Furthermore, the implication of the theory means that the resources, involving capabilities and knowledge for strategy and investment which are needed to acquire such resources are from within (Barney et al., 2011). This means that resource-based theory overestimates the viability of firms if using these internal advantages because it does not consider accumulation and acquisition costs (Akio, 2005). The theory advises that businesses must realize their strategic edge or increase their profits from the advantages they possess to draw external resources, being mindful of the supply-demand side factors that affect the business dynamics (Barney et al., 2011; Kraaijenbrink et al., 2010). Resource-based theory also calls for focus on how to maintain those productive resources from within in the long run without depreciating their economic benefits they add to the firm (Barney et al., 2011; Coase, 2012).

Again, resource-based theory reflects on the position of evolving abilities; i.e., the basic

mechanism that businesses use to adjust their resource base as sources of competitive advantage (Kraaijenbrink et al., 2010; Bouazza et al., 2015). Also for new firms, resource-based theory describes specific advantages that give them competitive edge. These resources include strategic alliances, strategic and technical knowledge of the founder, client and supplier relations, competence to hire useful managers and develop human capital management strategies (Barney et al., 2011; Subramanian, Bo & Kah-Hin, 2018).

Nonetheless, the firm's diverse strengths and strategic advantage viewpoint refute resource-based theory (Kraaijenbrink et al., 2010). Their position is that the only way these complex skills can, therefore, be an avenue of strategic advantage is to use them faster and smarter (Kraaijenbrink et al., 2010). The assertion is in support of Eisenhardt and Martin (2000) that complex capacities have been commonly defined in many separate sectors and have also been customized efficiently so that they cannot be sources of competitive advantage. Also, strategic advantages cannot be maintained in complex and quickly evolving market conditions (Eisenhardt & Martin, 2000; Kraaijenbrink et al., 2010).

However, the desire to use diverse advantages "sooner or later" is itself a skill (Eisenhardt & Martin, 2000). Relatively, orthodox resource-based theory reasoning can be used to determine whether exploiting complex resources efficiently and strategically could be an avenue of competitive advantage (Barney, 2001). The theory is useful to SMEs because choosing a more endowed financial supplier means employing and making available internal resources attractively (Barney et al., 2011; Coase, 2012). Consequently, when assets including collateral, specialization, managerial capabilities and relations are well taken advantage of, then, attracting well-endowed financiers who won't exploit SMEs is possible (Barney et al., 2011; Coase, 2012).

Admittedly, costs of finance involving young, small and risky enterprises is mostly high because they are yet to establish internal resource strength at that level; for instance, financial relationships, collateral and human capital resources (Rahman et al., 2017). Helpfully, resource-based theory (Barney et al., 2011) proposes how firms really exist, assuming resources are distributed equally. The theory emphasizes that the firm's use of physical (collateral) and non-physical (human resources, goodwill) assets improve negotiating skills and increase financial access (Barney et al., 2011). In support, Barney et al. (2011) concurs that resource-based theory is beneficial to SMEs because selecting a more endowed financier means employing and presenting internal resources advantageously.

Furthermore, the theory involves the personal assets and resourcefulness of entrepreneurs that make up the firm, hence the relevance of the theory to SMEs (Barney et al., 2011). Consequently, resource-based theory is useful to SMEs as they seem to face challenging barriers to access to finance (Beck, 2007). However, the theory faces criticism as well, according to Kraaijenbrink et al. (2010). For instance, argument by Connor (1999) is that it is applicable to only firms which are large with significant market share. But Coff (1999) criticized Connor's point as distorted because small companies can have special competitive advantage generation capabilities; for example, any other opportunities to exploit.

Despite all the research findings in support or against the theory, Bartoli et al. (2013) suggest that small businesses should be able to apply resource-based theory to define, create, maintain and leverage all vital internal resources that would be the foundation for developing ability to draw external financing. This assertion is supported by Appiah et al. (2018) that resource-based theory stresses the firms' internal resources that will be appealing to foreign financiers. For example, if SME management strengthens record keeping and financial reporting to display transparency, financiers could be willing to invest in such businesses where risk is negligible or predictable (Eisenhardt & Martin, 2000; Kraaijenbrink et al., 2010).

2.17.5 Adverse Selection Theory

The assumption, according to the general theory of equilibrium, is that all goods are of the same quality so their demands and supplies are what culminate in their prices. However, this assumption may not hold all the time. It may mostly happen that the buyer is not aware of the actual quality of an item under consideration for purchase. This could result in adverse selection due to information opacity such that a low quality item could be purchased at a higher than equilibrium price or a high quality item purchased at a lower than equilibrium price. This principle is applicable in the credit market and can be used to illustrate rationing of credits to firms. It involves loan transactions with insufficient details, contributing to borrowers being rationed (Rahman et al., 2017).

Adverse selection exists under two major assumptions: first, that it is challenging for lenders to identify debtors of differing risk levels and second, that loan undertakings are subject to limited liability (i.e., if investment returns are smaller than debt commitments, the debtor is not liable for paying out of pocket) (Mora, 2015). The analysis implicit in adverse selection is that the requirement is voluntary, meaning that if debtors have the means to do so, then, they

repay loans (Livshits, MacGee & Tertilt, 2007; Alim, Marciano & Wijaya, 2016).

According to Khurana (2015), adverse selection comes directly from residual incomplete information associated with credit markets. Before financiers will lend credit, the applicant's identity is checked to mitigate default risk (Tweedie, 2012). However, unlike most well-established businesses, most SMEs are not under any legal obligation to disclose information on the business. They lack publicly transparent information so financiers, particularly structured banks, spend far more time seeking for information on them and eventually incur high transaction costs in checking and collecting the information (Tweedie, 2012). Nevertheless, Berger and Udell (2014) and Berger, Udell and Udell (2014) suggest that small banks are more suited for serving SMEs because adverse selection can be managed for small-sized clients. As defined by Rowell and Connelly (2012), adverse selection is a liability exposure before the money is given out or spent. Hence, financiers face the task of choosing who to lend to and how to properly mitigate the risk (Abbasi, Wang & Alsakarneh, 2018).

An adverse selection situation occurs when there is insufficient information about the borrower, meaning the lender charges an average credit price which in turn means low-risk borrowers but those with higher risks seek for the offer, resulting in adverse selection (Rahman et al., 2017). However, borrowers' limited liability imparts a risk preference among them and a corresponding risk aversion among lenders in a business environment with simple debt contracts between tolerable risk borrowers and lenders (Rahman et al., 2017). The reason is that borrowers' limited liability means that lenders face all the default risk (Rahman et al., 2017). On the other hand, all proceeds above borrowers' repayment obligations are to their advantages. Such situations appear to raise default vulnerability of SMEs. Subsequently, when doing business with an opaque SME, a bank faces problems such as adverse selection and moral hazard (Moro & Fink, 2013). This assertion is supported by the positions of Huang and Liu (2014) that information asymmetry contributes to moral hazard. This is a risk that frequently arises after a financial activity has taken place. As it is in financial markets, the debtor has already received the credit (Huang & Liu, 2014; Rahman et al., 2017). Most commonly, financiers are unable to manage firms at all times in order to receive current and detailed information from them, making these shortcomings to encourage borrowers to redirect capital into risky ventures. As a result, many SMEs have been denied loans because of the problem of information asymmetry and moral hazard.

Consequently, adverse selection, which gives rise to credit rationing by the lenders, is as a result of hidden information (information asymmetry) and (hidden action (moral hazard) by the SMEs and is given rise to by the hidden action of the SMEs (Uchida, 2011; Rahman et al., 2017). This finding is not different from the finding of a study by Steijvers et al. (2010) that smaller companies with poor cash flow, fewer real assets and poor growth rates were more correlated with the problems of adverse selections and credit rationing. In conclusion, moral hazard is as a result of adverse selection which in turn would compound the financing difficulties of SMEs. The theory, therefore, supports the study.

2.18 Theoretical Framework

Despite the significant contributions that SMEs make, a number of constraints continue to restrict their growth and expansion. These difficulties affect the entire value chain of SMEs' operating areas. These constraints include the following: credit or finance access (Ayyagari, Demirgüç-Kunt & Maksimovic, 2011; Yahya et al., 2012; WBG, 2015; Quartey et al., 2017; Appiah et al., 2018), rivalry (Bouazza et al., 2015; Quartey et al., 2017; Appiah et al., 2018), entrepreneurial capacities (Kazimoto, 2014; Abood et al., 2014, Bouazza et al., 2015) capabilities of human resources (Farsi & Toghraee, 2014; Bouazza et al., 2015), ability to use technology (Bouazza et al., 2015; Farsi & Toghraee, 2014), management skills (Bouazza et al., 2015; Quartey et al., 2017) corruption activities among regulators (Abood et al., 2014; Bouazza et al., 2015), insufficient access to information (Farsi & Toghraee, 2014; Appiah et al., 2018), a lack of institutional support (Bouazza et al., 2015; Appiah et al., 2018). In addition, several other research studies (Ackah & Vuvor, 2011; Lyimo, 2014; Orinda, 2014; Fuseini, 2015; Arthur, 2015; Awevor, 2016; Taghizadeh-Hesary, 2016) found that insufficient credit access was a major issue for SMEs of all types. As a result, financial difficulties faced by SMEs are an ongoing topic in bank financing literature because SMEs are identified as the main drivers of economic growth.

As the purpose of the current study as well, especially for Ghanaian SMEs, access to loan is critical for their growth. Particularly in Ghana, Ackah and Vuvor (2011) found that SMEs have a limited opportunity to seek credit from sources such as Ghana Venture Capital Trust Funds (GVCTF), Micro-finance, and Small Loans Center (MASLOC). Also, Hansen et al. (2012) assert that access to finance was cited as an obstacle to SME growth by 39.6% of small businesses in Ghana, compared to 18.3% and 8.5% for Kenya and South Africa respectively. Likewise, Haselip, Desgain and Mackenzie (2014) looked into energy SME financing in Ghana

and Senegal. They found that the most persistent obstacle to developing and scaling up a commercially viable energy SME sector is a lack of affordable finance. Again, Arthur (2015) found that SMEs face a number of challenges in obtaining credit, especially in meeting the requirements of formal financial institutions. Furthermore, Avevor (2016) indicated that SMEs face various challenges when seeking for funding from formal financial institutions. In all these, one of the major reasons for the challenge is that small businesses are seen as too risky by financial institutions. As a result, the financial institutions are hesitant to extend credit to the SMEs (Ramlee & Berma, 2013; Kassekende & Opondo, 2014). The implication from the preceding paragraphs is that these businesses that need the credits to take advantage of growth opportunities are being credit constrained (Sobekova-Majkova, 2016; Belas & Sopkova, 2016; Virglerova, Dobeš & Vojtovič, 2016; Ključnikov et al., 2016; Dubravska et al., 2015; Belás et al., 2015; Prokop & Stejskal, 2017). A major reason from extant literature is that banks perceived such businesses to be of high risk hence collateral requirement before they can be assisted financially. Further, literature revealed that as a result of such risks as information asymmetry and moral hazard, banks require SMEs to provide collateral before the SMEs can access loans. Subsequently, many SMEs that cannot meet the collateral requirement of lenders are credit rationed (Rahman et al., 2017).

Usually, SMEs cannot produce an audit report or external evaluation of the business accounting information so in such condition, relationship banking can help the SMEs to get the desired access to finance from the banks due to trust among the parties (Cenni et al., 2015; Rahman et al., 2016). In contrast, one study uses US data on firms ranging in size from small to very large to find signs of a turning point in the business life cycle (Gopalan, Udell & Yerramilli 2011). In other words, businesses outgrow their relationship bank and turn to a transaction-based bank. When that happens, they gain more funding and have a higher growth trajectory once they move. This means, some SMEs could outgrow relationship lending and collateral-based lending could be unavoidable. In support of this empirical evidence, relationship lending strategy alone might not be enough due to the SMEs being perceived by the banks to be information opaque hence the banks' reliance on a transaction-based lending strategy (collateral-based lending).

In a developing country like Ghana, for instance, relationship lending seems not, practically, being operationalized by the banks because of the perceivably high information asymmetry and moral hazard of the firms which might be leading to high default rate and non-

performing loans. Studies supported this assertion that information asymmetry problems can be more severe in developing countries thereby enhancing the request for collateral (Menkhoff et al., 2012; Hanedar et al., 2014). In addition, regulatory requirements such as Basel II Capital Accord, as explained in literature, could also be a factor for the banks not to be relying so much on relationship lending but, rather, on collateral-based lending because they have to comply with the Capital Accord by providing for their risk exposures.

As a result of some of these demand-side and supply-side challenges as enumerated in the preceding paragraphs, the banks have justifiable reasons to consider SMEs as a high risk investment as they are not bankable from a commercial point of view (Ramlee & Berma, 2013). Supporting, Rahman et al. (2017) conclude that requiring collateral is to reduce such risks associated with information asymmetry risks. To the authors, providing collateral to the bank might serve as a mechanism mitigating informational asymmetries and thus solving the credit rationing problem, in such a situation. However, it is difficult for most SMEs to raise the needed and required collateral.

Practically, it is not feasible that all SMEs are risky and, also, all of them can provide the collateral required. The implication of these assertions is that creditworthy businesses that need the loan to take advantage of growth opportunities are likely to be credit constrained and credit rationed because they might not meet the collateral and other requirements of their banks.

Unfortunately, businesses that are ignorant of their constraints or some of their constraints would be unable to maximize growth since maximum growth can only come after these constraints are identified and pre-empted. As a result, further research into the use of collateral as a lending tool is needed as recent developments indicate that collateral will become a more significant debt contract feature in the future (Rahman et al., 2017).

Furthermore, the fact that studies on the above issues from the perspective of financial institutions have presented very little evidence has some implications. To begin with, there is a full and adequately discussed system of challenges faced by SMEs in obtaining loan facilities missing from the literature. Second, when the problems from both sides are disjointed, it is difficult to come up with solutions. This second implication is a big issue made worse by the fact that no research in Ghana has looked at collateral requirement, information asymmetry and moral hazard in relation to access to loans, let alone, from both viewpoints at the same time.

Given the consequences outlined in the preceding paragraph, resolving these issues from

both viewpoints would be extremely realistic and academically important. This reconciliation, if it does not open a new line of academic discussion, will at the very least reinforce the roots of debate on the full spectrum of issues facing SMEs' access to loans. In practice, combining the two viewpoints on a problem creates a structure that can be used in future studies to find suitable solutions.

From both viewpoints, the aim of this study is to recognize the challenges of collateral requirement in relation to SMEs' access to bank loans. Beyond that, the thesis' significant foundation is the degree of difference and relationship between the perceived problems from the two viewpoints.

Resultantly, the study has significantly contributed to literature and theory by developing a 2x2 matrix model which provides a holistic view of owner characteristics barriers from the context of Ghanaian SMEs to augment the conceptual model in section 2.20. Since previous studies have not adequately addressed collateral requirement and access to loan challenges for the SMEs, especially the interaction effects of information asymmetry and moral hazard, this study provides, perhaps, the most comprehensive understanding within this area of research.

Explicitly, the matrix model was used to explain how all the four quadrants are practically useful to be adopted and applied by the banks to assist SMEs with loans. For example, there are SMEs that can meet the collateral requirement but are information asymmetric hence could indulge in moral hazard, as depicted in scenario 2 of the matrix. Others do not meet the collateral requirement but are information symmetric and might not be morally hazard as shown in scenario 4 in the diagram. As explained, using the 2x2 matrix in 2.19, collateral alone cannot be a sufficient tool to solve credit rationing. Importantly, overcoming information asymmetry and moral hazard could resolve credit rationing to a large extent.

From the matrix model, information symmetry could alleviate concerns about moral hazard, one of the two main reasons for the use of collateral in the context of information asymmetry problems. For example, as discussed in Hasan et al. (2017), existing evidence suggests that individuals in societies with higher levels of social capital are less likely to engage in opportunistic, self-serving behaviours. Therefore, banks could perceive social capital attributes such as information symmetry, trust etc of the SME applicant as constraints to opportunistic firm behaviour in debt contracting hence lowering their collateral requirements. Similarly, Kim, Surroca and Tribó (2014) assert that business ethics may be an important

element in contracting bank loans. The main argument is that an ethical borrower does not lie, cheat or steal and behaves honestly. Consequently, ethical borrowers are perceived as less risky and banks will not need to monitor such borrowers intensively to prevent their opportunistic behaviour. An information symmetric customer or SME is likely to be ethical. Such SMEs with these positive traits should be paid attention to by the banks because they can help improve credit information and economic competition.

2.19 Matrix Analysis of Constructs

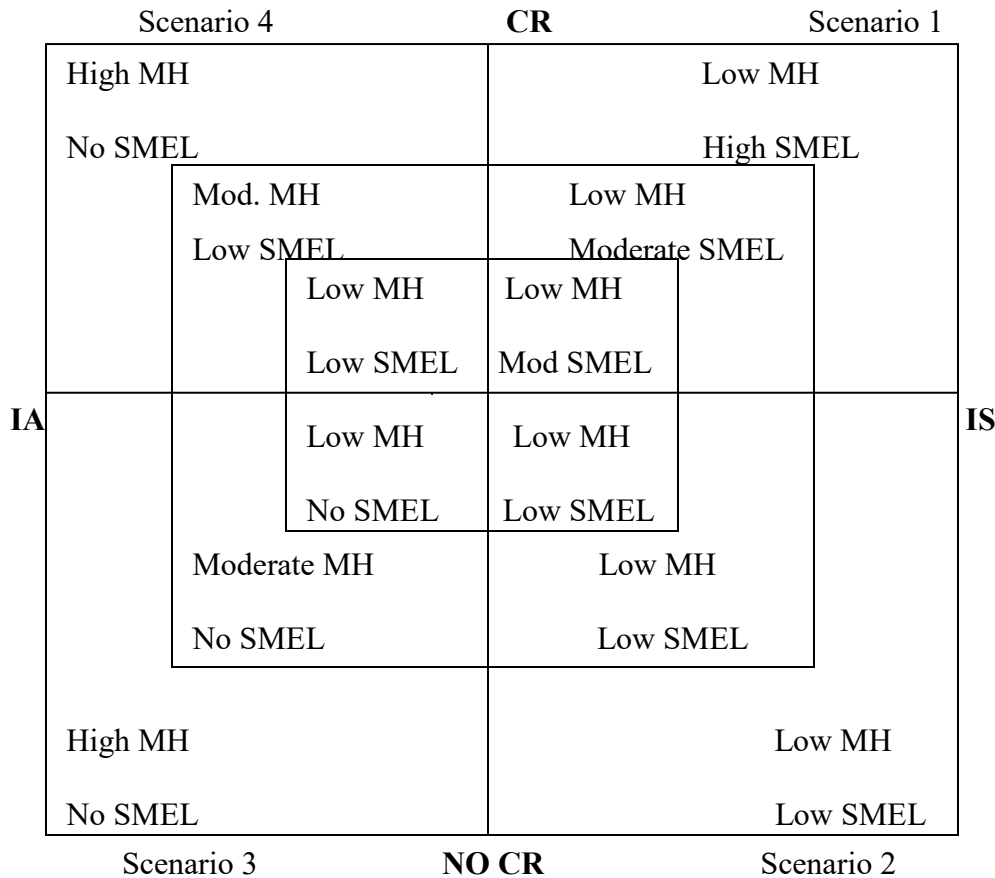
The 2x2 (2 by 2) matrix or scenario approach can be used in any situation involving scenarios, whether as a stand-alone, one-day exercise or part of a multi-month project. Method versatility may clarify its success and use in many study areas. SMEs, in particular, should understand how improvements in their credibility will impact their chances of receiving loans, directly or indirectly, through the scenarios to be generated. The scenarios to be developed and addressed in this study could allow banks in Ghana and other developing countries to see how SMEs should behave in each scenario.

The author assumes that the construction of scenarios using a 2x2 matrix, which could be the first of its kind to be implemented into the analysis of collateral criteria and access to SME loans dyad, may be of great use and value to SMEs, lending institutions and other stakeholders and help to create a consistent direction for SME lending. The collective scenario generation technique will pair the drivers of utmost importance and greatest uncertainty for the subject under review as axes thereby generating a 2x2 matrix to form the basis for potential scenarios. The 2x2 matrix approach could be useful as it could be used to test mid- to long-term and even short-term policies since it could ensure robust policy direction across a variety of environments. It may also be useful for versatility and speed.

Centered on the utmost importance and greatest uncertainty, collateral requirement, information asymmetry and moral hazard are selected as driving factors. Just as literature argues that collateral requirement dictates access to SME loans, information asymmetry also predicts moral hazard. Therefore, collateral requirement and information asymmetry are chosen as the axes. These two driving forces are chosen as the axes to determine the trade-offs between moral hazard and access to SME loans for each of the four scenarios. Collateral requirement, also, relies on information asymmetry so information asymmetry is on the horizontal axis. The four scenarios would, then, help address the SMEs' primary internal complexities (collateral

requirement, information asymmetry and moral hazard) that will affect their access to loans. Discussions of the scenarios may not only help identify the problem within the market or operational environment but also determine the scenarios' significance.

Figure 2.1: 2x2 Matrix



Source: Author (2021)

After identifying the driving forces, rating them is wise since all forces may not have the same predictability. As previously mentioned, driving forces are collateral requirement (CR), information asymmetry (IA) and moral hazard (MH). A driving force of collateral requirement may be relatively determined or predicted. SMEs will somehow foresee when a bank would need collateral for their chances of access to loans and success. So, collateral is important but not uncertain in relation to loan access. Driving forces of information asymmetry and moral hazard cannot be predicted. It is difficult for banks to know for certain whether all the information they need and require from the SMEs (which they may supply) is reliable and sufficient and whether the SMEs will use the loans for the intended purposes. Thus, information asymmetry and moral

hazard are important and highly uncertain as well. Drivers with both these characteristics (importance and uncertainty) could be referred to as “critical uncertainties.” Therefore, information asymmetry and moral hazard are critical uncertainties. They are conditional for collateral requirement and ensuring quick access to SME loans.

Choosing the two drivers (collateral requirement and information asymmetry) for the axes does not actually mean lowering the other driver (moral hazard). Instead, it basically implies that the two driving forces selected for the axes form the spaces of the scenario and represent a wide variety of relevant scenarios.

Having established how relevant each of the three driving factors is from chapter 2, literature review, to the focal issue of access to SME loans (SMELs), the degree of uncertainties is applied. SMEs either provide the collateral required or they do not. Therefore, it is classified as either “YES” or “NO” with zero degree of uncertainties. The degree of uncertainties for information asymmetry and moral hazard has been ranked on Low, Moderate and High scales. Access to SME loans (the focal issue) has been classified as No, Low, Moderate and High chances. Information asymmetry and moral hazard have no category of “No” because they cannot be ruled out completely with certainty. Logically, even any piece of information symmetry between the bank and SME has a likelihood of uncertainty of moral hazard on the part of the SME.

The matrix or model has been purposely designed for the current study to generate scenarios before building the hypotheses to be tested. Often, the scenario analysis could be criticized for limiting the range of critical factors to two axes; nonetheless, the method could remain common in all sectors and industries. An important advantage of the 2x2 matrix scenario method is it could effectively marry the analytical element with “space” to expand the drivers and develop scenarios that incorporate both qualitative and quantitative elements. The method could be well suited for presenting a rich account of multiple, overlapping and interacting facets of a potential future.

The method generates up to four contrasted scenarios relevant to this particular study area of interest by placing two driving factors (collateral requirement and information asymmetry) that influence the future of moral hazard and access to SME loans on two axes which cross to form four squares. These squares have, then, been developed into scenario narratives, reflecting the influence of moral hazard on access to SME loans. The systematic review and selection of

the drivers ensure that the scenarios are well constructed and are, therefore, easier to contrast and compare (Ringland, 2002; Lowy & Hood, 2004; Scarce, Fulton & Global Business Network Community, 2004; Shell International BV, 2008; Van Der Heijden, 2004; Dator, 2009; Foresight Horizon Scanning Centre, 2009; Godet & Durance, 2011; Oppenheimer, 2012; Glover & Sexton, 2015; Grandjean, 2017; Inayatullah, 2017; Lamblin, 2017; Rhydderch, 2017).

The essence of the scenarios in the study lies in the fact that it will enable the SMEs to think through what the banks will expect and what they (SMEs) must do if they are to succeed in accessing the loans. For the banks, it will enable them to build risk-profile of their clients in order to make assessments of them easier. The idea is that everyone involved can, thus, be better prepared or less surprised. Scenarios, essentially, could provide a method for generating an array of useful hypotheses. Figure 2.1 above shows the 2x2 matrix of collateral requirement and information symmetry (IS) assessing the trade-offs between moral hazard and access to SME loans.

The matrix will treat information asymmetry and moral hazard as different risk factors. In addition, each scenario uses the predictor axes to assess the trade-off between moral hazard and access to SME loans on three different scales of moral hazard and four different scales of chances of access to loans.

2.19.1 Scenario 1

The SME is seemingly information symmetric. However, there is a likelihood of moral hazard since the SME can misapply the loan after taking it hence collateral is required and has been provided. The likelihood of any occurrence of moral hazard cannot be predicted and, also, all customers are not of the same risk. The degree of occurrence of moral hazard and chances of access to loans has been scaled as explained earlier. The verdict for this scenario is that once collateral is provided as required by the bank, any SME which falls in this square stands a chance (whether low, moderate or high) to access loan. The banks have almost all the required information about the SMEs. In addition, collateral can reduce the problem of moral hazard after the borrower has obtained the loan by reducing his or her incentives to invest in riskier projects or to minimize effort to ensure the success of the project for which the loan was granted (Hanedar et al., 2014; Rahman et al., 2017). Indeed, the bank can align the borrower's interest with its own using collateral as it imposes a greater loss on the borrower in case of default. It is all the more valid in the case of outside collateral because this type of collateral extends the

limited liability of the borrowing firm to assets outside the firm (Blazy & Weill, 2013). This, further, has explained the fact that almost all of the SMEs which will fall in this region could be granted full amounts. Therefore, with provision of collateral and no seeming information asymmetry, there is a likely high chance for SMEs to access loans.

2.19.2 Scenario 2

The SMEs here are information symmetric; however, they cannot provide collateral. This is the most important region for most SMEs with collateral challenges because they are, seemingly, of low risks but collateral provision is a big challenge for them. What they must do to improve their chances of access to loan and creditworthiness will be to try as much as possible to remain information symmetric and also avoid indulgence in moral hazard. They must apply the resource-based theory by taking advantage of any of their internally competitive resources (firm and owner characteristics) and seek for market information. For example, improve on their bookkeeping and managerial practices, build relationship, know the banks which are SME focused and do business with them etc.

Information symmetric SMEs have “no” to “high” chances of access to loans; however, the risk appetite of a bank will be key. A scenario can always be “softened” and if a bank should err (take risk and fail); it should err on the side of caution. With information symmetry, owner characteristics could be adjudged to be relatively acceptable. With other factors such as acceptable firm characteristics, minimum chance of SMEs in this square getting access to loan could be “low” for all uncertain levels of moral hazard for a risk-averse bank. A high risk bank can decide to give loans at moderate or even high levels, probably, based on other factors such as relationship. The hypothesis here could be that the lower the risk, the likelihood of the SME getting access to loan. Therefore, with no provision of collateral and no seeming moral hazard, there is a likely chance for SMEs to access loans.

2.19.3 Scenario 3

This scenario is directly opposite to scenario 1. The SME is risky and cannot provide collateral as well. The SME has no chance of access to loan because it is highly risky for the bank to get involved in such a transaction. Obviously, there will be a positive relationship between collateral requirement and access to loan just as in scenario 1 but the direction will be

opposite to the direction in scenario 1. Therefore, with existence of information asymmetry and no provision of collateral as well, there is no chance for SMEs to access loans.

2.19.4 Scenario 4

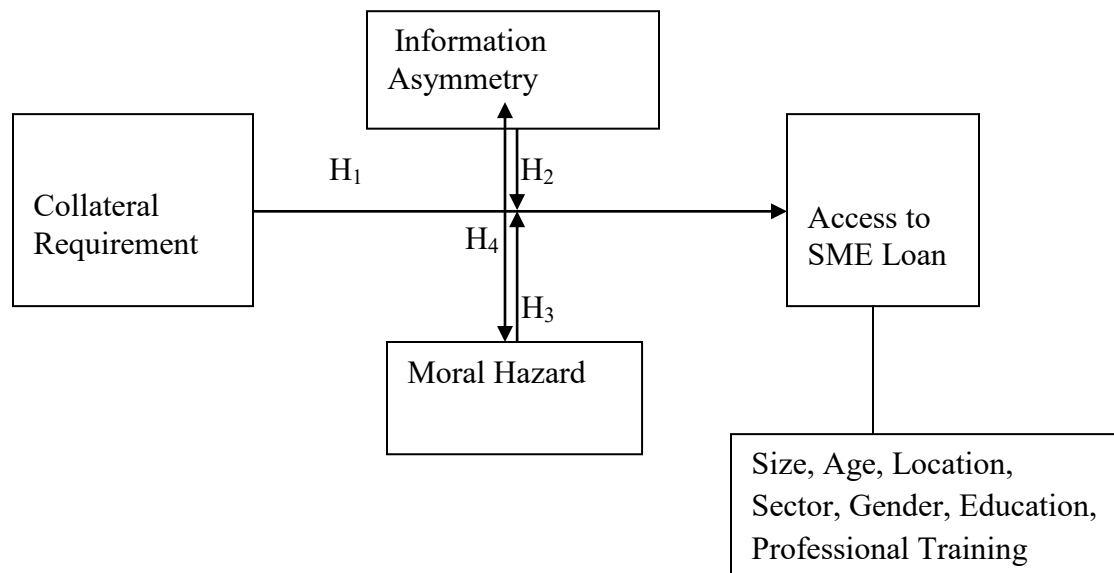
For this category of borrowers, even though they provide collateral, they remain risky because they are information asymmetric. However, these SMEs still have “no to high” chances of accessing loans, depending on their risk profiles with the bank and the risk appetite of the bank. Collateral is an instrument for ensuring good behaviour on the part of borrowers (Hanedar et al., 2014; Rahman et al., 2017). It has ways of reducing the probability of potential losses of the lender but, at the same time, can increase the moral hazard by encouraging the SME to engage in other highly risky or non-income generating activities (Menkhoff et al., 2011). For any risk-averse bank, they can decide not to grant the loan at all. Also, a risk-averse bank can decide to discount the value of the collateral significantly and link it to the loan amount (ratio of loan to collateral value) before deciding to extend the loan. Again, a risk-averse as well as a risk-taking bank could decide to go all out, depending on the quality, marketability and liquidity of the collateral, to grant any amount they may consider reasonable in line with the value of the collateral and, perhaps, in compliance to their credit policies. In addition to the collateral, a bank may grant the loan to a borrower because of other factors such as its firm characteristics or owner characteristics. For this scenario, the hypothesis will not be obviously one but will depend on the position taken by a bank. For example, even if with collateral but a bank decides not to grant the loan, for example in the high MH region, then there will be no relationship between collateral requirement and access to loan. Therefore, with provision of collateral but existence of information asymmetry, there could be a low chance for SMEs to access a loan.

In summary, it is obvious from the model and all the scenarios that a key determinant for collateral requirement is information asymmetry as asserted to in literature. Again, from literature, a key determinant of moral hazard is information asymmetry. It is, therefore, up to the SMEs to view information asymmetry and moral hazard as “critical uncertainties” and put measures in place to manage them in order to convince the banks to grant them loans even without collateral requirement.

2.20 Conceptual Model

Through the economic theories of credit rationing, financing constraint, resource-based and adverse selection, this study attempted to understand the dynamics of financing between SMEs and banks.

Figure 2.2



Source: Author (2021)

The conceptual framework was developed to establish the interaction of factors originating from both the SMEs and banks of the SME financing gap. The factors in the gap are associated mainly with the lending strategy (collateral-based) adopted by the banks as well as those related to the SMEs' information asymmetry and moral hazard. Based on the extant literature on barriers to access to loans by SMEs, the study proposes the research model (Figure 2.2). In the model, there are 4 hypotheses based on the factors found in literature to be challenges of SMEs when accessing loans from lenders.

Figure 2.2 depicted the relationship between collateral requirement and access to SME loans with information asymmetry and moral hazard as moderators. In the figure, the illustration of H_1 is that collateral requirement will relate directly to access to SME loan. The direction of H_2

is to investigate how information asymmetry will impact on collateral requirement before it relates to access to SME loan.

The figure, similarly, indicates with H₃ that moral hazard will also first affect collateral requirement before it relates to access to SME loan. Finally, H₄ postulates the joint impact of information asymmetry and moral hazard on collateral requirement and access to SME loan relationship. The study recognized that the intended results could be affected by confounding variables and, therefore, controlled for firm size, firm age, firm location, sector, gender, education and professional training

2.21 Research Hypothesis

In this section, the four hypotheses have been assessed. Each is done based on literature preceding it.

2.21.1 Hypothesis One

Microeconomic banking and financial intermediation theories clarified the common use of collateral through its role to minimize credit rationing under asymmetric information (Rahman et al., 2017). Theoretical credit rationing occurs when loan demand exceeds supply at the prevailing equilibrium interest rate (Rahman et al., 2017). Collateral could be regarded as an important tool for use by lending institutions for mitigation of information asymmetries and addressing credit rationing problems.

Pledging collateral to secure loans is a substantially common aspect of credit acquisition. Cressy and Toivonen (2001) estimated that in the UK, collateral must be given for 85% of the loans. In the US, 70% of loans require collateral pledges (Chen, 2006). Consolidating financial institutions will expand the use of transaction financing techniques (Berger & Frame, 2007). Transaction-lending techniques focus on various forms of information on items such as financial statements, receivable accounts, assets, credit scores and inventories. Thus, only SMEs which can supply collateral to ensure repayment of their loans receive bank loans (Berger, 2006). The Basel II Capital Structure is also expected to add to the requirement of collateral for opaque companies. Contrary to the Basel I Capital Accord which considered all corporate loans to be similar (Carey, 2000), Basel II stipulates that banks involved in at-risk loans must maintain higher sums of capital to maintain their solvency and general economic stability (Von Thadden, 2004). Therefore, financing institutions would choose collateralized loans to reduce their loan

portfolio exposure (BIS, 2004). This is because collateral have ways of reducing the probability of potential losses of the lender; for example, by serving as incentives for the SMEs to repay the loans. However, collateral may not always serve as incentives (Menkhoff et al., 2011; Cressy & Toivanen, 2001). Therefore, the solution to the problems of access to SME loans may not be sufficiently addressed by collateral requirement from the SMEs. Collateral could even result in predatory lending and contribute more to loan defaults (Pandula, 2011). If some SMEs are aware of this, they could take advantage of it and engage in borrower opportunism.

Furthermore, a number of papers examine the effect of relationship strength on collateral, with mixed findings. The empirical association between collateral and relationship strength is sometimes negative, as predicted by theory (Chakraborty & Hu, 2006). In other cases, it is found to be positive (Ono & Uesegi, 2005) while a third set of studies finds mixed signs (Jiminez, Salas & Saurina, 2006; Menkhoff et al., 2006; Voordeckers & Steijvers, 2006).

Moreover, due to opaque information and weak enforcement in emerging loan markets, the collateral requirement is high but the SMEs lack adequate assets to pledge as collateral. SMEs have fewer collateralizable assets than large firms. This may, partly, relate to the stage of growth the firm belongs to. In the earlier stages of the firm, it may have lower retained profits which may hinder them to purchase fixed assets compared to the larger firms which have longer histories. Another reason for SMEs to have smaller proportions of fixed assets is the capital constraints faced by them. Due to the difficulty of raising large amounts of capital, they find it difficult to acquire a large number of fixed assets. Therefore, despite the intention of collateral requirement to serve as incentives for loan repayments in order to boost access to SME loans, it could rather be a constraint due to no or low collateral by the SMEs or the pledged collateral rather motivating some of the SMEs to engage in borrower opportunism. Therefore, the following hypothesis is developed:

H₁: There would be a negative relationship between collateral requirement and access to SME loans.

2.21.2 Hypothesis Two

Collateral requirement has become a challenge associated with borrowing and can be one of the key constraints to start and run businesses by SMEs, especially by the ones in emerging economies. In such difficult situations, the information asymmetry between the bank and the SMEs on the one hand, as asserted by Baas and Schrooten (2006) and how the entire banking

market is structured, on the other hand, (Petersen & Rajan, 2002; Berger & Udell, 2006) can determine the terms and conditions to be associated with the lending.

Information on small businesses is limited and costly to gather. This could make lenders overprice the cost of capital, demand excessive collateral cover or decide not to assist small firms with finance altogether (Beck et al., 2008; Guiso & Minetti, 2010). As a result of the presence of asymmetric information, banks may base their lending decisions on the amount of collateral to be given by the SME. Since commercial banks view SMEs as high risk borrowers, excessive collateral are required of them or they are charged high interest rates or the banks would not like to deal with them at all (Kundid & Ercegovac, 2011). Due to information imperfections and expensive ways to monitor SMEs, banks use collateral as the major criteria for loan selection for SMEs (Green, 2003; Rahman et al., 2017). With SMEs noted to be information opaque, the resulting hypothesis is as follows:

H₂: There will be a more significant negative relationship between collateral requirement and access to SME loans than in H₁ when information asymmetry interacts.

2.21.3 Hypothesis Three

In the extant literature, collateral is known as tool to reduce adverse selection problems. From a theoretical perspective, there are two alternative interpretations that lead to different empirical predictions concerning collateral and moral hazard. On one hand, the collateral pledged by borrowers may help attenuate the problem of adverse selection faced by the bank when lending (Rahman et al., 2017). Thus, collateral acts as a signal enabling the bank to mitigate or eliminate the adverse selection problem caused by the existence of information asymmetries between the bank and the borrower at the time of the loan decision.

However, even if there is symmetry *ex ante* between the borrower and lender (i.e. the bank knows the credit quality of the borrower), collateral are still perceived to help alleviate moral hazard problems once the loan has been granted. In this sense, the collateral pledged helps align the interests of both lenders and borrowers, avoiding a situation in which the borrower makes less effort to ensure the success of the project for which the loan was given. Thus, collateral makes it possible to limit the problem of moral hazard faced by all banks when they lend money. Collateral can, therefore, be seen as an instrument ensuring good behaviour on the part of borrowers, given the existence of a credible threat (Rahman et al., 2017).

Based on the two arguments outlined and on the empirical level, one would expect to see

a positive relationship between collateral and moral hazard, consistent with the assumption that collateral is a signal of high quality borrowers. Nevertheless, the situation described above seems to be contrary to the general perception among bankers who tend to associate the requirement of collateral with greater credit risk. There are also theoretical arguments (Manove et al., 2001; Jiménez & Saurina, 2004) supporting the possibility that more collateral implies more non-performing loans (*ex-post* credit risk) or greater probability of default. Firstly, if banks are protected by a high level of collateral they have less incentive to undertake adequate screening of potential borrowers and loans at the time of the decision. Secondly, there are optimistic business persons who could be so profit-oriented and underestimate their chances of going bankrupt and are willing to provide all the collateral required in order to access the loan for their projects. Therefore, moral hazard element is likely to originate from the use of collateral. That is, a moral hazard situation is likely to occur if a loan transaction is entered into and the borrower will divert and invest the loan in riskier businesses for higher returns. Thus, the SME owner or manager can otherwise behave incomprehensibly just because the loan has been collateralized. Therefore, the hypothesis is that:

H₃: There will be a more significant negative relationship between collateral requirement and access to SME loans than in H₁ when moral hazard interacts.

2.21.4 Hypothesis Four

There is the likelihood of occurrence of moral hazard in any principal–agent situation during which one party, known as the agent, will act in trust for the other party known as the principal. Usually, the agent is perceived to have more and better information on his or her intentions and/or actions than the principal. This is likely as a result of the inability of the principal to monitor the agent at all times. To decide to act in ways which could be detrimental to the principal could be that the agent has some incentives to do so or it could be as a result of non-alignment of their interests (Zandi, 2009).

As asserted by Ivashina and Scharfstein (2010), many lenders could suspect that borrowers would renege on their loan repayments in the future and by this, would not consider the loans much worthy. However, due to competition among lenders and the perception that the SME sector is a niche, lenders might not bother so much with the probable consequences of granting these loans in the long run. One partner decides on how much risk to take but if the consequences are unfavorable, the other partner carries the cross. This could give the first partner

who will be insulated from the consequences of his actions to act differently from how he would if he were to bear the brunt of the negative effects (Ramsundar & Shubhabrata, 2013).

From the point of view of Chiappori and Salanie (2000), adverse selection, which is a concept in economics, insurance and risk management, can be classified as a "rigged" trade. For example, buyers and sellers will always have different intentions, information and actions (asymmetric information) in any trade transactions they may engage in. As a result, partners with better private information about the quality of their products which they think they should take advantage of will selectively participate in transactions which will benefit them the most, at the expense of the other traders. When buyers sometimes have better information about how much benefit they can derive from a service, the "bad" ones are more likely to take advantage and apply to benefit from the service. In the scenarios presented, it is up to the seller who will suffer from adverse selection to try and insulate himself by screening the customers or by identifying credible signals of quality (Finkelstein & McGarry, 2006).

According to Laffont and Martimort (2009), in the capital market, some types of equities are likely to be adversely selected than others. A company trading in an equity that consistently appreciates and gives its investors good returns will be more competitive than equities of unknown companies. In this situation, equities that other investors do not want will be left to flood the market. Assuming there is insider information on the firm's stocks; managers may offer the stocks when they realize that the offer price exceeds their private assessments of the company's value. This situation will leave outsiders prone to adverse selection. They will, therefore, demand very high rates of return on the equity to compensate them for the risk of buying a "lemon" (Hoppe & Schmitz, 2015).

Situated in the context of this study, moral hazard and adverse selection theory asserts that decisions and actions of a partner could change into unfavorable consequences of the other partner after the lending contract has been sealed. Moral hazard exists between banks and SMEs, as a result of information asymmetry because the party in the lending transaction that knows more about its intentions and actions than the other party will push the effects of the negative impacts of the information disparity onto the other party. When banks (lenders) and SMEs (borrowers) do not have access to the same information concerning their engagements (asymmetric information), then the partner who has better private information about the financial transaction will secretly and quietly take part in the transaction which will better serve their

interest, at the expense of the other partner. From empirical literature regarding the importance of collateral, there are two counter-balancing effects: collateral requirement is relatively higher in emerging than in mature markets but they may be very low for small firms and households because of an outright lack of useable collateral.

Other empirical findings on using collateral as an information asymmetry mitigation technique are not consistent. In some studies, collateral tends to play a punitive function in the borrower's conduct by resolving the moral hazard problem (Chakraborty & Hu, 2006; Hernandez-Canovas & Martinez-Solano, 2006; Menkhoff et al., 2006; Brick & Palia, 2007). Other empirical results, however, suggest a signaling advantage in order to solve the adverse selection dilemma (Lehmann & Neuberger, 2001; Jimenez et al., 2006).

Summarily, the problem of moral hazard could be perceived as a problem with the behaviour of the borrower, which will be difficult for the lender to predict (Khurana, 2015; Rahman et al., 2017). This is more familiar with funding small and medium-sized enterprises than financing big enterprises. This is because most of the SMEs lack financial transparency, ownership structure and their owners may conceal the real purpose of the project to be financed (Khurana, 2015). A moral hazard problem could be reduced to the barest minimum, if and only, if information asymmetry problem is minimized. Therefore, the joint presence of asymmetric information and moral hazard will compel the banks to require for more collateral and further exacerbate the financing difficulties of the SMEs. On the basis of this, it is hypothesized as follows:

H₄: There will be a more significant negative relationship between collateral requirement and access to SME loans than in H₁, H₂ and H₃ when information asymmetry and moral hazard jointly interact.

2.22 Measures of the Constructs

The variables were all reflectively ascertained. Established scales have been adopted and adapted, where possible, and, where necessary, new measures were developed based on sound analyses of literature.

From all the literature reviewed, none of them developed measurement scales to measure moral hazard. This was because either the study on moral hazard was related to the capital market in which secondary data was used or even those relating to the debt market and using primary data were also not done with detailed data from the respondents. As a result of this

difficulty, the study proxy for moral hazard by adopting and improving upon measurement scales used to measure opportunism in a relationship of exchange (Brown, Dev & Lee, 2000; Grzeskowiak & Al-Khatib, 2009; Heide, Wathne & Rokkan, 2007; Abel, Buff & Burr, 2016; Kloyer et al., 2018). Therefore, borrower opportunism was used to proxy for moral hazard. Access to SME loans (dependent variable) and information asymmetry (moderator) was measured using the approaches from a study by Nanyondo et al. (2014) while measurement scales for collateral requirement (independent variable) were paraphrased and drafted from literature by the researcher.

2.22.1 Borrower Opportunism and its Influence on Access to Loans

An analysis of opportunism literature can eventually lead to the inference that opportunism has a negative effect on the performance of cooperative partnerships due to its counterproductive existence (Hawkins, Wittmann & Beyerlein, 2008). However, a more distinct image must be drawn to fully grasp the relationship between opportunism and access to loans.

In inter-firm collaboration, one-sided opportunism has two forms of results. On the one side, there are consequences on individual success as follows: both of the

- (a) Opportunistic party, i.e. SME.
- (b) Opportunism-affected party, i.e. (lending institution).

On the other side,

- (c) One-sided opportunism influences the ultimate performance of the partnership.

From a theoretical standpoint (Hawkins, Knipper & Strutton, 2009; Kloyer, 2011; Yan & Kull, 2015), the results are undisputed when analyzing just one episode of collaboration. For (a), the benefit is positive and, then, negative for (b) and (c).

Several authors (Morgan et al., 2007; Kloyer, 2011; Kloyer et al., 2018) have studied and shown the negative impact of opportunism on the affected party's outcome (lending institution), that is the second scenario, and the partnership as a whole, that is the third scenario (Yan & Kull, 2015; Kloyer et al., 2018; Wölfel & Grosse-Ruyken, 2019). Surprisingly, there is a lack of research on the link between opportunism and the opportunistic party's (SME's) performance; that is the first scenario. This relationship, however, is highly interesting. Theory (Kloyer, 2011; Kloyer et al., 2018) has it that opportunism is positively related to the opportunistic party's outcome as the opportunist can instantly benefit materially by not putting in much efforts. This reasoning can definitely be accurate for one-time hidden engagements. However, in an exchange,

partners typically pursue repetitive interactions and reputations that attract future collaborations for the parties (Rose, 2011; Kloyer et al., 2018).

Again, being in relationships that require the exchange of credence goods, a healthy reputation is a significant metric to improve the legitimacy of a borrower with a financial institution (Kloyer et al., 2018). In contrast, "foul play" not only undermines one's business chances with a new partner (Rose, 2011), it also provides other future partners with undesirable messages (Kloyer, 2011; Kloyer et al., 2018). Furthermore, an SME whose opportunism has contributed to a record of comparatively short-lived prior trade ties and/or lacks high-quality references in its portfolio is not an attractive collaborating partner. In effect, financial entities may hesitate to do business with such borrowers since they will doubt the capabilities of the said SMEs and/or their cooperative existence (Holmes et al., 2003; Ramlee & Berma, 2013). Therefore, when looking at more than one collaborative episode, immediate material success is meaningless, as suggested by Yan and Kull (2015) as well as Kloyer et al. (2018), but the final benefits of the financial institution are, rather, what matter. However, this long-term result will suffer from the incentive of a borrower to reap short-term profits by unethical behaviour.

Consequently, as the measurement scale showed the borrower's view of both strategic and general perceptions on access to loans, the study assumed borrower opportunism and the collateral requirement to be positively related.

2.23 Control Variables

In empirical researches, adding control variables help to define contributing elements. From a critically methodological position, what has become a standard practice in studies must be interpreted. Therefore, as suggested by Bartov, Gul and Tsui (2000), failure to control for confounding variables could lead to falsely rejecting a hypothesis when, in fact, it should be accepted.

Unjustifiably, studies often use control variables without giving reasons for them; however, the use of control variables should always be guided by theory and/or empirical statements because blind insertion can lead to false conclusions (Becker, 2005; Spector & Brannick, 2011). In agreement, this study draws from prior studies and control for seven (7) variables, namely; firm size, firm age, firm location, industry type or sector, gender, education and professional training as they are likely to be important factors informing differences in disclosure of quality information among SMEs which in turn influence access to finance.

2.23.1 Size of Firm

Undeniably, financial attributes such as liquidity, resilience and funds of the business have effects on the extent of external financing accessibility (Van Caneghem & Van Campenhout, 2012). Again, other attributes such as firm stability, solvency, business operations etc, in addition to size, can enhance access to external funding. For example, as a metaphor for firm stability and solvency, Cassar (2004) and Dennis and Sharpe (2005) connected larger companies with financial assets and diversified business operations, allowing access to external financing. Also, the size can determine the financial structure of the firm. Empirical examples are by Gregory et al. (2005) via their research on the growth cycle of SME funding who found that it is common for bigger firms to prefer the use of public equity or long-term loans to internal finance so the big firms have convenient accessibility. Therefore, irrespective of the firm size, it is critical when it comes to access to finance.

The total number of full-time workers employed by a firm at any given time is used to determine its size. Pandula (2011) and Kwenda (2014) classified it as a demographic factor. Subsequently, several studies have established a beneficial correlation between company size and accessibility to the funding of financial institutions (Berger & Udell, 2006; Brent & Addo, 2012). For example, in African countries, the work of Kounouwewa and Chao (2011) showed that the size of a business and ownership was used as the first screening variables for a loan decision by banks.

However, smaller businesses with high data opacity and few tangible assets are less likely to obtain debt financing from the formal sector (Brent & Addo, 2012; Hall et al., 2004). In support, Mateev et al. (2013) found that it was increasingly expensive for firms with small sizes to overcome information asymmetry, therefore, finding it impossible to obtain external funding. Also, smaller firms have higher risks and high costs of transaction, making them less preferable to financial institutions for financial assistance. Therefore, firms with smaller sizes are confronted with extreme credit rationing when they are seeking to access loans from external sources. Owing to the restricted access to external funding, firms with small size rely more on their internally generated funds (Cassar & Holmes, 2003; Degryse et al., 2012). However, as a firm expands and performs in the commercial environment, it earns financial credibility based on its success that reduces information asymmetry, moral hazard and credit rationing (Gregory et al., 2005; Mateev & Anastasov, 2010).

Furthermore, empirical studies on the effect of firm size on debt financing have provided mixed results, ranging from those in favor of a positive relationship to those opposing it as insignificant or contradictory, and reported as negative (Ayyagari et al., 2011). Many factors could explain differences in recorded empirical evidence on the relationship between firm size and debt finance, including the use of different samples, industry segments, time horizons, economic indicators, and the business climate in which SMEs operate in different countries (Ayyagari et al., 2011; Beck et al., 2008).

In a study of Oman's SMEs by Al-Kharusi (2003), the results showed that there was no substantial association between the number of employees and the decision to apply for or to access external financing. In a related study, Pandula (2011) found that firm size was not correlated with debt finance access contrary to the theoretical literature at the time. However, he found this to be surprising and recommended that new inquiries into the determinants of debt finance be undertaken, such as the loan assessment process to customize new training programs for entrepreneurs and build partnerships with business groups to increase debt finance access.

2.23.2 Age of Firm

With firm age as a determinant, older businesses have built financial track records and financial market reputation that can minimize the problem of information opacity and moral hazard so providing better access to finance (Cassar, 2004; Degryse et al., 2012). In contrast, younger businesses are concerned with high data opacity and debt redemption instability, making them perceptibly high-risk. These determinants (data opacity and debt redemption instability) make it harder to secure external financial support for younger businesses (Brent & Addo, 2012). However, those smaller businesses in the SME sector with insufficient real assets and business financial records, sometimes, benefit from reduced loans from the banks (Caneghem & Campenhout, 2012). As a result, Osei-Assibey et al. (2012) reiterated the findings of previous studies that, due to tough credit conditions, new and young firms tend to use less external financing in the initial stages and later turn to it when they reach better financial positions. Subsequently, older and existing businesses are more open than younger and new ones to bank loans (Caneghem & Campenhout, 2012; Frank & Goyal, 2003). These findings concur with Chakraborty and Hu (2006) that relative to the younger firms, businesses adjudged to be older are more straightforward in their transactions, thus older firms pledging less collateral. In contrast, younger firms need more collateral because they are deemed vulnerable (Menkhoff et

al., 2006). Consequently, it has been noted that the difficulties of obtaining external financing are severe for start-up businesses.

On the contrary, empirical evidence suggests that firm age is not a major predictor of debt financing access. Le (2012), for example, used World Bank data from 2009 to investigate the factors that influence SME credit access. The study's findings revealed surprising and disparate findings, as well as the fact that firm age was not a major predictor of debt financing access. Furthermore, the 39.54 percent explained variance indicated that firm age was not the only indicator of SME debt finance access in Vietnam, but that there were a variety of other variables that could explain the remaining 60.46 percent variation. As a consequence, Le (2012) proposed that more research should be done on SMEs' access to debt finance in order to gain a better understanding of the factors that promote this access, aside from firm age.

However, firm age can help firms become more productive over time because as business operations stabilize, firms begin to discover what they are good at and learn how to transact better (Barrow, 2012). Firm age helps companies to achieve a competitive edge through specialization and unified, structured, and orchestrated practices, resulting in better quality and lower production costs.

On the contrary, related literature from the theory of the firm is that old age can render experience, abilities, and skills obsolete as well as cause organizational decay (Agarwal & Gort, 2002). Inferring from the literature and theory, it is uncertain if the age of a firm helps it succeed or hinders its growth and potential.

2.23.3 Location of Firm

According to Pandula (2011), spatial differences occur in both the cost and availability of financing, particularly, for small firms. A number of factors can lead to spatial differences in the availability of bank financing for small businesses in rural areas.

Firstly, these rural areas may lack financial services. Often, the place will have a single bank branch opened which may have a dominant influence in the town and small businesses do not have any funding alternatives available. They may end up paying high interest on bank loans or may have to stick to limited covenants such as collateral and other terms (Pandula, 2011). Secondly, bank branch managers appointed to these branches may have minimal power delegation. As a result, there could be delays in approving loans sought by rural firms or high loan rejections as bank loans are assessed and accepted by officials at the headquarters who have

no intimate knowledge of clients or rural-based projects. Thirdly, banks may be hesitant to lend to small businesses in rural areas as the assets provided by these firms as collateral may have less market value and in case of default, they may find it difficult to dispose these assets off (Pandula, 2011).

The high costs of tracking businesses in remote areas make it difficult for financial institutions to lend to them (Ayyagari et al., 2011). According to Foss (2000), a firm's establishment must be guided by the "least-cost theory," which requires a detailed assessment of four factors: cost, location interdependence, demand, and benefit before a firm chooses a location.

In support, Dahl and Sorenson (2012) reveal the location effect of a firm's sales prospects and access to debt financing opportunities. They asserted that geographic proximity to prospective customers or vendors provides a type of enhanced climate by allowing emerging firms to more effectively locate and leverage consumer growth opportunities through maximum resource usage. The assertion concurs with empirical data that location matters to SMEs because their suppliers of resources are typically based in less distant areas (McCann & Sheppard, 2003). In agreement is the study of Olawale and Akinwumi (2010) which found a positive impact of location on trade credit accessibility in South Africa.

Keeble (1990) studied the growth limitations encountered by UK urban and rural companies and indicated that the challenges faced by businesses in urban and rural areas are largely comparable without finance. They stated the only major difference is that rural firms are more financially constrained than urban firms. Based on studies in Nova Scotia, Canada, O'Farrell (1990) indicates that banks tend to be more hesitant to lend to small businesses in rural areas because if the firm struggles, the bank finds it more difficult to sell its assets.

McCann and Sheppard (2003) undertook a research, using 127 individually created new firms, in the USA. It was planned to investigate location's effect on new ventures' access to debt funding. The findings showed that geographic position could serve as a competitive advantage or disadvantage for new enterprises and because of superior access to information, businesses in regions with industry clustering were hypothesized to have access to debt finance advantages. Statistics showed that enterprises within regional clusters gained from the geographical region more knowledge and found it easier to access funding. Again, the results demonstrated the importance of being close to the business segment being served geographically; that if a new

enterprise is located within an industry cluster, it gives exposure to its dominant customers' core groupings. As a result, large numbers of unbanked or under-banked SMEs are likely to exist in rural areas (Barth, Gerard & Levine, 2006).

2.23.4 Industry/Sector

Industries can be categorized in a number of ways, according to Storey (2004), Omar and Fraser (2010), and Han et al. (2009). An industry, at the top level, for instance, is divided into sectors such as primary or agricultural, secondary or manufacturing, and tertiary or services. Also, human service firms such as knowledge-based, cultural, and research sectors are added by some writers (Kon et al., 2001). The business sector has been identified as one of the determinants of access to debt finance in prior research work. In relation, Fraser (2009 and 2014) suggested that the accessibility could impact the business sector to debt funding due to the growth and survival rate of the sector and the industry. Hence, access by SMEs to external debt is determined by the firms and their sectors, depending on degrees of competitiveness, business viability and asset structure (Chakraborty & Mallick, 2012; Degryse et al., 2012; Lopez-Garcia & Aybar-Arias, 2000). Further, a study by Hall et al. (2000) found that capital intensive sectors with higher tangible assets had greater access to external funding due to guaranteed collateral and higher expected returns on investments.

Also, as asset structure and asset valuation varied across sectors, it was found that enterprises belonging to the highest asset structure or with collateral were the ones with the highest debt levels due to rapid access to external funding (Hall et al., 2000; Johnsen & McMahon, 2005). In contrast, Degryse et al. (2012) suggested that lending institutions showed less attraction to industries identified with a high risk of credit default. Consequently, several methodological studies have used sectoral classification as a surrogate for market risk when defining its association with financial leverage. Therefore, the accessibility of SMEs to finance is often characterized by the scale of the sector's capital expenditure and revenue generation capacities. Consequently, theoretical literature indicates that SME industries, due to their limited size, are unable to rely solely on equity and therefore need external funding (Demirguc-Kunt, 2006; Asimwe, Kavoo-linge & Sikalieh, 2016; Shibia & Barako, 2017).

2.23.5 Gender

Global involvement, particularly in developing countries, has been specifically concerned with access to debt finance for women. This is because, relative to their male counterparts,

women entrepreneurs face far more obstacles to debt funding

While women meet continuing basic needs and additional savings at the household level to invest and secure the future of their families, they still receive very little financial credit support in their businesses (IMF, 2014). Subsequently, a study conducted by the World Bank (2015) in Sri Lanka showed that the key concept behind the micro credit movements was to concentrate on women entrepreneurs who have lower and financially limited access to debt financing. Similarly, Van Hulten (2012) also conducted a study in Australia on the extent of debt finance access through SMEs held by male and female entrepreneurs. The results showed that female and male entrepreneurs vary because of rejection, discouragement, financial restriction rates and sources of finance in their access to debt financing ambitions and demand for credit. In the findings, female entrepreneurs were found to have lower access than male entrepreneurs to debt financing rates, while both had similar business credit demands.

However, the situation of women who do not have access to the desired financing does not arise because of the lack of skill or industry in which women run their businesses but because of the more unwanted, nuanced and multifaceted constraints arising from gender characteristics, which impose a further set of barriers to negotiating finance for many women entrepreneurs (Khaleque, 2018). Theoretically, Beck et al. (2011) and Aterido, Beck and Iacovone (2013) suggest that there are many hypothetical explanations why a potential gender disparity in access to debt finance services is clarified. Firstly, discrimination of taste could exist in the sense that the financial system is dominated by men and, therefore, the barriers to accessing financial services are higher for women than for men. Secondly, statistical discrimination may occur because the lower level of education and participation in the formal market economy is a barrier to women's access to formal financial services. Thirdly, this decreased participation in the formal market economy may also reflect the conventional distribution of the role of women in household activities and men in market economies, reflected in the use of formal financial services.

Furthermore, empirical literature indicates that because of many variables, women entrepreneurs are financially restricted; for example, Beck and De La Torre (2007) found that male-owned companies have a higher return on investment compared to female-owned ones. The return on investment for male-owned companies was reported in a sample of 10 SMEs to be on average 90 percent while that of female-owned firms was 10 percent or negative. The impact of

low return on investment across female-owned companies was clarified by the fact that, due to gender restrictions, women work in low-return sectors and run micro-to-small businesses. Again, women face legal segregation and gender expectations, which may also clarify some of the cross-country differences in their access to debt financing (Demirguc-Kunt, Klapper & Singer, 2013). The severity of the issue has been acknowledged by the World Bank Global Finance Index (2014) that there was no access to credit facilities for more than 1 billion women, suggesting an approximate global funding gap of US\$ 300 billion for women entrepreneurs. This funding gap is coupled with approximately 70% of small and medium-sized female-owned enterprises estimated to have insufficient or inadequate access to credit financial services (World Bank, 2013).

On the demand side, literature indicates that financiers consider gender among women to be a factor that could decide access to debt finance (Demirguc-Kunt et al., 2013; Van Hulten, 2012). For instance, women are likely to lack financial capacity and confidence to handle their finances, according to Demirguc-Kunt et al. (2013) and Van Hulten (2012), thereby preventing them from being in a position to take advantage of the credit opportunities available.

Furthermore, women are often likely to lack time to communicate with credit service providers because of their essential position in the household and reduced mobility. Finally, women are also in a weaker position to consider financing for their micro-enterprises and small and medium-sized enterprises because customs and cultural bonds combined with a lack of property rights can discriminate against their male counterparts in terms of access to property and a lack of adequate assets that can be accepted as collateral for access to credit.

On the supply side, many restrictions are true, regardless of gender; some weigh more against women, however. Indeed, the availability of services is not tailored to women, and the restricted physical outreach and limited opening hours of financial institutions are a specific restriction for women since they are less mobile. In addition, inadequate evidence on the success of women entrepreneurs inhibits their ability without gender prejudice to presume success. From IFC (2014) and World Bank (2013), empirical data indicate that women entrepreneurs operating on the African continent typically have low access to debt finance services. Men's access to financial services is consistently ahead of that of women in the international context but inequalities within the African continent remain apparent. Compared to the MENA region, the gender gap in sub-Saharan Africa is relatively small: 27 percent of men and 22 percent of women

report no access to formal finance, compared with 23 percent of men and 13 percent of women in the MENA region. In the four North African countries where data is available (Algeria, Egypt, Morocco and Tunisia), figures show that only 0.5 percent of women and 2.5 percent of men have access to credit in Algeria; 3.6 percent of women and 5.0 percent of men in Morocco; 0.2 percent of women and 1.2 percent of men in Egypt; and 8.1 percent of women and 12.1 percent of men in Tunisia. The patriarchal aspects of legal and regulatory structures, especially with regard to land and property ownership that surrounds women entrepreneurs in Africa, have clarified these findings. As a result, literature suggests that there is a gender gap in SMEs' ability to obtain bank funding with female owners having more credit constraints than male owners.

On the other hand, female business owners may voluntarily choose not to use debt financing for a variety of reasons, including risk aversion, external interference, sexism, and the fear of rejection, according to studies (Abor, 2008; Freel et al., 2012; Watson & Wilson, 2002).

Gender equity, especially with regard to access to debt financing, is a key issue in fostering economic growth and sustainable development in small and medium-sized enterprises owned by women. In conclusion, better financial distribution to both female and male-owned businesses without sexism would greatly increase the efficiency of SMEs (IFC, 2013).

2.23.6 Education

Entrepreneurial education and experience in terms of expertise, skills, habits and attitudes lead to increased or decreased access to debt financing (Reginald & Millicent, 2014). A positive relationship between higher education qualifications and business access to debt financing has been identified in past studies (Kozan, Oksoy & Ozsoy, 2006; Kira, 2013; Zarook, Rahman & Khanam, 2013; Hussain, Salia & Karim, 2018). According to Allen et al. (2016), education level is a major determinant of population account ownership and use in the formal financial system. The level of education affects an entrepreneur's motivation in terms of seeking alternative sources of finance; developing financial networks; and planning for business long-term financing solutions (Smallbone & Wyer, 2000, Hussain et al., 2018). In addition, education helps to develop entrepreneurs' enthusiasm, exploratory abilities, communication skills and foresight and ensure that the business continues as a continuing concern (Dobbs & Hamilton, 2007). Also, education strengthens the skills that have a positive impact collectively when making a fair case for credit applications, business plan planning, collateral appraisals and creating good finance networks.

Kumar and Fransico (2005) discovered a powerful relationship in Brazil between entrepreneurial education and access to debt financing. In the UK, Irwin and Scott (2010) performed a study using a telephone survey across 400 SMEs. Their results suggest that when obtaining structured finance from banks, entrepreneurs or managers who are graduates faced minimum difficulties. This means that, first, more educated entrepreneurs have the potential to deliver positive financial information and strong business strategies and maintain a stronger relationship with financial institutions than less educated ones. Thus, educated entrepreneurs are more likely to use retained earnings in such situations (Zabri, Ahmad & Lean, 2015). Second, trained managers/owners have the ability to handle production factors and business functions such as finance, marketing, and human resources; these abilities result in the company's high efficiency which help certain businesses access finance with little difficulty. The third theory emerges from the supply side, whereby financiers assign great importance to highly trained entrepreneurs or executives in the loan approval phase in the credit scoring process. Supporting the theory, Zarook, Rahman and Khanam (2013) conducted a study to ascertain management skills and access to debt finance across 600 SMEs located in Libya. The results showed that experiences of management and levels of education were significantly and positively related to access to finance.

Other empirical studies have found that borrowers with higher educational qualifications have greater access to external funding than borrowers with lower educational qualifications (Neeley & Auken, 2009; Rao, 2003). On the contrary, some studies have found a connection between education and financial difficulties (Irwin & Scott, 2010) but Dabo (2006) and Al-Kharusi (2003) found no significant link. Also, Saffu et al. (2006), Parker (2004) and Irwin and Scott (2010) found no major impact on obtaining bank financing where people with higher degrees had the easiest time doing so.

Due to a lack of financial details, lenders prefer to use qualitative indicators such as the owner's age, educational qualification, and gender to determine the credit risk of SMEs (Altman, Sabato & Wilson, 2008; Baas & Schrooten, 2006; Uchida, 2011). Ghanaian banks may prefer applicants with high levels of knowledge and education. On the whole, theoretical literature emphasizes on entrepreneurial and managerial training.

Having reviewed literature, chosen the appropriate theories relating to the constructs, developed the conceptual model and formulated the related hypotheses, the next critical

requirement is to select and apply the appropriate methodology and method to be used to collect the data. These are discussed in the next chapter.

Chapter 3

Methodology

Generally, the chapter explains research paradigms and research methods before particularly specifying the paradigm and method adopted in the study. The chapter, further, elaborates on the methodology adopted in the study before explaining how the data collected would be analyzed in chapter 4.

3.1 Introduction

Research is a systematic inquiry of gathering, examining and interpreting data in order to find answers to questions asked while methodology is the comprehensive plan a researcher employs to undertake a study (Yilmaz, 2013). The process of research involves a methodical inquiry and study of materials and sources to establish facts and make new deductions (Saunders & Lewis, 2012). Research is, methodologically, done with the intention of addressing a phenomenon, find solutions to challenges or advance arguments so as to get the understanding of creation and the way of doing this establishes what the realities are and other additions to knowledge (Crowther & Lancaster, 2012). Research is all about coming out with newly established understanding which should be blended with experience and current understanding that could uncover unknown designs resulting into relationships of innovation. The whole design of research is about coming out with a unique concept that should add to an existing or introduce a new theory as far as research is concerned or in the realm of reality. This chapter described and discussed the research techniques used in the analysis and provided explanations for their selections. The chapter enumerates paradigms, discusses and analyzes the specific research approach, population of the study, design, sampling design and procedures, sample size, instrument design as well as instrument reliability and validity.

Knowledge of the research process and aspects of theoretical and philosophical considerations are critical for selecting a checked and justifiable research methodology (Punch & Oancea, 2014). This section discussed qualitative, quantitative and mixed methods and techniques. This was accompanied by the reasoning for choosing research and data collection methods used, consisting of a questionnaire survey with a set of SME managers or owners. Then, following is a description of the analysis applied to the data. Finally, the section details the development of validity testing of the survey method.

3.2 Research Paradigm

Generally, a paradigm can be explained as an entire scheme of thought (Neuman, 2011). Morgan (2007) describes paradigms as a body of practices and beliefs which affect the method of selecting the questions to study and the methods applied to study them. Specifically, a paradigm consists of traditions, theories, methods and a structure of orientation which serves as a prototype for examination and knowledge (Babbie, 2020; Rahi, Alnaser & Abd Ghani, 2019; Rubin & Babbie, 2010). A research paradigm is a collection of concepts and methodological ways to conduct a research study. Research paradigms concentrate on ontology (what is real?), epistemology (how do we know what we know then?) and methodology (the viewpoint of the researcher on how to analyze the problem) (Creswell, 2014; Veal, 2017). It is a comprehensive system of interconnected patterns and thoughts on three major dimensions; ontological, epistemological and methodological. In Grit's (2004) view, research is best conducted by clearly identifying the link between what the researcher thinks he wants to study (ontological), relating it to what can be known about it (epistemological) and how to acquire the knowledge (methodological). The interactions among these three dimensions result in the fourth which is philosophical.

3.2.1 Ontological Position

Smith (2003) views ontology as providing an explicit and comprehensive view on the sphere of being. Ontology involves the study of theories of being and the questions people ask about what really exists. It deals with reality's nature; that's the research issue. Ontology according to Gray (2004) answers the question "what is" and concerns itself with the nature and features of reality. It borders on whether if; reality is constructed independent of or dependent on human understanding and whether the reality is shared or it is peculiar (Ritchie et al., 2013).

The two principal ontological positions are realism and idealism. Realism holds that an external reality exists which is detached from people's opinions and values while idealism connotes a reality which is dependent on man's construction of his social reality (Ritchie et al., 2013).

The ontology and epistemology debate is competitive in preferring either positivist or interpretivist theoretical theory (Bryman & Bell, 2007). In this study, the ontological aspect focuses on the nature of SMEs' access to loan, the nature of collateral requirement, information asymmetry and moral hazard in access to SME loans. It also concerns the nature of the effect of

information asymmetry and moral hazard jointly on collateral requirement in relation to access to SME loans. The principles or techniques of natural science are applicable to social science study in positivism or realism and, as in natural science, the purpose of research is to test or further develop theories (Bryman & Bell, 2007). This study conforms to some of these principles by applying, for instance, already established theories to underpin the research and applying statistical methods to analyze the results.

Furthermore, in the positivist model, the subject is always unaware of the object under study and knowledge; findings are found or made through interpretation or measuring the phenomenon (Saunders et al., 2015). This study conforms to this as well because collateral requirement, information asymmetry, moral hazard and access to SME loans have all been measured leading to the conclusions which have been drawn. It includes dealing with established social experience and evaluating hypotheses generated from current theory; it is thus empirical in nature. Thus, the ontology of this study is realism because it follows a systematic approach for replication which stresses quantifiable evaluation leading to predictive interpretation (Creswell, 2014). The ontological position of realism taken has helped to obtain valid knowledge through the reliance on quantitative methods of survey and statistical analysis (Clark & Johnson, 2009).

3.2.2 Epistemological Position

It is the view on what constitutes acceptable knowledge and the beliefs on the way to generate, understand and use the knowledge (Wahyuni, 2012). The methodology a researcher uses to describe the research subject is epistemology. It has two major positions; inductive and deductive logic (Ritchie et al., 2013). A third position, abduction has roots in both induction and deduction (Lipscomb, 2012)

Inductivism holds that knowledge can be obtained objectively by recording, measuring and describing phenomena without resorting to hypotheses (Rothchild, 2006) and involves developing knowledge from base to top style through observing. Deductive logic is a top-down method to obtain knowledge which either affirms or reject the theory and makes inferences by thinking from general to specifics (Rothchild, 2006). In this study, a deductive approach was used to assess the impact of collateral requirement on access to SME loans in Ghana. Following theory, hypotheses were stated and data was collected and analyzed to validate these hypotheses.

3.2.3 Interpretivism

A theoretical representation of researcher-participant information explaining qualitative research technique is an interpretative paradigm (Zikmund et al., 2012). Qualitative analysis prefers interviewing and observing as ways to better capture individual knowledge and thus relies on the skill of the researcher to collect information (Newman & Hitchcock, 2011; Veal, 2017). It depends on the inductive reasoning of the researchers on the subject. Authors such as Denzin and Lincoln (2005) and Bryman and Bell (2011) say that qualitative research produces rich data explanations whereas quantitative research focuses on numerical estimates rather than information.

3.2.4 Positivism

Positivism is understood to be a scientific method of study or science-based research. A positivist view provides the basis of quantitative approaches and it is logical, deductive and confirmatory (Bryman & Bell, 2011). Positivistic paradigm holds that the methods of natural sciences are appropriate and applicable to social inquiry and that social research can be independent, objective and value-free (Creswell, 2014; Ritchie et al., 2013). The objective stance includes that the researcher neither influences nor is influenced by the research, findings are true and that human behaviour can be explained rationally and logically.

The positivist paradigm considers objectivism as its greatest attribute. It considers its objective facts as measurable and it uses statistics to establish whether from the variables under study, one depends on the other (Neuman, 2011; Scotland, 2012). As quantitative in nature, methodological and analytical methods are positivist analysis model partly (Bryman & Bell, 2011; Blumberg, Cooper & Schindler, 2014). Creswell (2014) claimed that when applying a quantitative method, established theories are tried through the development and empirical evaluation of hypotheses and, then, use analytical evidence to address the study questions.

Positivists are highly appreciative of the idea of reproduction. Positivism tends to use large samples and rates the principle of replication highly. The positivist and realist philosophy is deterministic in perspective and its causes are estimated to determine effects or outcomes (Creswell, 2014). The positivist study paradigm makes use of quantitative methodology, an example of which is conducting a survey (Sarantakos, 2012; Marczyk, DeMatteo & Festinger, 2005).

Post-positivists operate under the understanding that attempts at research are influenced

and shaped by already existing proven theories as well as the one which is being tested (Mertens, 2005). O'Leary (2004) suggests that post-positivism is intuitive and holistic, inductive and exploratory with findings that are qualitative in nature. He indicated that post-positivism is congruent to the constructivist paradigm as the post-positivists see the world as an indefinite construct with many realities.

Post-positivistic paradigm is, actually, positivism incorporated with qualitative methods in order to situate the meanings in a context; meaning, it is also associated with quantitative methods which this study sought to use. Collection of instrumental data (questionnaire), measure-based (Likert Scale) and responded to by participants to develop appropriate knowledge of interest relationships with adherence to the standards of reliability and validity (quality criteria) as well as the use of deductive logic as cornerstones of this philosophy (Creswell, 2014). The quantitative methods part involved the use of statistics to test the relationship between collateral requirement and access to SME loans.

Despite that the study focuses on numerical estimations, there is the need for the researcher to consider individual and social distinctions. In general, the presumption is that in the modern world, humans play a role and, as such, interpret their social roles according to their intent (Denzin & Lincoln, 2005; Silk & Andrews, 2011). Therefore, understanding of information to be acquired was sought from the interpretations of the realities the SMEs are facing, based on their experiences.

3.2.5 Realism

Realism means that truth, independent of the human imagination, exists. To the degree that it assumes a scientific approach to knowledge creation, it approaches positivism, but is less deterministic than positivism. It also stems from interpretivism, in that while the essence of objects and how these entities function are concerned, it also recognizes that phenomena can only arise without current information or observation, thus the need to pay attention to them (Blaikie, 2007). Thus, while the interpretative view that social truth is pre-interpreted is asserted by realists, it also fits with the positivist idea that science should be empirically based rather than generally dependent on language or rhetoric with simplistic rationales and objectives. Hatch and Cunliffe (2006) clarify that fact exists in a stratified form in which underlying events shape surface events and what is observed is only partial instead of comprehensive. This study used the philosophy of post-positivist worldview.

3.2.6 Philosophical justification for the study

The current study has the post-positivist paradigm functions. The study involves a scientific approach to identify causes that influence outcomes. Questionnaires were designed and used to collect the data. The questions were measured and scaled using a Likert scale to solicit for the opinions of the respondents on the subject matter. Furthermore, the study involved variables which are very essential because they are the phenomena that are classified and quantified, hence the use of the quantitative method. Numerical data was obtained and analyzed using statistical methods. However, there was a researcher-participant engagement. In addition, a deductive approach was used to assess the impact of collateral requirement on access to SME loans. Reliability and validity (which are quality criteria) were determined. Therefore, in a restricted way, qualitative method (expert views) was combined with a mainly quantitative data analysis process, giving it a mixed science taste. Overall, the study is similar to the principles of post-positivist worldview, although these worldviews are not as mutually incompatible as they initially seem (Creswell, 2014).

3.3 Methodological Position

This involves taking a position in the research process. Researchers choose an appropriate methodology and methods for research by positioning the research within an appropriate research paradigm and a methodology that is compatible with the research paradigm (Creswell, 2014). Methodology, usually, comprises quantitative, qualitative or mixed approach. In this study, a quantitative methodology was used because it is positivist or post-positivist with empirical science (Creswell, 2014). The study involves advancing of relationships among variables and posing them as hypotheses. The type of data needed to test the hypotheses, also, supports this approach (Saunders et al., 2015).

3.4 Research Strategies

The selection of the research method is influenced by the researcher's ontological or epistemological views. Nevertheless, three broadly common approaches are utilized to undertake a study. They are qualitative, quantitative, and mixed methods. The type of approach a researcher might adopt is usually based on the type of data he needs (Williams, 2007). Numerical, textural or a combination of numerical and textural data informs the approach a researcher may adopt.

3.4.1 Qualitative Research Strategy

Qualitative research methods were developed in the social sciences to enable researchers to study social and cultural events with action research. Instances of qualitative study methods include case study, ethnology, grounded theory, ethno-methodology, phenomenology, ethnography, historical study, narrative study and symbolic interaction. Qualitative research is a subjective enquiry process aimed at understanding a social or human problem based on building a complex holistic picture formed with words, reporting detailed views of informants and conducted in a natural setting (Creswell, 2014).

Qualitative research approaches concentrate on the exploration and interpretation of the views, attitudes and thoughts of participants; qualitative research therefore explores significance, purpose or reality (Saunders et al., 2015). In other words, with the investigator extracting meaning from the data obtained in the field, the qualitative analysis approach is essentially inductive (Creswell, 2014). The existence of multiple socially constructed "truths" is central to this investigation; for example, qualitative research is usually described as providing for a thorough exploration of a topic of interest where the concern is information (Clark & Johnson, 2009; Bryman & Bell, 2011). This method involves describing the relationships in naturalistic settings between participants and researchers with few restrictions, resulting in a versatile and open research process. These particular experiences indicate that different results could be obtained from the same study, depending on who the researcher is as results are generated by a participant and the researcher in a given situation. (Creswell, 2014).

Qualitative research produces findings which are not arrived at by means of statistical procedures or other means of quantification. Data produced from qualitative research include individual's written or spoken words and observed behaviours. Qualitative research focuses on context and fosters the description and understanding of experiences, ideas, beliefs and values (Flick, 2008).

There are diverse ways of using a qualitative approach. However, Leedy and Ormrod (2005) recommend case studies, phenomenology, content analysis, grounded theory and ethnography. According to Creswell (2014), these methods address different needs such as how and why things happen (case study), thinking in and through evolving method (phenomenology) etc.

3.4.2 Quantitative Research Strategy

According to Creswell (2014), quantitative approach can variously be named as "scientific method" or doing "scientific" research. Quantitative research is the act of testing a theory to solve human and social questions and involves the use of parameters measured in numbers and analyzed using statistical operations to prove whether the generally predicted theory is true (Creswell, 2014). In testing a hypothesis, the quantitative method of research is used to examine the relationship that exists between the variables of interest (Creswell, 2014).

The quantitative approach often includes testing a theory or theories. As a result, quantitative analysis approaches aim to leverage the objectivity, replicability and generalizability of observations and are usually involved in forecasting outcomes (Lincoln & Tierney, 2004). This approach requires the assumption that participants can put aside their perspectives, prejudices and attitudes to maintain objectivity in performing the analysis and the conclusions arrived at (Clark & Johnson, 2009). The use of testing methods such as tests or surveys to obtain data and the use of probability theory to assess statistical hypotheses that lead to important conclusions to study problems are the key aspects of many quantitative experiments (Denzin & Lincoln, 2005). The deductive nature of quantitative methods is also defined in that the results of statistical hypothesis testing lead to general inferences on population characteristics (Bryman & Lincoln, 2011). The majority of quantitative methods are often praised as claiming that there is a certain "reality" that is independent of human experience (Lincoln & Tierney, 2004).

As its strength, the characterization of quantitative research allows for determining proven results; making it possible for a hypothesis to be accepted and also to determine the relationships between events and their causes (Hurt & McLaughlin, 2012). Quantitative approaches come in three classes; descriptive, observational and causal-comparative approaches.

3.4.3 Mixed Methods

Mixed methods approach involves the integration of quantitative and qualitative methods and applying them in the same study (Creswell, 2014; Walliman, 2017). There are some key justifications for adopting the mixed methods approach in a single study, (Leech et al., 2010). They include; triangulation which is enhancing the acceptability of the information gathered in order to reduce unfairness; complementarity which gives room to each of the individual methods to depend on each other by strengthening where each is not so strong. This helps in the usage of

the results of each approach to add value to the other. Other motivations include initiation which is examining the gathered information based on other viewpoints and expansion which helps broaden the horizon of the study (Bulsara, 2015). Mixed methods involve using both standardized measures and descriptions to capture a phenomenon (Davison, Martinsons & Ou, 2012).

3.4.4 Research Strategy Adopted in the Current Study

Since the analysis was focused on conventional scientific research and numerical data produced and used to establish any correlations between two or more variables, the quantitative research approach was used. The study involved variables (independent, moderating/interaction, control and dependent) which are very essential because they are the phenomena that are classified and quantified, hence the use of the quantitative method. Furthermore, since numerical data was obtained and analyzed using statistical methods such as regression analysis, quantitative testing approach was appropriate. In order to endorse or refute alternative knowledge statements, the data obtained was quantified and statistically analyzed. The data was obtained using a survey strategy of inquiry and predetermined instruments.

The quantitative analysis approach was used to help the study do the following: test hypotheses and make predictions; analyze particular variables; deal with numbers and statistics; collect quantitative data using standardized and validated data-collection instruments; identify statistical relationships and review results objectively and generalize it.

3.5 Research Design

Kothari (2012) defined research design as a ground-floor plan that explains the specific layouts for collecting and analyzing the information needed for the research. As defined by Creswell (2014), “*research designs are plans and procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis.*” The choice of the methodological approach (quantitative or qualitative) of a study is determined by the type of the research subject or the context of the research intent rather than by analytical techniques and paradigms (Creswell, 2014; Newman & Hitchcock, 2011). Basically, a research design offers a context for the collection of data and which priority methods should be used to evaluate it (Abbott & McKinney, 2013). It is a simple strategy that directs the research project's data collection and analysis phases and “ensures that the study is relevant to the problem and

will use economical procedure.” It includes the context that defines the type of information to be gathered, its origin and collection process (Churchill & Iacobucci, 2009). In undertaking the present analysis, care has been taken to integrate these principles in the design of the research.

3.6 Types of Research Design

A research design is a systematic plan to study a scientific problem. The design of a study defines the study type. The aim of a sound research design is to produce credible results (Saunders et al., 2015). There are several ways to define research designs but sometimes the separation can be arbitrary and other times, separate designs merge.

According to Sukamolson (2007), many quantitative analysis or architecture styles exist. It can be classified, for instance, as survey research, correlational research, experimental research and causal-comparative analysis.

3.6.1 Survey Design

According to Sukamolson (2007), survey study involves using a scientific sampling approach with a designed questionnaire and use of statistical methods to measure the characteristics of a given population. More succinctly, Sukamolson (2007) further describes the survey as a method of quantitative study involving 'sampling questionnaire, design of questionnaire, administration of questionnaire' for the purpose of collecting data from the studied community or population and then conducting analysis to better understand the behaviours or characteristics of the community or population. Furthermore, Groves et al. (2011) see survey research as a study of social science focused on individuals, critical information about individuals and their values, thoughts, behaviours, motives and actions. In addition, in a survey sample, Gideon (2012) identifies three fundamental concepts, namely:

- (1) The survey is used to quantitatively define a sectional function of a given population regarding the relationship study.
- (2) The survey method obtains data from individuals.
- (3) The survey sample is used to generalize the entire population, that is, a segment of a population.

3.6.2 Correlational Design

It is a quantitative approach used to assess whether and to what degree an association occurs within a population or survey of two or more variables. Relationships are expressed by coefficients of correlation. The coefficients range between +1 and -1. Better relationships are indicated by higher ratios (coefficients nearer +1 or -1). Positive associations mean that as the values associated with one variable increase, the values associated with the other variable often increase and the reverse variable remains the same. For example, higher grades are associated with higher intelligence quotient (IQ) and vice versa. Negative correlations mean that the values associated with the other variable decrease as values associated with one variable increase. For example, eating more sweets leads to tooth decay. Buttressing this, Leedy and Ormrod (2010) note that a study's method of correlation deals with creating relationships in the same population between two or more variables. The first form of correlation design, explanatory design, is conducted when researchers attempt to investigate the degree to which two or more variables co-vary, i.e. when changes in one variable are expressed in changes in the other (Creswell, 2014). Researchers are using the second type of correlation design, prediction design, to predict some results in one variable from another variable that serves as the predictor.

3.6.3 Experimental Design

During experimental testing, the investigator investigates the application of a medication by the sample group and then checks the effects of the treatment. Three kinds of exploratory methods are available: pre-experimental, true experimental and quasi-experimental (Crowther & Lancaster, 2012). An objective variable that is not changing or a sample group not randomly selected is needed for pre-experimental architecture. The true experimental method, which has a higher degree of empirical control and a greater degree of validity, was supported by Yu and Ohlund (2010). True experimental designs, including the use of mathematical models for the tests, result in a systematic approach to quantitative data collection. Quasi-experimental design requires non-random research sample selection, thus regulation is minimal and real experimentation is not feasible. As the attribute is uncontrollable, authenticity can be compromised.

Compared to the dependent variable, factorial architecture relies on two or more types of independent variables (Widaman, Ferrer & Conger, 2010). Kirk (2012) describes experimental study as a method of analysis by which a researcher takes over and retains the fundamental

elements whose effect can and therefore affect the outcome of an experiment and, as a result, the researcher forecasts the outcome of an experiment. Experimental design is the synopsis that guides a researcher to draw a definitive conclusion on the relationship between an independent variable and a dependent variable while determining his hypothesis. Kirk (2012) further explains the steps involved in experimental research as follows:

- (1) Choosing sample subjects.
- (2) Grouping or pairing subjects.
- (3) Identifying and designing instruments to be used to measure outcomes.
- (4) Performing pilot studies.

In order to gain insight into the cause and effect of something when such variables are manipulated, the experiment deals with endorsing, denying or validating a hypothesis. For example, to understand the nature of gravity, someone may perform a simple experiment, while others, essentially scientists, conduct experiments for years depending on the topic to be tested. Adèr (2008) states that when performing experimental analysis, there are certain things that a researcher can ruminate, i.e. decide the best way to operationalize the variables to be tested and the correct statistical method to be used to answer the hypotheses or research questions, taking into account the expected result of the analysis and how to interpret those findings, the limitations to be included in the sample, such as the possible respondents and their importance and suitability for the specific study to represent the target population.

3.6.4 Causal-comparative Design

Ex post-facto indicates "from the fact" (Jarde, Losilla & Vives, 2012). Simply put, the researcher explores a problem by retrospectively studying variables in ex-post-facto analysis. It is a study in which it is possible to immediately observe the dependent variable and the main concern is to find out the context to this effect. In other words, a causal-comparative study is a form of research that aims to recognize and establish the cause and effect of the relationship between two or more groups. Causal-comparative analysis is a study in which the investigator attempts to establish the origin or explanation of pre-existing disparities in various groups. Differences and similarities between causal-comparative and correlational studies are as follows:

- (1) The analysis looks for differences between groups in the causal-comparative study while the correlational study looks for correlations within a single group between variables.

- (2) Causal-comparative and correlational studies are similar in that they are both used to evaluate variables' relationships.
- (3) Causal-comparative includes categorical independent and/or dependent variable(s), but the correlational analysis uses only quantitative variables.
- (4) Causal-comparative analysis provides better evidence of cause and effect relationships than correlational research.
- (5) Causal-comparative research, such as correlational analysis, is also seen as a form of descriptive research since it often depicts situations that already exist.

There exist two forms of causal-comparative research models called retrospective causal-comparative research and prospective causal-comparative research. Retrospective causal-comparative analysis means that when the results have already existed, a researcher begins researching a precise issue and the researcher attempts to decide whether another variable may have been prejudiced by one variable. When a researcher begins a study starting with the causes and is determined to analyze the results of a case, prospective causal-comparative analysis occurs. Retrospective causal-comparative study models are, by far, more prevalent than prospective causal-comparative models (Gay, Mills & Airansian, 2009).

3.6.5 Designs Adopted in the Current Study

The study begins with a problem statement, raising research questions and hypotheses, reviewing related literature and analyzing data (Williams, 2011). After critically examining the nature of the data to be collected and analyzed and how the research questions can be answered, it was obvious that the process conforms to quantitative research design. Applying the quantitative method, the study further adopted a combination of its extended components of survey and correlational designs. Survey research design is best suited because the study is interested in gathering descriptive information to assist the researcher to describe the state of affairs as they exist. It will allow the researcher to gather information for summary, presentation and interpretation for the purpose of clarification. Furthermore, correlational design is used to explain the relationships among the variables because it requires gathering data to determine whether or not a relationship occurs between two or more variables (Cohen & Manion, 2007). Survey and correlational designs are, therefore, appropriate since the study intends to gather information and assess whether any relationships between collateral requirement and access to SME loans, with moderating effects of information asymmetry and moral hazard, exist.

Broadly, the quantitative approach and its extended components of survey and correlational designs are adequate to answer all the research questions sufficiently. They are suitable because numerical data will be used to ascertain facts about the understanding of SMEs on the key variables of collateral requirement, moderators and access to SME loans and also examine the hypotheses. These designs will help to investigate the influence of the independent variable on the dependent variable and how the moderators affect the independent variable to, in turn, affect the dependent variable. According to Babie (2005), the approach is appropriate for better data collection, more vivid explanations and a simpler way of drawing conclusions.

3.7 Survey Questionnaire Design Steps

This study followed the creation of the survey and design decision method by Thomlinson (2018) which include seven steps: preliminary decisions, substance decisions, question phrasing, answer structure, question order, questionnaire layout, pre-testing and revision (Table 3.1). Furthermore, instrument reliability and validity were assessed when planning and preparing for the research. For example, all variables used in the analysis were normal measures associated with SMEs' difficulties accessing external finance. Again, all variables, in one way or another, were used for similar purposes in previous experiments and may have been subjected to the normal property checks of these measures. This eliminates the need for new checking of measurement validity (Coetzee & Stanz, 2007).

Table 3.1: Survey Design Process

<ol style="list-style-type: none">1. Preliminary determinations<ol style="list-style-type: none">a. Exactly which data is required?b. The primary respondents, who are they?c. What is the communication methods used to reach respondents?

2. Decisions on quality of questions

- a. Are the questions really needed?
- b. Are the questions sufficient to produce information?
- c. Can the respondents answer correctly?
- d. Will the respondents answer correctly?
- e. Are there any recent incidents biasing the answer to the questions?

3. Decisions related to phrasing of questions

- a. Do all the respondents have only one definition for the words used?
- b. Are any of the words or phrases loaded or in any way leading?
- c. In the questions, are alternatives implied?
- d. Are there any undisclosed issues relating to the questions which are assumed?
- e. Will the respondents answer the questions from the reference frame required by the researcher?

4. Decision on answer format

- a. Will these questions be posed as open-ended, multiple-choice or dichotomous?

5. Decision on question order

- a. Are the questions objectively structured to prevent mistakes?

6. Decision about questionnaire style

- a. Were the questionnaires structured to prevent uncertainty and eliminate error tracking possibilities?

7. Pre-test and rephrase

- a. Was the final questionnaire adequately pre-tested?

Source: Thomlinson (2018)

3.8 Data Collection Instruments

From the definition of Creswell (2014), data collection is a mean by which information is gathered from the selected units of an investigation. Mugenda and Mugenda (2003) further assert that the choice of a tool and instrument mainly depends on the attributes of the unit, research topic and data and expected findings.

In social sciences, most of the commonly used instruments for collecting data are questionnaires, interview schedules, observational forms and standardized tests (Saunders et al., 2015). Interview schedules involve asking a set of questions by the interviewer of an interviewee. Observational forms involve using checklists by researchers to record what they observe during data collection and a standardized test is another way of collecting data that has consistent and uniform procedures for administering, scoring and interpreting the behaviour of units of study. Data was obtained from a survey.

3.8.1 Questionnaires

Schwab (2013) describes questionnaires as testing instruments that allow individuals to answer questions or respond to statements. According to Leedy and Ormrod (2005), a questionnaire involves presentation of questions concerning a study on a paper. Questionnaires are mostly used in those disciplines in the social sciences which are concerned with people and society (Walliman, 2017). They are reputed to be flexible tools which are easy and convenient for respondents (Kothari, 2012; Muijs, 2011; Muijs & Brookman, 2015). Also, they are cheap and quick to administer (Walliman, 2017). Questionnaires are transparent with fewer tendencies of interview bias. The anonymity of respondents is normally guaranteed.

Ekinici (2015) and Dawson (2019) affirmed three basic types of questionnaires. They are both closed- and open-ended as well as combined. Closed-ended questionnaires generate statistics in quantitative research. These questionnaires follow a set format and most of them can be scanned straight into a computer for easy analysis and more numbers can be generated. In qualitative research, open-ended questionnaires are used although some studies measure the responses during the analysis stage. In open-ended questionnaires, there are no boxes to be ticked. Instead, the questions are left blank to be addressed by the respondent. While closed-ended questionnaires may be used to determine how many people use a service, open-ended questionnaires may be used to determine what people think of a service. With no standard answers to open-ended questions, data analysis is more complex. Indeed, open-ended questions

seek opinions rather than figures. Moreover, fewer questionnaires need to be circulated in open-ended questionnaire administration. However, many researchers tend to combine open and closed questions. Often, questionnaires begin with a set of closed questions with tick boxes or rank scales and end with an open question segment for more detailed answers.

Mugenda and Mugenda (2003) and Kothari (2012) accept that questionnaires have a number of benefits such as; low cost even though the universe is vast and geographically widespread; free of interviewer biases; responses are in the respondents' own words; respondents have ample time to have well-thought-out responses; respondents who are not readily available can also be contacted easily, large samples could be used thereby making the results dependable and reliable. They also accept that the key demerits of the questionnaires are; poor return rate of the correctly filled-in questionnaires; prejudice due to no-response is always indeterminate; it may be used only when respondents are trained and can cooperate; power over the questionnaire can be lost after it is sent out; there is inbuilt inflexibility due to the difficulty of adjusting the method after the questionnaires are sent; there is also the possibility of ambiguous replies or omission of replies altogether to certain questions; it is difficult to know whether willing respondents are truly representatives and this method is likely to be very slow.

Despite some of the disadvantages enumerated above, questionnaire was used as the primary data collecting instrument in this study because the study is consistent with the definitions provided and, also, to agree with Orodho (2009) that questionnaire can be used to collect a huge amount of data in relatively shorter time. Mostly, close-ended type of questions were adopted as it allowed respondents to select the best answer among a set of possible options that best represent their opinions. Further reasons are that it was efficiently used to gather factual information from respondents who are well vexed in the attitude and views of the subject matter (Walliman, 2017), it allowed properly designed questions and an effective follow-up technique for data collection to be adopted which guaranteed and produced a high rate of response (Walliman, 2017), it provided defined alternatives from which the respondents chose and the research to an extent imposed its reality on the respondents because the responses were easy and quick to code.

For the purpose of this study, the closed-ended questions were rated on a 5-point Likert scale (Raaijmakers et al., 2009). The Likert-scale questionnaire, designed to measure the attitude or opinion of the respondents (Burns & Grove, 2009; Brown, 2011), was utilized to obtain self-

reported information. These scale ranges from statement 1 “strongly disagree” to statement 5 “strongly agree”.

Table 3.2 The Five–Point Likert Scale

1	2	3	4	5
Disagree strongly	Disagree	Neutral	Agree	Agree strongly

Source: Bryman and Bell (2011)

In questionnaire design, how long the questionnaire is, how important are the questions being asked, how will the questions be measured and scaled, the way and order in which the questions are arranged and conducting a pretesting are relevant aspects in the process (Neuman, 2011; Zikmund, 2010). The data collection rate was facilitated through the multiple-choice format used in the survey questionnaire (Zikmund, 2010).

3.9 Data Collection Procedure

The study made use of primary data. Primary data was defined as original data generated for research purposes (Gale et al., 2013). Kothari (2012) defines primary data as those obtained for the first time and as being unused in nature. Primary data is defined by Louis, Lawrence and Keith (2007) as those items that are original to the problem under study while Ember (2009) defined it as data obtained by the investigator, specifically, for comparative research at various field sites. As the main method of data collection, this study used questionnaires. The research followed phases such as instrument creation, pre-testing, sample population recognition, research area selection, sampling (method, frame and size), instrument distribution and data analysis to achieve effective data collection, using the questionnaires.

3.10 Instrument Development

The questionnaire, which is the data collection instrument, consisted of numerous types of questions such as closed-ended and coerced choices with options of open-ended answering to some of the few closed-ended questions (in the demographic and background information section). Scoring scale questions were also provided where respondents were asked to score 5-point Likert scale standardized questionnaires using 1 for "strongly disagree" and 5 for "strongly agree." The accepted questionnaire instrument composed mainly of closed-ended and multiple-

choice questions. Essentially, most of the questionnaire questions were built using the Likert scale (Table 3.2), which offers the advantage of a standardized format with answers that can be easily, efficiently and error-free coded (Brown, 2011). With SME owners and managers of SMEs as targeted respondents, the questionnaire was developed.

In order to achieve high response rates, it has been pointed out that survey formats should be explicitly designed to be attractive, well-organized and transparent (Baruch & Holtom, 2008; Draugalis & Plaza, 2009; Schouten, Cobben & Bethlehem, 2009). In order for the respondents to perceive the questionnaire as simple and understandable, attention was paid to the structure of the questions (items) constituting the questionnaires to ensure correct format and reasoning are followed (Slattery et al., 2011; Wilson, 2013). Given the study's goals as well as the ease of contacting potential respondents, face-to-face delivery of questionnaires to the SME owners and/or managers was adopted as the most suitable method for collecting data.

The questionnaire consisted of 58 questions divided into five parts in a linear order: A, B, C, D and E. Section A picked information on likely factors affecting access to loans by SMEs. Section B solicited for information on collateral requirement concerning lender-borrower relationship. Section C sought for lender information asymmetry in a lender-borrower relationship. Section D solicited for moral hazard (proxy by borrower opportunism) information about the SMEs in a lender-borrower relationship. The final part E (introductory in nature) consisted of demographic questions, features and profile information about the enterprise and its owner. Attributes ranged from business age, size and industry to gender, education/training and work experience of the owners.

To build the study questionnaire, the researcher analyzed multiple surveys commonly used in SME studies to explain the connection between their study targets and data sampled (IFC, 2012; Gichure, Muturi & Ngumi, 2016; Nanyondo, 2017). According to Macnamara and Collins (2011), the study questionnaire's architecture followed principles such as: consistency, using plain language and eliminating technical jargons, being receptive to questions asking for personal details and a user-friendly physical appearance. Simple and understandable terminologies which were familiar to the selected respondents were used to avoid misunderstanding, hence improved the response rate. Assurance of confidentiality was given to all the respondents to enable them respond to the questions frankly without the uneasiness of immediate or future fall-outs. The consents of respondents who are employees of some SMEs

were sought for through the owners/managers and the respondents completed the questionnaires at their own spare times. The questions included mostly closed-ended questions which were asked in a simple and comprehensible manner (Neuman, 2011). Ambiguous, misleading, and loaded questions were avoided. Detailed information was provided to aid respondents to answer the questions. An appropriate and acceptable questionnaire should have 2-3 pages (Neuman, 2011). However, because the study wanted detailed information on all the constructs, the researcher prepared an 8-page questionnaire for this study. The font size used to ensure easy reading of the questions was “12-point Times New Roman.”

3.11 Pre-testing

Pre-testing was done for the questionnaire used in the final data collection of the study. This was conducted on 50 selected SME owners or managers from different geographical areas. The goal was to review the questionnaire and hear feedback about whether adjustments were appropriate before delivery to the research group. Though it was pre-testing instead of a pilot survey, the number was fairly big for the results to be analyzed. Therefore, the results were subjected to factor analysis and reliability test and turned out to be fairly good with only one construct (moral hazard) that had a Cronbach Alpha value below 0.6. The final questionnaire considered the input obtained from the field and the supervisor in relation to the duration of the questionnaire, the structure of the questions, the content of the questions, the importance of the questions and the ambiguity of certain planned answers. The previous questionnaires were clearly too long (10 pages), so it was reduced to eight (8) pages, consisting of eight (8) items for each of the four constructs and twenty five (25) demographic questions.

After the questionnaire was updated and rephrased on the basis of the comments received during the pre-testing, a final draft was prepared and printed out, following the requisite amendments.

3.12 Type of Study

The study is cross-sectional and covers SMEs which operate within the two main cities of Greater Accra region; namely Accra and Tema. In cross-sectional design, information is obtained from a given population sample at just one point in time while in longitudinal design, demographic sample units are consulted over various periods of time (Churchill & Iacobucci, 2009). Basically, not only would it have taken some time but the prospect of re-contacting the

same population might have practical and realistic constraints.

Due to the nature of the analysis, which included specifics of market knowledge that could change over time, a cross-sectional research design was considered acceptable. Saunders et al. (2015) give rationale for following a cross-sectional research design approach, pointing out that, unlike longitudinal studies that are strictly retrospective without involving study participants in any way, a study requiring the use of current data requires self-administration of questionnaires in a cross-sectional sample. This is in support of Raaijmakers et al. (2009) that cross-sectional studies provide a general overview of the findings and characteristics at a specific time point in relation to the research.

3.13 Study Population

Population is the sum of all entities exhibiting a shared collection of characteristics and containing the universe for research purposes. Population parameters are usually unit numbers (Suanders et al., 2012).

Target community or population is the set of items or artifacts that contain the researcher's searched knowledge area for which conclusion is to be drawn. The target population may be specified as components, sampling unit, extent and time.

The population for the survey was the well-established (registered legally with the Registrar General and in business) small- and medium-scale enterprises in Ghana. In Ghana, SMEs can be found in almost every corner of the country, with most considered to be located in the country's Central, Ashanti, Western and Greater Accra regions. These regions have been reported as having a high concentration of SME firms. However, in the present study, the target population is SMEs in the Greater Accra region, specifically in Accra and Tema.

How the research site is chosen is very important in following a case study approach in a study (Yin, 2012). With this in mind, the Greater Accra area was chosen on the basis of the following reasons: first of all, it is assumed that the majority of SMEs are located in this region. Also, two of the region's cities, Accra and Tema, are perceived to be its major business hubs. Whereas the region's city, Accra, is the capital city of the country, its other city, Tema, serves as one of the country's two land ports. The head offices and most branches of all the banks and non-bank financial institutions in the country are located in Accra. Tema is regarded as the industrial city of Ghana. With the aims of the study in mind, the selection of this region and these two cities gave the researcher the opportunity to contact SME owners who have made multiple

financial support contacts with various universal banks and, hence, have a lot of experience to share. Second, because they are all based in the same region and towns, it was easier for the data collecting agents (enumerators) to approach these SME owners. SMEs are spread across the country. However, the phenomena being studied are common to all SMEs so in selecting the first stage sample, Accra and Tema have been chosen for convenience and cost saving purposes.

Despite choosing Greater Accra region for the purpose of convenience, the sampling frame was, however, based on the following three criteria with the study objectives in mind:

- (1) Only registered SMEs by Registrar General.
- (2) SMEs doing business with any of the universal banks for at least a year.
- (3) SMEs with loan experience of at least GHc10,000.00.

Registered SMEs were targeted because as noted by Farazi (2014), informality can play a role as registered businesses are 54 percent more likely to have a bank account and 32 percent more likely to have loans.

Some of the SMEs are just start-ups, majority are established as well as those which are coming up. Sectors covered by these SMEs include Advertising, Agri-Business, Automotive & Transportation Services, Beverages, Business Promotion & Consultancy Services, Chemicals, Electricals & Electronics, Energy, Environmental and Sanitation, Exports, Financial Services, Food, Garments, Textiles and Leather, Hospitalities & Tourism, Information & Communication Technology, Metals, Building & Construction Products, Pharmaceuticals & Herbals, Printing, Stationery & Packaging, Rubber & Plastics, Toiletries & Cosmetics and Wood Processing.

3.14 Study Area

Greater Accra region is one of the smallest of the country's sixteen administrative regions in terms of land area. The region covers a total land surface area of 3,245 square kilometres. This represents 1.4% of the total land surface area of the entire country. It is the second most populated region after Ashanti with a total population of 4,010,054 (GSS, 2011). It shares boundaries with Eastern Region to the north, Volta Region to the East, Gulf of Guinea to the south and Central Region to the West. Greater Accra region is the most urbanized region in Ghana. The 2010 population and housing census indicated that the region has the highest percentage of urban population of 16.3%. About 31.6%, 14.8%, 9.0% and 5.2% of the people in the region are actively engaged in wholesale and retail trade, manufacturing industry, accommodation and food industry and agricultural activities respectively. More females (69.3%)

are self-employed than males (60.0%). As a region which has the capital city of the country, it is battling with rapid urbanization due to the administrative functions it performs in the areas of commerce, business, industry, manufacturing, education, politics and culture. It also attracts migrants, not only from neighboring countries but, from all over the world.

3.15 Sampling Methods

According to Kothari (2012), sampling refers to the process of gathering data about a whole population by evaluating only part of it. Sampling is defined as a way of choosing a selected number of the sample from a specific population (Creswell, 2014). In simple terms, sampling is the process of selecting just a small group of cases out of a large group. The selection of a representation of the population is called sampling (Etikan & Bala, 2017). Two types of sampling exist; probability and non-probability sampling (Saunders, Lewis & Thornhill, 2016).

Simple random sampling, systematic sampling, stratified sampling and cluster sampling include probability samples. A simple random sample has an equal probability of being chosen to be part of a sample, according to West (2016). Non-probability sampling focuses on the selection of a sample on non-random means (Vehovar, Toepoel & Steinmetz, 2016). This sampling technique is particularly useful in studies where access to the whole population is quite difficult. The chance that each element of the population will be represented in the population is unknown (Panday & Panday, 2015). Vehovar et al. (2016) call it the non-parametric sampling. The non-probability sampling methods are convenience sampling, quota sampling, purposive sampling etc (Kothari, 2012).

3.15.1 Purposive Sampling

Purposive sampling involves deliberate selection of particular units of the population to constitute a sample that represents the population (Zikmund, 2010). According to Reddy and Ramasamy (2016), purposive sampling can otherwise be referred to as opinion or judgmental sampling. In purposive sampling, the sample is chosen based on the researcher's judgment. It is commonly used where the researcher wishes to isolate a sample that has qualities or characteristics required for the study. Kothari (2012) argues that purposive sampling is particularly good for studies where the researcher wishes to pinpoint sample members who best represent the interests of the study without having to consider the entire population. This

technique selects a sample for a specific purpose. Respondents are deliberately chosen for a strategic reason; they have the relevant information needed for the study as the information cannot be obtained elsewhere (Patton, 2002; Davis, Gallardo & Lachian, 2009). The interviewer or study designer chooses sampled units who by their judgment will meet the specific purpose of the survey (Panday & Panday, 2015). This further entails surveying every single member of a qualifying sub-group. This method is suitable for homogeneous population and a very important tool in gathering in-depth information. Its reliability is, however, questionable since it cannot be utilized for inferences and generalizations (Panday & Panday, 2015; Singh, 2006).

3.15.2 Sampling Method Used

The sampling techniques adopted by the study were purposive and stratified. The purposive sampling technique helped the researcher to select the following:

- (1) Greater Accra Region out of all the regions in Ghana.
- (2) Only registered SMEs with Registrar General.
- (3) SMEs doing business with any of the universal banks for at least a year.

To avoid any bias between successful and failed loan applicants, all the contacted SMEs were given questionnaires. Stratified random technique was applied to separate the various SMEs which applied for the loans and succeeded, at least once (Kvale, 2003) from those who applied and were denied. Data collection was done and the responded questionnaires were, then, separated into the strata of loan and non-loan customers for further analysis. The technique was used to select SMEs which are typical of the population of all registered businesses. The units (loan customers) were selected on the basis of their typicality (Orodho, 2009). The techniques were ideal for this study since they enabled selection of loan-applicant SMEs from a large pool of SMEs, some of whom never applied for loans. Again, stratified random technique was applied to sort out the questionnaires into small and medium enterprises.

Overall, the purposive sampling technique was employed. In order to maximize the response rate, this strategy was chosen because respondents in this sector are hesitant to provide information because they assumed in one way or another that information about their firms could leak through to rivals and could also expose them to tax authorities. This sampling technique helped obtained responses from willing respondents who made themselves available and took part in the survey. The profit here was that the respondents participated and were not chosen against their will of their own volition. Moreover, as participants took their time to respond to the

questionnaire, the quality of responses was high. In all, the method of convenience sampling was used to meet the 500 engaged SMEs that the enumerators believed had the data and expertise relevant to the analysis and had ample time and were willing to participate (Mason, 2010).

3.16 Sample Size

In research, a sample is used to represent the total population since it is quite difficult to study the entire population. According to Singh (2006), a sample should be so large in order to serve as a true representative of the overall number of people or objects under study. Fentim (2014) asserts that a minimum of 10 percent can be used as the appropriate sample size for any given study with a large population while a percentage within the range of 5% and 25% is suitable in order to make generalizations in quantitative studies. Singh (2006), also, indicates that the sample must not fall outside 10% - 20% of the referenced population under study. Zikmund (2010) argues that, only a small sample is required if the population is homogeneous while a large sample will be required for a population which is heterogeneous. This is because small sample sizes with similar characteristics would give an objective representation of the population. Neither too large nor too small sample sizes help research projects. Sekaran (2010) proposes a rule of thumb for determining sample sizes which is at least 10% of the target population.

The number of registered SMEs in the Greater Accra region doing business with any of the universal banks which has loan experience, specifically in Accra and Tema, is unknown in this study. Much as the SME population in the region or the two cities or even the whole country may not be too homogeneous, it may also not be too heterogeneous. Based on some characteristics such as perceived risk, difficulty in accessing loans, collateral challenges etc of SMEs from literature, they could be classified as fairly homogeneous. Applying Zikmund (2010), a sample size which may not be too small and too large was used based on the researcher's judgment. Furthermore, the study used factor analysis as one of the statistical methods to analyze the data and there is no shortage of recommendations regarding the appropriate sample size to use when conducting a factor analysis.

Suggested minimums for sample size include from 3 to 20 times the number of variables and absolute ranges from 100 to over 1,000 (Mundfrom, Shaw & Ke, 2009). The current study has 32 variables for its 4 constructs, meaning its sample size could be between 96 and 640. In addition, Comrey and Lee (1992), MacCallum et al. (1999) and Basheer et al. (2019) proposed a

basic scale for determining sufficient sample sizes in factor analysis: a sample of 100 sizes will be inadequate; 200 will be suitable; 300 will be fine; 500 will be very good; and 1000 or more will be excellent. They recommended that researchers should gather samples of 500 or more observations in factor analytic studies whenever possible. Based on the recommendations of Comrey and Lee (1992), MacCallum et al. (1999) and Basheer et al. (2019) and a non-probabilistic approach of judgmental sampling, the researcher decided on a sample size of 500 to be sufficiently enough to produce credible results.

3.17 Sampling Frame

Kothari (2012) defined a sampling frame as a list, directory or index of a case from which a sample can be selected. According to West (2016), sampling frame consists of a list of elements that are in the population.

Based on the objectives of the study, the sampling frame is registered SMEs (sole proprietorships, partnerships, limited liability companies) which applied for loans from any of the 23 universal banks only. Using the universal banks and purposively engaging only their SME loan applicants as respondents may not in any way affect the results. Rather, the results to be produced may be good and could be a reflection of the issues affecting the SMEs of all the universal banks and to a large extent, SMEs of the non-bank financial institutions (NBFIs) in the country.

3.18 Instrument Distribution

The data collection period was from 8th May to June 14th, 2020. The procedure started with purposive identification of the respondents and their accessibility.

The aim was to collect information from 500 Ghanaian SMEs, specifically in Accra and Tema of the Greater Accra region, using questionnaires as tools. The 500 study sample was deemed adequate to test the population hypotheses, given the statistical methodology and methods that were followed. The main statistical methods used were the structural equation modelling (SEM), factor analysis, correlation and regression tests, supported with contingency table analysis.

The process of data collection involved the distribution of the questionnaires to the respondents by enumerators. The research promoter was keen on time and quality and, therefore, briefed all the six (6) enumerators (university undergraduates), of the data collecting agent engaged by the researcher, on some few important steps to take such as ensuring that

appointments are booked with respondents before administering the questionnaires. This was important to allow respondents to familiarize themselves with the questions and help gather data on the agreed-upon time. The enumerators were also told to maintain punctuality in engagements, friendliness and, plain and concise words when the questionnaires are physically distributed. Also, to make sure the right respondents were selected, enumerators were to ask if the SME customer banks with any of the 23 universal banks in order to avoid dealing with SME customers of non-bank financial institutions (NBFIs). Also, they were to find out if the SME customer ever applied for a loan so that the enumerators can avoid dealing with those who did not apply for loans before. The questionnaires were ideally distributed to the SMEs within their premises to reference any needed information, where possible. The time for the survey to be completed varied from 30 to 45 minutes. At each closing day, the returned questionnaires were sorted out so that those responded to by undesirable respondents (e.g. unsuccessful applicants or non-loan customers, by chance) would not be deemed usable. This was to keep in check data collected from loan customers only towards the 500-sample target.

A total of 600 were distributed out of which 597 questionnaires were completed and submitted, corresponding to 99.5 per cent response rate. Out of the successful 597 responses, 97 of them were not granted the loans; meaning, a total of 597 responses provided 500 usable questionnaires, equating to 83.75 per cent representativeness. The high response rate and representativeness could be attributed to the following:

- (1) The method used.
- (2) The definition of access to finance adopted; that is, SMEs applying for and obtaining funding.
- (3) How coverage and sampling errors were minimized.
- (4) The expected outcome of interest by the SMEs.
- (5) How the questionnaires were deterministically administered to the target population and the acceptance and willingness of them to respond.

3.18.1 Response Rate and Response Representativeness

Response rate is determined as the number of questionnaires returned and divided by the total number which were initially distributed. As a result, this calculation only determines the questionnaire's effectiveness in enticing respondents to complete the survey and hides the instrument's capacity for large sample selection bias (Draugalis & Plaza, 2009; Cook, Heath &

Thompson, 2017). Furthermore, Peytchev (2013) believes that using response rate as the sole indicator of survey representativeness is flawed because “non-response bias, not non-response itself, is feared.” As a consequence, a high rate of non-response raises the likelihood of biased estimates while not actually biasing an estimate (Massey & Tourangeau, 2013). Subsequently, the current study adopted this definition to calculate its response rate.

Representativeness, on the other hand, refers to how much the sample used in the questionnaire study compares to or is representative of the target population. Is it possible for the researcher to determine the study's results with certainty that the sample of respondents correctly reflects the population's breadth and depth (Draugalis & Plaza, 2009; Cook et al., 2017)?

After performing a meta-analysis of the web- or internet-based surveys, Cook et al. (2017) conclude that: “in survey study, response representativeness is more significant than response rate.” In conclusion, they note that response rate is very necessary if it bears on representativeness.” In reference, the current study achieved both high response rate and representativeness, reflecting elements of the population with breadth and depth.

3.19 Preparation, Inputting and Checking of Data

Throughout the procedure to analyze the data, data collection forms were checked for possible omissions and the consistency in the data classification was also checked. The sorted data were entered into the computer using Amos (version 23) and SPSS (version 23). These packages were used to do some analysis and tests such as factor analysis, reliability and validity tests before other statistical techniques were used to analyze the data for answering the hypotheses.

3.20 Error Reduction

The 500 respondents who were aimed at for the study were generally having similar knowledge on the topic under study to take part in the survey. This enhanced the minimization of any risk of the residual source (Blumberg, Cooper & Schindler, 2014).

The researcher before the commencement of the research checked the questionnaire, in consultation with the supervisor in order to account for clarity in the wordings and to avoid double-barreled questions. The questionnaire was then pre-tested to minimize errors. All the survey participants benefited from an introduction letter specifying the objectives of the research.

3.21 Measurement of Errors

The researcher took the necessary precautions to eliminate bias and errors in this study (Cooper & Schlindler, 2008). Recommendations from Podsakoff et al. (2003) were adopted to decrease the potential for common ex-ante method bias. The questionnaires were organized in ways that did not lead to any conclusion on the assumed relationships between the variables. First, questions were arranged on the outcome variables, followed by questions on the input variables, moderators, and demographics of the enterprise.

Further protocols were also performed to ensure an appropriate response rate to questionnaires. They are as follows:

- (1) The questionnaire was accompanied by a cover letter, signed by the supervisor and student, explaining the purpose of the study for the respondents to see the exercise as an official academic one.
- (2) Data collecting agent was contracted because the exercise was involving. The agent has employees who have been doing this for years and have the experience. The target region as well as cities and respondents) are multi-cultural and multi-lingual and the agent has employees to engage respondents with the same or similar culture and language.
- (3) Pretesting of the questionnaires to be sure that the wordings of the questions were of meaning to the respondents.
- (4) Booking of prior appointment.
- (5) Assuring participants that all information provided would be used in anonymous form and for research purposes only.
- (6) Asking participants to respond honestly to the questions and to the best of their knowledge and experience, stressing that there are no correct or incorrect responses.

Hair et al. (2007) emphasized that pretesting should be undertaken in a similar manner as the main work. The questionnaire was pretested with 50 respondents who have similar knowledge on the research topic in other selected markets or areas, specifically, Ashaiman, which perfectly fit the features of the study. Pretesting sample size of 50 was seen as being a fair and reliable size for a pilot. This is in line with Malhotra's (2004) assertion that in pretesting, it does not matter if the sample is small. Participants in the pretesting were engaged on one-on-one basis and informed about the test and what it was intended to achieve. Even though it was pretesting, the data was subjected to factor analysis which produced reliability test results of

Cronbach Alpha values as follows: 0.713, 0.664, 0.529 and 0.739 for collateral requirement, information asymmetry, moral hazard and access to SME loans respectively.

3.22 Reliability and Validity of Survey Questionnaire

Reliability and validity are two important aspects to be addressed when designing a survey method in order to guarantee the dependability and coherence of the end result (Bryman, 2006; Punch & Oancea, 2014). Hence, Punch and Oancea (2014) placed great emphasis on the reliability and validity of measuring instruments in order to obtain the right data and produce reliable results. By way of definition, reliability theory refers to the degree to which the artifacts used for testing are error-free whereas the validity concept refers to the assumption that the measuring system tests what the researcher wished to accomplish (Tashakkori & Creswell, 2007).

Subsequently and in order to ensure the accuracy and reliability of queries, pilot testing of the survey instrument is therefore strongly recommended prior to field practice (Tashakkori & Creswell, 2007; Veal, 2017). Resultantly, pre-test skipping can lead to sampling error (non-response to questions due to the hesitation or inability of respondents to answer questions) and non-sampling error (caused by misunderstanding of questions leading to incorrect answers) as well as time taken to answer questions (Punch & Oancea, 2014). As Erzberger et al. (2003) reported, data entry errors and incorrect measurement scales are likely mistakes in collecting quantitative samples. As a result, while designing the survey questionnaire, the reliability and validity of the measuring instrument were carefully considered.

As recommended by Bryman and Bell (2011) and Creswell and Plano-Clark (2007), under some cases, less formal pre-testing can be done with a smaller and comfortable sample. Following, a pilot survey was not carried out due to time and budget constraints. Instead, in a similar sector, the survey questionnaire for the research was pre-tested using the same sampling frame category prior to the field survey and followed guidelines to check issues such as the content, wording, sequence, design and instructions of the questions as done by Bartkus et al. (2009) as well as Dearisa Chindy (2017). The main objective of the pre-test was to identify any questionnaire limitations and, accordingly, take corrective measures.

On reliability, there are different opinions on the value of alpha coefficient to use. According to Engelbrecht (2012), a value of 0.8 is commonly appropriate as a measure of reliability for cognitive test. In the views of others, the lowest acceptable α coefficient should be

0.7 (or higher in many cases); α coefficient that is not up to 0.7 is not accepted in most cases (Modh Saudi, 2014). However, in social science, values below 0.7 can be expected due to the complexity of the constructs being measured (Ataya et al., 2012). In the study, Cronbach Alpha values were good enough to indicate robust reliability.

The study deemed that its basing of the questionnaire design on the research's comprehensive literature review and conceptual structure addressed the instrument's content validity. The pre-test findings relating to the reliability of the instrument showed that each respondent had the same interpretation of questions, overcoming transparency, comprehensiveness, and question length concerns. During the final compilation of the survey questionnaire, pre-testing participants' suggestions were taken into consideration to improve the wording, structure, sequence, and layout of the questionnaire. The survey was personally conducted by the enumerators; thus, they were either physically present to clarify and explain questions or through phone calls. There were instances some of the respondents called the researcher, through his contact number in the introductory letter, to be sure that what they were about to do was known to him. The survey's self-administration also provided the advantage of an enhanced response rate (Ivankova, Creswell & Stick, 2006; Leech & Onwuegbuzie, 2009). For the study, the reliability of the SME survey responses was used by assuming that information closest to the actual results was provided by the SME owners or managers.

3.23 Ethical Consideration

Ethical consideration in research is an important issue. Ethics emanates from the Greek word "ethos" which implies a principle of moral honesty and reliable values (Gregory, 2003; Resnik, 2015). Researchers are bound by ethical consideration irrespective of the research design and methods they choose (Gratton & Jones, 2010). Ethical problems exist when analysis requires gathering of personal and confidential information from individuals (Creswell, 2014; Punch & Oancea, 2014). One of the key mandatory requirements is to collect data for some type of research from authorities and individuals when they are made aware of it (Creswell & Plano-Clark, 2007). It is the legal responsibility of the researcher to obtain, process and use data in accordance with the ethical code of conduct while taking into account the privacy and reputational protection of interested individuals (Creswell, 2014; Tashakkori & Teddlie, 2003).

As a result, guidelines concerning ethics in a study encompass the manner and how the author carries out the study, bearing in mind the ultimate intention of securing his designated

respondents from anything that could affect them mentally, psychologically or physically (Chilisa, 2005; Creswell, 2014). Creswell (2014) emphasizes that the researcher has a duty to respect the values, desires, rights and needs of the respondents. The salient principle when conducting a research is the protection of respondents from harm (Saunders et al., 2015). This harm usually comes as a result of negative perceptions respondents perceive might emerge from the information they give. The two main concerns of what can be perceived to be right or wrong, good or bad were followed in the research: no disclosure of names and getting the agreements of the potential respondents (Miller & Brewer, 2003; Resnik, 2015).

The primary concern was informing and getting the agreements of the potential respondents. Since the analysis concerned individuals and dealt with non-public information, participants were taken through what the goals of the study were and why it was being undertaken. The participants had briefings and were informed that to take part in the survey was one's own choice and nobody could be penalized for not taking part. Also, the participants were informed of willingly deciding to take part in the study because their responses could answer the research questions and apart from the intended purposes of the study, their responses would not be used for any other thing. The participants were calm down with the assurances that any detail that would be divulged will never affect any of them in any form directly (Bryman & Bell, 2011).

The respondents were also made to have the beliefs that any opinions, consents and contributions they would make to the research would never be disclosed with their names or anything relating to the participants linked to those opinions, consents and contributions. Queries relating to anything in the form of obstacles blocking the designated respondents had been taken care of earlier to the commencement of the research. To enhance anonymity and confidentiality, anything associated with the participants was taken out before the research began. The questions presented limited mental and physical injury or danger to the participants. The questions covered general access to loans for SMEs and did not include business secrets and confidential information. Return of the survey questionnaire was taken as their informed consent. The results of the survey are presented in the next chapter.

3.24 Data Presentation

This is an important part of data analysis. The purpose of data presentation is to make the results more illustrative, using diagrams and charts (Singh, 2006). The visual presentation of

findings is easier and simpler to comprehend. It also provides a geometric picture of the findings from the data (Singh, 2006). For the purpose of this study, tables, percentages, figures and models were used to present the findings.

3.25 Data Processing and Analysis

The raw data obtained from the field was turned into information that tested the study hypothesis; thus, information gathered, cleaned, processed and coded before data analysis. Data analysis was defined by Kothari (2012) and Ridder (2014) as computing some measurements along with searching for patterns of relationships between data groups. Data collection and analysis are necessary to ensure that all relevant data is collected for assessment and interpretation (Mugenda, 2008). To analyze results, the researcher used descriptive analysis, correlation analysis and regression analysis. None of the few open-ended responses expected to some of the few closed-ended questions (in the demographic and background information section) was provided since the many closely alternative responses provided met the choices of the respondents.

Correlation analysis was used. It means using the collected data to determine if there is a relationship between two or more quantifiable variables in which the correlation degree and direction is expressed by the correlation coefficient (Cohen et al., 2013). Analyzing linear regression involves measuring the causal relationship between a dependent and an independent variable, according to Cohen et al. (2013). This indicates that the dependent variable is predicatively related to the independent variable(s). Regression analysis thus attempts to derive the values of a dependent variable from the precise values of the independent variable(s).

The thesis used quantitative data; the Statistical Package for Social Sciences (SPSS) software (version 23) was, therefore, adopted for the statistical tests to be carried out. SPSS was chosen because it is user-friendly and provides all the possible study review as Castillo (2009) indicated. The response categories have been identified, coded, and entered into the SPSS variable data sheet for both descriptive and quantitative analysis.

Measures of central tendencies were provided through descriptive analysis, i.e. percentages, means, medians that were well displayed and properly depicted in tables. Prior to further study, conditional linear regression experiments were performed. These steps include sampling adequacy tests to evaluate the adequacy of the sample size for factor analysis, autocorrelation tests to establish if a correlation occurred for any two observations between the

residual items, multicollinearity test to decide whether more than two independent variables are inter-correlated and the test of outliers to determine whether any results are far from the other findings. Factor analysis was conducted after the diagnostic tests were completed to identify the variables that could not be instrumental to the data. Finally, studies of correlation and regression were done.

3.25.1 Correlation Analysis

The Pearson correlation coefficient was used to determine the degree and direction of dependent variable and independent variable relationships. Coefficients of correlation values are from -1 to +1. A value of 0 doesn't imply a relationship. In a positive linear sense, the correlation coefficient of +1 indicates that the two variables are perfectly correlated, i.e. all variables increase together, while a correlation coefficient of -1 indicates that the two variables are perfectly correlated in a negative linear sense, i.e. all variables decrease together (Collis & Hussey, 2013). The aim of the Pearson correlation coefficient was to determine the magnitude and direction of the relationship between independent-dependent parameter variables.

3.25.2 Factor Analysis

To uncover patterns in a set of variables, factor analysis employs mathematical approaches for the simplification of correlated measures (Child, 2006; Yong & Pearce, 2013). Factor analysis is based on the idea that a large number of measurable and observable variables can be reduced to a smaller number of unobservable latent variables that have a common variance (Bartholomew, Knott & Moustaki, 2011). Parsimony refers to the process of attempting to find the simplest approach of interpreting observable data, which is what factor analysis is all about (Bartholomew et al., 2011; Yong & Pearce, 2013).

Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) are the two most common factor analysis methodologies (CFA). EFA aims to identify complicated patterns by studying the dataset and testing predictions, whereas CFA strives to confirm hypotheses and uses route analysis diagrams to depict variables and factors (Child, 2006; Yong & Pearce, 2013). When a researcher wants to find out how many factors influence variables and which variables 'go together,' they employ EFA (DeCoster, 1998; Yong & Pearce, 2013). Factor analysis is effective for categorizing variables into relevant categories since it is easier to focus on a few crucial aspects rather than having to evaluate too many variables that may be insignificant.

in Ghana. Equation 3.2 presents the model for the regression analysis of the relationship between the independent and dependent variables.

$$Y = \beta_0 + \beta_1 X_1 + \alpha \dots\dots\dots 3.2$$

Where,

Y = Access to SME loan

X₁ = Collateral Requirement

Even though not part of the hypotheses to be tested, the same simple linear regression models were developed for the moderating variables to find out if they also had significant relationships with access to SME loan in Ghana. Multiple linear regression analysis was used to establish the combined relationships between the independent and moderating variables on one side and dependent variable on the other side as in equation 3.3.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \alpha \dots\dots\dots 3.3$$

Where,

Y = Access to SME loan

X₁ = Collateral Requirement

X₂ = Information Asymmetry

X₃ = Moral Hazard

Then, using the hierarchical Moderated Multiple Regression (MMR) study, the interaction effects of information asymmetry and moral hazard as well as joint information asymmetry and moral hazard were evaluated together. Cohen, West and Aiken (2014) reported that by comparing two independent least square regression equations, the MMR method includes the addition of interaction effects to a multiple regression model. The dependent variable was regressed with the independent variable's cross product and each moderating variable to monitor for the effects of the interaction. The moderating effects of information asymmetry and moral hazard were analyzed using the MMR analysis by interpreting the R² shift in the models obtained from the model summaries and the product term, regression coefficients obtained from the coefficients. Using equation 3.4, where the combined relationship between the independent variable X*Z1 and X*Z2 and the dependent variable (access to the SME loan) was evaluated, the interaction effects on collateral requirement were tested (Baron & Kenny, 1986).

$$Y = \beta_0 + \beta_1 X * Z_1 + \beta_2 X * Z_2 + \beta_3 X * Z_1 * Z_2 + \alpha \dots\dots\dots 3.4$$

Where,

Y = Access to SME loan (dependent variable)

X = Requirement (independent variable)

Z₁ = Information Asymmetry (moderating variable)

Z₂ = Moral Hazard (moderating variable)

β_0 is a constant (Y- intercept) which is the value of dependent variable when the independent variable is zero.

β_1 , β_2 and β_3 are measures of regression or the rate of shift caused on Y by X₁*Z₁, X₂*Z₂ and X₃*Z₁*Z₂.

α is the normal term for error.

To generate the exact values of β_1 , β_2 and β_3 , SPSS was used. The consequence of equation 3.4 would show whether there are any interaction effects on collateral requirements of information asymmetry and moral hazard. The condition for rejecting the null hypothesis will be based on the computed p-value and the critical p-value of 0.05. The magnitude of moderation effect will be shown by the change in R² in the model summary.

3.26 Research Hypothesis

The four key hypotheses of the study were focused on the research questions as suggested by Creswell (2014). In a research, hypotheses are projections such that by evaluating empirical evidence, relationships occur between the variables (Teddlie & Yu, 2007; Veal, 2017). Also, Creswell and Plano-Clark (2007) noted that hypotheses are used in a research to suggest some sort of relationship among the numerous variables being worked with.

By evaluating the hypotheses, the explanatory context of the analysis is tested by examining the effect of input and moderating variables on the output variable. The hypotheses established may be either in the form of alternative or directional hypotheses in which a potential consequence or effect is predicted based on the evidence in literature, or in the form of null hypotheses suggesting that there is no interaction between the variable groups (Creswell, 2014; Creswell & Plano-Clark, 2007).

The hypotheses were established in null and alternative structures for the current study. The four hypotheses were developed to study the impact of different variables (collateral requirement as a stand-alone predictor and also when it is interacted with information asymmetry and moral hazard separately and jointly) on loan accessibility of SMEs.

According to Creswell (2014) and Creswell and Plano-Clark (2007), the proposal of the

null hypotheses is that there are no relationships between the groups of variables under research. Therefore, in relation to the research objectives listed, the current study is guided by the following null and alternative hypotheses:

H_{1o}: there is no negative relationship between collateral requirement and access to SME loans in Ghana.

H_{1a}: there is a negative relationship between collateral requirement and access to SME loans in Ghana.

H_{2o}: there will not be a wider negative relationship between collateral requirement and access to SME loans than in H₁ when information asymmetry interacts.

H_{2a}: there will be a wider negative relationship between collateral requirement and access to SME loans than in H₁ when information asymmetry interacts.

H_{3o}: there will not be a wider negative relationship between collateral requirement and access to SME loans than in H₁ when moral hazard interacts.

H_{3a}: there will be a wider negative relationship between collateral requirement and access to SME loans than in H₁ when moral hazard interacts.

H_{4o}: there will not be a wider negative relationship between collateral requirement and access to SME loans than in H₁, H₂ and H₃ when information asymmetry and moral hazard interact jointly.

H_{4a}: there will be a wider negative relationship between collateral requirement and access to SME loans than in H₁, H₂ and H₃ when information asymmetry and moral hazard interact jointly.

3.26.1 Tests of the Hypotheses

The hypotheses of the study will be tested using Pearson Correlation Linear Regression (LR) and Pearson Correlation Moderated Multiple Regression (MMR) analyses. The verdict is if the calculated p-value is less than the critical value of 0.05, reject the null hypothesis. Alternatively, if the p-value is greater than the critical value of 0.05, accept the null hypothesis.

Chapter 4

Data Analysis and Results

This chapter presents how the data was analyzed and the results of the study. The main objective of the study is to investigate the role of information asymmetry and moral hazard in moderating the relationship between the requirement for collateral and access to SME loans in Ghana. Data presentation in this chapter was based on the specific objectives of the study.

4.1 Introduction

Analyses of the data collected were done using descriptive and inferential statistics. Descriptive statistics define the characteristics of the sample while inferential analysis draws inferences from sample data about the population by hypothesis testing. In terms of mean, mode and median, Creswell (2014) defines descriptive statistics as measurements of the central position of the sample; measurements of variability in terms of range, standard deviation and coefficient of variance; construction of distributions and graphs of frequency and probability were also given.

Authors suggest starting an empirical data analysis with descriptive statistics in order to simplify a complex system of raw data into a summary format that readers can easily understand (Tashakkori & Teddlie, 2003; Zikmund et al., 2012). Descriptive statistics were computed using Amos (version 23), SPSS (version 23) and structural equation modelling (SEM) to reduce the large amount of data to manageable levels for easy understanding and interpretations (Esbensen et al., 2002). This section provides descriptive statistics on the independent, dependent, and moderating variables. Beginning with the response rate of the respondents, the chapter covers, non-response bias, background of the respondents (firm and owner characteristics), results and findings of other demographic questions, conditional tests for multiple linear regression, exploratory and confirmatory factor analyses, reliability and validity measures, correlation and regression analyses.

4.2 Response Rate

The sample population was a composition of 500 SMEs which had applied for loans from any of the 23 universal banks in Ghana and were granted. The sample consisted of 308 owners/managers of micro enterprises (1 to 9 employees), 163 of small enterprises (10 to 29 employees) and 29 of medium enterprises (30 to 99 employees).

The sample size targeted for the study was 500 successful loan customers. To achieve that, 600 questionnaires were distributed to only those who applied for loans and 597 of them were returned which constituted 99.50% response rate. Out of the 597 questionnaires which were returned, 500 (83.75%) of them were granted the loans and 97 (16.25%) of the applications were rejected. The response rate far exceeded the threshold of 70% suggested by Mugenda and Mugenda (2003) as very good. It, also, concurred with Kothari (2012) who rated any response rate above 70% as excellent. Thus, response rates of 99.50% for application for loans and 83.75% for representativeness in this study were considered adequate.

4.3 Non-Response Bias

Nonresponse bias is checked by comparing the mean values of the questionnaire scale items between respondents who answered the questionnaires early and those who did so after several follow-ups. When there is a significant difference between the two categories then there is non-response bias (Lings & Greenly, 2010). In this study, there was no delay in submission of the questionnaire as the researcher and his enumerators distributed the questionnaire to the sampled responds and informed them of the date for collection. On the said date for collection, almost all the questionnaires except three were filled. Consequently, the response rate achieved for the study was 99.50%. Some authors have argued that where there is a very high response rate, test for non-response bias may not be necessary (Ledden, Kalafatis & Mathioudakis, 2011; Anabila, Narteh & Tweneboah-Koduah, 2012).

4.4 Background of the Respondents

The study considered the characteristics of small and medium-sized enterprises (SMEs), such as form of enterprise, age of enterprise, number of employees, structure of ownership, industry, etc., as well as the characteristics of SME owners, such as gender, educational background and professional training (Okura, 2008; Neuberger & Rathke-Doppner, 2015). These are relevant to the study as it is argued by Diaz-Serrano and Sackey (2015) that credit rationing

behaviour of banks is influenced by both borrower’s characteristics and firm’s characteristics. Due to missing values or incomplete responses, the total response for some of the questions do not tally with the total number of successful questionnaires. For example, 3 or 0.6% and 7 or 1.4% no responses were recorded for “ownership” and “professional training” respectively.

4.4.1 Firm Characteristics

A description of the characteristics of the firms is presented in Table 1.

Out of the sampled 500 respondents, it was realized that 217 representing 43.4% of the respondents were operating sole proprietorship, 167 of the respondents representing 33.4% of the total operated limited liability companies and 116 which was 23.2% were into partnership.

Table 4.1: Firm Characteristics

Variable	Characteristic	Frequency	Percent (%)
Type of Business	Sole Proprietor	217	43.4
	Partnership	116	23.2
	Limited Liability Company	167	33.4
Age of Business	Less than 5 years	127	25.4
	5 - 10 years	276	55.2
	More than 10 years	97	19.4
Number of Employees	0 -5	197	39.4
	6-9	101	20.2
	10-29	163	32.6
	30-99	39	7.8
Industry	Manufacturing	4	0.8
	Agriculture	5	1
	Construction and Mining	20	4

Table 4.1: Firm Characteristics (Cont.)

Variable	Characteristic	Frequency	Percent (%)
Industry	Hotel and Hospitality	14	2.8
	Information Technology	20	4
	Medical Services	23	4.6
	Wholesale and Retail	143	28.6
	General Service	216	43.2
	Others	55	11

Source: Author (2021)

The results of the study show that the dominant ownership structure is sole proprietorship. A majority of SMEs (55.2%) have been in business for 5 to 10 years while a lesser proportion have been in business for more than 5 years (25.4%). Those that have been in business for more than 10 years were of a lower proportion (19.4%) In all, 403 SMEs representing 80.60% had been in existence for at most 10 years.

Concerning descriptive statistics on the number of employees, 207 of the SMEs representing 41.4% have less than 5 employees, followed by 101 SMEs representing 20.2% which have employed between 6 and 9 employees, then 163 of the enterprises representing 32.6% have between 10 and 29 employees and, finally, 29 of the respondents representing 5.8% said they have between 30 and 99 employees. The results meant 308 micro enterprises (61.60%), 163 small enterprises (32.60%) and 29 medium enterprises (5.80%). The study was able to sample enough representation from both small and medium enterprises which could represent both small and medium enterprises without any bias.

The industry of operation of the SMEs is also provided in table 1. The majority of SMEs (43.2%) were into general services and a few were into Agricultural activities and manufacturing (1% and 0.8% respectively). Quite a large proportion was into wholesale and retail activities (28.6%).

4.4.2 Owner Characteristics

Table 4.2: Owner Characteristics

Variable	Characteristic	Frequency	Percent (%)
Gender	Male	296	59.2
	Female	204	40.8
Ownership	Yes	452	90.4
	No	45	9
	No Response	3	0.6
Education Background	Primary	0	0
	Secondary	247	49.4
	Diploma/HND	192	38.4
	Degree/Higher	61	12.2
Professional Training	Information Technology	32	6.4
	Accounting and Finance	152	30.4
	Economics	2	0.4
	Marketing	78	15.6
	Human resource	2	0.4
	Law	1	0.2
	Management	11	2.2
	Others	215	43.0
	No Response	7	1.4

Source: Author (2021)

The results in Table 2 above described the respondents by considering their gender, ownership status, educational level and any personal training received relating to the business.

From the results presented for the 500 respondents, 296 of the respondents were males representing 59.2% of the total sample and 204 were females representing 40.8% of the total sample for gender. The results could be assessed as fair in the sense that for every ten (10) successful loan applications, four (4) were women. The results mean that borrower gender is considered as an important determinant of collateral-based lending. Furthermore, the findings back up sexual stereotyping and its effect on commercial bank credit terms.

In deciding its effectiveness, the management of a SME could play a critical role. Every enterprise established may not necessarily be run and managed by the owner. As a consequence, the respondents were asked if the firm's founder was also the boss. This could help to assess the degree to which the owners are involved in the strategic decision-making of the enterprise (e.g. financing decisions). The results showed that 452, representing 90.4%, said they own the businesses they operate. Also, 3 respondents which is 0.6% did not answer this question whilst 45 of the respondents, representing 9% said they do not own the business they were operating. This indicates that a majority of the SMEs were operated by the owners. The results could be generalized that majority of the SMEs in Ghana are being run by owner-managers. Also, the results could mean that, for those firms that the owners were not the managers, the owners are engaged in other businesses or do not have the knowledge/educational training/expertise to run such businesses. Again, the results could be interpreted that Ghanaian banks grant loans to any SME, irrespective of whether the business is being run by the owner-manager or not, but provided collateral requirement and other loan conditions of the banks are met.

In terms of education, the results showed that 50.6% representing 253 out of the sampled 500 respondents had tertiary level of education and a total of 247 (49.4%) of the respondents had secondary school level of education. Averagely, the results show that Ghanaian SME owners/managers are fairly educated. As well, this could be a reason for the high loan rate, high response rate and representativeness observed from the data.

A question was included in the questionnaire that asked the participants in the survey which professional training they had and/or had received. The results showed that majority of the respondents had received training (managerial and/or technical). The respondents who received trainings in other areas which the participants were to specify were 215, representing 43.00% and

no response was 7 (1.4%). The results show that, in addition to education, managerial and/or technical competence is equally important. This could add to the reason behind the high loan rate since it is an internal and intangible resource (intangible collateral) to be taken advantage of by the firm.

4.5 Conditional Tests for Multiple Linear Regressions

Regression can only be accurately estimated if the basic assumptions of multiple linear regressions are observed Greene (2003). Therefore, various diagnostic tests which included sampling adequacy, normality, autocorrelation and multicollinearity tests were conducted to ensure accuracy of the results.

4.5.1 Sampling Adequacy Test

To assess the adequacy of the sample size, a Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was carried out. KMO is an index used to analyze and explain the appropriateness of the application of factor analysis, according to Magd (2008). Values between 0.5-1.0 show that a factor is significant. Moutinho and Hutcheson (2010) proposed that, for factor analysis, values between 0.7 and 0.8 are acceptable. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy test of the variables of this study generated a sufficient value of 0.765 (Table 5), indicating that the sample size for further study was sufficient. The value was good because it was within the ranges proposed by Moutinho and Hutcheson (2010) and, therefore, allowed for factor analysis to be done.

Again, Bartlett's sphericity test, which had a chi-square value of 2109.234 with a p-value of 0.000, lower than 0.05, supported the KMO statistics for the study. Since the p-value is less than 0.05, it revealed that the research variables under investigation had a good association and thus the Bartlett test is highly important.

4.5.2 Autocorrelation Test

Autocorrelation for any two observations is a correlation between the residue terms. The residue conditions for any two observations are expected to be independent (Field, 2005; Levine et al., 2004). To test for the existence of autocorrelation between variables, a Durbin-Watson test was used. Gujarati (2003 and 2005) noted that the statistics for Durbin-Watson differ from 0 to 4. Positive autocorrelation is indicated by a value near 0 whereas negative autocorrelation is indicated by a value near 4. Values ranging from 1.5 to 2.5 mean that no statistically significant

autocorrelation is present. For this analysis, the Durbin-Watson test statistic was 1.705, indicating that the variables were not associated in any statistically significant way, maintaining error independence and improving regression model accuracy.

4.5.3 Multicollinearity Test

Multicollinearity occurs in statistics where two or more predictor variables in a multiple regression model are highly correlated (Bickel, 2010). Multi-collinearity test indicates that the independent variables have some relationship with the dependent variable (Field, 2005). The assumption of Gauss-Markov only demands that there should be no perfect multicollinearity, and then the model is identified as long as there is no perfect multicollinearity. This implies that all coefficients can be calculated by the model and that the coefficients remain the best linear unbiased estimates and that the standard errors were accurate and effective (Runkle et al., 2013). The Variance Inflation Factor (VIF) was used in the multiple regression models to measure the multicollinearity problem. The reciprocal tolerance is the VIF statistic of a predictor in a model and it shows how much greater the error variance for a predictor's specific effect is (Baguley, 2012). Hair et al. (2014) asserted that VIF quantifies how much each of the variance in the variables is inflated. Variance Inflation Factor (VIF) is defined by Cohen and Cleveland (2013) as an index of the amount that the variance of each regression coefficient is increased relative to a situation in which all the predictor variables are uncorrelated and suggested that a VIF of 5 or more is the rule of thumb for concluding that VIF is too high, so it is not acceptable. Runkle et al. (2013) argued that one of them must be omitted from the regression study if two or more variables have a Variance Inflation Factor (VIF) of 5 or greater than 5, since this implies multicollinearity involvement.

In this research, one of them would be excluded from the model if two or more variables had a Variance Inflation Factor of 5 or greater than 5. The results of tolerance and VIF are shown in the appendix section. They showed that there was no statistically significant multicollinearity among the independent variable and moderating variables because no variable was observed to have VIF value of above 10 and no tolerance statistic was below 0.100 as suggested by Hamilton (2012). Hence the independent variable had no strong linear relationship with any moderating variables.

4.5.4 Normality Test

Normality checks were used to assess if the data is well modelled and typically distributed (Gujarati, 2003). According to Ghasemin and Zahediasi (2012), particularly if the results are to be generalized outside the sample, the variables are expected to be distributed roughly normally. The study used Kolmogorov- Simonov normality test. In Kolmogorov- Simonov test, if the test of normality will yield a figure of less than 0.05, it will mean that the data is not normally distributed.

4.6 Measurement Statistics and Normality

This section presents a summary result of the individual items used to measure the constructs in the study. The measurement statistics and normality results of the items employed are presented using inferential statistics. Table 3 below presents the results of the inferential statistics showing the minimum and maximum response level of the respondents, the standard deviation and mean of the responses gathered as well as the skewness and kurtosis of the responses gathered. The minimum and maximum values show the scale to which the respondents agree or disagree with the questions posed to them. Table 3 and Table 4 present the normality tests conducted. All the questions were rated from 1 to 5 on a 5-point Likert scale (Appendix B). The mean statistics indicated the average distribution of the trend of responses received for each question.

A normality test on all the individual measures was conducted to examine the spread for all the measures in the questionnaire. The standard deviation statistic in the table also showed how the individual item responses were spread out away from the mean. A low standard deviation showed that the distribution was very close to the mean or average score whereas a high standard deviation depicted that the data distribution was widely spread out away from the mean.

Skewness and the kurtosis of the data depicted the slope of the data. Specifically, the skewness of the distribution explained the asymmetrical behaviour of the data. Thus, the data set can either be normally, negatively or positively distributed. A data set that is negatively skewed is tilted to the left of the mean whereas a positively skewed data is tilted to the right of the mean. However, for a normal distribution, the skewness score is usually close to zero. Values for Kurtosis provide “information about the ‘peakedness’ of the distribution.” A value very close to zero also signifies that the data is almost perfectly a normal distribution (Pallant, 2020). A value

of -3 and 3 suggest that the data is normally distributed for both the skewness and kurtosis. Analysis of the constructs of the study showed that all the constructs had kurtosis at $p < 0.000$. An examination of Table 3 suggested that the data was normally distributed.

Relating the findings to the study, the mean values of the loadings of the constructs tend to be closer, suggesting that the data tends to be around a central value with no bias to the left or to the right and gets close to a normal distribution. That is, half of the data fall to the right of the mean and half to the left of the mean. Subsequently, some of the SMEs will get access to the loan and some will not (falling to the right or left of the central value). The implication of this is that the data near the mean are more frequent to occur than the data far away from the mean. As a result, majority of the SMEs will suffer from collateral requirement hence no access to loan. In other words, a small number will benefit from the loan either by meeting the collateral requirement or any other requirements by the banks.

Table 4.3: Descriptive Statistics

	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std.	Skewness		Kurtosis	
					Deviation Statistic	Statistic	Std. Error	Statistic	Std. Error
MH1	500	1	5	4.17	0.863	-1.131	0.109	1.608	0.218
MH2	500	1	5	4.20	0.882	-1.299	0.109	2.082	0.218
MH3	500	1	5	4.21	0.868	-0.836	0.109	0.187	0.218
MH4	500	1	5	4.32	0.790	-1.109	0.109	1.346	0.218
MH5	500	1	5	4.33	0.778	-1.230	0.109	1.991	0.218
MH6	500	1	5	4.19	0.875	-0.861	0.109	0.195	0.218
MH7	500	1	5	3.76	0.795	-0.890	0.109	1.598	0.218
MH8	500	1	5	3.16	1.088	-0.302	0.109	-0.711	0.218
IA1	500	1	5	3.61	0.855	-0.806	0.109	1.032	0.218
IA2	500	1	5	3.72	0.827	-0.844	0.109	0.918	0.218
IA3	500	1	5	3.80	0.720	-0.561	0.109	0.813	0.218
IA4	500	1	5	3.79	0.754	-0.991	0.109	1.859	0.218
IA5	500	1	5	3.64	0.862	-0.727	0.109	0.645	0.218
IA6	500	1	5	2.77	1.017	0.332	0.109	-0.704	0.218
IA7	500	1	5	3.38	0.856	-0.714	0.109	0.269	0.218
IA8	500	1	5	3.36	0.856	-0.582	0.109	0.111	0.218
CR1	500	1	5	3.88	0.763	-1.528	0.109	3.932	0.218
CR2	500	1	5	3.74	0.737	-0.894	0.109	1.695	0.218
CR3	500	1	5	3.84	0.816	-1.110	0.109	2.238	0.218
CR4	500	1	5	3.70	0.780	-0.689	0.109	1.101	0.218

Table 4.3: Descriptive Statistics (Cont.)

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Std. Error	Kurtosis	Std. Error
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
CR5	500	1	6	3.64	0.794	-0.890	0.109	1.611	0.218
CR6	500	1	5	3.70	0.757	-0.600	0.109	1.211	0.218
CR7	500	1	5	3.64	0.897	-0.946	0.109	0.740	0.218
CR8	500	1	5	3.97	0.791	-1.018	0.109	1.910	0.218
SMEL1	500	1	5	3.20	0.914	-0.257	0.109	0.059	0.218
SMEL2	499	1	5	3.63	0.847	-0.537	0.109	0.710	0.218
SMEL3	500	1	5	3.46	0.895	-0.142	0.109	0.125	0.218
SMEL4	500	1	5	3.48	0.940	-0.582	0.109	0.124	0.218
SMEL5	500	1	5	3.77	0.982	-0.784	0.109	0.536	0.218
SMEL6	500	1	5	4.15	0.832	-0.777	0.109	0.444	0.218
SMEL7	500	1	5	2.93	1.075	-0.047	0.109	-0.865	0.218
SMEL8	500	1	5	2.51	1.037	0.595	0.109	-0.253	0.218

Source: Author (2021)

Table 4.4: Kolmogorov-Smirnova and Shapiro-Wilk Test

Tests of Normality	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	P-Value	Statistic	df	P-Value
MH1	0.240	499	0.000	0.796	499	0.000
MH2	0.246	499	0.000	0.779	499	0.000
MH3	0.282	499	0.000	0.793	499	0.000
MH4	0.300	499	0.000	0.763	499	0.000
MH5	0.286	499	0.000	0.761	499	0.000
MH6	0.269	499	0.000	0.805	499	0.000
MH7	0.324	499	0.000	0.814	499	0.000
MH8	0.221	499	0.000	0.901	499	0.000
IA1	0.296	499	0.000	0.838	499	0.000
IA2	0.333	499	0.000	0.821	499	0.000
IA3	0.327	499	0.000	0.816	499	0.000
IA4	0.355	499	0.000	0.785	499	0.000
IA5	0.304	499	0.000	0.846	499	0.000
IA6	0.250	499	0.000	0.885	499	0.000
IA7	0.282	499	0.000	0.841	499	0.000
IA8	0.267	499	0.000	0.856	499	0.000
CR1	0.388	499	0.000	0.710	499	0.000
CR2	0.347	499	0.000	0.792	499	0.000
CR3	0.335	499	0.000	0.793	499	0.000
CR4	0.308	499	0.000	0.830	499	0.000

Source: Author (2021)

Table 4.4: Kolmogorov-Smirnova and Shapiro-Wilk Test (Cont.)

Tests of Normality	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	P-Value	Statistic	df	P-Value
CR5	0.325	499	0.000	0.811	499	0.000
CR6	0.298	499	0.000	0.825	499	0.000
CR7	0.343	499	0.000	0.811	499	0.000
CR8	0.328	499	0.000	0.794	499	0.000
SMEL1	0.228	499	0.000	0.889	499	0.000
SMEL2	0.258	499	0.000	0.857	499	0.000
SMEL3	0.246	499	0.000	0.875	499	0.000
SMEL4	0.264	499	0.000	0.874	499	0.000
SMEL5	0.257	499	0.000	0.860	499	0.000
SMEL6	0.242	499	0.000	0.814	499	0.000
SMEL7	0.188	499	0.000	0.904	499	0.000
SMEL8	0.275	499	0.000	0.876	499	0.000

The Kolmogorov-Smirnov test, shown in Table 5, had values ranging from 0.188 to 0.388 which were all more than 0.05. This is an indicator that with a p-value of 0.000, which was less than the significance level of 0.05, all the variables are roughly normally distributed. The implication of these results was that the data did not violate the multivariate normality assumptions; thus regression analysis was utilized to test the conceptual framework of the study. That is, the information or data collected from the SMEs for the purpose of the study was not biased. In other words, the use of the normal distribution to analyze the collateral challenges facing the Ghanaian SMEs in relation to access to loan is justifiable because the distribution fits that natural phenomenon.

4.7 Exploratory Factor Analysis (EFA)

To explain the relationship between the different questions used in determining the different constructs, an exploratory factor analysis was performed. The exploratory factor analysis was thus performed to establish the theoretical structure or the underlying relationships between the different variables measured.

Using an orthogonal transformation to translate the measurement objects into some uncorrelated key components, a principal component analysis (PCA) was performed. Thus, this was done to bring out the data set's clear trends. Four (4) components for the analysis were derived from the product of varimax rotation. The sampling adequacy for the study, KMO = 0.765, was confirmed by the Kaiser-Meyer-Olkin measure, which was excellent. Bartlett's sphericity test with $\chi^2 (153) = 2109.234$ at $p < .001$ showed that for the main component analysis, correlations between items were sufficiently high.

Table 5 displayed the rotated factor loadings and the KMO and Bartlett's tests of sphericity results. Six (6) items loaded on component 1, corresponding to the construct, *Moral Hazard*, are based on the rotating factor extractions obtained. Additionally, four (4) items each loaded on component 2, 3 and 4 which corresponded with the constructs *SME Access to Loans*, *Information Asymmetry* and *Collateral Requirement*. The final results had eigenvalues of 3.348, 2.558, 2.141 and 1.472 which were all over Kaiser's criterion of 1 and cumulatively explained 52.884% of the variance.

Table 4.5: Exploratory Factor Analysis - Rotated Component Matrix

	Component			
	1	2	3	4
MH1	0.71	-0.085	-0.034	0.058
MH2	0.638	0.026	0.011	-0.04
MH3	0.755	-0.044	0.05	-0.055
MH4	0.72	0.004	0.018	0.008
MH5	0.754	-0.009	0.044	0.04
MH6	0.795	-0.038	0.023	0.076
IA1	0.008	0.001	0.691	0.227
IA2	0.007	0.042	0.75	-0.021
IA3	0.048	0.01	0.663	0.15
IA4	0.024	0.016	0.700	0.041
CR1	0.028	-0.053	0.137	0.745
CR2	0.003	-0.074	0.26	0.619
CR3	-0.011	0.02	0.113	0.691
CR4	0.04	0.033	-0.076	0.706
SMEL2	0.032	0.736	0.027	-0.09
SMEL3	0.093	0.647	0.015	0.012
SMEL4	-0.142	0.799	0.004	-0.016
SMEL5	-0.128	0.739	0.018	0.032

Table 4.5: Exploratory Factor Analysis - Rotated Component Matrix (Cont.)

	Component			
	1	2	3	4
Eigen values	3.348	2.558	2.141	1.472
Percentage of variance explained	18.601	14.21	11.897	8.175
Cumulative percentage of variance explained	18.601	32.811	44.709	52.884
Kaiser-Meyer-Olkin Measure of Sampling Adequacy				0.765
Bartlett's Test of Sphericity				
Approx. Chi-Square				2109.234
Degree of Freedom				153
P-Value				0.00000

Source: Author (2021)

The findings in Table 5 showed that the group values derived from this analysis ranged from 0.619 to 0.799, which showed adequate factorability for all variable products. This meant that the variables in their variables fitted well with other variables (Pallant, 2020). Recapping, exploratory factor analysis (EFA) is a cluster of common methods used to explore the underlying pattern of relationships among multiple observed variables. EFA is useful for assessing the dimensionality of questionnaire scales that measure underlying latent variables. Thus, the exploratory factor analysis is employed to assess the reliability of items used to measure a construct.

Relating the results to the current study, the factors analyzed were collateral requirement, information asymmetry, moral hazard and access to loan. The number of initial variables developed to measure each of the factors was eight (see appendices for questionnaire). However, after applying the analytic technique, the initial correlated variables for each of the factors were reduced to smaller numbers of latent dimensions. This technique helped the study to achieve parsimony by using the smallest number of explanatory concepts to explain the maximum amount of common variance in a correlation matrix.

Explaining further and from the questionnaire in the appendix, the first six variables were loaded for moral hazard. These variables with their correlation coefficients are as follows:

(1) The enterprise most of the times does not provide the lender with a completely truthful

picture of its operational and financial activities (0.710).

(2) Sometimes, the owner/manager has to withhold personal information from the lender in order to protect the enterprise's interests (0.638).

(3) Sometimes, the enterprise has to withhold certain business information which could have material effect on the loan from the lender in order to look creditworthy (0.755).

(4) Sometimes, the enterprise has to alter the operational and financial information slightly in order to get the loans approved (0.720).

(5) Sometimes, the enterprise does not keep to ethical conduct and morality in order to pursue its interest alone (0.754).

(6) The enterprise does not disclose to the bank if it decides to invest the loan in a different business with a higher profit potential because it is aware that the bank may not agree (0.795).

Obviously, all the variables were highly loaded but variable 6 is most highly. This suggests that this is a general issue which is important in all the six variables loaded. In other words, non-disclosure of information or intended action is a highly underlying issue for moral hazard.

Similar explanations hold for the other factors (information asymmetry, collateral requirement and access to loan). For example, the most underlying variables for each of them are as follows:

(1) Information asymmetry is variable number 2 ("the bank always avails all details on loan requirements to the enterprise") followed by variable number 4 ("the lender informs the enterprise about changes in policy rate and loan interest rates"). These mean the SMEs are getting the needed information from the bank.

(2) Collateral requirement is variable number 1 ("the lender demands that the enterprise pledge tangible or physical assets") followed by variable number 4 ("the enterprise is required to pledge physical assets because it is perceived to be risky as compared to large firms"). These results still confirm SMEs to be risky hence collateral requirement by the banks.

(3) Access to loan is variable number 4 ("the enterprise is able to access loans as many times as it applies with improvement in its financial statements") followed by variable number 5 ("the enterprise has problems with access to loans without collateral even with good track records"). These findings mean the banks value financial records so much. Also, without collateral, even being information symmetric might not help the SMEs to access loans from the banks.

In summary, exploratory factor analysis was used to hypothesize and, later, confirm, through replication or confirmatory factor analysis (CFA), the model that gives rise to the interrelationships among the scale's variables.

4.8 Confirmatory Factor Analysis (CFA)

A confirmatory factor analysis (CFA) is a multivariate statistical procedure that is employed to test how well-suited some measured variables represent a construct they are supposed to measure. Thus, the confirmatory factor analysis is employed to assess the validity of items used to measure a construct. A confirmatory factor analysis procedure may be carried out in an omnibus manner such that all the items used in a given study are all validated in a single measurement model. It is recommended that in cases where the items are too many, it is more prudent to run the measurement model in two sub-analysis to avoid complexities (Bentler & Chou, 1987; Kline, 2013). In the context of this study, the total items used in measuring the various constructs were 18 in all and did not exceed 30 so an omnibus measurement model was considered as an ideal measuring or validation approach. The results of the confirmatory factor analysis are shown in figure 4.1.

Figure 4.1: Confirmatory Factor Analysis – Measurement Model



Source (AMOS computation): Author (2021)

Not all component variables are statistically relevant in a sample (Ringnér, 2008; Andersen & Bro, 2010). Factor analysis serves as a measure of the functional meaning of a given factor variable and has been used to define and exclude secret structures or variable elements that may not fulfill the study goals and that may not be evident from direct analysis (Ledesma & Valero-Mora, 2007; Ledesma, Valero-Mora & Macbeth, 2015; Taherdoost, Sahibuddin & Jalaliyoon, 2014). In order to show the substantive meaning of component variables, communities and eigenvalues are used. A loading value of 0.7 is the thumb rule and is thought to be satisfactory but a loading of up to 0.4 is appropriate due to the obvious difficulties of meeting the 0.7 criterion (Rahim & Magna, 2005; Harrington, 2009; Albright & Park, 2009). Eigenvalues for each variable were derived using the key component analysis in this study.

4.9 Reliability Measures

The Reliability Test was conducted where the Cronbach Alpha Coefficient was used. As a measure of reliability, a value of 0.8 is usually appropriate for cognitive research, according to Engelbrecht (2012) and Kline (1999). However, values below 0.7 can be predicted for social science constructs because of the diversity of the constructs being assessed (Kline, 1999; Engelbrecht, 2012; Ataya et al., 2012). The items were subjected to Cronbach's Coefficient Alpha test for each of the variables in the questionnaire and they were all found to be accurate. All the items retained in measuring the various constructs were good indicators for the constructs they were supposed to measure. From Table 5, Cronbach's Coefficient Alpha for "*moral hazard*" and "*SME loan access*" were 0.824 and 0.713 respectively which were above the recommended threshold of 0.7 (Engelbrecht, 2012). Cronbach's Coefficient Alpha for the other 2 constructs, "*information asymmetry*" and "*collateral requirement*" were respectively 0.637 and 0.659 which were equally good indicators for the constructs they were supposed to measure even though they were below 0.7. Furthermore, the composite reliability (CR) values for "*moral hazard*" and "*information asymmetry*" were above 0.7 and the other 2, "*collateral requirement*" and "*SME loan access*" also exceeded 0.6 and so were all reliable.

Table 4.6: Confirmatory Factor Analysis of Measures

Model Fit Indexes: $\chi^2 = 263.193$; d.f. = 129; $\chi^2/d.f. = 2.0403$; RMSEA = 0.056; RFI = 0.837; CFI = 0.932, NFI = 0.877 , IFI = 0.933 and TLI = 0.910			
SFL		Cronbach Alpha	CR
Moral Hazard			
Moral Hazard 1	0.710	0.824	0.7853
Moral Hazard 2	0.638		
Moral Hazard 3	0.755		
Moral Hazard 4	0.720		
Moral Hazard 5	0.754		
Moral Hazard 6	0.795		
Information Asymmetry			
Information Asymmetry 1	0.736	0.637	0.7126
Information Asymmetry 2	0.647		
Information Asymmetry 3	0.799		
Information Asymmetry 4	0.739		
Collateral Requirement			
Collateral Requirement 1	0.691	0.659	0.6564
Collateral Requirement 2	0.750		
Collateral Requirement 3	0.663		
Collateral Requirement 4	0.700		
SME Loans Access			
SME Loans Access 2	0.745	0.713	0.6372
SME Loans Access 3	0.619		
SME Loans Access 4	0.691		
SME Loans Access 5	0.706		

Source: Author (2021)

From Table 6, using a factor loading threshold of 0.60 it can be noted that all the items retained in measuring the various constructs exceeded this minimum threshold point. Thus, the retained items as shown in Table 6 are good indicators for the constructs they are supposed to measure. Additionally, with regards to the reliability of the constructs, using the Cronbach's alpha value of 0.60 as a benchmark, it can be noted from the results in Table 6 that all the Cronbach's alpha values for all the constructs exceeded this benchmark, therefore, they are all reliable. Using the same reliability benchmark, it can also be noted that composite reliability (CR) for all the constructs again exceeds this benchmark and hence they are all reliable.

Aside the standard factor loading (SFL) and reliability tests as shown in Table 6, the table also highlighted the model fit indices of the confirmatory factor analysis. To measure the overall level of fit of the model, six primary model fit indices were used. These were the ratio of χ^2 to the degrees-of-freedom (d.f.), root mean square error of approximation (RMSEA), relative fit index (RFI), comparative fit index (CFI), normed fit index (NFI), Tucker Lewis index (TLI) and incremental fit index (IFI). As shown in Table 6 all the model fit indices were within the acceptable levels, confirming the measurement model as a good fit for the data collected. Specifically, the model fit indices obtained for the measurement model for all the constructs were $\chi^2 = 263.193$; d.f. = 129; $\chi^2/\text{d.f.} = 2.0403$; RMSEA = 0.056; RFI = 0.837; CFI = 0.932, NFI = 0.877, IFI = 0.933 and TLI = 0.910.

These mathematical values, simply, are ratios that were used to compare the fit of the target model or model of interest used to analyze the data of the study to the fit of an independent or null model. For example, “chi-square goodness of fit” test determines how well a theoretical distribution such as normal distribution fits the empirical distribution. Again, CFI = 0.932 means the model used to assess the data for the study is 93.2% fit compares to the null model, IFI = 0.933 is 93.3% fit, TLI = 0.910 corresponds to 91% fit and RFI = 0.837 relates to 83.7% fit. Consequently, the values show how well the model of interest used for the analysis fits the data set collected for the study or how well the model will predict a future set of observations between collateral requirement and access to loan by small and medium-scale enterprises in Ghana.

4.10 Validity of the Measures

The validity test was conducted to ensure that the degree to which a measurement method or questionnaire measures the characteristic to be measured is achieved (Csikszentmihalyi & Larson, 2014). The research applied validity of content and construct (Beck & Gable, 2001; Wynd, Schmidt & Schaefer, 2003; Smith, 2005). By developing the questionnaires according to the research variables and their respective measurement metrics, content validity was achieved. The validity of the construct was accomplished by limiting the questions to the conceptualization of the variables and ensuring that the measures of a specific variable fell within the same construct.

In determining whether the constructs used for the study were valid, construct validity which comprised running analysis for convergent validity and discriminant validity were

performed, using the average variance extracted (AVE) as shown in Table 7.

Communalities show how much of the variance was accounted for by the derived factor in the variables; that is, it displays the deviations from the original expected value, which is one (1) (Rahim & Magner, 2005). When the communality measures are standardized, the average communality of a block of indicators is referred to as an average variance extracted (AVE) (Ahmad, Zulkurnain & Khairushalimi, 2016).

The criterion for establishing convergent validity is that the AVE measures should exceed 0.50 to ensure that on the average, the measures share at least half of their variation with the latent variable (Zait & Berteau, 2011; Ahmad et al., 2016).

The loadings for the measures of each construct were all relatively large and positive. As shown in Table 7, the AVE criteria were met for all the four constructs because the AVE values were at least 0.50 hence the convergent validity of the constructs was supported.

Table 4.7: Validity of Constructs

Constructs	No. of items	AVE	\sqrt{AVE}
Moral Hazard	6	0.5334	0.7303
Information Asymmetry	4	0.5362	0.7323
Collateral Requirement	4	0.5000	0.7071
SME Loans Access	4	0.5002	0.7072

Source: Author (2021)

In relation to the study, each of the AVE values means that for each corresponding construct, the measures share at least half of its variation with the number of items loaded (latent variables). For example, the 6 items loaded for moral hazard shared variation with it up to 53.34 percent. The same explanations hold for information asymmetry, collateral requirement and access to loans by SMEs. To establish discriminant validity, it must be shown that the measures that should not be related are in reality not related. Mostly, correlations do provide evidence that any two sets of measures are discriminated from each other. The square root of these loadings (\sqrt{AVE}) indicates the commonality of a measure or the variance that a measure have in common

with the construct. As suggested by Fornell and Larcker (1981), the discriminant validity of the constructs was tested by comparing the square root of the AVE with the correlations between the constructs. Although there is no standard value for the discriminant validity, a result less than 0.85 suggest that discriminant validity likely exists between the two scales (Ab Hamid, Sami & Sidek, 2017). From Table 7, the commonality values for the constructs were “Access to Loans” (0.7072), “Moral Hazard” (0.7303), “Information Asymmetry” (0.7323) and “Collateral Requirement” (0.7071). All these values were below 0.85, indicating that discriminant validity was achieved. That is, how common or variant each measure is in relation to its corresponding construct. Consequently, the constructs are not related to each other.

4.11 Common Method Variance

Common method bias issues arise when the responses for questions measuring the predictor variable(s) and the outcome variable(s) are all sourced from a single respondent group or category. In the context of this study, issues of common method bias may arise because the researcher solicited for responses to questions measuring all the variables tested from those with experiential evidence of the phenomenon. The study checked for possible common method biases at the data analysis stage by employing the Aguirre-Urreta and Hu (2019) procedure; that is, the Harman’s one-factor test. The Harman’s one-factor test procedure follows that all items used in measuring various constructs in a given study should be subjected to an exploratory factor analysis where factor extraction is restricted to 1 factor and/or the extracted factors must explain majority of the variance in the variables (Fuller et al., 2016; Aguirre-Urreta & Hu, 2019). The combined variance explained by the 4 extracted components totaled 52.884 percent, as explained earlier. Worthy to be noted is that the individual components of *Moral Hazard*, *SME Access to Loans*, *Information Asymmetry* and *Collateral Requirement* contributed 18.601 per cent, 14.210 per cent, 11.897 per cent and 8.175 per cent respectively as shown in Table 6. Based on the Harmon’s one-factor test conducted in the context of the results, variance for the highest single factor that was extracted accounted for 18.601 percent of the total variance. This confirmed that there was no problem of common method bias because the variance for the highest single factor extracted did not exceed 50%.

4.12 Descriptive Statistics and Correlation

This section discussed the relationships between the various constructs. Table 9 below showed the results for the existing relationships between the constructs as well as the descriptive statistics on the various constructs. The Pearson correlation indicated that the correlation among constructs was not too high and thereby eliminating any problem of multi-collinearity. Moreover, the standard deviation of the various variables was relatively low, indicating that the distribution of the variables was closely clustered around the mean.

Correlation is a measure of statistics that measures how one variable relates to another. The correlation differs from a scale of -1 to +1, where 0 implies that there is no relationship between any of the 2 variables compared. When either -1 or +1 is the correlation coefficient between two variables, it means that the variables are perfectly correlated. A complete correlation, either -1 or +1, is possible between a variable and its own self.

Table 4.8: Correlation Matrix and Descriptive Statistics

	1	2	3	4	5	6	7	8	9	10	11
1. Access to Loans	.7072										
2. Firm Size	-.051	1									
3. Firm Age	-.050	.126**	1								
4. Firm Location	-.048	.126**	.162**	1							
5. Sector	.047	.406**	.157**	.127**	1						
6. Gender	.055	.022	.102*	.079	-.034	1					
7. Education	-.032	-.099*	.002	.005	-.110*	.427**	1				
8. Prof. Training	.011	-.010	-.018	.001	-.040	.044	-.097*	1			
9. Moral Hazard	-.090*	-.53**	-.495**	-.44**	-.588**	-.072	.07	.07	.7303		
10. Inform. Assymet.	.040	.024	-.033	-.047	-.018	.011	.089*	-.04	.055	.7323	
11. Collateral Requi.	-.640**	.027	-.051	-.050	-.058	.073	.048	.055	.045	.279**	.7071

Table 4.8: Correlation Matrix and Descriptive Statistics (Cont.)

	1	2	3	4	5	6	7	8	9	10	11
Mean	3.5832	.2300	.1520	.1240	.2160	.2625	.3000	.2734	4.236	3.732	3.786
Std. Deviation	.67268	.4212	.35938	.3299	.41193	.4404	.45872	.5436	.6153	.5639	.5446
Skewness	-.740	1.287	1.944	2.289	1.384	1.083	.876	.986	-1.14	-.921	-1.33
Std. Error of Skewness	.109	.109	.109	.109	.109	.109	.109	.109	.109	.109	.109
Kurtosis	1.096	-.345	1.788	3.250	-.084	-.831	-1.238	1.265	3.291	1.841	4.230
Std. Error of Kurtosis	.218	.218	.218	.218	.218	.218	.218	.218	.218	.218	.218
Average variance extracted	.5002	-	-	-	-	-			.5334	.5362	.500

⁺ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test)

Source: Author (2021)

Thus, two variables that are supposed to be conceptually distinct and different from each other are not expected to have a coefficient of correlation of 1 or very close to one. If that happens, then the multicollinearity problem is likely to occur. When the correlation coefficients between two constructs are greater than 0.8, using the benchmark defined by Gujarati (2003), then there is a probable multicollinearity problem. It can be found from Table 9 that none of the correlation coefficients were above the 0.8 benchmark, so it was assumed that the variables were distinct from each other and conceptually different. In other words, the issue of multicollinearity was not present.

The findings presented in Table 9 showed that the collateral requirement and access to the SME loan are significantly correlated, with a p-value of 0.000, which is less than 0.01, and a Pearson Correlation coefficient of -0.640, while the control variables were kept constant. This indicated that there was a substantial relationship between the need for collateral and access to SME loans. A correlation coefficient (R) of 0.3 is enough to suggest that there is a meaningful relationship between the dependent variable and the independent variable, according to Mugenda (2008).

To explain further using the p-values, a p-value is the evidence against a null hypothesis such that the smaller the p-value, the stronger the evidence that the null hypothesis should be rejected. Although they are expressed in decimals, it may be easier to understand when converted to percentages. For example, there is a correlation between collateral requirement and access to SME loans at $p < 0.01$ or at $p < 1\%$. This means that there is strong evidence that there exist a relationship between collateral requirement and access to SME loans in Ghana. In other words, the null hypothesis at $p < 0.00$ that there is no relationship between collateral requirement and access to SME loans is very weak because of the alternative p-value of 0.01 which is so closed to 0.00. That is, the probability of no relationship between collateral requirement and access to SME loans is just 1 per cent or the probability of a relationship between collateral requirement and access to SME loans is 99 percent.

Using the criteria of Mugenda (2008) of $R=0.3$, it is inferred that moral hazard relates meaningfully negative to firm size (-0.536), firm age (-0.495), firm location (-0.446) and sector (-0.588) significantly at $p < 0.01$. That is, there is 99 percent likelihood that these firm characteristics (firm size, firm age, firm location and sector) will cause SMEs to indulge in moral hazard. Therefore, it is justifiable that the study controlled for them. As well, there were some

level of significant relationships between some of the other control variable pairs but the relationships were very weak with correlation coefficients of less than 0.2 (- or +).

Furthermore, the negative correlation between collateral requirement and access to SME loans in Ghana suggested that as collateral requirement between the banks and SMEs increases, access to SME loans reduces. The coefficient or value (0.640) of the relationship reveals the strength between the independent and dependent variables. This is at least double the minimum criteria by Mugenda (2008). Therefore, the study concluded that the meaningful and strong negative relationship between collateral requirement and access to SME loans in Ghana is significant at $p < 0.01$. This means that, for every 10 SME loan applicants, there is a 99 per cent probability that 6 of them will be denied access to loan by their banks if they do not meet collateral requirement criteria. This could be that the 4 potentially successful SME loan applicants, probably, will meet the collateral requirement or benefit from relationship lending or both. Whichever lending strategies that will favor them, it was obvious from the various factor loadings that moral hazard of the SMEs due to non-disclosure of information will be a key determinant for access to loan by Ghanaian SMEs.

4.13 Regression Analysis

The correlation of independent variables with a dependent variable is determined by multiple linear regressions (MLR). The economic cause and effect relationship between the variables is quantified through the regression model and analysis (Hopkins & Ferguson, 2014).

This study involved testing of independent, moderating and control variables in relation to a dependent variable which involved both linear and multiple regressions. The multiple linear regression (MLR) model was selected in order to provide a numerical estimation of the relationship between the factors found and the accessibility of SMEs to bank loans. These considerations were related to small and medium-sized businesses and their owners or managers and the characteristics of the loan. One of the most commonly used statistical methods for discovering the relationships among different variables in a sample is multiple linear regressions (Cohen et al., 2013; Wooldridge, 2015). The association of independent variables with the dependent variable is measured by several linear regressions. Regression analysis was considered by Hopkins and Ferguson (2014) as an essential and fundamental technique for carrying out research in the field of family enterprises that make up the majority of the SME market. Because of their simplicity, they support the importance of multiple regression analysis for SME-related

research, allowing researchers to explore the functional relationship between multiple variables. It provides versatility and variations to address more complex questions and the phenomena of the relationship of the variables as it has done in the model of this study.

The first step in regression analysis is to determine the explanatory or independent variables and the functional form of the econometric model, based on the economic theories and previous research in the research field chosen while the research model is being built (Hair et al., 2006). This research focuses on investigating and assessing the impact on the accessibility of bank loans by SMEs with various numbers of variables relevant to business and owner characteristics. In order to measure the ability of the independent and other variables (moderating and control) to predict the effects in the dependent variable where a linear relationship exists between them, this was done. A multiple regression analysis was used to test the regression model's hypotheses that there is a major relationship between market failure constraints (collateral requirement, knowledge asymmetry and moral hazard) and access to SME loans in Ghana. Blumberg, Cooper and Schindler (2014) argued that to assess the strength of the relationship between independent and dependent variables and to determine the cumulative impact of all independent variables on the dependent variable, regression analysis can be used. This was applied to determine the combined effects of the independent and other (moderating and control) variables on the dependent variable.

The study of regression helped assess the goodness of the regression model's fit; that is, how well the data matched the model. To evaluate the change in the dependent variable explained by the change in independent and other (moderating and control) variables, the coefficient of determination (R^2) and the adjusted R^2 were used. The F-test was performed to determine the significance of the overall model and to establish the relationship between the dependent variable and the independent variable and other variables (moderating and control), while the t-test was used to test the significance of the independent variable and other variables (moderating and control) to the dependent variable. The research model is written in the form of a standard multiple regression model in which all independent and control variables are simultaneously included in the regression equation (Tabachnick & Fidell, 2007).

4.13.1 Diagnostic Tests

Diagnostic statistics is a statistical measure or procedure in regression that is employed to assess the validity of a model (Zidan, Thomas & Slovis, 2015). It is used to evaluate the model

assumptions and find out whether there is any observation with undue large influence on the results. The following steps were taken into consideration to be sure that the model used was ideal: normality, independence, homoscedasticity and linearity (Schmidt & Finan, 2018). For the normality and linearity, the Normal P-P plot was used by inspecting the visual histograms for any possible discrepancies in the data. Outliers in the data were also deleted using the Cook's distance approach (Greco et al., 2019). Seven (7) outliers were excluded in the regression. For homoscedasticity, scatter plots of the standardized residuals against the fitted values and scatter plots of the standardized residuals against the independent, control and moderating variables were produced. Again, all the variables under investigation were normally distributed so homoscedasticity was not violated. For independence, the value of one observation should not influence or affect the values of other observations. Another way of saying that two random variables are independent is if the two variables are correlated. Durbin-Watson test statistic of 1.705 was estimated from the analyzed data to explain the fact that the variables were not correlated in any statistically relevant manner. The results of the Durbin-Watson test can be found in Table 10. The other diagnostic test results can be found in the appendices.

4.13.2 Regression Results

To assess the outcome of the different hypothesized relationships, a hierarchical regression test was conducted comprising both the direct effects and the moderating effects. The results of the hierarchical regression tests have been demonstrated in Table 10 below. Using different linear regression techniques, the study tested the hypothesized relationships. The research first and foremost made multicollinearity assumptions among the different variables in conducting the multiple regression analysis to ensure that the assumptions underlying a regression analysis were not broken.

However, in testing the conceptual model, four (4) regression models were used. The first model entailed just the contribution of only the controlled variables to the dependent variable, SME access to loans (SMEL). In Model 2, the independent variable, collateral requirement (CR) was added. In the third model, the first moderator variable, information asymmetry (IA) was applied to the relationship of the independent variable and the dependent variable, followed by the second moderator variable, moral hazard (MH). The fourth model showed the results of the various relationships between (constant and dependent variable, control and dependent variables, independent and dependent variables, moderating and dependent variables and, finally,

independent interacting with moderating variables and dependent variable).

In the process of carrying out the moderation analysis, the independent and moderator variables were mean standardized before creating the interaction terms to eliminate multicollinearity (Alin, 2010). The regression results are shown in Table 10.

The study used two moderating variables, information asymmetry (IA) and moral hazard (MH), in order to assess their impacts on the relationship between collateral requirement, as the independent variable, and access to SME loans, as the dependent variable.

Table 4.9: Regression Analysis of the Effects of Predictors on Access to SME Loans

Variables	Access to SME Loan			
	Model 1	Model 2	Model 3	Model 4
	β (t-values)	β (t-values)	β (t-values)	β (t-values)
Constants	3.777(105.308) ^{***}	3.915(29.149) ^{***}	3.121(8.173) ^{***}	3.399(9.020) ^{***}
Control variables				
Size of firm	-.049(-1.063)	-.049(-1.056)	-.055(-1.049)	-.077(-1.504)
Age of firm	-.048(-1.051)	-.050(-1.087)	-.050(-.987)	-.045(-.904)
Location of firm	-.066(-1.323)	-.064(-1.302)	-.074(-1.325)	-.077(-1.415)
Sector	.019(.371)	.016(.314)	-.014(-.281)	-.021(-.455)
Gender	-.043(-.943)	-.044(-.967)	-.040(-.912)	-.025(-.590)
Education	.0709(1.401)	.074(1.475)	.082(1.702) [*]	.060(1.116)
Professional Training	.066(1.341)	.069(1.397)	.044(.822)	.029(.568)
Independent variables				
H1:Collateral Requirement		-.148(3.062) ^{**}	-.161(-3.412) ^{**}	-.139(-3.323) ^{**}
Moderators				
Information Asymmetry (IA)			.278(6.396) ^{***}	.224(5.071) ^{***}
Moral hazard(MH)			-.039(-.499)	-.059(-.768)
Interaction Effects (Moderation)				
H2:Collateral Requirement x IA				-.186(-4.182) ^{**}
H3:Collateral Requirement x MH				-.174(-3.132) ^{***}

Table 4.9: Regression Analysis of the Effects of Predictors on Access to SME Loans (Cont.)

Variables	Access to SME Loan			
	Model 1	Model 2	Model 3	Model 4
	β (t-values)	β (t-values)	β (t-values)	β (t-values)
H4:Collateral Requirement x (IA*MH)				.025(.591)
R Squared	.104	.212	.402	.573
Δ R squared		.108	.190	.171
Adjusted R Squared	.093	.206	.398	.568
F value	1.376	2.341*	5.674***	6.937***
Degree of Freedom	7/488	8/487	10/485	13/482
Durbin Watson Test	1.705			

⁺ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Source: Author (2021)

Seven control variables were used. Four of them (size, age, location and sector) were for firm characteristics and three (gender, training and educational training) for owner/manager characteristics. Firm size, firm age, firm location and gender related negatively to access to loans in all the models. Sector related positively to access to loans in models 1 and 2 and negatively in models 3 and 4. Education and professional training related to access to loans positively in all the models. In all the models, the relationships between all the constants and access to loans were not statistically significant except education, in model 3, which was statistically significant at $p < 0.1$ after the introduction of the moderating variables.

All the constant values in model 1 (3.777 at $t = 105.308$), model 2 (3.915 at $t = 29.129$), model 3 (3.121 at $t = 8.173$) and model 4 (3.399 at $t = 9.020$) were positive and significant at $p < 0.000$. That is, the null hypothesis holds that there is certainty no relationship exists between collateral requirement and access to loan. While the introduction of the independent variable in model 2 increased the constant over that in model 1, introduction of the moderators in model 3 reduced it further than in even model 1 and the presence of the interactions recorded the highest constant value in model 4.

In model 2 when the independent variable (collateral requirement) was introduced, its relationship to access to loan was statistically significant and negative ($\beta = -0.148$, $t = -3.062$, $p < 0.01$). That is, it is 99 per cent likely that a relationship exists between collateral requirement and access to loan and that, without collateral, access to loan will be difficult at the same probability. With the introduction of the moderating variables in model 3, the relationship between collateral requirement and access to loan was still statistically significant and negative ($\beta = -0.161$, $t = -3.412$, $p < 0.01$). That is the same 99 per cent likelihood of relationship and no access to loan. However, the beta coefficient increased by -0.013 ; meaning, the moderating variables (information asymmetry and moral hazard) increased the effects of collateral requirement on access to loans. Furthermore, the relationship between information asymmetry and access to loan was statistically significant and positive ($\beta = 0.278$, $t = 6.396$, $p < 0.001$). This implies that there exists a positive relationship such that the probability of the SME getting access to loan with provision of collateral is 99.99 per cent. Between moral hazard and access to loan the result was statistically not significant ($\beta = -0.039$, $t = -0.499$, $p > 0.1$). These results could mean that without information asymmetry in model 3, moral hazard could have had a positive impact. The implication of the significantly positive result when information asymmetry was

added in model 3 is that more collateral requirement will boost loan access for Ghanaian SMEs. However, it will urge the SMEs to be information asymmetric; meaning as collateral provision boosts loan access for the SMEs, loan repayment could be a problem due to hidden information. This could be a serious setback for the banks because the probability of more non-performing loans and loss of interest income could be high.

When the interactions were introduced in model 4, the relationship between collateral requirement and access to loan was still negative and statistically significant ($\beta = -0.139$, $t = -3.323$, $p < 0.01$). That is, no access to loan relationship is 99 per cent likely. However, the beta coefficient reduced by -0.022 . This could be due to the combined impacts of the moderations and interactions.

From Model 4 in Table 4.9, it was found out that none of the control variables had a significant effect on access to SME loans.

Both R^2 and adjusted R^2 are used to explain the results. The coefficient of determination or R^2 is a measurement of the regression model's goodness of fit (Fidell et al., 2013; Wooldridge, 2015). It calculates the percentage of variance produced by the independent variables in the output or dependent variable and thus the model's overall regression accuracy. The R^2 value confirms that the dependent and independent variables in the model have a statistically significant relationship. For the current study, it implies that the control variables, independent variable (collateral requirement), moderating variables (standalone information asymmetry and moral hazard) and the interactions (collateral requirement together with information asymmetry and moral hazard) and dependent variable (access to loans) in the model have statistically significant relationships. The R^2 value represents the model's overall goodness of fit. Its value is supposed to be between 0 and 1 with lower values indicating fewer variations in the dependent variable and higher values indicating more variations (Hill, Griffiths & Lim, 2011; Fidell et al., 2013). As a result, a value of R^2 of 1.0 denotes a perfect linear relationship between the dependent variable and the independent variables of a regression equation with 100 percent variability of the dependent variable clarified by the independent variable. From model 1 in Table 4.9, the control variables explained 0.104 or 10.4% of the variance in access to SME loans as shown by their R^2 value. Addition of the independent variable, that is collateral requirement in model 2, increased the variance from $R^2 = 10.4\%$ to $R^2 = 21.2\%$ ($F = 2.341$, $p < 0.05$). The findings revealed a connection between collateral requirement and SMEs' access to loan with an

R^2 of 0.212, indicating that collateral requirement explained 21.2 percent of the difference in SMEs' access to loans. This shows that increasing a bank's collateral requirement by one unit reduces SMEs' access to loan by 0.212 of a unit. The implication is that other variables, not included in this model, account for the remaining 78.8 percent difference in SMEs' access to loans. When the moderating variables were added in model 3, they increased the variance from $R^2 = 21.2\%$ to $R^2 = 40.2\%$ ($F = 5.674$, $p < 0.001$). The findings revealed a connection between collateral requirement, standalone information asymmetry, standalone moral hazard and SMEs' access to loan with an R^2 of 0.402. The value indicates that collateral requirement; standalone information asymmetry and standalone moral hazard explained 40.2 percent of the difference in SMEs' access to loans. This shows that increasing a bank's collateral requirement by one unit in the presence of standalone information asymmetry and standalone moral hazard reduces SMEs' access to loan by 0.402 of a unit. The implication is that other variables, not included in this model, account for the remaining 59.8 percent difference in SMEs' access to loans.

Finally, addition of the interactions in model 4 increased the variance from $R^2 = 40.2\%$ to $R^2 = 57.3\%$ ($F = 6.937$, $p < 0.001$). The findings revealed a connection between collateral requirement, standalone information asymmetry, standalone moral hazard, collateral requirement interacting with information asymmetry as well as collateral requirement interacting with moral hazard and SMEs' access to loan with an R^2 of 0.573. The value indicates that all these variables explained 57.3 percent of the difference in SMEs' access to loans. This shows that increasing a bank's collateral requirement by one unit in the presence of standalone information asymmetry, standalone moral hazard as well collateral requirement and the interactions will reduce SMEs' access to loan by 0.573 of a unit. The implication is that other variables, not included in this model, account for the remaining 42.7 percent difference in SMEs' access to loans.

Despite the significance of R^2 , it has a significant flaw. Its value never decreases regardless of how many variables are used in the regression model. That is, the R-squared value does not decrease when even redundant variables are added to the results. With the inclusion of new independent variables, for instance, it either stays the same or increases. This is obviously illogical since some of the independent variables might be irrelevant to evaluating the target variable. Therefore, modified or adjusted R^2 is considered important because too many variables add extra noise and a decrease in valid predictions (Wooldridge, 2015; Hair Jr. et al., 2014). This problem is addressed by adjusted R-squared which adjusts the disadvantages of additional

independent variables in the model. According to Siraj-Ud-Douhah, Rana and Midi (2014), the adjusted R^2 is defined as an adjustment of the R^2 in terms of the number of variables and sample size. Whereas the adjusted or modified R^2 tells us how much variance in the dependent variable would be accounted for if the model had been derived from the population from which the sample was taken, R^2 tells us how much variation in the dependent variable is accounted for by the regression model. As a result, adjusted or modified R^2 is a better model evaluator and can better correlate the variables than R^2 .

From the Table 4.9, adjusted R^2 for model 1 is 0.093. For model 2, adjusted R^2 is 0.206. This value indicates that without the constant and control variables, collateral requirement explain 0.206 percent of the difference in SMEs' access to loans. This means that 0.206 percent variation in access to loans by SMEs in Ghana would be accounted for by collateral requirement if the model had been derived from the population from which the sample was taken.

For model 3, the adjusted is R^2 0.398. This means that without the constant, control variables and collateral requirement, standalone information asymmetry and standalone moral hazard explain 0.398 percent of the difference in SMEs' access to loans. This means that 0.398 percent variation in access to loans by SMEs in Ghana would be accounted for by standalone information asymmetry and standalone moral hazard if the model had been derived from the population from which the sample was taken. The adjusted R^2 value for model 3 is bigger than the adjusted R^2 value for model 2 when only collateral requirement was added. The implication is that addition of standalone information asymmetry and standalone moral hazard improves the model more than they would be expected by chance.

Finally, adjusted R^2 value for model 4 is 0.568. This means without the constant, control variables, collateral requirement, standalone information asymmetry and standalone moral hazard, interactions explain 0.568 percent of the difference in SMEs' access to loan. This implies that 0.568 percent variation in access to loans by SMEs in Ghana would be accounted for by the interactions if the model had been derived from the population from which the sample was taken. The adjusted R^2 of 0.568 for model 4 is bigger than the adjusted R^2 of 0.398 in model 3. The implication is that addition of the interactions improves the model more than they would be expected by chance.

Model 4, which is a complete model with all the variables (constant, controls, independent, moderating, dependent and interactions) was used to test the 4 hypotheses. From

Model 4, the constant value of the regression model is 3.399 at $t = 9.020$ and $p < 0.000$.

Collateral Requirement: H_1 - It was hypothesized that collateral requirement will have a negative effect on access to SME loans. This statement was confirmed because the relationship between collateral requirement and access to SME loans was negative and statistically significant ($\beta = -0.139$, $t = -3.323$, $p < 0.01$). The implication is that without collateral, SMEs in Ghana will find it difficult accessing loans from banks. The result confirmed hypothesis 1. The regression model produced a statistically significant and good prediction of collateral requirement and access to loans by SMEs in Ghana.

Standalone Information Asymmetry and Moral Hazard: Although not hypothesized, the results showed that information asymmetry had a positive and statistically significant effect on access to SME Loans ($\beta = 0.224$, $t = 5.071$, $p < 0.001$). This means that in Ghana, even SMEs with hidden information are likely to access loans from the banks once they provide collateral. Moral Hazard had negative but statistically insignificant effect on access to SME loans ($\beta = -0.059$, $t = -0.768$, $p > 0.10$).

Interaction: The study also assessed the interaction effect of information asymmetry on the relationship between collateral requirement and access to loans (H_2), the interaction effect of moral hazard on the relationship between collateral requirement and access to loans (H_3) and the joint interaction effect of information asymmetry and moral hazard on the relationship between collateral requirement and access to loans (H_4).

(a) Collateral Requirement and Information Asymmetry: H_2 - In line with the statements above, it was deduced from the results of model 4 in Table 10 that H_2 was negative and significant ($\beta = -0.186$, $t = 4.182$, $p < .01$). This result confirmed hypothesis 2 that there is a statistically significant negative interaction effect between collateral requirement and information asymmetry on access to SME loans. A statistically significant observation is that Beta coefficient in this case is bigger than that in H_1 when only collateral requirement combined with access to SME loans. The result confirmed hypothesis 2. The implication is that with information asymmetry interacting, collateral requirement could be higher and access to loans by SMEs in Ghana will be more difficult than no interaction. The result shows that SMEs in Ghana must be ready to avail all the required and needed information to the banks since this could lower collateral requirement and ease access to loans. The regression model produced a statistically significant and good prediction of interaction between collateral requirement and information

asymmetry and access to loans by SMEs in Ghana.

(b) Collateral Requirement and Moral Hazard: H_3 - The result of hypothesis 3 was negative and statistically significant ($\beta = -0.174$, $t = 3.132$, $p < 0.001$). This is an affirmation of hypothesis 3 that there is a statistically significant negative interaction effect between collateral requirement and moral hazard on access to SME loans. Again, a statistically significant observation is that Beta coefficient in that case is bigger than that in H_1 when only collateral requirement combined with access to SME loans. The result confirmed hypothesis 3. The implication is that with moral hazard interacting, collateral requirement could be higher and access to loans will be more difficult for SMEs in Ghana than if no interaction. The result shows that SMEs in Ghana must be ready to avoid hidden actions such as diversion of funds which could lower collateral requirement by the banks for easy access to loans. The regression model produced a statistically significant and good prediction of interaction between collateral requirement and moral hazard and access to loans by SMEs in Ghana.

(c) Collateral Requirement, Information Asymmetry and Moral Hazard: H_4 - The study also hypothesized that, there is a negative interaction effect between collateral requirement, information asymmetry and moral hazard jointly on access to SME loans. From model 4 in Table 4.9, the result was positive and statistically insignificant ($\beta = 0.025$, $t = 0.591$, $p > 0.10$). This means that hypothesis 4 was not confirmed.

4.13.3 Regression Equations

From the results in Model 4, the following regression equations were deduced based on the dummy regression model equations developed under “data processing and analysis” in chapter 3:

1. with only the constant, the regression equation is

$$\text{Access to SME Loan} = 3.3999 + e, \text{ where } e \text{ is the error term;}$$

2. with collateral requirement (CR) alone added to (1), the regression equation is

$$\text{Access to SME Loan} = 3.3999 - 0.139\text{Collateral Requirement} + e; \text{ (Hypothesis 1);}$$

3. with information asymmetry (IA) alone added to (1), the regression equation is

$$\text{Access to SME Loan} = 3.3999 + 0.224\text{Information Assymetry} + e;$$

4. with moral hazard (MH) alone added to (1), the regression equation is

$$\text{Access to SME Loan} = 3.3999 - 0.059\text{Moral Hazard} + e;$$

5. with information asymmetry as interaction effect on CR, the regression equation is

$Access\ to\ SME\ Loan = 3.3999 - 0.186CR * IA + e$; (Hypothesis 2);

6. with moral hazard as interaction effect on CR, the regression equation is

$Access\ to\ SME\ Loan = 3.3999 - 0.174CR * MH + e$ (Hypothesis 3);

7. with information asymmetry and moral hazard jointly as interaction effect on CR, the regression equation is

$Access\ to\ SME\ Loan = 3.3999 + 0.025CR * IA * MH + e$ (Hypothesis 4).

Therefore, the main equation that indicated the outcome of the relationship between the independent (CR) and dependent (SMEL) variables for regression analysis is

$Access\ to\ SME\ Loan = 3.3999 - 0.139CR + e$4.1

When the information asymmetry (IA) and moral hazard (MH) were added, the equation is

$Access\ to\ SME\ Loan = 3.3999 - 0.139CR + 0.224IA - 0.059MH + e$4.2

Finally, the combined equation for the four objectives of the study is given as

$Access\ to\ SME\ Loan = 3.3999 - 0.139CR - 0.186CR * IA - 0.174CR * MH + 0.025CR * IA * MH + e$4.3

The results show that there is negative relationship between collateral requirement and access to loans by SMEs in Ghana, negative relationship between collateral requirement interacting with information asymmetry and access to loans by SMEs in Ghana, collateral requirement interacting with moral hazard and access to loans by SMEs in Ghana while there is a positive relationship between collateral requirement interacting with joint information asymmetry and moral hazard and access to loans by SMEs in Ghana.

4.14 Summary of Hypotheses

Table 4.10 below showed a summary of the tested hypotheses with their conclusions. From the table, 3 hypotheses (1, 2 and 3) were significantly confirmed and hypothesis 4 was not confirmed. The results showed that collateral requirement would lead to reduction in access to SME loans and the presence of information asymmetry and moral hazard as interactions would make access to the loans worse.

Table 4.10: Hypothesis Summary

	Hypothesis	Expected /Actual signs	Conclusion
1	There was a significant negative relationship between collateral requirement and access to SME loan.	-/-	Confirmed
2	There was a more significant negative interaction effect between collateral requirement and information asymmetry on access to SME loan than in (1).	-/-	Confirmed
3	There was a more significant negative interaction effect between collateral requirement and moral hazard on access to SME loan than in (2).	-/-	Confirmed
4	There was no significant negative interaction effect between collateral requirement, information asymmetry and moral hazard on access to SME loan.	-/+	Not Confirmed

Source: Author (2021)

In summary, this chapter investigated the effect of collateral requirement (independent variable) on access to SME loans (dependent variable). More importantly, the study assessed the roles information asymmetry and moral hazard played as moderating variables on the relationship between the independent and dependent variables. In achieving the main focus of the study, extensive data analyses and statistical tests were done to ascertain the suitability of the data collected for the study and the fitness of the model to be used to analyze the data. Tests such as exploratory factor analysis, confirmatory factor analysis, Kolmogorov-Smirnov, autocorrelation, normality, multicollinearity etc which were deemed suitable and were applied have confirmed the data to be unbiased and the regression model to be suitable for use for the analysis. After the preliminary analysis, the study used correlation and regression analyses to determine responses to the study objectives. The outputs were presented in tables and figures. Consequently, the expected regression equations were developed and used to assess the hypotheses. The chapter concluded by giving a summary of the hypotheses tested from the models. The meanings of the hypotheses are discussed in the next chapter and used to draw conclusions from the findings in this chapter.

Chapter 5

Discussion of Results

The study sought to develop the relationship between collateral requirement and access of small and medium-sized enterprises to loans in Ghana and the impact on this relationship of information asymmetry and moral hazard. Collateral requirement was the study's independent variable while information asymmetry and moral hazard were used as moderating variables. The chapter starts by summarizing in section 5.1 the key study objective and the three subsidiary objectives. The final sections are 5.2 and 5.3 respectively for discussion of results and summary of all results respectively.

5.1 Research Objectives

The researcher's main target was to assess the impact of collateral requirement and access to loans by small and medium enterprises in Ghana. The thesis had three subsidiary goals, complementary to the main objective of "evaluating the relationship between collateral requirement and access to SME loans in Ghana," namely:

- (1) To examine the impact of the interaction effect of information asymmetry on the relationship between collateral requirement and access to SME loans in Ghana.
- (2) To assess the impact of the interaction effect of moral hazard on the relationship between collateral requirement and access to SME loans in Ghana.
- (3) To examine the impact of the interaction effects of both information asymmetry and moral hazard jointly on the relationship between collateral requirement and access to SME loans in Ghana.

In the following discussions, the objectives are linked to areas that they are related to just as the hypotheses.

5.2 Discussion of Results

This section includes a description of the research results that were focused on the study's basic goals. The basic objectives of the research were focused on the variables of the study, i.e. collateral requirement and access to SME loans as well as the asymmetry of information and the moral hazard as moderating variables.

5.2.1 Regression Analysis for Collateral Requirement and Access to Loans by SMEs

The first hypothesis of the study was that collateral requirement had a negative impact on access to SMEs loans in Ghana. This hypothesis was tested through simple regression between collateral requirement and access to loans by SMEs. The results of correlation analysis are in Table 9 and the model summary of the regression analysis for collateral requirement and access to loans by SMEs was presented in Table 4.10.

From Table 9, the results of correlation analysis indicated that there is a negative correlation between collateral requirement and access to loans by SMEs in Ghana. That is, an increase in collateral requirement by banks by one unit causes a decrease in access to loans by SMEs by 0.640 of a unit. This finding reveals the relationship between collateral requirement and access to SME loans in Ghana thereby satisfies study objective 1.

a. Regression Equation

In Table 4.10, Model 4 provides a summary of the beta coefficient in which the t-value was -3.153 with a p-value of 0.000, which is less than 0.01, so the model was significant, statistically. The model was defined as $SMEL = 3.399 - 0.139CR + e$, indicating that every unit increase in collateral requirement leads to 0.139 decrease in access to loans by SMEs. This implies that collateral requirement negatively affects access to loans by SMEs in Ghana. This relation can be used to predict the impact of the interaction between collateral requirement and information asymmetry on access to loans by SMEs in Ghana.

b. Discussion and Hypothesis One

From the finding, beta coefficient of collateral requirement and access to loans by SMEs was -0.139 with p-value being 0.000 which is less than 0.01 hence the model was statistically significant. This implies that every unit increase in collateral requirement leads to 0.139 decrease in access to loans by SMEs.

The results of the regression showed that there was a relationship between collateral requirement and access to loans by small and medium-sized enterprises, where R^2 was 0.212, meaning that 21.2% of the difference in access to loans by small and medium-sized enterprises was explained by collateral requirement. The adjusted R square of 0.206 means that collateral requirement explains 20.6% variation in access to loans by the SMEs. The remaining 79.4% variation in access to loans by the SMEs is explained by other variables which are not in this model.

From Table 4.10, the F-Statistics value was 2.341 and p-value was 0.000 which was less than 0.05, meaning that the relationship between collateral requirement and access to loans by SMEs was significant. Consequently, the null hypothesis was dismissed, and the conclusion was that the relationship between collateral requirements and access to SME loans in Ghana was significantly strong. The result confirmed hypothesis 1. In other words, the study found that banks need collateral in order to offer loans to small and medium-sized enterprises (SMEs), and this shows that there is a relationship between collateral requirement and access to loans by SMEs in Ghana.

c. Empirical Supports

The finding discussed in the previous section shows that most Ghanaian SMEs face a financing gap due to lack of funding from their banks, as described in literature (Mazanai & Fatoki, 2012; Park et al., 2008). As revealed in this study, the financing gap is due to collateral requirement by the banks. This position is supported by many earlier studies as follows:

1. Calice et al. (2012) found that ninety-four percent of the banks in the sample demanded collateral from their SMEs.

Also, the finding concurs with other researchers as follows:

2. Anyieni (2014) found that ninety-four percent of the banks in the sample surveyed required collateral from their SME borrowers.

3. Kinyua (2013) found that SMEs can be able to improve access to loans through negotiations for better lending terms and conditions and increase of collateral requirement.

4. Cull and Xu (2005) who in their study found that lack of collateral is the major cause of the SMEs' inability to access finance.

5. Mullei and Bokea (2000) who established that clients with little or no resources to provide as collateral are denied financing by the lenders.

6. Collateral can determine whether the SME gets finance (Rahman et al., 2017).

7. A research conducted in Bangladesh verified the findings of the current study that collateral-based lending was listed as one of the key factors leading to reduced accessibility to funding (Quader & Abdullah, 2009).

8. The results also support the argument that inadequate or undervalued collateral was one of the reasons why Sri Lankan banks did not lend to the SME market (Gamage, 2015; World Bank, 2010).

9. To mitigate the negative effects of information asymmetry and to cover the high risk of bad debts, Ghanaian banks need higher levels of collateral (Abor & Biekpe, 2005; 2006).
10. The use of tangible fixed assets, such as land and real estate, is a favored type of collateral because of its high market value (Beck, Demirguc-Kunt & Martinez Peria, 2008; Bhaird & Lucey, 2010).
11. Collateral serves as a substitute for inaccurate information and help to mitigate the problems of information asymmetry (Mody & Patro, 2011; Menkhoff et al., 2006; Menkhoff et al., 2011; 2012).
12. Banks are more comfortable funding firms with sufficient tangible assets in order to mitigate the risks of information asymmetry (IFC, 2012; Kushnir, 2010).
13. SMEs may be constrained to access finance due to the fact that they may fail to furnish collateral security (Guiso & Minetti, 2010; Rahman et al., 2017).

In summary, the results reinforce the high demand for collateral in developing countries such as Ghana. However, this trend of banks increasingly relying on collateral could impact not only existing small and medium-sized enterprises (SMEs) and the risks they have to take but also start-ups and the entire economy. In support of this assertion are Manove et al. (2001) who criticized banks' limitless dependence on collateral and argued that this could have a negative impact on credit-market efficiency. They asserted that banks have superior expertise in judging the various aspects of project quality as compared to unrealistically optimistic entrepreneurs, sometimes. Therefore, collateral will weaken the incentives of the bank and cause banks to be 'lazy' thereby decreasing their screening efforts below the levels of socially effective screening. They further asserted that collateral and screening could be considered as replacements, from the perspective of the banks. As a result, they discovered that the most significant factor influencing SMEs' efficiency is collateral requirement and its negative effect on loan access. Also, Lin (2011) found that there is a limited role of collateral in overcoming asymmetric information in China due to weakly protected creditor rights. Furthermore, collateral could make borrowers engage in risky ventures or non-income generating activities (Menkhoff et al., 2011). In addition, moral hazard is encouraged when collateral from SMEs are guaranteed by a third party (Menkhoff et al., 2011).

There is a lot of evidence showing SMEs have a good probability of getting financial help from banks if they can meet the collateral criteria. As a result, owners or managers who

meet the collateral and other requirements of the banks are advised to take advantage of it in order to obtain more loans for expansion. This would imply that SMEs that meet the collateral and other requirements have taken advantage of the resource-based theory and would not be affected by the financing constraint theory and credit rationing theory. However, the banks could suffer from adverse selection and moral hazard.

Overall, SMEs will be placed at disadvantageous positions as a result of the absence of assets to be used as collateral for loans.

Ghana needs a consistent direction for SME financing. From theoretical and empirical literature, information asymmetry and moral hazard could be sufficient complements and/or substitutes for collateral requirement. Therefore, the researcher believes that using the novel 2x2 matrix that has been developed in this study by all stakeholders, especially SMEs and banks, could help in this direction. For example, it could help the SMEs to be aware of their internal complexities of information asymmetry and moral hazard. Also, it could help the banks to profile the SMEs into risk categories of low, moderate and high which will help in comprehensive loan appraisals and decision making.

d. Theoretical Support

This finding is supported by all the four theories outlined in chapter 2. Obviously, any Ghanaian SME that finds it difficult providing collateral is likely not to get access to loan. The difficulty in providing collateral is a constraint and this resonates well with the financing constraint theory in section 2.16.3.

Also, those SMEs that can provide collateral and meet any other requirements by the banks are likely to get access to loan. All these credit requirements that are to be met by the SMEs are resources (tangible and intangible) of the firms. Therefore, meeting the collateral and/or any other requirements is supported by resource-based theory in section 2.16.4.

Again, those SMEs that are resourceful and can meet the collateral and any other credit requirements could apply for more loans and create excess demand and thus increases the probability of credit rationing. When there is an excess demand for funds, it is likely the bank would increase its collateral requirements (increasing the liabilities of the borrower in case of default), reducing the demands for funds, reducing the risk of defaults (losses to the bank in case of default) and increase the returns to the bank. Therefore, any SME that lack collateral is likely to be credit rationed. Therefore, the hypothesis and finding is premised on credit rationing

theory, as well, as outlined in section 2.16.2.

Furthermore, over-reliance by the banks on collateral could make them to be dealing with SMEs which have underlying information asymmetry and moral hazard characteristics. This likely situation is depicted in the second quadrant and further explained in scenario of the 2x2 matrix in chapter 2. As a result, the bank could be dealing with a disloyal SME just on the basis that the SME meets the collateral requirement. Therefore, the finding supports the adverse selection theory as outlined in section 2.16.5.

e. Collateral Requirement Implications

This finding supports the banks' position that increased collateral availability is expected to increase the supply of bank debts to SMEs in Ghana, as collateral will help reduce informational asymmetries between them and the SMEs. They consider collateral to be a part of the loan supply function (Ogawa & Suzuki, 2000; Shen, 2002; Atanasova & Wilson, 2004). Again for the banks, collateral can be interpreted as an indirect solution for credit rationing due to its ability to reduce informational opaqueness. The banks assert that asset-based lending (collateral-based lending) reduces their risk exposure by giving them another way to recover their exposures even though collateral does not improve the borrower's ability to repay (Daniel & Nicolae, 2011; Uchida, 2011). Obviously, the position of banks in SME financing is undeniable but they fall short of providing financing to SMEs due to insistence on collateral requirement. However, under plausible conditions, high collateral requirements could lower the bank's returns.

For the existing SMEs, the collateral requirement is having negative impacts on their performances. For start-ups and aspiring SMEs, they are likely to face similar challenges just as the established SMEs and, therefore, should accept the resource-based theory's relevance by taking advantage of their internally competitive strengths. That is, to make access to external loans easier, SMEs can use all of their internal strengths such as self-financing, raising funds from family and friends, trade credit through supplier loyalty, having a credible and realistic business plan, being prepared to provide accurate and reliable personal and business information, likely provision of collateral and so on.

5.2.2 Regression Analysis for Collateral Requirement and Access to Loans with Information Asymmetry Interaction

In this section, the interaction effect of collateral requirement and information asymmetry on SMEs' access to loans was considered.

From the finding, the interaction effect of collateral requirement and information asymmetry on SMEs' access to loans had a statistically significant impact. The finding reveals that the presence of information asymmetry will impact more negatively on the relationship between collateral requirement and access to SME loans in Ghana and hence satisfies study objective 2.

a. Regression Equation

With the constant and beta coefficient from model 4 in table 4.10, the regression model is defined as $SMEL = 3.399 - 0.186CR * IA + e$. This can be used to predict the impact of the interaction between collateral requirement and information asymmetry on access to loans by SMEs in Ghana.

b. Discussion and Hypothesis Two

From the finding, beta coefficient of collateral requirement with information asymmetry as interaction (CRxIA) on access to loans by SMEs was -0.186 with p-value being 0.000 which is less than 0.01 hence the model was statistically significant. This implies that every unit increase in collateral requirement, with the presence of information asymmetry, leads to 0.186 decrease in access to loans by SMEs. This means that collateral requirement in the presence of information asymmetry negatively affects access to loans more by SMEs in Ghana than if no information asymmetry is suspected to be present. This is due to bigger beta coefficient (0.186) in this case than the beta coefficient (0.139) when information asymmetry was not present. This indicates that information asymmetry is an important factor that affects access to loans by SMEs in Ghana.

From Table 4.10, the p-value was 0.000 which was less than 0.001, meaning that the relationship between collateral requirement with information asymmetry as interaction and access to loans by SMEs was significant. Consequently, the null hypothesis was dismissed, and the conclusion was that the relationship between collateral requirement with information asymmetry as interaction and access to SME loans in Ghana was significantly strong. In other words, the findings revealed that with information asymmetry suspected by the bank, collateral

requirement will be higher than when it was not suspected to be present hence denying more SMEs in Ghana access to loans. This result confirmed hypothesis 2.

c. Empirical Supports

The finding supports some earlier empirical literature that asymmetric information affects access to bank loans by SMEs (IFC, 2012; Qureshi & Herani, 2011; Mazanai & Fatoki, 2012). Other literature in support is as follows:

1. Mthimkhulu and Aziakpono (2012) in their study found out that SMEs present significant information gaps which is caused by the lack of reliable and accurate financial information, business and operational plans and critical business and financial skills which limits the ability of banks to assess the credit-worthiness of individual SME borrowers.
2. Banks are more comfortable funding firms with sufficient tangible assets in order to mitigate the risks of information asymmetry (Abor & Biekpe, 2005; IFC, 2012; Kushnir, 2010; Maas & Herrington, 2006).
3. The result is, also, supported by Coco (2000) who found out that collateral can solve problems derived from asymmetries in valuation of projects, uncertainty about the quality of projects and the riskiness of borrowers, and problems related to the cost of monitoring or supervising borrowers' behaviour.
4. Due to information imperfections and costly control mechanisms, banks use collateral as the criteria for loan selection (Green, 2003).
5. Collateral reduces the information asymmetry between the SME and the financial institution (Berger et al., 2011).
6. The degree of information asymmetry affects the positive link between collateral and the loan spread and finds that a greater degree of information asymmetry reduces this positive relation (Godlewski & Weill, 2011).
7. Sharing of information among lenders plays very important functions in the reduction of collateral requirements (Hanedar, Broccardo & Bazzana, 2014).
8. Requesting for collateral by lenders seems to be a tool for the reduction of information asymmetry (Hanedar, Broccardo & Bazzana, 2014).

It can be inferred that the banks may require for less or no collateral in the absence of information asymmetry. The consequence is that banks can determine the credit quality of a firm and its ability to repay a loan amount when the information is trustworthy and tangible. It is

unethical for any firm to be information asymmetric to a contractual partner. SMEs and banks have the “duty of care” to remain trusted in every business dealing.

d. Theoretical Support

Information about the firm to be provided by the SME to the bank is an internal resource. The SME being information symmetric will put it in a good standing to be able to access loan. Just as extant literature revealed that banks prefer collateral-based lending due to the high risk of the SMEs, indirectly, they are engaging in relationship lending as well because banker-customer dealings dwell on relationship. To the SME, the needed and required information to be provided is a resource that will help and strengthen its loan access position. Therefore, the finding is supported by the resourced-based theory.

Again, information symmetric SMEs could always take advantage of their credibility and creditworthiness to access more loans thereby creating excess demand leading to credit rationing. According to Kirschenman (2016), credit rationing can be expected to be tighter for opaque firms because information problems are more severe and, thus; the risk of adverse selection is large. Therefore, failure of any SME to disclose the needed and required information means putting itself in a situation to be denied the loan. Hence, credit rationing theory also supports this hypothesis and finding.

Also, the bank relying so much on collateral could be dealing with an information asymmetric SME, as well, as depicted in the second quadrant and explained in scenario of the 2x2 matrix. So, the bank could be dealing with a disloyal SME just on the basis that the SME meets the collateral requirement. Therefore, the finding supports the adverse selection theory as outlined in section 2.16.5.

e. Implications of Information Asymmetry Interaction

For the banks, the likelihood of suffering from hidden information and other risks is what will necessitate them to require for collateral. However, providing collateral is not a guarantee for information symmetry. Also, excessive insistence on collateral by the banks could deny them profitable opportunities in the SME sector. Therefore, the banks need to find a balance in order to derive optimum benefits from the SME sector.

In relation to the SMEs, it is obvious that information asymmetry will make the banks require for more collateral. This implies that information asymmetry is one of the biggest obstacles to SMEs obtaining external credit. That is, the information asymmetry that exists

between the banks and SMEs that apply for loans, resulting in adverse selection, may be one explanation for the difficulties that Ghanaian SMEs have in obtaining loans from the banks. Therefore, current and future SMEs must regard it as one of the most significant barriers and make all efforts to overcome it.

5.2.3 Regression Analysis for Collateral Requirement and Access to Loans with Moral Hazard Interaction

This section is on the interaction effect of collateral requirement and moral hazard on SMEs' access to loans.

From the finding, the interaction effect of collateral requirement and moral hazard had a statistically significant impact on SMEs' access to bank loans. The finding shows that the presence of moral hazard will impact more negatively on the relationship between collateral requirement and access to SME loans in Ghana than without it. Hence, the study achieves objective 3.

a. Regression Equation

With the constant value and related beta coefficient from model 4, the model is defined as $SMEL = 3.399 - 0.174CR * MH + e$. The equation can be used to predict the impact of the interaction between collateral requirement and information asymmetry on access to loans by SMEs in Ghana.

b. Discussion and Hypothesis Three

Beta coefficient of collateral requirement and moral hazard (CRxMH) on access to loans by SMEs in which the t-value was -3.892 with p-value being 0.000, which is less than 0.01, hence the model was statistically significant. This implies that every unit increase in collateral requirement, with the presence of moral hazard, leads to 0.174 denials of loans to SMEs. This means that collateral requirement in the presence of moral hazard negatively affects access to loans more by SMEs in Ghana than if no moral hazard is suspected to be present. This is referred from the bigger beta coefficient (0.174), in this case, than the beta coefficient (0.139) when moral hazard was not present. This indicates that moral hazard is an important factor that affects access to loans by SMEs in Ghana. The implication of the finding is that, presence of moral hazard will cause the banks to require for more collateral hence denying more SMEs access to loans.

From Table 4.10, the p-value was 0.000 which was less than 0.001, meaning that the

relationship between collateral requirement with moral hazard as interaction and access to loans by SMEs was significant. Consequently, the null hypothesis was dismissed, and the conclusion was that the relationship between collateral requirement with moral hazard as interaction and access to SME loans in Ghana was significantly strong. In other words, the findings revealed that with moral hazard suspected by the bank, collateral requirement will be higher than when it was not suspected to be present hence denying more SMEs in Ghana access to loans. This result confirmed hypothesis 3.

c. Empirical Supports

The result for hypothesis 3 is supported by the study of Mazanai and Fatoki (2012) who find that banks face moral hazard and adverse selection risk and they could deny credit to SMEs, leaving high-risk borrowers without credit. Again, in support are Barbosa and Moraes (2004) who concluded that when collateral requirements are in place, the borrower may not divert funds towards private use or extract the surplus from the project since that sort of action would increase the chance of losing the assets pledged as collateral.

Consequently, it can be inferred that the banks may require for less or no collateral in the absence of moral hazard. The implication is that banks can determine the credit worthiness of an enterprise and its propensity to repay a loan if the bank does not suspect the diversion and investment of the loan in a differently risky venture. Indulging in moral hazard erodes trust and reputation. Above all, it is unethical for any firm not to respect a contractual agreement. SMEs have the “duty of care” to remain ethical in every business dealing.

d. Theoretical Support

From the findings, the funding gap faced by SMEs in Ghana is, partly, caused by moral hazard which raises the risks of lending. To both the SMEs and banks, this is a constraint hence application of financing constraint theory is justifiable here.

Also, any SME appraised by the bank not to have moral hazard characteristics will continue to access more loans thereby creating excess demand for loans, leading to credit rationing, hence denying loans to SMEs suspected to have moral hazard tendencies. Therefore, credit rationing theory also supports this hypothesis and finding.

Further, granting the loan to the SME with or without collateral and the SME later misapplying the loan means the SME misleading the bank to deal with a disloyal customer. Hence, the finding supports the adverse selection theory.

e. Implications of Moral Hazard Interaction

For the banks, the likelihood of suffering from hidden action and other risks is what will necessitate them to require for collateral. However, providing collateral is not a guarantee to reduce moral hazard. Again, the SME sector is seen as a profitable area that the banks can take advantage of. Therefore, too much reliance on collateral before granting loans to SMEs; albeit their risky nature will prevent the banks from taking advantage of the profitable opportunities the sector holds. Consequently, the banks need to find a balance in order to derive optimum benefits from the SME sector.

In relation to the SMEs, it is obvious that moral hazard will make the banks require for more collateral. The implication of this is that moral hazard is one of the challenges for SMEs in obtaining external credit. That is, the moral hazard that exists between the banks and SMEs that apply for loans, resulting in adverse selection, may be one explanation for the difficulties that Ghanaian SMEs have in obtaining loans from the banks. Therefore, current and future SMEs must see moral hazard as a significant challenge and make all attempts to reduce it.

5.2.4 Regression Analysis for Collateral Requirement and Access to Loans with Information Asymmetry and Moral Hazard Interactions

This section looks at the interaction effects of information asymmetry and moral hazard jointly with collateral requirement on access to loans by SMEs

From the finding, the interaction effect of collateral requirement, information asymmetry and moral hazard on access to bank loans by SMEs impacted positively but not significantly. This means, the presence of both information asymmetry and moral hazard jointly does not impact more negatively on the relationship between collateral requirement and access to SME loans in Ghana as hypothesized. Notwithstanding the finding, study objective 4 has been achieved since there has not been any earlier study that considered the joint interaction effects of information asymmetry and moral hazard on collateral requirement and access to loans.

a. Regression Equation

The finding with a t-value of 0.591 and p-value of 0.000, which is less than 0.1, produced beta coefficient of 0.025, meaning the model was not statistically significant. The model is defined as $SMEL = 3.399 + 0.025CR*(IA*MH) + e$, indicating that, with the presence of information asymmetry and moral hazard jointly, every unit increase in collateral requirement leads to 0.025 increase in access to loans by SMEs.

b. Discussion and Hypothesis Four

As explained earlier, there was no statistically relevant impact on the access to bank loans by SMEs in relation to collateral requirement, information asymmetry, and moral hazard jointly. The implication of the finding is that collateral requirement, in the presence of information asymmetry and moral hazard jointly, rather affects access to loans by SMEs in Ghana positively. Meanwhile the hypothesis is that there will be a more negative impact on collateral requirement and access to loans than in hypothesis 1, 2 and 3. From the finding, therefore, hypothesis 4 is not confirmed.

Logically, the hypothesis could have been confirmed. That is, the joint interaction of information asymmetry and moral hazard with collateral requirement on access to loans could have produced a more negative impact than only collateral requirement on access to loans. Also, the empirical evidence should have confirmed the theoretical assertion that collateral is required by banks to mitigate the risks of information asymmetry and moral hazard. Again, some earlier empirical results support collateral requirement due to information asymmetry and moral hazard. For example, according to Moro and Fink (2013), when doing business with an opaque SME, a bank faces problems such as adverse selection and moral hazard. Also, the position of Huang and Liu (2014) is that information asymmetry contributes to moral hazard.

However, the finding for hypothesis 4 is in contrast even with the adverse selection theory. Perhaps, the unexpected result is due to the designs of the measurement scales of information asymmetry and moral hazard. In designing the measurement scales, the researcher intended to solicit for information from both the demand and supply sides. Therefore, the moral hazard questions were directed at the SMEs and the information asymmetry ones at the banks. The responses to the questions of the constructs, likely, oppose each other and produced almost “zero effect” result because the beta coefficient of 0.025 is almost zero. The results could change in any future studies if measurements of both constructs are designed to solicit for information from the demand side alone or supply side alone.

5.2.5 Regression Analysis for Control Variables and Access to Loans

The study also showed that the control variables did not, as in all the models except education in model 3, have any statistically significant effects on SMEs' access to loans. A few of the variables are explained below.

There was no statistically significant relationship between the size of enterprises, as

measured by the number of employees and loan access. Similarly, there was no connection between the size of small businesses' size of employment and their need for bank loans or the difficulty in obtaining loans from Ghanaian banks. This finding backs up Al-Kharusi's (2003) results for Oman SMEs which showed that there was no substantial association between the number of employees and the decision to apply for or to access external financing. The lesson for Ghanaian SMEs from this result is that their sizes should not deter them from accessing loans. Rather, they should apply the resource-based theory by taking advantage of any competitive attributes they may have and use them to improve their credibility and creditworthiness.

On gender, there was no statistical significance. This finding backs up the findings of Irwin and Scott (2010) who looked into the barriers to obtaining bank credit faced by SMEs in the UK, specifically the impact of personal characteristics (ethnicity, gender, and education), and found that gender has no major impact on bank credit access. The findings of this study show that Ghanaian banks do not discriminate between men and women when it comes to loan policies, terms or conditions. In their loan terms, Ghanaian banks and other financial institutions do not take the gender of SME owners/managers into account. The implication is that all SME owners/managers, irrespective of gender, would be granted loans, if and only if they meet the requirements of the lending institution.

Ghanaian banks may prefer applicants with high levels of knowledge and education and these the study found that the owners' and managers' level of education has a bearing on access to loan from Ghanaian banks. Although some studies have found a connection between education and financial difficulties (Irwin & Scott, 2010) just like the current one, Dabo (2006) and Al-Kharusi (2003) found no significant link between SME owners/managers' level of education and access to finance. It could be inferred that higher levels of education of owners/managers have a statistically significant positive relationship with access to loans from Ghanaian banks. This, however, contradicts the findings of Saffu et al. (2006), Parker (2004), and Irwin and Scott (2010) who found no major impact on obtaining bank financing where people with higher degrees had the easiest time doing so. This result should not deter Ghanaian SMEs from accessing loans, if they are not highly educated. What may be equally important and necessary to the banks are training and knowledge in the field of business of the SME.

5.3 Summary of All Results

The overall study findings point to the more pronounced nature of information asymmetry and moral hazard problems in developed countries. It confirms the central role of collateral in the accessibility of SMEs to finance, as proposed by the theory of the agency (Steijvers & Voordeckers, 2009; Uchida, 2011). As they lack properties that can be used as collateral for loans, this has put SMEs at a relative disadvantage. Ghana is a less developed market so the results concur findings of earlier studies that collateral requirement is even higher in less developed markets (Bae & Goyal, 2009; Behr et al., 2011; Hainz, 2003; Menkhoff et al., 2006) due to information asymmetry and moral hazard.

By means of collateralized loans, banks have reduced the credit risk exposure created by issues of information asymmetry, in particular the moral hazard that is prevalent in SMEs. Asset-based lending decreases banks' risk exposure, providing them with an option to recover their investment, even though it does not increase the borrower's repayment potential (Daniel & Nicolae, 2011; Uchida, 2011).

The information asymmetry and/or moral hazard that exist between banks and the SMEs that apply for loans, resulting in adverse selection, may be one explanation for the difficulties that Ghanaian SMEs have in obtaining loans from the banks. These raise the risks of lending hence create funding gap.

For the SMEs, building a close working relationship with the banks through timely information sharing would help them improve their reputation and credibility in the financial market. There have been success stories, some cited earlier, of using relationship lending as an alternative to collateral-based lending to help SMEs in financial distress. Information asymmetry would be reduced as borrowers and lenders develop a stronger partnership, making loans more available. The relationship between the SMEs and banks could act as a backup guarantee for lenders when evaluating the SMEs' financial prospects. Banks will benefit from the timely information sharing by better serving the SMEs' financial needs through appropriate financial products and services.

The implications for both the banks and SMEs are that whether collateral is a complement or a replacement for access to loans can be influenced by moderating variables. For example, the impacts of information asymmetry and moral hazard of the SMEs. When information asymmetry and/or moral hazard exist or are suspected, Ghanaian banks may

evaluate loan applications from SMEs by doing one of the following:

- (1) Accept the loan application based on collateral requirement.
- (2) Reject the loan request (Lehmann & Neuberger, 2001).

As a result, the impact of any risk shifting activity on SMEs' credibility must be prioritized.

The overall findings show that most current loan applications of SMEs are rejected as a result of no collateral, non-provision of adequate and reliable information and, also, misapplication of the loans. Due to these factors, Ghanaian banks emphasize provision of adequate collateral, reliable information and high reputation or no moral hazard tendencies as being essential for assessing both the credibility of the SME and its ability to repay the loans. However, since most Ghanaian SMEs may lack business/financial information and collateral, the findings of the study could mean that most Ghanaian banks would be hesitant to fund start-ups and existing businesses.

Despite an increase in the number of studies looking into the use of collateral to access credit, little is known about the potential interaction effects of information asymmetry and moral hazard, especially in Ghana, making this research necessary. Any future research should focus on fine-tuning these general ideas by determining whether other information asymmetry and moral hazard-reducing techniques could compensate for the increased requirement for collateral that the firm lacks or the SME does not want to pledge. Also, such future studies on SMEs in Ghana may find this first strand of empirical literature useful by incorporating other interaction features such as annual percentage rates (APRs) and loan covenants in the analysis of collateral requirement and access to loan dyad.

Chapter 6

Conclusions and Recommendations

The study concludes with a description of the overall results from the quantitative studies, which include a holistic and thorough view of collateral requirements and SMEs' access to loans in Ghana from the perspectives of two main players: SMEs and banks. The results are, then, related to theoretical contexts and goals in order to address the research questions. The study's contribution is examined in terms of theoretical and practical consequences for all parties involved. It also covers areas where further research is required.

The chapter is structured as follows: conclusions in section 6.1, theoretical implications in section 6.2, practical implications in section 6.3, recommendations in section 6.4 and areas for further study in section 6.5.

6.1 Conclusions

Based on the findings of the study it can be concluded that the independent variable (collateral requirement) in the study affects access to loans by SMEs in Ghana (dependent variable). The relationship was confirmed through correlation and regression analyses which revealed that there was a negative significant linear relationship between collateral requirement and access to loans by SMEs. Regression model 4 indicated that 13.9% variation in access to loans by SMEs in Ghana was explained by collateral requirement. The model of the study was also found to be significant. This implies that collateral requirement is a major factor which affects access to loans by SMEs in Ghana.

Interaction effects of collateral requirement with information asymmetry and moral hazard (moderating variables) were also found to be significant and higher than as it was without them. That is, information asymmetry and moral hazard each had interacting effects on collateral requirement on influencing access to loans by SMEs in Ghana. Comparing the beta values of the regression model 4, 18.6% variation in access to loans by SMEs was explained by the interaction effect of collateral requirement and information asymmetry, 17.4% was the variation in access to loans by SMEs for interaction effect of collateral requirement and moral hazard. Nevertheless, with collateral requirement as a standalone variable, the beta coefficient was 13.9%. The implication is that, with standalone information asymmetry and moral hazard as interactions, more collateral will be required by the banks and access to loans by SMEs in Ghana will be more

difficult. Also, the 18.6% and 17.4% variations respectively for information asymmetry and moral hazard interactions mean that the probability of denial of access to loans to SMEs is higher for information asymmetry effect than moral hazard effect.

Furthermore, information asymmetry and moral hazard had interacting effects on the relationship between the independent variable and the dependent variable using the results of change in the coefficient of determination (R^2), adjusted R^2 and Beta values in model 4. The coefficient of determination (R^2) and adjusted R^2 for the independent variable changed after one-by-one introduction of the moderating variables and the interactions. The overall R^2 and adjusted R^2 without the moderating variables was lower than after the introduction of the moderating variables. Therefore, the study concluded that information asymmetry and moral hazard increased or made worse the effects of collateral requirement on access to loans by SMEs. Two out of the three interaction effects were also found to have effects in the overall model since both R^2 and adjusted R^2 in the overall model increased, implying that presence of either information asymmetry or moral hazard or both increased the influence that the predictor variable had on access to loans by SMEs in Ghana. The objectives and key results (OKRs) from the findings of the study are outlined below:

a. To evaluate the relationship between collateral requirement and access to SME loans in Ghana.

Consequently, it has been established from the findings that a negative relationship exists between collateral requirement and access to SME loans in Ghana and the relationship is statistically significant; meaning without collateral, access to loans will be difficult for SMEs in Ghana. Relating the study objective to its corresponding hypothesis, the objective has been met and hypothesis confirmed.

b. To examine the impact of the interaction effect of information asymmetry on the relationship between collateral requirement and access to SME loans.

From the findings, the interaction effect of information asymmetry on collateral requirement in relation to access to SME loans is negative and statistically significant. In addition, the presence of the interaction affects access to loans more negatively than without the interaction. This could lead to more collateral requirement and no access to loans by SMEs in Ghana. Relating the study objective to its corresponding hypothesis, the objective has been achieved and hypothesis confirmed.

c. To assess the impact of the interaction effect of moral hazard on the relationship between collateral requirement and access to SME loans.

Inferring from the findings, the interaction effect of moral hazard on collateral requirement in relation to access to SME loans is negative and statistically significant. Also, presence of moral hazard affects access to loans more negatively than without it. This could lead to more collateral requirement and no access to loans. Relating the study objective to its corresponding hypothesis, the objective has been met and hypothesis confirmed.

d. To examine the impact of the interaction effects of both information asymmetry and moral hazard jointly on the relationship between collateral requirement and access to SME loans.

Concluding from the findings, the joint interaction effects of information asymmetry and moral hazard on collateral requirement in relation to access to SME loans is positive and statistically not significant. Relating the study objective to its corresponding hypothesis, the objective has been achieved (there is a relationship even though not what is expected). However, the hypothesis is not confirmed.

Overall, the study's practical consequences and accompanying recommendations are inferred from the results. A statistically significant association was established between collateral requirement by Ghanaian banks and access to loans by SMEs. That is, the ability of banks to extend loans to SMEs can be enhanced by the pledge of collateral. However, due to the requirement of collateral, it has been confirmed that SMEs are credit constrained. Therefore, questions must be raised as to why, perhaps, major stakeholders (SME owners/managers, banks, government etc) are not taking urgent steps to address the collateral requirement challenge. It might be beneficial for all the major stakeholders to take holistic steps to reconsider the collateral requirement for SMEs, especially.

Unlike information asymmetry and access to loans, no statistically significant relationship between moral hazard and access to loan was identified in both models 3 and 4. This could mean that SME owners/managers are unaware of how moral hazard affects their ability to obtain loans. In terms of policy implications, this could imply that SME owners/managers would need some training in order to increase awareness on the effects of moral hazard in order to increase the SMEs' access to loan. The study is of great importance because the lessons learned from Ghana's case study could be applied to other developing countries with small and fragile economies.

6.2 Theoretical Implications of the Study

Below is a discussion of the academic contributions and practical consequences of the analysis and its generalizability. Also addressed are the recommendations applicable to the stakeholders.

6.2.1 Theoretical Contributions

This study makes three new contributions and, as indicated in chapter one, expands the literature on the extent of access to loans among SMEs in Ghana.

a. Collateral Requirement and Access to Loans

First, the overall research contribution is to record that the traditional norm of “no collateral, no loan” is denying access to loans to many creditworthy SMEs in Ghana, which may also impact the overall economy. It has been established that the inability of the SMEs to provide the needed collateral required by the banks is a constraint that will deny the SMEs access to loans. Therefore, the first contribution is supported by financing constraint theory in section 2.16.3. However, without collateral, SMEs should still be able to get access to loans as explained using the 2x2 matrix.

From the 2x2 matrix analysis, some SMEs may provide collateral but could be information asymmetric with likely moral hazard tendencies (scenario 2) while there could equally be a large number of SMEs with no collateral but are information symmetric with no moral hazard tendencies (scenario 4) and could be creditworthy. Rejecting such credible SME loan applicants in scenario 4 or accepting those likely risky ones in scenario 2 is purely adverse selection; therefore, adverse selection theory in section 2.16.5 is applicable. Again, from the 2x2 matrix scenarios, collateral requirement is needful. However, non-provision of collateral alone should not result in financing constraint. Therefore, the introduction and use of the 2x2 matrix in the study to analyze the constructs, first of its kind in a study involving access to loan by SMEs, will greatly enhance the financing constraint theory.

b. Effects of Information Asymmetry and Moral Hazard

Secondly, concerning the challenges of access to loans for small and medium-sized enterprises (SMEs) in Ghana, for the first time, the study offers empirical evidence that information asymmetry and moral hazard, which were previously unknown or not studied, are two major causes of collateral requirement and limited access to loans. If a bank grants a loan to a firm which withholds information from it and/or which will misapply the loan but the bank is

not aware, then the bank grants the loan to an incredible instead of a credible firm.

Empirically establishing a relationship means there is awareness and no relationship means there is no awareness. From the regression model 3, no relationship was established between moral hazard and access to loan. The implication of this is that either the SMEs or banks or both are not aware of the presence and/or effects of moral hazard in relation to loan access. Again in model 3, a positive relationship was established between information asymmetry and access to loan, meaning either the SMEs or banks or both are aware of the presence of the existence of information asymmetry. In both cases, adverse selection of SME loan applicants is highly probable. This finding is supported by the adverse selection theory in section 2.16.5. However, scenario 4 of the 2x2 matrix analysis revealed that even without collateral, the SMEs being symmetric alone could help the banks avoid the adverse selection obstacle. Therefore, the introduction of the 2x2 matrix in the study will greatly contribute to literature by enhancing the adverse selection theory.

c. Moral Hazard Measurement Scale

Thirdly, the study methodologically identified borrower opportunism as a proxy for moral hazard and developed a measurement scale for it. This is to help the SMEs to be aware of the likely moral hazard tendencies, use the scale often to examine themselves and help ease access to loan. This behaviourally internal assessment with the measurement scale is to put the SMEs in creditworthy positions for them to look appealing to the banks. Therefore, the third contribution is relevant to the application of resource-based theory in section 2.16.4. However, “loanable” funds of banks could be limited so rationing of loans could affect any SME that is found to be morally hazardous. In other words, those SMEs that will assess themselves with the measurement scale to avoid being denied the loan could create excess demand, resulting in credit rationing. This contribution is supported by the credit rationing theory in section 2.16.2. Therefore, the development of the measurement scale will help the SMEs examine and improve themselves internally thereby improving the resource-based theory. Also, the SMEs that will apply the scale will be in positions to take advantage of any excess demand to be created by those that will not apply the scale thereby improving the credit rationing theory. The introduction of the 2x2 matrix in the study will greatly enhance both the resource-based theory and credit rationing theory. The adoption of the 2x2 matrix by both SMEs and banks in loan application appraisals will be useful and helpful.

6.3 Contributions to Practice

The functional implications of the study have the potential to stimulate the growth and development of small and medium-sized enterprises (SMEs), if properly examined and exploited. The findings of the study have policy implications that could help SMEs grow and develop. SME financing is a major problem for developing countries and a study such as this one, which looks into the issue of SMEs' inability to obtain bank loans, has significant socioeconomic implications. For all stakeholders such as SMEs, banks, government and non-governmental agencies which are involved in SME growth, especially at the policy level, the study provides insights and a better understanding of SME financing constraints. The results of the study have a significant effect on policymakers in government departments, banks and related agencies involved in supporting small and medium-sized enterprises (SMEs) in order to create an enabling financing climate for SMEs and financial institutions alike.

a. Information for SMEs

The study gives SMEs which have been unable to obtain useful information about the factors that influence their ability to obtain loans from banks and other financial institutions as well as an understanding of why their previous attempts to obtain financing were not successful. The findings clearly recognize collateral requirement, SMEs' inability to provide the needed information to the banks and the risk of misusing the loan after taking it as barriers to Ghanaian SMEs' access to credit. As a result, SMEs will benefit from collaborating with banks to create an accessible and reliable information system about their business activities. For example, the findings will assist SMEs in preparing comprehensive and professional project plans to include all business information and accurate financial projections. Information management best practices will not only help banks deal with information asymmetry and risk but will also help SMEs make more informed decisions about their operations. Transparency of information and proper financial management will help SMEs in assessing and understanding their own businesses' strengths, weaknesses and risks. The findings will inform the SMEs that the benefits of proper information provision and financial management outweigh the time and cost involved. These measures would significantly increase the outcome of bank loan applications. Furthermore, owners/managers will likely find this research useful in understanding the challenges they may face when applying for bank loans and how, in some cases, they may be better off avoiding bank loans altogether.

b. Information for Banks

The study's main finding was the importance of collateral offered by SMEs in deciding their ability to obtain bank loans. Sometimes, the focus could be on the owner's or personal collateral obligation as the primary condition of lending by banks. This appears to be at odds with international practice which also considers the financial evaluation of the firm and its credit history. According to the literature, the average size of collateral placed on SMEs is typically several times the loan amount. This focus not only restricts credit to SMEs in Ghana but it may also penalize banks as lending to SMEs is seen as a lucrative area of operation, globally. The Ghanaian private sector is dominated by small and medium-sized enterprises (SMEs). The banks must try to figure out what is causing the information asymmetry and moral hazard issues as well as how to overcome these obstacles to the SME sector's growth and success. As a result, this research should assist Ghanaian banks in identifying ways to promote and fund worthy SMEs.

c. Information for Government

The results will need attention of government as well. The role of the government is undeniable and critical for SMEs operating in small and young financial markets such as Ghana's. Government agencies, having been aware of the challenges that these SMEs face in Ghana should be able to assist both the SMEs and banks by removing these barriers through policies. This is in line with Appiah et al. (2018) in a recent study that the policy climate has the antidote to dramatically reduce the plight of SMEs if handled properly. They, however, cautioned that an inadequate policy climate indicates that the problems of SMEs will continue to worsen. Their findings support the position of Rojas-Suarez and Amado (2014) that better governance will assist SMEs in enforcing financial contracts and facilitating their access to capital.

For example, government rolling out a policy of national credit guarantee schemes will facilitate SME growth. By regulation, the Government of Ghana (GoG) is empowered under section 13 of the Loans Act of 1970 (Act 335) to provide government guarantee to any external financiers who wish to advance funds to any Ghanaian entity and the terms of such facility include the provision of government guarantee. Government's guarantee facilities are liabilities contingent on the government. The borrower, not the government, is responsible for repaying the loan. However, if the beneficiary fails to meet his or her loan obligations, then, the government is called upon to settle the facility as a guarantor because the facility becomes a debt due from the

government (Mensah, 2004).

The study is unique in this area and call for further research into moderating/interaction effects as a promising way to reconcile conflicting findings in the empirical literature on collateral requirement and SMEs' access to credit.

6.4 Recommendations

Based on the findings of the study, recommendations were proposed in relation to the objectives of the study:

6.4.1 Collateral Requirement and Access to Loans

The study found out that banks require collateral from the SMEs in order to advance credit to them. Hence, the researcher recommends that as SMEs accumulate assets for their use, the form of assets needed by banks should be considered in order to increase their access to bank credit. The SMEs should always consider holding most of their wealth in assets (non-fixed and fixed) in order to get assets to provide as collateral when applying for loans.

6.4.2 Information Asymmetry, Moral Hazard and Access to Loans

In regard to information asymmetry and moral hazard, the SMEs should improve on their provision of information to banks in order to increase access to loans. SME owners should be trained on how to prepare financial statements and other documents required by the banks in order to access credit. SME owners should be encouraged to keep an accurate record of their assets so as to provide the same when required by the banks. They should be trained on business ethics, moral suasion, and basic legal implications of acting “ultra vires.”

6.4.3 Other Stakeholders

The study recommends that the government should come up with a policy on training the SMEs owners on business ethics, basic law of contract and legal implications of acting ultra vires, how to prepare financial statements and other documents which are required by banks. The government should also come up with a policy of having a legal body to register and regulate SMEs in Ghana; this will give confidence to the banks as they deal with the SMEs.

The outcomes mentioned in the study have several implications. First, even without collateral, SMEs need to be encouraged to apply for loans. Policymakers should persuade small and medium-sized companies to follow the requirements for credit scoring; for example, by

symmetricalizing information to increase transparency, those with collateral should disclose the true and reasonable value of collateral (assets) and by facilitating the legal ownership of enterprises separate from owners.

On a macroeconomic basis, SMEs as part of the private sector are regarded as a key engine of the economy but they face significant financing challenges. According to international development organizations, the lending climate shapes bank financing to SMEs more than firm size or bank type. As a result, the government's position in establishing a stable financing climate for SMEs through the implementation of favorable policies is critical. It is suggested that the government commission an independent investigation into banks' lending practices to SMEs in comparison to best practices in other developing countries, with the aim of implementing policies to improve these practices. One of the emphases should be on whether or not the percentage of collateral required for SME loans is appropriate. Also, it is crucial to think about the banks' risk exposure. As a result, it is proposed that the current regulations, especially on collateral requirement, be revisited.

Furthermore, through regulations that favor the financial sector, the government can influence banks' participation in SME financing. To establish an enabling credit climate, the government must form a strong relationship with the banks which, perhaps, is the largest source of SME financing. It is critical to align policy interventions with the needs of key players in SME financing, namely: banks and SMEs, in order to achieve a long-term financing environment. To reduce information asymmetry, moral hazard and other risks, banks and SMEs must collaborate more effectively. Regulations should be implemented by the government to encourage banks to take appropriate risks while lending to SMEs. Interventions aimed at the banking sector such as tax rebates and other incentives, will enable the banks to lend to small businesses.

In summary, the study recommended a framework policy which should lead to and facilitate the development of specific instruments that can be used to mitigate risks associated with lending to SMEs which may not have assets to offer as collateral. As proposed by Appiah et al (2018), policy environment has the potential to significantly reduce the challenges of properly managed SMEs. The ineffective policy environment, on the other hand, indicates that SMEs' problems would only get worse.

The recommended policy should fervently involve how to tame the challenges of information asymmetry and moral hazard in order to enable the beneficiaries, especially

unknown and potentially creditworthy SMEs, who often lack bankable collateral to receive bank credit at competitive interest rates. There is the need for “Mandatory Information Disclosure” framework. Also, “Creditor Protection Right Law” is imperative or if it already exists, it should be strengthened and applied strictly.

6.5 Areas for Further Research

This study did not include all constraints and a further study is recommended to include other constraints which may influence access to finance by SMEs. For example, in granting a loan, a bank charges many other fees such as processing fee, insurance fee, facility maintenance fee etc in addition to the base rate. The sum of all these rates is referred to as the annual percentage rate (APR). Banks, mostly, display base rates and do not disclose these to customers. This could be an act of hidden information by the banks. Also, some banks without informing customers review interest rates upwards anytime policy rate increases although the loan has already been contracted but do not review the interest rates downwards when the policy rate decreases. This could cause the customer to engage in hidden action when it is discovered that loan repayment amount increases, all of a sudden, without any convincing explanations. Conducting a study into something like these could be helpful to both customers (SMEs) and banks.

The results of the regression analysis showed that the independent variable explained 20.6% of the variation in access to loans by SMEs, thus there remains 79.4% variation which is explained by other variables. The researcher recommends that future studies should be aimed at validating the findings of this study by conducting similar research on small and medium-sized enterprises in Ghana by collecting data from areas other than Accra and Tema in the Greater Accra region because SME owners may have different borrowing characteristics in other regions or even other towns in the same Greater Accra region. Also, the study collected data from only registered businesses and also from universal bank customers. Future studies could aim at both registered and unregistered SMEs doing business with non-bank financial institutions (NBFIs).

Importantly, the researcher recommends a similar future research on SMEs in Ghana in which information asymmetry will be considered as a mediator and moral hazard as a moderator and perform both moderated mediation and mediated moderation.

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Appendices

Appendix A: Introduction Letter

Moral Hazard and Access to SME Loans in Ghana: The Effects of Information Asymmetry and Collateral Requirement

I am a student pursuing a PhD in Business Administration at Nobel International Business School (NiBS) and researching on the topic stated above. I will be grateful if you could commit some of your time to respond to the questions stated in this questionnaire.

Please, note that this study is purely for academic purposes, therefore, be assured that your responses will be treated with utmost confidentiality and anonymity.

The survey will take not more than 45 minutes of your time to complete.

Thank you for contributing to this study.

Student

Seth Amegago

Supervisor

Theodora Akweley Asiamah (PhD)

Appendix B: Questionnaire

Questionnaire

Below are statements relevant to the study being conducted which are presented in tables for exercise. The questions are grouped into five sections of A, B, C, D and E. State your opinion on each concept under each section by ticking the most appropriate responses.

SECTION A

Moral Hazard (MH), proxy by Borrower Opportunism

Indicate the extent to which you agree or disagree with the following borrower opportunism statements. You may rate your level of agreement or disagreement on a scale of 1-5 where,

1 = Strongly Disagree, 2 = Disagree, 3 = Not Sure, 4 = Agree and 5 = Strongly Agree

MH	Items	1	2	3	4	5
MH1	The enterprise most of the times does not provide the lender with a completely truthful picture of its operational and financial activities.	1	2	3	4	5
MH2	Sometimes, the owner/manager has to withhold personal information from the lender in order to protect the enterprise's interests.	1	2	3	4	5
MH3	Sometimes, the enterprise has to withhold certain business information which could have material effect on the loan from the lender in order to look creditworthy.	1	2	3	4	5
MH4	Sometimes, the enterprise has to alter the operational and financial information slightly in order to get the loans approved.	1	2	3	4	5
MH5	Sometimes, the enterprise does not keep to ethical conduct and morality in order to pursue its interest alone.	1	2	3	4	5
MH6	The enterprise does not disclose to the bank if it decides to invest the loan in a different business with a higher profit potential because it is aware that the bank may not agree.	1	2	3	4	5

MH7	Sometimes, the enterprise does not act in ways that correspond to all the loan contractual agreements.	1	2	3	4	5
MH8	The enterprise does not invest the loan in any other business that has higher profit potential and can help repay the loan, if there is the opportunity.	1	2	3	4	5

SECTION B

Information Asymmetry (IA)

Indicate the extent to which you agree or disagree with the following information asymmetry statements. You may rate your level of agreement or disagreement on a scale of 1-5 where,

1 = Strongly Disagree, 2 = Disagree, 3 = Not Sure, 4 = Agree and 5 = Strongly Agree

IA	Items	1	2	3	4	5
IA1	The bank is in touch with the enterprise for information on availability of loans.	1	2	3	4	5
IA2	The bank always avails all details on loan requirements to the enterprise.	1	2	3	4	5
IA3	The enterprise regularly receives adequate and constant information on outstanding loan balances from the bank.	1	2	3	4	5
IA4	The lender informs the enterprise about changes in policy rate and loan interest rates.	1	2	3	4	5
IA5	The enterprise gets equal levels of information on changes in “terms and conditions” of the loan from the bank.	1	2	3	4	5
IA6	The lender is constantly in touch with the enterprise after the loan is granted in order to monitor how the loan is being invested and also to assess the performance of the business after the loan is injected.	1	2	3	4	5
IA7	The bank always shares industry information with the enterprise.	1	2	3	4	5
IA8	The bank and enterprise have equal information on each other.	1	2	3	4	5

SECTION C

Collateral Requirement (CR)

Please indicate the extent to which you agree or disagree with the following collateral requirement statements. You may rate your level of agreement or disagreement on a scale of 1-5 where,

1=strongly disagree, 2=disagree, 3=not sure, 4=agree and 5=strongly agree

CR	Items	1	2	3	4	5
CR1	The lender demands that the enterprise pledge tangible or physical assets.	1	2	3	4	5
CR2	The enterprise is required to pledge physical assets to reduce information gap between it and the lender.	1	2	3	4	5
CR3	The enterprise is required to pledge physical assets to reduce moral hazard.	1	2	3	4	5
CR4	The enterprise is required to pledge physical assets because it is perceived to be risky as compared to large firms.	1	2	3	4	5
CR5	The lender demands that the enterprise pledge tangible or physical assets because of no better legal environment to protect lenders.	1	2	3	4	5
CR6	The lender demands that the enterprise pledge tangible or physical assets to help minimize banks' loan loss exposure.	1	2	3	4	5
CR7	The enterprise is required to pledge tangible assets depending on the relationship it has with the lender.	1	2	3	4	5
CR8	The lender demands that the enterprise pledge tangible or physical assets even if all requirements are met and also the enterprise is creditworthy because it is a credit policy.	1	2	3	4	5

SECTION D

Access to SME Loans (SMEL)

(a) Please indicate the extent to which you agree or disagree with the following statements on access to SME loan. You may rate your level of agreement or disagreement on a scale of 1-5 where,

1=strongly disagree, 2=disagree, 3=not sure, 4=agree and 5=strongly agree

SMEL	Items	1	2	3	4	5
SMEL1	The business can get any loan amount if the information gap with the bank is kept at a minimum.	1	2	3	4	5
SMEL2	The enterprise goes through unnecessary bureaucracy to acquire a loan even if the bank has reliable information on it.	1	2	3	4	5
SMEL3	The enterprise has been accessing loan from just one bank because of a sound relationship built with it.	1	2	3	4	5
SMEL4	The enterprise is able to access loans as many times as it applies with improvement in its financial statements.	1	2	3	4	5
SMEL5	The enterprise has problems with access to loans without collateral even with good track records.	1	2	3	4	5
SMEL6	The bank grants the loan requests of the enterprise with not much insistence on financial information if the project is perceived to be viable.	1	2	3	4	5
SMEL7	The bank grants the loan requests of the enterprise always based on past relationships.	1	2	3	4	5
SMEL8	The bank grants the loan requests of the enterprise always without offering financial inducements to loan officer(s) to facilitate the loan approval.	1	2	3	4	5

SECTION E

Demographic and background information

Please provide answers to the following questions by ticking the boxes provided:

1. Gender: Male [] Female []

2. Ownership structure
Sole Proprietor []
Partnership []
Limited Liability Company []

3. Age of business:
Less than 5 years []
5- 10 years []
More than 10 years []

4. Number of employees
 0-5 []
 6-9 []
 10-29 []
 30-99 []

5. Industry
Manufacturing []
Agriculture []
Construction and Mining []
Hotel and Hospitality []
Information Technology []
Medical Services []
Wholesale and Retail []
General Services []
Others please specify

6. Does the founder of the business act as the owner? Yes [] No []

7. Educational background of Owner/Manager
Primary []
Secondary []
Diploma/HND []
Degree/ Higher []

8. Professional training of owner or manager
Information Technology []

- Accounting and Finance []
- Economics []
- Marketing []
- Human resource []
- Law []
- Management []
- Others, please specify

9. Do you have a bank account? Yes [] No []

10. How long have you been with the bank?

- Less than one year []
- 1 – 4 years []
- 5 – 9 years []
- Above 10 years []

11. Have you ever applied for a bank loan? Yes [] No []

12. How much was applied for? Less than 10,000.00 [] At least 10,000.00 []

13. Were you granted the loan? Yes [] No []

14. If no to (12), what was the reason?

- Bank not satisfied with information provided []
- No past credit records []
- No collateral provided []
- Others, please specify

15. If yes to (12), was collateral demanded? Yes [] No []

16. If yes to (14), what type of collateral was pledged?

- Vehicles []
- Land []
- Building []
- Accounts receivables []
- Stocks []
- Others, please specify

17. Do you sometimes source for loans from the informal sources (family, friends, neighbors etc)?

18. If yes to (16), what could be the reason?

- Delays in bank loans []
- No interest so better than bank loans []
- Others, please specify

19. Has your bank ever mentioned the expression “hidden information” or information asymmetry by borrowers to you before? Yes [] No []
20. Has your bank ever mentioned the expression “hidden actions” or moral hazard by borrowers to you before? Yes [] No []
21. If yes to (18), did they explain what hidden information by borrowers mean and the problems that they can create for lenders? Yes [] No []
22. If yes to (19), did they explain what hidden actions by borrowers mean and the problems that they can create for lenders? Yes [] No []
23. Has your bank ever organized any training on risk management and/or factors which affect loan repayments for you before? Yes [] No []
24. Do you agree that the state should define legal and institutional policies for the protection of lenders so that banks can demand specific information about a borrower in order to reduce the problem of information asymmetry (customers hiding vital information from the bank? Yes [] No []
25. Do you agree that the state should define legal and institutional policies for the protection of lenders so that banks can demand specific information about a borrower in order to reduce the problem of moral hazard (customers misapplying loans or deliberately refusing to pay? Yes [] No []

Appendix C: KMO and Bartlett's Test and Total Variance Extracted

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.765
Bartlett's Test of Sphericity	Approx. Chi-Square	2109.234
	df	153
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.348	18.601	18.601	3.348	18.601	18.601	3.252	18.066	18.066
2	2.558	14.210	32.811	2.558	14.210	32.811	2.169	12.049	30.115
3	2.141	11.897	44.709	2.141	11.897	44.709	2.082	11.565	41.679
4	1.472	8.175	52.884	1.472	8.175	52.884	2.017	11.205	52.884
5	.900	4.999	57.883						
6	.850	4.720	62.603						
7	.779	4.329	66.932						
8	.744	4.136	71.068						
9	.696	3.865	74.933						
10	.670	3.723	78.656						

Total Variance Explained (Cont.)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
11	.659	3.662	82.318						
12	.547	3.041	85.359						
13	.504	2.802	88.161						
14	.498	2.765	90.926						
15	.473	2.631	93.557						
16	.433	2.407	95.964						
17	.382	2.124	98.088						
18	.344	1.912	100.000						

Extraction Method: Principal Component Analysis

Appendix D: VIF Results

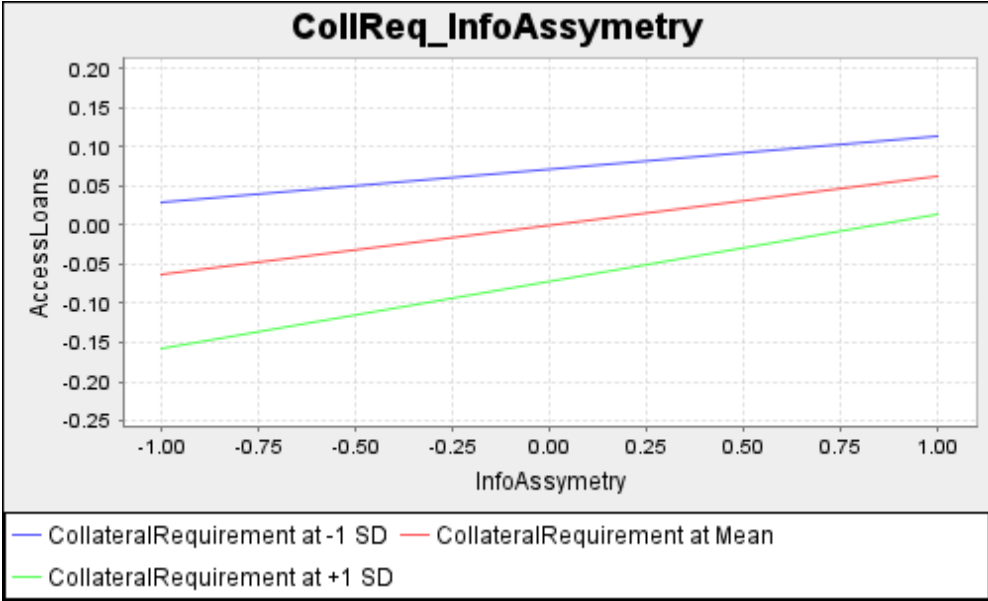
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Firm Size	.952	1.050
	Firm Age	.958	1.043
	Firm Location	.949	1.053
	Sector	.985	1.015
	Gender	.993	1.007
	Education	.978	1.023
	Professional Training	.986	1.014
2	(Constant)		
	Firm Size	.952	1.050
	Firm Age	.958	1.044
	FirmLocation	.948	1.055
	Sector	.984	1.016
	Gender	.992	1.008
	Education	.978	1.023
	Professional Training	.986	1.014
Collateral Requirement	.994	1.006	
3	(Constant)		
	Firm Size	.709	1.411
	Firm Age	.731	1.367
	Firm Location	.593	1.685
	Sector	.975	1.025
	Gender	.992	1.008

Appendix D: VIF Results (Cont.)

Model		Collinearity Statistics	
		Tolerance	VIF
	Education	.976	1.024
	Professional Training	.982	1.018
	Collateral Requirement	.981	1.019
	Information Asymmetry	.985	1.015
	Moral Hazard	.367	2.724
4	(Constant)		
	Firm Size	.702	1.425
	Firm Age	.730	1.370
	Firm Location	.593	1.687
	Sector	.970	1.031
	Gender	.982	1.018
	Education	.964	1.038
	Professional Training	.969	1.032
	Collateral Requirement	.980	1.020
	Information Asymmetry	.898	1.114
	Moral Hazard	.367	2.726
	CR_MH	.979	1.021
	CR_IA	.896	1.116
	CR_IA_MH	.967	1.034

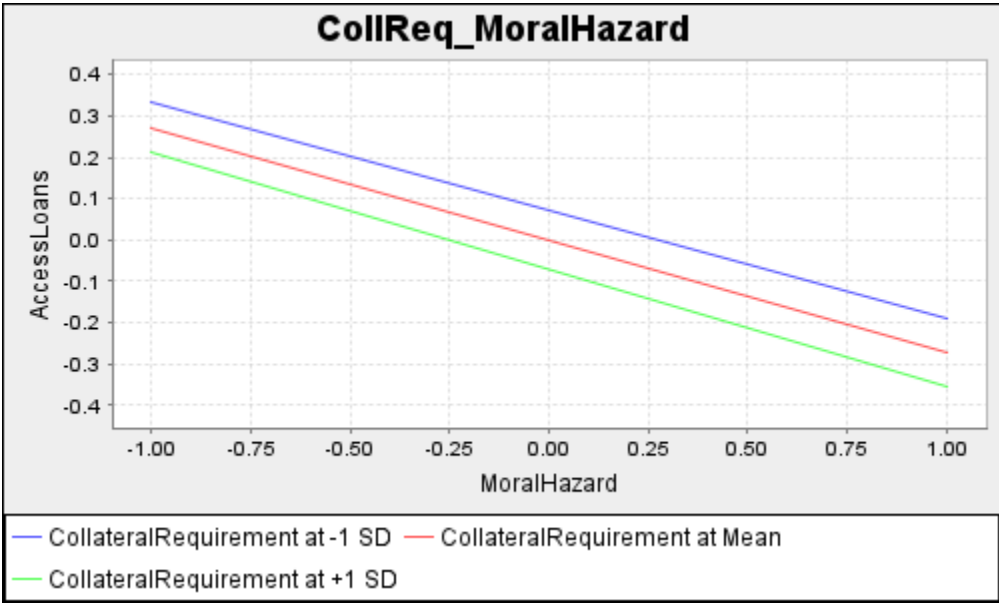
Dependent Variable: Access to Loans

Appendix E: Moderating Relationship of Information Asymmetry Slope



Source: SMART PLS Computation Using PLS Algorithm

Appendix F: Moderating Relationship of Moral Hazard Slope



Source: SMART PLS Computation Using PLS Algorithm

