KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

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DEPARTMENT OF ECONOMICS

FACTORS INFLUENCING CREDIT DENIAL TO SMALL AND MEDIUM SCALE ENTERPRISES (SMEs) IN GHANA

A THESIS SUBMITTED TO THE DEPARTMENT OF ECONOMICS IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF

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DECLARATION

I hereby declare that this research work is part of the requirement toward the attainment of a Master of Sciencein Economics and that, to the best of my knowledge, it contains no material previously published by another person nor materials which have been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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SUPERVISOR'S DECLARATION

I declare that I have supervised the student in undertaking the study submitted herein and I confirm my permission to present it for assessment.

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DEDICATION

I dedicate this thesis to the Almighty God for His strength, wisdom, knowledge and guidance. I also dedicate this piece of work to my parents.

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ABSTRACT

In spite of the numerous policies and strategies to support and sustain the growth of SMEs in Ghana, SMEs are still faced with challenges especially in accessing credit from the financial institutions in the country. However, much is not known regarding the factors influencing credit denial to SMEs in Ghana. The purpose of this study is to investigate the factors that influence SMEs credit denial by the financial institutions in Ghana. A sample of 400 SMEs was selected from Kumasi Metropolis using simple random sampling technique. Logistic regression model was applied to the data. The study showed that permanent place for business, age of firm, business plan, firm's profit level, ownership structure, registration status, credit maturity period, availability of collateral, credit history and record keeping are the major factors that influence SMEs credit denial in Ghana. The study also found that, majority of SMEs reinvest the profit generated into the business for its sustainability. It is therefore recommended that SMEs should try as much as possible to have permanent place for business and also have business plan that will guide their operations.

TABLE OF CONTENTS

Content **Page**

LIST OF TABLES

Table **Page**

LIST OF FIGURES

Figure **Page**

CHAPTER ONE

INTRODUCTION

1.0 Background of the study

The development of Entrepreneurship and Small and Medium scale Enterprises (SMEs) have been acknowledged globally as instruments for achieving economic growth and development as well as employment creation (Rebecca and Benjamin, 2009). The SMEs constitute about 90% of total business units in Ghana and account for 60% of Ghana's employed labour force (Korean Development Institute, 2008). The National Industrial Census (2003) report indicates that about 98.9% of registered businesses are Small and Medium Scale Enterprises while the remaining represents large establishments. SME is defined by the National Board of Small Scale Industries (NBSSI) as enterprisesthat have employees not more than twenty nine. Again, it is an enterprise with investment in machinery and plant with the exception of land and building whose worth does not exceed the equivalent of $100,000. According to Ghana Statistical Service report (2015) on national employment, SMEs engage about 74.2% of employees in Ghana. It is also asserted that SMEs contribute about 70% to Ghana's gross domestic product and also account for 92% of businesses in Ghana (Aryeetey, 2001).

SMEs are often described as the seeds of big businesses, efficient and prolific job creators, and the fuel for national economic engines. Even in the developed industrial economies, SME sector is the major employer compared to the multinational companies (Mullineux, 1997). SMEs possess great potential for improvement of local technology, employment creation, output diversification, development of indigenous entrepreneurship and forward

integration with large scale industries (CBN, 2011). Developments of SMEs in developing countries are generally envisaged to be very desirable due to their perceived contribution to decentralized job creation and generation of output. A study conducted by Bastiat Ghana, a liberal economy think thank shows that 92% of companies registered in Ghana are micro, small and medium scale enterprises (www.myjoyonline.com).

According to (Ou and Haynes, 2006; Cook, 2001), the availability of finance is the major factor regarding the development, growth and success of SMEs.Majority of SMEs in developing countries are faced with the problem of "finance gap", which is mainly due to scarcity of debt and equity finance. A finance gap can be the unavailability of either debt or equity finance or both. A great deal has been written about the challenges SMEs face in raising funds as well as obtaining credits from financial institutions. Such issues do not only exist in developing countries, but also in many developed countries like United Kingdom, particularly in small and start-ups businesses. SMEs source of funding includes initial internal sources, such as own personal savings and retained profits (Wu,Song, and Zeng, 2008). External sources like financial assistance from family and friends have also been used by SMEs (Abouzeedan, 2003). Trade credit, venture capital and angel financiers are also source of finance for SMEs (He and Baker, 2007). Other sources of finance for SMEs are financial intermediaries such as banks and securities market (Chittenden, et al., 1996).

From the economic view point, enterprises are not only suppliers, but are also consumers. According to Berry et al. (2002), enterprises play a vital role if they are to position themselves in a market. Their demand for industrial or consumer goods will stimulate the activity of their suppliers, just as their own activity is stimulated by the demand of their clients. Research regarding industrial development of countries shows that SMEs form an integral part of the overall industrial sector and play a significant and active role in the growth and development of countries. In order for SMEs to perform and contribute effectively to the economic growth of a country, access to finance cannot be ignored as it helps the enterprises to carry out their operations successfully and hence expansion. Lack offinance for the activities does not only retard expansion but also the growth and development of a country. Banks are essential in every economy, as they are perceived to be the main financiers for SMEs.

According to Beck et al. (2008), SMEs all over the world are able to access formal financial resources through credit loans from banks. Nevertheless, it is an undisputable fact that banks have little interest in granting credit to SMEs due to their weak financial strength and unreliable business practices. It is asserted by Torre et al. (2010) that financial institutions most at times are unwilling to lend to SMEs due to their inability to disclose the necessary financial information.Again, past studies have reported several factors that influence credit denial to SMEs. Availability of collateral, age of firm, availability of business plan, SMEs default rate, ownership structure of the firm, firms' registration status, having permanent place for business, educational level of management and firms' profit level among others are the factors that have been reported in literature as those influencing credit denial to SMEs (DansoAbbeam, 2014; Nkuah et al., 2013;

Kutsuna and Cowling, 2013; Dukuly, 2012).

1.1 Statement of problem

Even though SMEs contributes immensely to the economic growth of the Ghanaian economy, access to finance has been a major problem and thus put them in a quagmire state. As a result their development and subsequent expectation of enabling the growth of economies are limited. Evidence from study by Bawuah et al. (2014) reveals that there are available financial opportunities for small businesses to access even though Leippoid et al. (2006) have established a contrary view. The latter asserted that financial institutions in Ghana are rather carefulwhen granting credit to Micro, Small and Medium Enterprises (MSMEs). This is because MSMEs have high default rates as well as associated possible riskswithin the sector.

Again, the failure of SMEs to provide collateralsas required by banks before accessing loan is a worrying concern. Even when SMEs who have collateral apply, they often end up being outrightly rejected and others too are not granted the full amount requested in order to embark on the intended project. Collaterals provided by SMEs in order to acquire credit are often seen as "carcass value" which cannot be used to defray the default amount in case it eventually happens. According to Binks et al. (1992), SMEs credit denial is also due to the uncertainty surrounding the survival as well as the growth of SMEs.

Most SMEs lack qualified personnel to manage their activities and this often results in gloomy performance. This poor performance and lack of qualified staff is evidenced in the poor publication of financial information compared to the bigger firms. As a result, SMEs

are also not able to provide audited financial statement, which is one of the key requirements banks expect to see before granting credit. This is supported by the assertion thatprivate owned firms often do not publish quality financial information as expected as compared to those published by the public firms. This result in incomplete information regarding earnings, earnings prospects, financial conditions among others. According to Coleman (2000), potential firms may be denied credit due to the inability to give a standard and accurate financial statement.

Despite high-level policy to support, sustain and promote the growth of SMEs, they are still faced with significant challenges in accessing credit from financial institutions (Ardic et al., 2012 and Demirguc-Kunt and Klapper, 2013). These challenges are even more intense in developing countries and Ghana is no exception.

This research has become important and necessary since most research on financing small and medium size enterprises have not considered examining the factors that lead to their cedit denial (supply side) by financial institutions but rather focuses on examining factors that influence SMEs to apply for credit (demand side). Khalid and Wahab(2014) for instance looked at the demand side of credit by SMEs from financial institutions, by examining the factors that influence SMEs to apply for loan. SMEs applying or demanding for credit from financial institutions are either granted or denied and in most cases do not receive the full amount they requested for. It is therefore prudent to investigate the factors which influence credit denial by the financial institutions in Ghana to the SMEs.

1.2 Objective of study

The main objective of the study is to find out the major factors which influence credit denial by financial institutions to the SMEs in Ghana using Kumasi Metropolis as a case study. Specifically the study seeks to;

1. Find out the characteristics of the selected SMEs in Kumasi Metropolis in the Ashanti region.
2. Examine the factors which influence credit denial by financial institutions to SMEs in the Kumasi Metropolis.
3. Identify other sources of financing SMEs activities in Kumasi Metropolis.

1.3 Research question

The study seeks to answer the following questions.

1. What are the characteristics of the selected SMEs in Kumasi Metropolis?
2. What are the factors which influence credit denial by financial institutions to SMEs in Kumasi Metropolis?
3. What are the other sources of financing SMEs activities in Kumasi Metropolis?

1.4 Significance of the study

SMEs matter because they are dynamic enterprises and job generators (Buckley, 1996; Duarte, 2004; Ganbold, 2008; SBA, 2009; Ardic, Mylenko&Saltane, 2012; Khanam, Rahman &Zarook, 2013). SMEs contribute to the economic growth of the nation. Even

though SMEs are seen as contributing immensely to the economic growth of the nation, still struggle in getting access to finance for their business operation.

The study is significant in the sense that it adds up to the limited empirical literature regarding factors that influence credit denial to SMEs by financial institutions. Research on factors influencing SMEs credit denial by financial institutions is not enough in Ghana. Most studies usually concentrates on factors that influence SMEs to demand or apply for credit without taking into account the factors that influence their credit denial. Hence this study is relevant in filling such lacuna.

The findings of this study will help government and other stakeholders to have more insight into the challenges SMEs face in financing their operations and will aid in making sound and concrete policies that will sustain and promote SMEs growth in Ghana. The findings of the study may provoke further research into the factors influencing SMEs credit denial by financial institutions in Ghana.

1.5 Scope of the study

This study was carried out in Kumasi Metropolis in the Ashanti region, Ghana. The study concentrated on Small and Medium scale Enterprises (SMEs) in Kumasi Metropolis who engage in activities such as batik tie and dye, artisans, food processing, bakery, farming, wood carving, metal and machinery works among others. Information including firm's age, number of employees, record keeping, registration of the firm, whether credit applied for are granted, partially granted or rejected outrightly, profit level of firms and ownership structure of the firm were elicited from the selected SMEs.

1.6 Organisation of the study

This study organized into five chapters. Chapter one is the general introduction of the study and contains background of the study, problem statement, study objectives as well as significance and scope of the study. Chapter two deals with the literature review which is an in depth analysis of research already conducted in the study area. Chapter three is the methodology and outlines the various strategies and techniques used to achieve the study objectives. It contains type and source of data, model specification, description of variables and their a prior signs, sampling and sampling techniques, techniques for data collection and analysis. Chapter four focuses on data representation and results discussion. The final chapter deals with summary of major findings, conclusion as well as the recommendations regarding the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter reviews relevant literature that forms basis for this study. The chapter focuses on review of relevant theories, definitions and characteristics of SMEs in Ghana and review of empirical literature.

2.1 Theoretical review

This section focuses on the review of theories concerning SMEs and capital structure of firms. Very useful distinctions and views have been provided with regard to the capital structure of firms.

2.1.1 Stiglitz and Weiss theory

One of the theories that has been used to explain the improper functioning of the financial institutions which leads to credit rationing or credit denial is the theory postulated by Stiglitz and Weiss in 1981. Stiglitz and Weiss (1981) are of the view that there is no perfect information in the market which leads to adverse selection and moral hazards as well as credit rationing. As a result, lenders give out credit at the rate which is almost equal to the risk of lending. When this happens, borrowers with high risk project will demand credit because higher risk implies higher returns on projects. Due to this, firms who are risk averse, knowing very well the credit cannot be repaid at that high interest will move out of the market which indirectly implies their denial. This further implies that, financial institutions who want to reduce the risk will grant loans at a lower interest rate than at higher rate. This will however not lead to lending at the equilibrium lending rate but rather at a lower interest rate. This will lead to credit rationing or credit denial as financial institutions have to be circumspect in granting credit to firms to avoid non repayment hence the credit denial to potential borrowers.

Stiglitz and Weiss (1981) further argued that if financial institutions require collateral for credit, then there will be a problem of adverse selection and credit rationing. They further

posited that since low-risk borrowers anticipate a lower rate of return if the rate of inflation is high, they are on the average less wealthy than high-risk borrowers and are even unable to provide more collateral for extra credit. Thus, as collateral requirements for credit by financial institutions increase, same adverse selection problem, as observed in the case for high interest rates will occur. In total, low risk borrowers which comprise SMEs are rejected from the brook of prospective debtors and financial institutions may be unwilling to grant credit to such firms.The authors concluded that market inefficiencies in developing countries are as a result of information asymmetry in the form of adverse selection and moral hazard. Hence low risk borrowers like SMEs are ignored from the potential borrowers.

2.1.2 Modigliani-Miller (MM) Theorem

The theory of business finance in a modern sense starts with the Modigliani and Miller (1958) proposition of capital structure irrelevance (Murray and Vidhan, 2005). Franco Modigliani and Merton Millerconducted a research on capital structure theory in 1958. The MM theory on capital structure of firms assumed that all financing options (debt and equity) are homogenous. That is all financing options yield same return which leads to the same value of firms in relation to their cash flow. Modigliani and Miller (1958) argued that all debt is homogeneous and perfect substitutes and must therefore have the same risk. With theseassumptions, the authors posited that the value of firm and its capital structure are independent. Violation of this proposition creates arbitrage opportunities, which result in different values between unleveraged and leveraged firms. Again, the theory assumes equal access to capital markets and as such, investors should be indifferent regarding firm's

capital structure. This is because firms could create their own leverage (homemade leverage), so the different financing mix should not affect the company value.

In addition, Modigliani and Miller theory posits that, the firms' market value is affected by its future growth prospect aside the risk involved in the investment. Firms or companies which have high growth prospects have greater market value and therefore have high stock prices than those with low growth.

The theory also assumes a costless bankruptcy. Bankruptcy cost is a cost directly incurred when the perceived probability that the firm will default on financing is greater than zero. In the event of insolvency, all assets move without cost to the claimants; from equity holders to borrowers.

2.1.3 Pecking order theory

The Pecking order theory or the information asymmetry theoryposited by Myers &Majluf (1984) argued that firms follow financial orderwhen financing investments. According to the authors, firms have a particular preference order for capital used to finance their businesses. The theory suggests that firms may be financially constrained as result of information asymmetry between owners/managers and investors. As a result of this, firms adopt a hierarchy in selecting finance sources. According to Myers (1984), if a firm prefers internal to external financing and debt to equity then it is said to follow pecking order. Firms usually rely on retained profit in financing their businesses as a result of information asymmetries between firms and potential lenders or investors. In instances where a firm resorts to external financing, firms uses debt with little or no risk instead of equity

financing. The more profitable the firm is, the higher is its capacity to accumulate retained profits, hence less need for external finance. The theory reveals that large firms and firms with high growth rate increases debt when internal funds are not sufficient. The theory therefore predicts a positive relationship between debt and growth opportunities.

The most common motivationfor pecking order theory postulated by Myers and Majluf (1984) is the adverse selection as a result of lack of symmetric information. The idea of adverse selection is that owners/managers of firms have information and knowledge of the value of the firm's assets and growth opportunities where as investors do not. If the owner/manager of firms decides to sell equity, then the investor must strive to find out why the manager is willing to do so. Due to lack of symmetric information, larger firms will be pleased to sell equity while smaller firms will not. The authors further argued that adverse selection suggests that retained earnings are better than debt whilst debt is better than equity regarding firms financing.

2.1.4 Trade-off theory

Another theory that explains the financial structure of firms is the trade-off theory. The theory assumes that firms have an incentive to turn to debt as the generation of annual profits allows benefiting from the debt tax shields. This theory is the longest standing theory of capital structure. Kraus and Litzenberger (1973) have provided tax-based theory which is the classical version of the trade theory. The theory provides the optimal capital structure that can maximize a shareholder's wealth and minimize external claims to wealth at the same time. It considers the trade-off between interest tax shield benefits of debt and

financial distress cost. It further suggests that firms are usually financed through debt and equity.

The original version of the trade-off theory originated from the debate over the Modigliani-Miller theorem. When corporate income tax was added to the original irrelevance proposition it creates benefit for debt as it servesas shield earnings from taxes (Modigliani and Miller, 1963). Trade-off theory further suggests that it is advantageous to finance with debt more than equity due to non-debt tax shield since firms with higher level of non-debt tax shields have lower level of debt compared tocounterparts with lower non-debt tax shields. Hence, the theory predicts a negative association between non-debt tax shields and debt.

2.1.5 Agency cost theory

The agency cost theoryposits that firm's capital structure is determined by agency costs, which comprises the cost for both equity issued and debt. This theory was developed by Jensen and Meckling (1976) and is based on conflict of interest. The theory recognizes two categories of conflicts; (i) Conflict between management and stakeholders (firms owners) and (ii) Conflict between equity holder and debt holders.

Managers have preference for retained earnings in the financing of their firms over external financing. There is agency conflict between stakeholders and managers because the latter hold less than 100% of the residual claim. This kind of conflict stems from the separation of ownership and control. The managers are not driven by the same goals as the stakeholders and therefore are more likely to waste excess cash flow on all gratuity kinds.

Jensen and Meckling(1976) stated that, issuing debt is one of the ways to overcome such problem.

Jensen and Meckling (1976) argued that the conflict of interest between equity holders and debt holders is due to the fact that debt contract gives equity holders motivation to invest sub-optimally as a result of risky debts. The authors attributed adverse selection and moral hazard problems to the issue of conflict of interest and added that it is common especially among small firms. They further argued that small firms tend to increase the riskiness of their investment due to their flexibility compared to bigger firms. Again, mangers tend to motivate themselves rather than debt holders and this is due to the fact that managers are mostly equity holders. As a result, debt holders tend to raise the restriction level and monitoring activities and this leads to high cost of capital. These reasons lead to lower leverage for smaller firms and one of the avenues to overcome such problem is financing through short term debt.

2.1.6 Market timing theory

One most recent theory regarding capital structure is the market timing theory which is proposed by proposed by Baker and Wurgler (2002). This theory is based on the imperfections in the market. The theory claims that capital structure decision of a firm depends on the timing ability of management. Baker and Wurgler (2002) argue that firms decrease their debt level when they are overvalued and issue equity when the market prices are overvalued. The notion of their theory is that firms issue equity when the market is overvalued. The theory therefore argues that fluctuations in the market value have very long-run impact on capital structure of firms. The financial preferences of firms show the

modification pattern of their stock prices in addition to the aspiration to time of the market. Managers take opportunity of the circumstances and issue shares to eliminate debt pressure. By doing this, the opportunity of firms' entrenchment is amplified throughout the phase of market affluence and expansion. However, the theory of market timing does not depend on the semi-strong form marketplace effectiveness proposition. The opportunity window existsso far as the relative cost of equity shows a discrepancy over time for either illogical or logical grounds.

2.2 Some definitions of small and medium scale enterprises (SMEs)

SMEs have been defined in different ways by different authors. According to (Storey, 1994), single and uniformly acceptable definition of a small firm has not been given. Enterprises differ in levels of capitalization, sales and employment. As a result, all firms will be classified as small when definitions that incorporate measures of size (number of employees, profitability, turnovers, net worth etc.) are applied. Also, the same size definition when applied to a different sector could yield different result. Ward (2005) opined that there is no general definition for SMEs. SMEs are defined at any point in time based on the purpose at hand. In Canada for instance, SMEs are defined as enterprises that have less than 500 employees whereas small enterprises have been defined as those with employees less than 100. Word Bank has also defined SMEs as enterprises with not more than 500 employees. Small and medium scale enterprise can be defined based on the number of employees or on the enterprises' fixed assets. Though Singh and Tandon (2012) have asserted that there is no common agreed upon definition regarding SMEs,three criteria; number of employees, value of assets and sales value have been advocated (see:

Ganbold, 2008; Ardic, Mylenko, and Saltane, 2012). It is stated by Boon (1989) that, the most important criterion for defining SMEs in Ghana is the size of firms' employment.

The Bolton Committee (1971) first attempted to resolve the problem of defining SMEs by formulating an economic and statistical definition. Regarding the economic definition, a firm is regarded as being small if; (i) It has relatively smaller share of the market; (ii) It is managed by owners and has no formalized management structure; and (iii) It is independent; not part of large enterprise**.** In 2005, the European Commission offered a definition based on number of employees and annual balance sheet or annual turnover regarding what a micro, small and medium sized enterprise is. The EU has standardized its concept by providing a quite acceptable international definitionwhich is shown in Table 2.1.

Table 2.1 The European Union Definition of SME

Enterprise Category	Headcount	Turnover Balance s	heet total
Medium-sized	<250	≤ € 50 million	≤ € 43 million
Small	<50	≤ € 10 million	≤ € 10 million
Micro	<10	≤ € 2 million	≤ € 2 million

Source: European Commission (2005).

The World Bank since 1976 has described Small Scale Enterprises as firms with fixed assets (excluding land) value of less than US$250,000. The USAID, on the other hand, did

not consider fixed assets in their definition. In the 1990s, they described Small and Medium Scale Enterprises as firms with employees less than 50 and selling at least half ofthe output. UNIDO, just like USAID, places much priority on the number of employees. The only distinction here is that UNIDO does not consider any other factor. According to them, large firms are firms with a minimum of 100 workers. Medium firms are firms with an employee size between the range of 20 and 99. Small firms, on the other hand, covers firms with employee size of between 5 and 19 while micro firms employ less than 5 workers. The need for a working definition to be offered to suit the organizing context of SMEs in any country depends on the level of development, nature of production technologies, structure of the economy and other factors. In Ghana, the main reason for the need for definitions is to create criteria that will cut off certain support interventions to those enterprises that are not considered to need the support.

According to the industrial census by Ghana Statistical Service (1987), firms with employees between 5 and 29 and a fixed assetof not more than $100,000 are classified as small scale, whereas firms with employees between 30 and 99 are classified as medium scale. The National Board of Small Scale Industries (NBSSI) have also applies both number of employees and fixed asset criteria. NBSSI defines Small Scale Enterprise as firm with employees not exceeding 29, and has machinery and plant (excluding land, buildings and vehicles) whose worth does not exceed 10 million cedis (US$ 9506, using 1994 exchange rate).

On the other hand, the Ghana Enterprise Development Commission (GEDC) have used 10 million cedis upper limits definition for machinery and plant. However, the process of

valuing fixed assets in it creates a problem which needs to be recognized. According to Dalitso and Quartey(2000), this definition is outdated due to the continuous depreciation and fluctuations in the exchange rate.SMEs is defined as an industry, project, undertaking or economic activity which employworkers not exceeding 100 and whose total asset base (excluding land and building) does not go beyond US$1 million (cedi equivalent) (Venture Capital Trust Fund Act 2004-Act 680 section 28).

2.3 Characteristics of SMEs in Ghana

The difference between Small and Medium Scale enterprises and larger firms is that, SMEs are excluded from international and local capital market due high cost of intermediation and smaller project whilst larger firms have access to international and local capital market. Again, SMEs have limited capacity to market product abroad and also have the same fixed cost as in the case of Large Scale Enterprises regarding adherence to regulations.

In Ghana, SMEs are categorized into two; rural and urban enterprises. Urban enterprises are further divided into unorganized and organized. The former comprises artisans who work in temporary wooden structures and open spaces. Again, they have few employees and most at times without salaried workers. Unorganized enterprises often rely on family members for labour. On the other hand, organized enterprises have workers who are paid and also have registered office. Rural enterprises often comprise individual artisans, family groups and women who engage in food production. Some of the activities found in the rural enterprises aredetergent and soap production, fabrics, tailoring and clothing, leather and textile, village blacksmiths, tin-smiting, mining and timber, ceramics, cement and

bricks, beverages, bakeries. Others include food processing, wood furniture, agro processing, electronic assembly, chemical based products and mechanics (see: Liedholmand Mead, 1987; Osei et al., 1993; World Bank, 1992; and Gray et al., 1997).

According to Abor and Biekpe (2006), most SMEs are female-owned businesses and are mostly, home-based compared to males owned counterpart and as a result are mostly ignored in official statistics. Their neglect from official statistics apparently negatively affects their chances of having access to financing schemes. This is because such programmes are designed without taking into consideration females owned businesses. These females most at times have the notion of being incapable of taking advantage of finance schemes considering the administrative cost and the benefits accrued. Studies conducted in Ghana show that female-owned SMEs often have difficulty accessing credit. Females are mostly involved in sole-proprietorship businesses and are mainly microenterprises which lack the necessary collateral to secure credit.

Studies conducted in Ghana and other parts of the world have revealed that capital productivity is often higher in Small and Medium Scale Enterprises compared to Large Scale Enterprises counterpart (see Steel, 1977; Child 1971). Small and Medium Scale Enterprises are often labour intensive with very small amount of capital invested.SMEs in Ghana are heterogeneous comprising metal partsmaking, small workshops, making furniture, clothing, manufactures of machinery as well as service providers includingconsulting, restaurants, and computer software firms. Other SMEs are also growth-oriented and innovative.

2.4 Empirical review

Diaz-Serrano and Sackey(2015) examined the factors that influence SMEs credit denial in Ghana. Using a sample size of 1429 SMEs, probit estimation technique was applied to the data. The study revealed that SMEs with more number of years in operation are less likely to be denied credit. The study further showed that SMEs that engage in agricultural sector activities are more likely to be denied credit by financial institutions. The study further revealed that SMEs that engage in manufacturing sector activities are less likely to be denied credit by the financial institutions. Again, it was revealed that the educational level of SMEs owners or managers has a significant impact on credit denial by financial institutions to SMEs. Owners/managers of SMEs with high level of education are less likely to be denied credit than those with low educational background.

In a related study, DansoAbbeam et al. (2014) investigated the factors that influence credit denial among SMEs in Kasoa, Ghana. A sample size of 140 SMEs was employed and Probit and Tobit estimation techniques were applied. The study revealed that older SMEs, in terms of number of years in existence are less likely to be denied credit by financial institution as compared to younger SMEs who are more likely to be denied credit. Again, the study revealed that SMEs managers with high level of education are less likely to be denied credit. The study further revealed that SMEs with collateral security are less likely to be denied credit by financial institutions as compared to those without collateral security. The results also revealed that SMEs with higher sales and high income/profit levels are less likely to be denied credit than their counterparts with low level of income/profit and sales.

Binam and Abo(2013) investigated the factors that influence SMEs credit denial in Cote

D'Ivoire. A sample of 50 SMEs was employed and Chi-square test and cross tabulation were used for the analyses. The results revealed that the ability of SMEs to provide collateral has a significant influence credit denial. Firms with available collateral are less likely to be denied credit compared to those with no collateral. Their study further revealed that SMEs with more years of existence are less likely to be denied credit by financial institutions than those with fewer years in operations. Again, their study revealed that the ability of SMEs to keep records and provide such information upon request by the financial institutions also influence credit denial. That is, SMEs that keep records and are able to provide it are less likely to be denied credit compared to counterparts that do not keep such records. It was also established that SMEs that request credit with longer period for repayment period are more likely to be denied compared to those with shorter repayment periods. The study again showed that SMEs that are single owned and family owned are more likely to be denied compared to those that are partnership owned. It was also established that SMEs that engage in agricultural activities, services and retail activities are more likely to be denied compared to those that engage in construction and manufacturing activities.

In related study in Ghana, Nkuah et al.(2013) also investigated the factors that influence SMEs credit denial by financial institutions. A sample of 80 SMEs in the Wa municipality was employed and cross tabulation was applied. The study revealed that SMEs that engage in the service sector are less likely to be denied credit as compared to those engaged in other sectors of the economy. Their study further showed that the ownership structure of firms has no significant effect on credit denial by financial institutions to SMEs. Their study further revealed that SMEs that are registered with

Registrar General's Department and have business plan are less likely to be denied credit by financial institution. The result also showed that SMEs with available collateral are less likely to be denied credit compared to those with no collateral. Again the results revealed that SMEs with permanent place of business are less likely to be denied credit by financial institutions compared to counterpart with no permanent place of business for operation.

In a related study, Kutsuna and Cowling (2013) has also examined the determinants of small business credit approval in Japan. A sample of 4835 was employed and logistic regression estimation technique was applied to the data. The results indicated that SMEs that have existed for longer period are less likely to be denied credit by financial institutions compared to SMEs that have existed for shorter period. The results again showed that SMEs with increasing revenue or profits are less likely to be denied credit compared to SMEs with little or declining sales and profit. The study further indicated that firms with credit facilities with other financial institutions firms are more likely to be denied credit comparing to SMEs that have credit facilities from a single financial institutions. Finally, their result indicated that SMEs that have properties to be used as collateral are less likely to be denied compared to those without properties.

Dukuly(2012) investigated credit participation and access by SMEs in Liberia. Using a sample size of 342 SMEs probit estimation technique was applied to the data. The results showed that SMEs that have credit facilities with many financial institutions are more likely to be denied credit compared to counterparts with credit facilities with single financial institution. The results further revealed that SMEs with business plan are less likely to be denied credit compared to those with no business plan. The investigation also

revealed that availability of collateral has potential impact on the granting of credit to SMEs by financial institutions. That is, SMEs with available collateral are less likely to be denied credit as compared to those with no collateral. Again the results show that SMEs with low profit level are more likely to be denied credit as compared to those with high level of profit who are less likely to be denied credit by financial institutions. It was further established that SMEs that have defaulted in previous loan repayment and those that have existed for little years are more likely to be denied compared to SMEs that have never defaulted in loan repayment and those that have existed for longer period.

Maziku(2012) investigated credit rationing for small and medium scale enterprises in the commercial bank loan market in Tanzania. A sample of 271 SMEs was employed and cross tabulation was used for the analyses. The study revealed that SMEs with no collateral securities are more likely to be denied credit by financial institutions compared to SMEs with collateral. The empirical results further revealed that SMEs with poor credit history in terms of default payment are most likely to be denied credit by financial institutions compared to SMEs with good credit history. The study also showed older

SMEs are less likely to be denied of credit by financial institutions than younger SMEs. The results again revealed that SMEs with poor record keeping are more likely to be denied credit as compared to those with good record keeping. The survey further revealed that SMEs that engage in the trading and service sector are more likely to be denied credit by financial institutions compared to those in other sectors like manufacturing and construction. The study further revealed that SMEs that apply credit and agree to repay in longer period are more likely to be denied credit compared to counterparts that request and agree to repay in shorter period.

Domeher (2012) in a related study employed descriptive statistics to find out the determinants of credit denial among SMEs in Ghana. The researcher however looked at the determinants from the perspective of the financial institutions. In all a sample of 108 financial institutions in Ghana comprising banking and non-banking financial institutions was used. The study revealed that financial institutions accept collateral such as land property when granting loans and so SMEs that do not have collaterals are often denied compared to SMEs who have collaterals.

Similarly, Atieno (2009) examined the factors that influence SMEs credit denial in Kenya. The researcher employed a sample size of 322 SMEs and applied tables and descriptive statistics in the analyses. The results revealed that SMEs with high level of sale and high profit level are less likely to be denied credit by financial institutions as compared to those with low level profit and sales. The study also revealed that SMEs with available collateral are most likely to be granted credit as compared to those without collateral that are more likely to be denied credit by financial institutions. The study further revealed that SMEs that have existed for longer periods are less likely to be denied credit compared to those that are relatively younger. It was also established that SMEs that are registered with the appropriate office are less likely to be denied credit compared to SMEs that are not registered. The researcher also found that SMEs that engage in manufacturing and service sectors of the economy are less likely to be denied credit compared to counterparts that engage in agricultural sector of the economy.

In a related study, Fraser (2009) applied Bivariate Probit estimation technique to 2373 SMEs sampled in United Kingdom (UK). The results of the survey indicate that younger

firms are more likely to be denied credit by financial institutions as compared to older firms. That is, the younger SMEs are often not in better position to repay loans granted to them hence their rationed. The result further indicates that firms with available collateral are mostly not denied credit as compared to firms with no collateral. The results further revealed that firms with high profit level are less likely to be denied credit where as firms with low profit level are mostly denied credit by financial institutions. It was also established that SMEs with bad record keeping are more likely to be denied credit as compared to those with good record keeping. The researcher also found that SMEs that have multiple credit facilities from many financial institutions are more likely to be denied credit compared to counterparts without multiple credit facilities from many financial institutions.

In summary, this chapter has discussed the theoretical and empirical review that form basis for this study. Indeed, some studies have been conducted on the topic in other countries and in Ghana, but the evidence in Ghana is not sufficient and therefore this study contribute to literature by further investigating factors that influence SMEs credit denial in Ghana using Kumasi Metropolis as case study.

CHAPTER THREE

RESEAECH METHODOLOGY

3.0 Introduction

This chapter focuses on the methodologies that were employed for the study. It comprises five parts. The first and second parts contain the types and source of data and sampling and sampling technique. The third and fourth parts deal with techniques for data collection and analyses and model specification accordingly. The final part focuses on definition and measurement of variables and their a priori signs.

3.1 Study area

The study was carried out in the Kumasi Metropolis in the Ashanti region, Ghana. Kumasi metropolis is one of the thirty municipalities in the region with Kumasi as it administrative capital. It is the second largest most populous city in Ghana next to the national Capital, Accra. Some of the major towns in the Kumasi Metropolis include

Kwadaso, Ash Town, Amakom, Pankrono, Buokrom, Ahinsan, Atonsu, Old Tafo,

Tanoso, Bantama, Asafo and New Tafo (See Appendix for full map of Kumasi Metropolis). The Metropolis has an area of 214.3 kilometer squared and the total population is estimated to be 1,730,249 comprising 47.8% males and 52.2% females (Ghana Statistical Service, 2010).

The occupational compositions of the area include managers (4.4%), professionals (8.8%), technicians and associate professional (2.7%), clerical support workers (2.7%), service and sales workers (38.9%), skilled agricultural forestry and fishery workers (2.6%), craft and related trades workers (22.8%), plants and machine operators and assemblers (6.7%), elementary occupations (10.3%) and other occupation (0.1%) (Ghana

Statistical Service, 2010). The ethnicity composition of the people in the area comprises Asante (80.7%), Mole Dagbon (8.7%), Ewe (3.6%). All the other ethnic groups in Ghana are found in the Kumasi Metropolis. The area is also dominated by Christians with a percentage of 84.5%. Traditionalist is 1.2%, Muslims are 11.2% and residents with no religion is also 3.1%. Kumasi Metropolis can also boast of ten tertiary institutions, fifty two Senior High Schools, five hundred and ninety seven Junior High Schools, nine hundred and sixty seven Primary Schools as well as nine hundred and nineteen Kindergarten and Nursery, all comprising both private and public (Ghana Statistical Service, 2010). The area also has 136 health facilities which provide health care to the residents with KomfoAnokye Teaching Hospital being the biggest (Ghana Statistical Service, 2010).

The Metropolis can also boast of a number of financial institutions including universal banks (eg. GCB bank, Barclays bank, UT bank, CAL bank, etc), microfinance institutions (eg.Dalex Financial services, Izwe Financial services, Bayport financial services etc.), rural banks (eg.Asante Akyem,Nwabiagya, YaaAsantewaa, Atwima, Juaben, Adansi rural banks etc.) andnon banking financial institution (eg. First Allied savings and loans, Multi credit savings and loans, Utrak savings and loans etc.)(Ghana Statistical Service, 2010).

The Kumasi Metropolis was chosen for the study because is a commercial area which has many small and medium scale enterprises and so the data collected could be generalized to represent the rest of the SMEs in the country to some extent. Again, the area was chosen for effective data collection for the study.

3.2 Study design

This section focused on the various methodologies and strategies that were employed by the study to achieve the objectives of the study. This section contains the target population, sample and sampling technique, instrumentation, data collection and analysis, ethical issues and pre-testing of instrument for data collection for the study.

3.2.1 Targeted Population

The study focused on small and medium scale enterprises in the Kumasi metropolis that have ever applied for credit and have been denied or not. The study sought to find out the factors that influence SMEs credit denial in attempt of financing their operations and so these SMEs that have applied for loans and have been denied or not were the targeted group for the study. The industrial population in Ghana is mainly Small and Medium scale enterprises (Abor and Quartey, 2010). One of the definitions given to classify firms in Ghana is by the Regional Project on Enterprise Development Manufacturing Survey using number of employees. Businesses with up to 29 employees are classified as small, 30 – 99 are classified as medium and businesses with employees which are 100 and beyond are also classifies as large (Teal, 2002). The population of SMEs in the study is not exactly known but according to Association of Ghanaian Industries (AGI), the study area has about 3,000 SMEs undertaking manufacturing, services, construction, agriculture and retail activities.

3.2.2 Sample and sampling technique

Using the stated number of SMEs in the study area and following Slovin's (1960) sample

N size formula; $n = \frac{}{1 + N e^{2}}$, where n, N and e are the sample size, population size and the error level as cited in Olutayo (2015), a sample size of 352.94 (Approximately 400) was used for the study using 5% error margin.

The study employed simple random technique to select the sample for the study. The SMEs were randomly selected within Kumasi Metropolis. The simple random technique employed ensured that all small and medium scale enterprises had equal chance of being selected. The sampling frame for the study regardingSMEs within Kumasi Metropolisis about 3000, that engages in agricultural, construction, manufacturing, retailing and other servicing (hairdressing saloons, internet cafes, transport, forex bureaux among others) activities.

3.2.3 Instrumentation

The study relied on primary data and so the survey was conducted using questionnaires. The questionnaire was designed to capture the demographic characteristics of the respondents and characteristics, management and finances information on the selected firms. The questionnaire had 30 questions and had four sections. First section contains looks at the demographic characteristics of the respondents. The second section contains information on characteristics of the firm including whether the firm has a permanent place or office for operation, ownership type etc. The third and fourth sections contain information on firm management and finances such as record keeping, bank account, business plan, owner equity, and source of finance.

3.2.4 Data collection

The data for the study was collected SMEs in the Kumasi metropolis using questionnaires and face-to-face interview. The data collection period was from March to April 2016. These two approaches were employed to speedy up the data collection exercise. SMEs owners who were busy were interacted with and their responses were used to fill the questionnaires while those who were not busy and tight were given the questionnaire to fill. The researcher did not employ research assistants in the data collection. The researcher collected the data from the small and medium scale enterprises to ensure that good responses are obtained. Again, the researcher collected the data to avoid printing of new questionnaires that would have been due to inappropriate filling of the questionnaires.

3.2.5 Data analysis

Statistical Package for Social Sciences (SPSS v.20), Microsoft Excel and Stata (V. 12), were used to document, process, present and analyse the data collected. Descriptive analysis using frequency tables, pie chart and bar graph were also employed to give clear visual representation of the data collected. These tools enabled the researcher to achieve the set objectives and also give the necessary conclusions and recommendations.

Logistic regression model (Logit) was applied to the data collected. Logit model was applied in the study rather than any other estimation technique because, when a dependant variable, which is credit denial in this case is a probability variable which takes values between zero and one (probability of SMEs being denied and probability of not denied), standard ordinary least square estimate technique cannot be applied.

Standard ordinary least square estimate technique is stated to have some statistical problems when applied to dichotomous dummy dependent variable which assumes value which is unpredictable (Greene, 2003 and Cheng and Ahmed, 2014). Also, the dependent variable is a dichotomous dummy variable assuming values of 1 and 0 representing probability of SMEs being denied of credit and not denied credit accordingly (Asteriou and Hall, 2011).

Concept of odd ratio was introduced in order to restrict the dependent variable to take values of 0 and 1 instead of any other value between 0 and 1 to avoid complication analyses. Natural logarithm was then applied to the odd ratio as the next restriction step.

Logistic model was then specified for the study when the restriction was successful. Kutsuna and Cowling (2013) applied Logistic regression model in finding out the factors which influence SMEs credit denial by financial institutions in Japan.

Chi-square test and reliability test was conducted to ascertain the fitness of the model for analyses. The chi-square test and reliability test (using Cronbach's alpha) were carried out to determine the linear by linear association between the dependent and independent variables and internal consistency among the items used in the questionnaires respectively. The reliability test was proposed by Cronbach (1951) and is used to verify how reliable items included in questionnaire. It is used to ascertain the fact that, same responses will be obtained when the questionnaires are given to the same respondents at another period to fill. Cronbach's alpha value which ranges between 0 and 1.0 is used as a measure for the

reliability. The closer the alpha value is to 1.0, the better the reliability and closer it is to 0, the weaker the reliability. Not with standing this, Alpha coefficient of 0.7 (70%) and beyond has been proposed to be an acceptable value (Field, 2009).

3.2.6 Model specification

Credit denial by financial institutions to the small and medium scale enterprises issue has become an area of concern for many researchers globally. Many studies have inquired the factor which influence SMEs credit denial (see Kutsuna and Cowling 2013; Fraser, 2009; Atieno, 2009; Ackah and Vuvor 2011; Maziku, 2012; Dukuly, 2012; Nkuah et al., 2013; Binam and Abo, 2013; Abdesamed and Wahab, 2012; Danso-Abbeam et al., 2014; Diaz-Serrano and Sackey, 2015).

Cross tabulations has been used for the analyses of credit denial by financial institutions to the SMEs (see Atieno, 2009, Maziku, 2012, Nkuah et al., 2013 and Binam and Abo, 2013). Logistic and probability regression models have also been used for the analysis (see Kutsuna and Cowling, 2013, Fraser, 2009, Ackah and Vuvor 2011, Dukuly, 2012, Abdesamed and Wahab, 2012, Danso-Abbeam et al., 2014 and Diaz-Serrano and Sackey, 2015).

Following Kutsuna and Cowling (2013), Abdesamed and Wahab (2012) and DiazSerrano and Sackey (2015), this study specifies the SMEs credit denial in the following logistic regression model.

Probability of SME being denied of credit: $p\ PC_i = (_D = 1)$

Probability of SME not denied of credit: $1 - p_i = P(C_D = 0)$

$$P(C_D = 1) = p_i = \frac{1}{1+e^{-\beta_i x}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.1)$$

$$P(C_D = 0) = 1 - p_i = \frac{e^{-\beta_i x}}{1+e^{-\beta_i x}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.2)$$

Equations (3.1) and (3.2) are the probabilities of SME being denied of credit and not denied respectively.

Introducing the concept of odds ratio to the two probabilities equation (3.3) is derived.

$$odds_i = \frac{p_i}{1-p_i} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.3)$$

Plugging equation (3.1) and (3.2) into equation (3.3) and subsequently taking natural logarithm, equation (3.4) which is the logit model is derived.

$$\ln\left[\frac{P(C_D = 1)}{P(C_D = 0)}\right] = \beta_0 + \beta_i x_i \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3.4)$$

where x_i is a set of independent variables which are permanent place of business (PPOB), Age of firm (AOF), Business plan (BP), Firm's profit level (FPL), Ownership structure (OS), Registration status (RS), Type of economic activity engaged in by the firm (TEA),

Credit maturity period (CMP), Availability of collateral (AOC), Credit history (CH), Credit facilities from many financial institutions (CFFMFI) and Record keeping (RK).

The functional form of equation (3.4) is given by equation (3.5)

$$\ln\left(\frac{P(C_D = 1)}{P(C_D = 0)}\right) = f(PPOB, AOF, BP, FPL, OS, RS, TEA, CMP, AOC, CH, CFFMFI, RK) \ldots\ldots(3.5)$$

Equation (3.5) is therefore re-written to give equations (3.6) for estimation.

$$\ln\left(\frac{P(C_D = 1)}{P(C_D = 0)}\right) = \beta_0 + \sum_{i=1}^{12} \beta_i x_i + u \ldots\ldots(3.6)$$

where $\ln\left(\frac{P(C_D = 1)}{P(C_D = 0)}\right) = C_D$ is the dependent variable, β_0 is the intercepts, β_i (i = 1,2,3...12) is the coefficients of the independent variables of equation (3.6) to be estimated, x_i is a set of independent variables and u is the error term.

3.2.6.1 Definition and measurement of variables and their expected signs

This section looks at the description and measurement of the dependent and the independent variables as well as their expected signs.

3.2.6.1.1 Dependent variables for the credit demand and credit denial models

Credit denial

Credit denial which is a dichotomous dependent variable is the probability of SME being denied and not denied of credit by financial institution. SMEs who were denied (outrightly and partially) were coded 1 and those who were not denied credit (received full amount applied for) were also coded 0.

3.2.6.1.2 Independent variables

Permanent place of business

This variable denotes whether the firms have permanent place or office for operation. It is a binary dummy and takes value of 1 for firms that have permanent place or office for operation and 0 for otherwise. The relationship between permanent place for operation and credit denial is expected to be negative. That is, firms that have permanent offices for operation are less likely to be denied credit because the firm can easily be traced in case of default compared to counterparts which do not have permanent place for operation resulting in the negative relationship. Again, firm with permanent offices are less likely to be denied because the office and the equipments in it can be used to defray the amount defaulted (See Danso-Abeam et al., 2014).

Age of firm

The age of firm represent the number years the firm has been in existence. The age variable is in categorical years and has four categories beginning from 0-2 years to above 8 years. The relationship between credit denial and age of firm is expected to be negative. That is, firms that have been in existence for long time are less likely to be denied because it has gained experienced and for that matter it can be in position to repay the loan demanded ceteris paribus leading to the negative relationship (See Diaz-Serrano and Sackey, 2015, Maziku, 2012 and Fraser, 2009).

Business plan

Business plan represents whether the firm have business plan that guide its operations. It is a binary dummy variable and took the value 1 if a firm has business plan and 0 for otherwise. The relationship between credit denial and business plan is expected to be negative. That is, firms that have business plan for its operations are less likely to be denied loan when it applied. This is because, these categories of firm are seen as those who will be operating with guidelines and so will be able to repay loan when granted compared to firms with not business plan all things being equal resulting in the negative relationship (See Nkuah et al., 2013).

Firm's profit level

Firm's profit level represents the average profit of the firms in Ghana cedis for the past two years. It is continuous variable. The relationship between credit denial and profit level is expected to be negative. That is, firms with high profit are less likely to be denied credit

because the high profit level affirms their repayment ability all things being equal hence the negative relationship (See Danso-Abeam et al., 2014 and Atieno, 2009).

Ownership structure

Ownership structure represents the ownership type of the firm. It is in four categories and is either the firm is single owned, family owned or partnership owned or any other. The relationship between ownership structure and credit denial is expected to be positive or negative. That is, firms that are single owned are more likely to be denied credit because the likelihood of repaying the loan is low and such firm is seen as potential defaulter resulting in the positive relationship. On the other hand, firms that are family owned or partnership owned are less likely to be denied loan because the more number of persons involved in the firm affirms repayment of loan all things being equal hence the negative relationship. Again, the more number of people involved will ensure proper management and collective decision making which will help improve the operations of the firm hence being in the position to repay loan demanded (See Nkuah et al., 2013 and Binam and Abo, 2013).

Firm's registration status

Firm registration status represents whether the firm is registered with the registrar general's department (RGD) of Ghana. It is a binary dummy variable and takes value of 1 for firms that are registered and 0 for otherwise. The relationship between registration status and credit denial is expected to be negative. That is, firms that are registered are less likely to be denied credit when they apply compared to counterparts with no registration. This is because such firms are seen as trust worthy by the financial institutions and the likelihood

of “disappearing” from the public is very low all things being equal hence the negative relationship (See Nkuah et al., 2013 and Atieno, 2009).

Firm’s type of economic activity

Type of economic activity represents the activities undertaken by the firms. The economic activity is in five categories and they are agriculture, service, manufacturing, construction and retailing. The relationship between credit denial and type of economic activity is expected to be varied. According to Diaz-Serrano and Sackey (2015), firms that engage in agriculture are more likely to be denied credit because of their inability to repay resulting in positive relationship. The authorsestablished that firms that engage in manufacturing activities are less likely to be denied because they are able to repay the loan demanded hence the negative relationship. Firms that engage in service activities are more likely to be denied while firms that engage in manufacturing and construction are less likely to be denied (See Maziku, 2012 and Atieno, 2009). Firms that engage in retailing activities are more likely to denied (See Binam and Abo, 2013).

Credit maturity period

Credit maturity period represents the duration for the credit requested by the firms. It is in four categories beginning from within 1 year, 2 to 3 years, 4 to 5 years and above 5 years. The relationship between credit maturity duration and credit denial is expected to be negative. That is, firm that request for credit and decide to repay within shorter duration are less likely to be denied hence the negative relationship because the shorter duration decreases the likelihood of defaulting (See Binam and Abo, 2013 and Maziku, 2012).

Availability of collateral

Collateral availability represents the whether they firms have collaterals to be used to secure the loan being demanded. It is binary dummy variable and takes value of 1 for firms that have collateral and 0 for otherwise. The relationship between credit denial and collateral availability is expected to be negative. That is, firms that have collaterals are less likely to be denied loan resulting in the negative relationship. This is because the financial institutions can use the collateral provided to defray the defaulted amount and so the financial institutions will be willing to grant loans to firms that have collateral compared to firms with no collateral (See Danso-Abeam et al., 2014 and Binam and Abo, 2013).

Firm's credit history

Credit history represents the past credit records of firms in terms of loan repayment. It is a binary dummy variable and took the value 1 if a firm hasever defaulted and 0 for otherwise. The relationship between credit history and credit denial is expected to be positive. That is, firms that have ever defaulted in loan repayment are more likely to be denied loan compared to firms that have never defaulted hence the positive relationship. This is because the financial institutions see this category of firms as being not credit worthy and cannot repay the loan ceteris paribus which increases the probability of not receiving the loan compared to firms that have never defaulted (see Maziku, 2012 and Dukuly, 2012).

Credit facilities from many financial institutions

This represents whether a firm have multiple facilities from more than one financial institution. It is a binary dummy variable and takes value of 1 for firms that have multiple

credits and 0 for otherwise. The expected relationship between credit denial and multiple credits is positive. That is, firms that have multiple credits from more than one financial institution are more likely to be denied credit because the likelihood of defaulting or not repaying the loan is high compared to firms that have credit facilities from same financial institution ceteris paribus hence the positive relationship (See Dukuly, 2012, Fraser, 2009 and Kutsuna and Cowling, 2003).

Firm's record keeping

Record keeping indicates whether a firm keep record of activities. It is a binary dummy variable and takes value of 1 for firms that keep records of activities and 0 for otherwise. The relationship between record keeping and credit denials is expected to be negative. That is, firms that keep records on activities and are able to produce it upon request by financial institutions are less likely to be denied credit compared to firms that do not keep records ceteris paribus resulting in the negative relationship (See Nkuah et al., 2013). Table 3.1 shows the summary of the variable description, measurement and their expected signs.

Table 3.1 Variables description, measurements and expected signs

Variable	Description and measurement	Expected sign
Dependent Variable		
C_D	Credit denial by financial institution to SME. It is a dichotomous dummy variable which takes value of 1 for SME being denied of credit and 0 for otherwise.	
Explanatory Variables		

PPOB	Permanent place of business for the firm. It is a dummy variable which takes values of 1 for firms with permanent place of work and 0 for otherwise.	Negative
AOF	Age of the firm (in categorical years). It is in four categories; from 0-2 years, 3-5 years, 6-8years and Above 8 years.	Negative
BP	Business plan of the firm. It is a dummy variable and takes value of 1 for firms which have business plan and 0 for otherwise.	Negative
FPL	Profit level of the firm. It is continuous variable.	Negative
OS	The ownership structure of the firm. It is in four categories; Single ownership, Family owned, Partnership and others	Positive/Negative
RS	Represents the registration status of the firm. It is a dummy variable which takes value of 1 for registered firms and 0 for otherwise.	Negative
TEA	Represents the type of economy activities the firm engages in. It is in six categories and are Agriculture, Construction, Manufacturing, Retail, Services and others.	Positive / Negative
CMP	Represents credit maturity duration over which the firm want to repay the loan. That is, number of	
	yearsfirm will like to repay the loan if granted. It is in four categories. Within 1 year, 2-3 years, 4-5 years, and Above 5 years.	Negative
AOC	Availability of collateral. It is a dummy variable and takes value of 1 for firms who have collateral for credit and 0 for otherwise.	Negative

CH	Credit history of the firm. It is a dummy variable and takes value of 1 for firms who have defaulted in credit repayment before and 0 for otherwise.	Positive
CFFMFI	Represents credit facilities from more financial institutions. That is, firms having multiple credit facilities from more than one financial institution. It is a dummy variable and takes value of 1 for firms which have multiple credit facilities and 0 for otherwise.	Positive
RK	Represents firms' record keeping status. That is, whether the firm keeps record or not. It is a dummy variable which takes values of 1 for firms who keep records and 0 for otherwise.	Negative

3.3 Ethical Issues

To protect the dignity and image of respondents as well as the information on the various small and medium scale enterprise used in the survey the researcher assured the respondents and made it known to them that this study is for academic purposes and so the information given will be treated as such and with utmost confidentiality. Furthermore, to further assure the respondents of maximum confidentiality, their names, telephone numbers and any other information that will be unethical to collect were not elicited. These reassurances facilitated the study by getting the maximum information from the respondents which helped in achieving the study objectives.

3.4 Pre-Testing of data collection instruments

To ensure high response rate, the respondents and the firm owners were sensitized before the questionnaires were administered. Pilot survey was conducted in January 2016 where 40 small and medium scale enterprises in four towns within the study area; Ayigya, Bantama, Oforikrom and Asafo were selected to fill questionnaire. This enabled the researcher to fine tune the questions which were ambiguous and not clearly asked and also to take notice of mistakes the participants made such asleaving questions unanswered and ticking more answers than necessary, before the main survey was conducted. The pre-testing was conducted to ensure good response from the participants and also to draw good inferencesas well as the recommendations for the study.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 Introduction

This chapter deals with the analyses of the data as well as discussion of the results in line with the objectives set. The chapter is in three main parts. Part one presents the descriptive

analysis of the data and chi-square test of independence. The second and the third parts present the reliability test and logistic regression result accordingly.

4.1 Descriptive Analysis

This section presents the description of the characteristics of the respondents and information on the Small and Medium Scale firms that were used for the study. The characteristics of the respondents discussed are gender, age and educational level. The firm characteristics include profile of the SMEs and information on record keeping on firms' activities and finances. The analyses are based on the 400 respondents who filled their questionnaires correctly and were coded in SPSS.

4.1.1 Characteristics of the respondents

Table 4.1 shows the gender and age distribution of the respondents as well as their educational level. The results show that, 243 of the respondents are males and 157 are females and these represent 60.8% and 39.3% respectively. This indicates that the male respondents are more than the female respondents regarding this study.

Table 4.1 Characteristics of respondents

	Frequency	Percentage

GENDER		
Male	243	60.8
Female	157	39.3 **100**
Total	**400**	
AGE		4.8
18-24 years	19	74.3
25-39 years	297	20.0
40-54 years	80	1.0
55-60 years	4	-
Above 60 years	-	**100**
Total	**400**	
EDUCATIONAL LEVEL		2.8
None	11	6.8
Primary	27	22.8
JHS/MSLC	91	24.5
SHS/O'Level	98	43.3
Tertiary	173	**100**
Total	**400**	

Source: Author's computation using field survey data, March-April, 2016

Regarding the age of the respondents, the result revealed that respondents who are between the ages of 18-24 years are 19 and this represents 4.8%. Respondents who are between the ages of 25-39 years, 40-54 years and 55-60 years are 297, 80 and 4 representing 74.3%, 20.0% and 1% accordingly. The result further shows that the majority of the respondents

are between the ages of 25-39 years. None of the respondents was found to be in the age category of 60 years and above.

With respect to educational level, the result in Table 4.1 indicates that 11 respondents have attained no level of formal education and this represent 2.8%. Respondents who have attained primary and Junior high school or Middle school leaving certificate are 27 and 91 respectively. These represent 6.8% and 22.8% accordingly. The number respondents who have senior high school and tertiary education are 98 and 173 and these represent 24.5% and 43.3% respectively. This implies that majority of the respondents have attained tertiary education. Again, a total of 362 respondents representing 90.6% have at least Junior high school education. This high number of respondents attaining some level of formal education helped in getting good responses for the analyses.

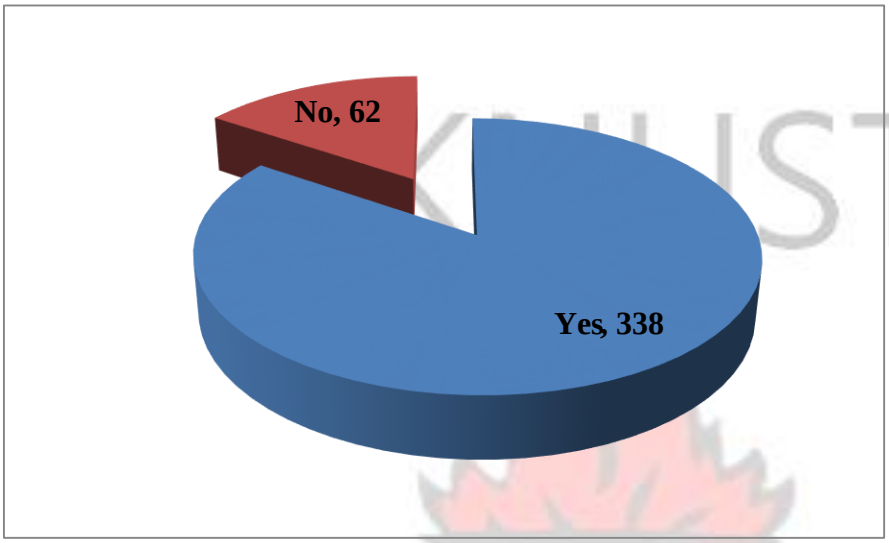
4.1.2 Profile of the selected SMEs

This section looks at the information on the selected SMEs including permanent place for business, type of economic activity engaged in by the SME, ownership structure, registration status, number of employees which is used to measure the size of the firm, number of years the firms have been operating and the number of people forming the management of the SMEs.

4.1.2.1 Permanent Place for Business

The respondents were asked whether the firm has a permanent place (office space) for operation and the response is shown in Figure 4.1.

Figure 4.1 Number of SMEs that have Permanent place for business



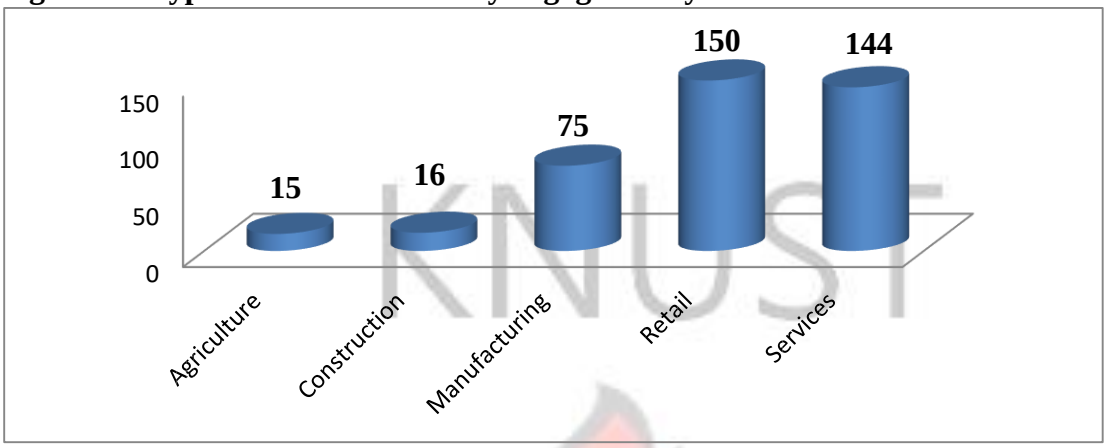
Source: Author's construction using field survey data, March-April, 2016

The result revealed that, 338 respondents representing 84.5% mentioned that they have permanent place for the firm whilst 62 respondents representing 15.5% also asserted that the firm has no permanent place or office for its operations. This indicates that majority of the SMEs in the study area has permanent place or office for the activities of the firm.

4.1.2.2 Type of Economic Activity Engaged in by the SMEs

Economic activity engaged in by the SMEs also influences their ability to access credit and for that matter it was analyzed and the result is shown in Figure 4.2.

Figure 4.2 Type of Economic activity engaged in by the SMEs



Source: Author's construction using field survey data, March-April, 2016

From Figure 4.2, the result showed that 15 and 16 SMEs engaged in Agriculture and Construction activities respectively. Number of SMEs that engage in Manufacturing and retail activities are 75 and 150 accordingly. The result further showed that 144 SMEs engage in services. The respective percentages in terms of economic activities for Agriculture, Construction, Manufacturing, Retail and other Services (hairdressers, laundry, transport, internet cafes etc) are 3.8%, 4%, 18.8%, 37.5% and 36%. This shows that majority of the SMEs engage in retail and services activities.

4.1.2.3 Ownership Structure

In finding out the ownership structure of the selected SMEs, a question was asked and the responses are depicted in Table 4.2.

Table 4.2 Ownership structure of the SMEs

Ownership Structure	Frequency	Percent
Single Ownership	316	79.0
Family Owned	6	1.5
Partnership	78	19.5
Total	400	100.0

Source: Author's computation using field survey data, March-April, 2016

From Table 4.2, the result showed that, 316 of the SMEs are single owned and this represent 79%. SMEs which are family owned and are owned by partnership are 6 and 78 representing 1.5% and 19.5% respectively. This means that majority of the SMEs in the study area are owned by single individuals, followed by partnership owned SMEs and lastly the family owned SMEs.

The crosstabulation of ownership structure and type of economic activity engaged in by the SMEs shown in Table 4.3 indicates that, out of the 316 SMEs which are single owned, 11, 4, 45, 140 and 116 engage in agriculture, construction, manufacturing, retail and services respectively. For the 6 family owned SMEs, 3 of them engage in agriculture and 1 SME each for construction, retail and services. Regarding the 76 SMEs which are owned by partnership, 1, 11, 30, 9 and 27 engage in agriculture, construction, manufacturing, retail and services respectively. Therefore, it can be concluded that most of the single owned SMEs engage in retail and services and majority of the partnership owned SMEs also engage in manufacturing and services. Most of the family owned

SMEs engage in agriculture.

Table 4.3 Crosstabulation of ownership structure and economic activity of SMEs

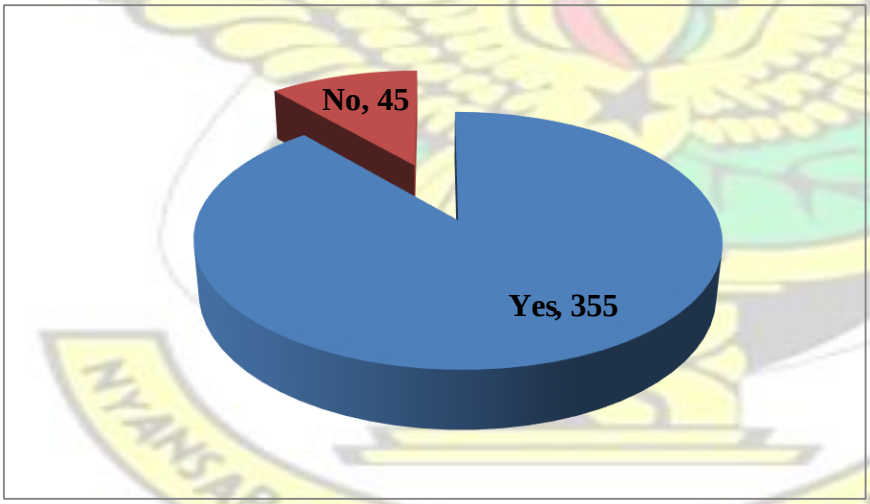
Ownership Structure	Economic Activities					Total
	Agric.	Const.	Manufact.	Retail	Services	
Single Ownership	11	4	45	140	116	316
Family Owned	3	1	0	1	1	6
Partnership	1	11	30	9	27	78
Total	15	16	75	150	144	400

Source: Author's computation using field survey data, March-April, 2016

4.1.2.4 Registration Status of the SMEs

Whether an SME is registered with the Registrar General Department was also elicited and the result is shown in Figure 4.3.

Figure 4.3 Registration Status of SMEs



Source: Author's construction using field survey data, March-April, 2016

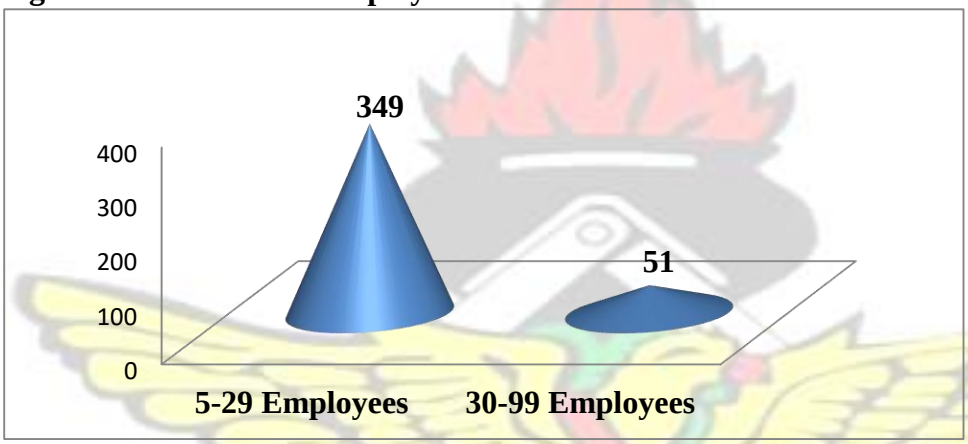
It can be seen from Figure 4.3 that, number of SMEs that are registered with the registrar general department are 355 and those that are not registered are 45. These represent

88.8% and 11.2% respectively. This also means that majority of the SMEs are registered and operating under the regulation of the registrar general department.

4.1.2.5 Number of Employees of the SMEs

The number of employees of the SMEs which measure the firm size was also gathered from the respondents and the result is shown in Figure 4.4.

Figure 4.4 Number of Employees of the SMEs



Source: Author's construction using field survey data, March-April, 2016

The result as shown in Figure 4.4, shows that 349 SMEs have employees between 5 and 29 and 51 SMEs also have employees between 30-99. Measuring the firm size of the 400 SMEs selected for the study according number of employees indicates that, there 349 small scale enterprises and 51 medium scale enterprises. This further indicates that majority of the SMEs in the study area are small scale enterprises.

The crosstabulation of number of employees and ownership structure is shown in Table 4.4.

Table 4.4 Crosstabulation of ownership structure and Number of employees

Ownership Structure	Number of Employees		Total
	5-29 Employees	30-99 Employees	
Single Ownership	295	21	316
Family Owned	6	0	6
Partnership	48	30	78
Total	349	51	400

Source: Author's computation using field survey data, March-April, 2016

The result showed that for the 316 SMEs which are single owned, 295 of them have employees between 5 and 29 and 21 have employees between 30 and 99. This further indicates that there are 295 small scale enterprises and 21 medium scale enterprises for the single owned SMEs. Regarding the 78 partnership owned SMEs, the result showed that 48 of them have employees between 5 and 29 (small scale enterprises) and 30 have employees between 30 and 99 (medium scale enterprises). For the family owned SMEs, all the 6 have employees between 5 and 29 indicating that they are all small scale enterprises.

4.1.2.6Years of Operation of the SMEs (Age of firm)

The number of years the selected SMEs have been operating is shown in Table 4.5. The result shows that 90 SMEs have operated for between 0 and 2 years and this represent 22.5%. SMEs that have been in operation between 3-5 years and 6-8 years are 95 and 82 and these represent 23.8% and 20.5% respectively. The result further showed that 133 SMEs representing 33.3% have been in operation for more than 8 years. This indicates that majority of the SMEs have operating for more than 8 years in the study area.

Table 4.5 Age of Firm

Years of Operation	Frequency	Percent
0-2 Years	90	22.5
3-5 Years	95	23.8
6-8 Years	82	20.5
Above 8 Years	133	33.3
Total	400	100.0

Source: Author's computation using field survey data, March-April, 2016

4.1.2.6 Number of people forming the Management

On the number of people that form the management of the SMEs, the result is shown in Table 4.6. The result revealed that, the number of management members for each SMEs ranges from 1 to 14. The number of SMEs that stated have 1, 2, 3, 4, and 5 people forming the management are 110, 65, 116, 80 and 18 and these represent 27.5%, 16.3%, 29%, 20% and 4.5% accordingly. Number of SMEs that have 6 people forming the management are 6, and 7 people forming management are 2. The result further showed that, just one SME each indicated that they have 8 people, 10 people and 14 people forming the management. The result also revealed that, the average number of people that forms the management for the selected SMEs are 2.7 (approximately 3 people).

Table 4.6 Number of people that forms the Management

	N	Minimum	Maximum	Mean
	400	1.00	14.00	2.7000

Number of people that form management				

Source: Author's computation using field survey data, March-April, 2016

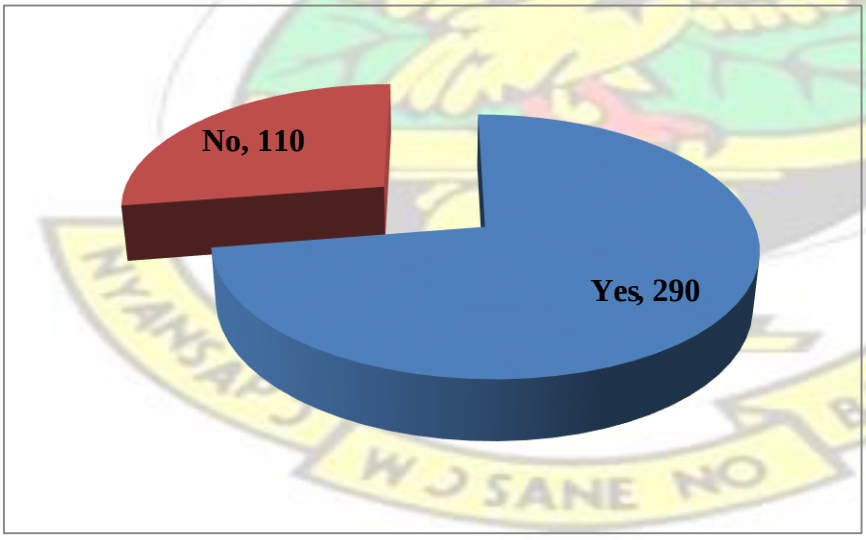
4.1.3 Information on record keeping and documentation

This section looks at whether the selected SMEs undertake documentation for the firm in terms of record keeping on SME's activities, books of account, business plan and bank account.

4.1.3.1 General Record keeping of SME's activities

Whether the SMEs keep records of the activities that goes on in the firm or not was ascertained and the result is shown in Figure 4.5.

Figure 4.5 General Record Keeping by SMEs



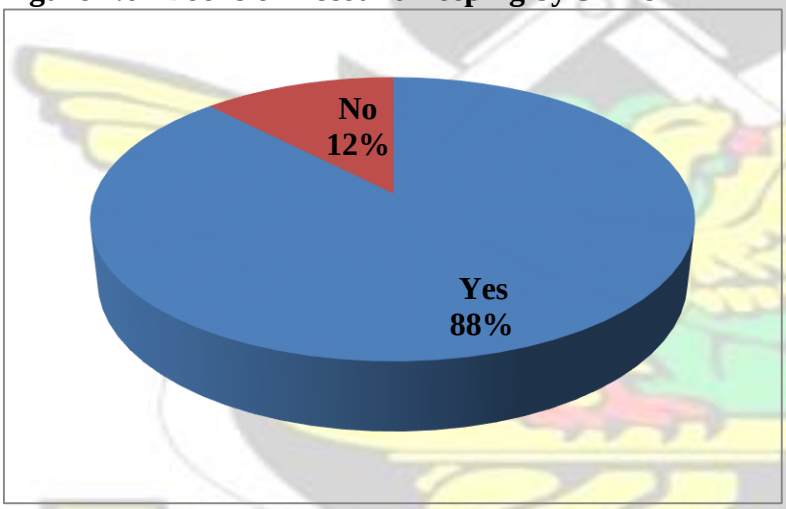
Source: Author's construction using field survey data, March-April, 2016

The result in Figure 4.5 depicts that, 290 SMEs indicated that they do keep records of the firm's activities and this represent 72.5%. On the other hand, 110 SMEs also asserted that they do not keep record of the firm's activities and this also represents 27.5%. it can therefore be construed that majority of the selected SMEs keep general records of the activities that goes on in the firm's operation.

4.1.3.2 Keeping of Books of Accounts by SMEs

To establish whether the selected SMEs keep books of account for the firm, a question was posed and the result is presented in Figure 4.6.

Figure 4.6 Books of Account Keeping by SMEs



Source: Author's construction using field survey data, March-April, 2016

From Figure 4.6, the result showed that, 351 SMEs representing 88% keep books of account for the firm whilst 49 representing 12 do not keep books of account for the firm. This therefore indicates that majority of the selected SMEs do keep books of account for the firm.

4.1.3.3 Bank Account for SMEs operations

The status of whether an SME have bank account is presented in Table 4.7. The result revealed that 399 SMEs have bank account for the firm whilst just 1 SME do not have bank account and these represent 99.8% and 0.2% respectively. This implies that majority of the SMEs have bank account.

Table 4.7 Bank Account for SMEs

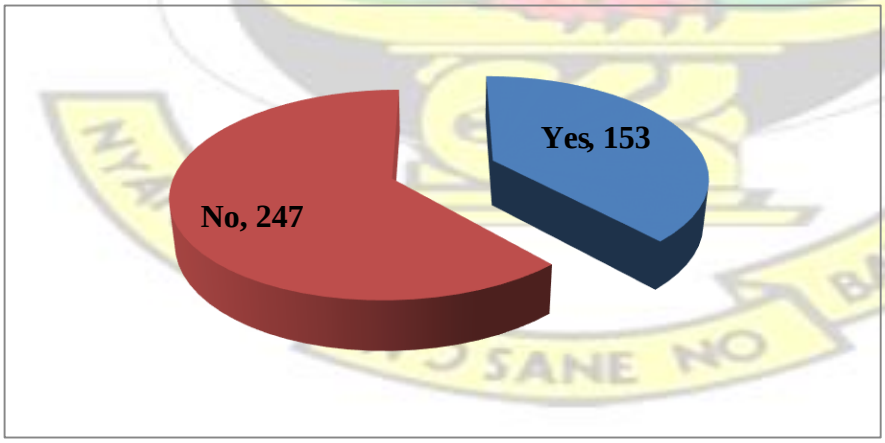
Response	Frequency	Percent
Yes	399	99.8
No	1	0.2
Total	400	100.0

Source: Author's computation using field survey data, March-April, 2016

4.1.3.4 Business Plan for the SMEs

Whether the SMEs have business plan that guide their activities was also elicited and the result is shown in Figure 4.7.

Figure 4.7 Business Plan for SMEs



Source: Author's construction using field survey data, March-April, 2016

The result revealed that, 153 SMEs have business plan that guide the activities of the firm and 247 SMEs have no business plan that guide the activities of the SME. These represent 38.3% and 61.8% respectively. This further implies that majority of the selected SMEs have no business plan that guide their activities. The crosstabulation of ownership structure and business plan is presented in Table 4.8.

Table 4.8 Crosstabulation of ownership structure and business plan

Ownership Structure	Business Plan		Total
	Yes	No	
Single Ownership	89	227	316
Family Owned	4	2	6
Partnership	60	18	78
Total	153	247	400

Source: Author's computation using field survey data, March-April, 2016

The result in Table 4.8 shows that out of the 316 SMEs that are single owned, 89 have business plan and 227 do not have business plan. This indicate that most of the single owned SMEs have no business plan compared to SMEs which are partnership owned of which 60 out of the 78 SMEs have business plan and just 18 of them do not have business plan. For the 6 family owned SMEs, 4 of them have business plan and 2 of them do not have it.

4.1.4 Information on financing and credit application

This section looks at the information pertaining to the finances and credit acquisition of the selected SMEs. The information include availability of collateral, credit history (using whether an SME has defaulted before or not), outcome of the credit application (either

SME received the credit or was denied), credit from many financial institutions, profit level and duration of the requested credit by the SMEs.

4.1.4.1 Availability of Collateral

Table 4.9 shows the information on availability of collateral by the selected SMEs.

Table 4.9 Availability of collateral

Response	Frequency	Percent
Yes	290	72.5
No	110	27.5
Total	400	100.0

Source: Author's computation using field survey data, March-April, 2016

The result showed that 290 SMEs representing 72.5% indicated that they have collateral they use as collateral to secure credit from financial institutions. On the other hand, 110 SMEs representing 27.5% also mentioned that they do not have collateral they use to guarantee credit from the financial institutions. The result implies that majority of the SMEs have collaterals they use to secure the credit they demand from the financial institutions.

4.1.4.2 Credit from more than one financial institution

The survey also ascertained whether the SMEs have multiple credit facilities from different financial institutions and the outcome is presented in Table 4.10.

Table 4.10 Credit from many financial institutions

Response	Frequency	Percent
Yes	82	20.5
No	318	79.5
Total	400	100.0

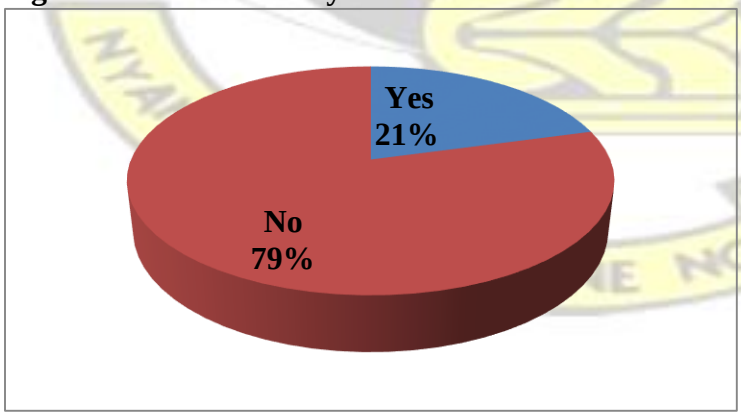
Source: Author's computation using field survey data, March-April, 2016

The result from Table 4.10 depicts that 82 SMEs responded that they have multiple credit facilities from different financial institutions and this represent 20.5%. on the other hand, 318 SMEs also mentioned that they do not have multiple credit from different financial institutions and this also represent 79.5%. This means that majority of the selected SMEs have credit facilities from one particular financial institution.

4.1.4.3 Credit History of SMEs (Whether defaulted before or not)

Whether an SME has ever defaulted in credit repayment is presented in Figure 4.8. The result shows that, 83 SMEs have ever defaulted in credit repayment and 317 SMEs have never defaulted in credit repayment. These represent 20.8% and 79.2% respectively.

Figure 4.8 Credit history of SMEs



Source: Author's construction using field survey data, March-April, 2016

4.1.4.4 Outcome of the credit application

Table 4.11 shows the outcome of the credit that the SMEs applied from the financial institutions. The result revealed that, 215 SMEs received the credit applied whilst 185 SMEs denied of the credit and these represent 53.8% and 46.2% accordingly.

Table 4.11 Outcome of the credit application

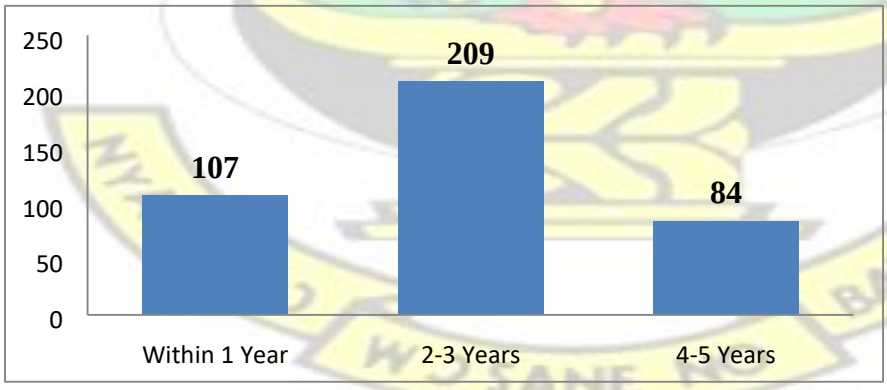
Response	Frequency	Percent
Received the credit	215	53.8
Denied of the credit	185	46.2
Total	400	100.0

Source: Author's computation using field survey data, March-April, 2016

4.1.4.5 Credit duration requested by the SMEs

The repayment duration for the credit requested by the SMEs was also elicited from the respondents and the outcome is presented in Figure 4.9.

Figure 4.9 Credit duration



Source: Author's construction using field survey data, March-April, 2016

The result from Figure 4.9 shows that 107 SMEs requested the credit to be repaid within 1 year. 209 SMEs also requested the credit for a period between 2-3 years and 84 SMEs also

applied for the credit and agreed to repay between the period of 4-5 years. It is can be concluded that majority of the SMEs requested the credit for maximum of 2-3 years from the financial institutions.

4.1.4.6 Firms profit level

The average profit level of the selected SMEs for the past two years was gathered and the responses indicated that the SMEs have a wide range of profit. The average profit level of the SMEs for the past two years ranges from GH¢1,000.00 as the minimum to GH¢350,000.00 as the maximum. The average profit level for the 400 selected SMEs is GH¢ 57, 281.43 which is approximately GH¢ 57,281.00 as shown in Table 4.12.

Table 4.12 Average Profit level for SMEs

	N	Minimum	Maximum	Average
Firms' Profit Level	400	GH¢1,000.00	GH¢350,000.00	GH¢57,281.4350

Source: Author's computation using field survey data, March-April, 2016

4.2 Reliability Test Analysis

This section presents the reliability of the items used in the questionnaire in eliciting information from the SMEs on the factors that influence credit denial by the financial institutions.

The Cronbach's alpha value was used as the measure for the reliability of the questionnaires used for this study. Table 4.13 shows the result that was obtained.**Table 4.13 Reliability Test Results**

Average inter item correlation	Number of items in the scale	Scale Reliability Coefficient (alpha value)
0.2205	13	0.7862

Source: Author's computation using field survey data, March-April, 2016

The Cronbach's alpha value from Table 4.13 shows that the level of internal consistency is 0.7862 (78.62%). The alpha value ranges from 0.7535 (75.35%) to 0.8033 (80.33%) as the minimum and maximum alpha values respectively as shown in Appendix II. These values indeed show a relatively higher level of internal consistency among the items and can therefore be concluded that the questionnaire used for gathering information on the SMEs is reliable. That is, same or similar information or results will be obtained when the questionnaires are administered to the same respondents at a different period. Again, the values of the inter item correlation which shows how the independents variables are correlated shows that the variables are not highly correlated. The average inter item correlation value of 0.2205 presented in the reliability test table also indicates that the independents variables are not correlated. The maximum and minimum inter item correlation values are 0.2539 and 0.2030 respectively which are all less than correlation coefficient of 0.5 indicating the absence of multicolinearity (see appendix II).

4.3 Chi-square Test of Independence

This section discusses the chi-square test of independence between the dependent and the independent variables. This test is used to determine linear by linear association between the dependent and the independent variables. It is used to show how the dependent variable

relates with the independent variables; either there exist linear or non-linear relationship. In achieving this, the following hypotheses of linear relationship and no linear relationship were tested.

H_0: There is no linear relationship between the dependent and the independent variables.

H_1: There is linear relationship between the dependent and the independent variables.

The null hypothesis of no linear relationship is rejected when the p-value is less than 0.05 (p-value < 0.05). On the other hand, the null hypothesis is not rejected when the p-value or Fisher's exact test is greater than 0.05 (p-value > 0.05).

The chi-square test of independence results are presented in Table 4.14.The results indicate that there is a linear relationship between credit denial and all the independent variables with the exception of permanent place for business, ownership structure and type of economic activity (see appendix III). However, neither natural logarithm nor square could be applied to these variables which exhibited nonlinear relationship with credit denial due to their categorical characteristics.

Table 4.14 Chi-square Test of Independence Results

Dependent variable: Credit Denial			
Independent variables	**p-value**	**Decision**	**Interpretation**

PPOB	0.061 > 0.05	H_0 is not rejected	There is no linear relationship between credit denial and permanent place for business
AOF	0.000 < 0.05	H_0 is rejected	There is linear relationship between credit denial and age of firm
BP	0.000 < 0.05	H_0 is rejected	There is linear relationship between credit denial and business plan
FPL	0.000 < 0.05	H_0 is rejected	There is linear relationship between credit denial and firm profit level
OS	0.516 > 0.05	H_0 is not rejected	There is no linear relationship between credit denial and ownership structure
RS	0.000 < 0.05	H_0 is rejected	There is linear relationship between credit denial and registration status
TEA	0.421> 0.05	H_0 is not rejected	There is no linear relationship between credit denial and type of economic activity
CMP	0.000 < 0.05	H_0 is rejected	There is linear relationship between credit denial and credit maturity period
AOC	0.000 < 0.05	H_0 is rejected	There is linear relationship between credit denial and availability of collateral
CH	0.000 < 0.05	H_0 is rejected	There is linear relationship between credit denial and credit history
CFFMFI	0.000 < 0.05	H_0 is rejected	There is linear relationship between credit denial and credit from many financial institutions
RK	0.000 < 0.05	H_0 is rejected	There is linear relationship between credit denial and record keeping

Source: Author's computation using field survey data, March-April, 2016

4.4 Analysis of Regression Results

This section seeks to present the results from the logistic regression used to find out the factors that influence SMEs credit denial as well as the impact of these factors on credit denial among SMEs.

In order to achieve the second objective of this study equation 3.6 was estimated and the result is presented in Table 4.13.The result revealed that, there is a negative relationship between credit denial and firms with permanent place for business. This implies that, firms with permanent place are less likely to be denied credit compared to counterparts without permanent place for their firms and this is significant at 5% significance level. The marginal effect also shows that having permanent place for business decreases the probability of SME being denied credit by 19.4%.By implication, SMEs with permanent place for their operations are seen as those who cannot easily run away by financial institutions and for that matter they are more likely to be granted credit upon credit ceteris paribus. Again, SMEs with permanent place for business can easily be traced by the financial institutions in case of default and more so the building and other equipment in it can be sold to defray the defaulted amount. This outcome is consistent with findings by Danso-Abeam et al. (2014).

Table 4.15 Logistic regression for factors that influence credit denial

Dependent Variable: Credit Denial

Variables	Coefficient	Rob. Std. Err.	Marg. Effect	Prob. Value
PPOB (Don't Have)				
Have Permanent Place	-1.038078	0.4772876	-0.1941242	0.030

AOF (0-2 Years)				
Firm's Age_3-5 Years	-1.187278	0.8096254	-0.2769248	0.043
Firm's Age_6-8 Years	-2.113646	0.8211054	-0.4830426	0.010
Firm's Age_Above 8Years	-3.508315	0.8190218	-0.7030632	0.000
Bus. Plan (Don't Have)				
Have Business Plan	-0.8454108	0.36967	-0.1894119	0.022
Firms' Profit Level	-0.6290429	0.2419315	-0.1207656	0.009
OS (Single Ownership)				
Partnership Owned	-1.066265	0.4707437	-0.203888	0.024
RS (Unregistered Firms)				
Registered Firms	-0.2409814	0.7664644	-0.0509792	0.039
TEA (Agriculture)				
Construction	0.9005509	1.457184	0.1640977	0.537
Manufacturing	-0.1329141	0.7575616	-0.0295389	0.861
Retail	-0.7080692	0.7030472	-0.1586269	0.314
Services	0.0329163	0.6779599	0.0072021	0.961
CMP (4 Years and above)				
Within 1 Year	-4.549205	1.624407	-0.8062845	0.005
2-3 Years	-5.348905	1.623975	-0.8321021	0.001
AOC (No Collateral) Have				
Collateral	-0.0940524	0.5095995	-0.0207616	0.047
CH (Never defaulted)				
Defaulted Before	2.150883	1.097884	0.3483417	0.050
CFFMFI (No Mult. Cred.)				
Have Multiple Credit	0.2052529	1.186724	0.0458851	0.863
RK (Don't Keep Record)				
Keep Record	-0.1184321	0.3913294	-0.0257051	0.032
Constant	9.566242	2.404526	-	0.000
Number of observations = 400				
Prob> Chi-square = 0.0000				
Wald Chi-square (18) = 86.96			Pseudo	
R^2 = 0.5303				
		-	-	-

Note: Reference categories are in parentheses

Regarding age of the SMEs and credit denial, the result showed a negative and significant relationship. That is, SMEs that have been operating for relatively longer years (above 3 years) are less likely to be denied of credit compared to SMEs that are relatively younger

(less than 3 years). The marginal effect revealed that, SMEs being in the age categories of 3-5 years, 6-8 years and above 8 years decrease the probability of being denied of credit by 27.7%, 48.3% and 70.3% and are significant at 5%, 1% and 1% significance level respectively.

This implies that, financial institutions are more likely to grant credit to SMEs that relatively older compare to younger counterparts. That is, older SMEs are perceived by the financial institutions as those that are already established and have lesser tendency of collapsing and so are less likely to be denied when they apply for credit. Again, these SMEs are in good position to repay the credit because they have been operating for long and have gained enough profit and experience. On the contrary, financial institutions may find it difficult to predict the sustainability of the younger SMEs hence increasing their probability of credit denial all things being equal. This result found agrees with the result obtained by Diaz-Serrano and Sackey (2015), Maziku (2012) and Fraser (2009).

The result presented in Table 4.13 shows that there is a negative relationship credit denial and SMEs who have business plan. That is, SMEs that have business plan are less likely to be denied compared to counterparts without business plan and is significance at 5% significant level. The marginal effect indicates that having business plan decreases probability of financial institution denying an SME credit by 19%.

By implication, SMEs that have business plan to guide their activities and operations are more likely to receive credit from financial institution upon request because, these SMEs are in better position to produce the information that the financial institution may request hence lesser likelihood of being denied. Contrary, SMEs that have no business plan are

more likely to be denied because these SMEs are not in the position to provide the information the financial institutions may need hence increasing their probability of being denied the credit ceteris paribus. This result confirms the study result found by Nkuah et al. (2013).

Regarding firms' profit level and credit denial, the result in Table 4.13 revealed that there is a negative relationship implying that as SMEs profit level increases, the probability of being denied of credit also reduces. This is significant at 1% significance level. The marginal effect further indicates that as SMEs profit increases, the probability of being denied of credit decreases by 12.1%.This implies that, the higher profit of the SMEs increases its ability of repaying the credit when approved hence the willingness of the financial institutions to grant the credit compared to when profit level is lower or reducing ceteris paribus. This finding agrees with the study result obtained by Atieno (2009).

With respect to the relationship ownership structure and credit denial, the result showed that SMEs that are partnership owned are less likely to be denied credit by financial institutions compared to counterparts that are single owned and is significant at 5% significance level. SME being owned by partnership decreases the probability of being denied credit by 20.3% as shown by the marginal effect in Table 4.13.By implication, SMEs that are partnership owned stand the chance of being successful because the decisions to control the activities of the SME will be taken by all partners and it be geared toward the success of the SME and there will be good management as well. For this reason, when such SMEs approach the financial institutions for credit, the likelihood of being denied is low because they are perceived as becoming successful which will enable credit

repayment all things being equal. This outcome is consistent with the finding by Binam and Abo (2013) and Nkuah et al. (2013) but in the case of Nkuah et al. (2013) the established relationship was insignificant. However, for SMEs that are owned by single persons, the decisions will be taken by the owner and so the management will not be as good as those owned by partnership. Again, the success of such SMEs are perceived to be low by the financial institutions hence more likelihood of being denied of credit upon request ceteris paribus.

The result presented in Table 4.13 depicts that there is a negative relationship between credit denial and SMEs registration status. That is, SMEs that are registered are less likely to be denied credit compared to SMEs that are not registered which are more likely to be denied and is significant at 5% significance level. The marginal effect after logit depicts that, being a registered SME decreases the probability of being denied credit by 5.1%.By implication, SMEs that are registered enhances their credibility level compared to those that are not registered. Registered SMEs are seen as being credible by financial institutions in terms of granting credit to them hence lesser likelihood of being denied. Again, registered SMEs can easily be located and so tracing them by the financial institutions will not be a difficult task all things being equal. Contrary, SMEs that are not registered can easily "disappear" from the public and it will be very difficult to trace such SMEs in case of default. Again, Unregistered SMEs are perceived incredible by financial institutions in terms of granting credit to them hence more likelihood of being denied the credit compared to the registered counterparts. This finding is consistent with the finding by Nkuah et al.(2014) and Atieno (2009).

Concerning type of economic activity and credit denial, the result from this study showed insignificant relationship. The insignificant impact could mean that, the financial institutions do not put much emphasis on when SMEs apply for credit in terms of granting or not granting the credit. Here it could mean that, once the SME is operating the financial institution can decide to grant the credit or not by using other information on the SME to assess its credibility rather than the type of economic activity engaged in. Though this study has revealed insignificant relationships, significant negative relationship between credit denial and manufacturing activity has been reported by DiazSerrano and Sackey (2015). Again, a significant positive relationship between credit denial and construction activity has also been reported by Maziku (2012) and Atieno (2009). Binam and Abo (2013) also reported negative relationship between credit denial and retail activity.

The result in Table 4.13 further shows that there is a negative relationship between shorter credit maturity period and credit denial. That is, SMEs that request credit to be repaid in shorter period are less likely to be denied compared to counterparts that request the credit to be repaid with longer period. The marginal effect indicates that, shorter credit maturity period; within 1 year and 2-3 years decreases the probability of being denied credit by 80.6% and 83.2% respectively and are all significant at 1% significance level.By implication, SMEs that request credit and agree to repay for a period of up to 3 years have lower likelihood of being denied. That is, the shorter period increases their repayment chances and also reduces their probability of defaulting hence, the willingness of the financial institutions to grant the credit all things being equal. Contrary, SMEs that request credit and agree to repay over a longer period have a more likelihood of rejection ceteris

paribus. The longer period increases the chances of defaulting in repayment hence, the financial institutions reluctance to grant the credit. This finding agrees with those of Binam and Abo (2013) and Maziku (2012).

On collateral the result revealed that SMEs that have collateral are less likely to be denied compared to SMEs that have no collateral and the relationship is significant at 5% significance level. The marginal effect shows that having collateral decreases the probability of being denied credit by 2.1%. By implication, SMEs that have collateral to be used to secure credit from financial institutions have higher chance of receiving the credit compared to counterparts who do not have collateral. That is, the collateral provides by these SMEs are at times used to defray the remaining amount in case of default. To this effect, if an SME is able to provide collateral when requesting credit the financial institutions may be more willing to grant the credit all things being equal. On the hand, SMEs that have no collateral face higher chance of being denied because there will be no means to defray the remaining amount in case of default ceteris paribus. The result is consistent with those found by Danso-Abbeam et al. (2014) and Binam and Abo (2013).

Regarding credit history of the SMEs and credit denial, the result showed a positive relationship. That is, SMEs that have ever defaulted are more likely to be denied compared to counterparts that have never defaulted in repayment. The marginal effect shows that being ever defaulted SME increases the probability of being denied credit by 34.8% and this relationship is significant at 5% significance level. This means that, SMEs that have ever defaulted have bad credit history and for that matter when they apply for credit from financial institutions there is higher likelihood of denial compared to SMEs that have never

defaulted. The ever defaulted SMEs are perceived by the financial institutions as highly potential defaulters and so will not risk granting credit to them the second time compared to SMEs that have never defaulted in repayment. This result agrees with result obtained by Dukuly (2012) and Maziku (2012).

With respect to credits facility from many financial institutions and credit denial the result showed that, there is insignificant relationship. That is, SMEs havingcredit facilities from different financial institutions have no influence on credit denial regarding this study. The insignificant impact could mean that financial institutions do not place more emphasis on whether an SME has multiple credits from different financial institutions or not but rather provided such SMEs can repay the loan. It could also mean that the financial institutions consider other factors other than multiple credits such as repayment ability hence an SME can either be denied of credit or granted depending on the discretion of the financial institution in which the credit is being sought from. Notwithstanding the insignificant relationship, the result is consistent with the finding by

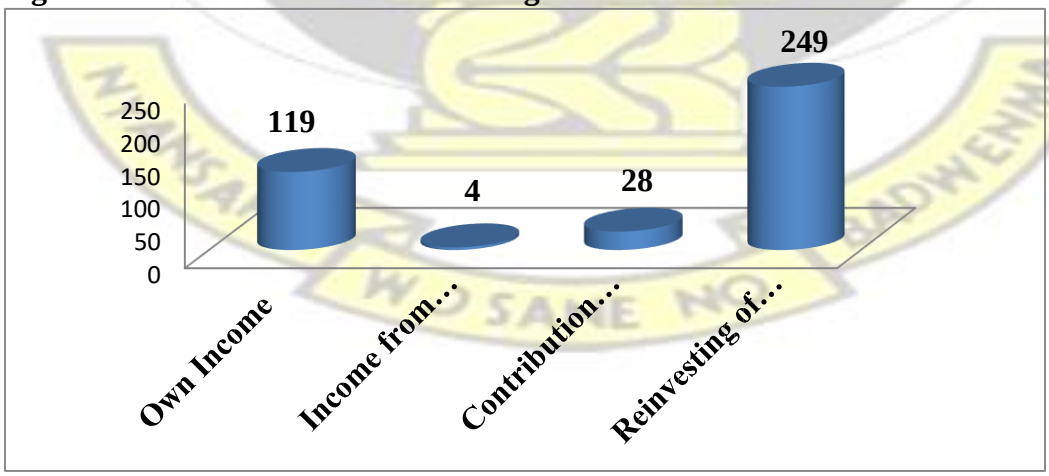
Dukulu (2012) and Fraser (2009) and Kutsuna and Cowling (2013).

On record keeping and credit denial the result showed a negative relationship. That is, SMEs that keep general records on their activities are less likely to be denied compared to counterparts that do not keep record of activities. The marginal effect after logit indicated that keeping record of activities decreases the probability of being denied credit by 2.6% and is significant at 5% significance level.By implication, SMEs that keep record are able to produce the necessary documents that will be required by the financial institutions when

they are requesting credit. Being able to provide the needed documents to the financial institutions upon request increase the credibility of such SMEs which also influences the financial institutions to grant the credit. Contrary, financial institutions feel reluctant to grant credit to SMEs that are not able to provide the needed document such as name of firm, registration documents among others upon request. Inability to provide such documents to financial institutions again confirms the perception of the financial institutions about such SMEs for their inability to repay the credit when granted ceteris paribus. The finding is confirms the result obtained by Nkuah et al. (2013).

The third objective was achieved through qualitative approach. To find out the source of financing SMEs in addition to credit accessed from the financial institutions, the respondents were asked a question on other sources of financing SMEs activities. The outcome revealed own income, income from family members, contribution by partners and reinvesting of profit as other sources of financing SMEs activities as shown in Figure 4.10.

Figure 4.10 Other source of Financing of SMEs activities



Source: Author's construction using field survey data, March-April, 2016

The results revealed that, 119 SMEs are financed through own income apart from demanding credit from financial institutions and this represents 29.8%. 4 and 28 SMEs also rely on income from family members and contributions by partners and these also represent 1% and 7% respectively. In addition, 249 SMEs activities are also financed through ploughing of profit that is generated in addition to the credit sourced from the financial institutions. This implies that, majority of the selected SMEs plough back the profit generated to finance SMEs activities in the study area.

4.5 Robustness check

To determine whether the results obtained using logistic regression (Logit) and discussed above is robust(that is the results obtained and discussed can stand the test of time),the study adopted the probability regression (Probit) estimation procedure to examine the model. Probit estimation technique was employed instead of any estimation technique because of the dichotomous nature of the dependent variable. The result obtained from the probit estimation technique is statisticallynot different from the results obtained from the logit estimation technique (see appendix V).This indicates that the results obtained and discussed is robust.

CHAPTER FIVE

SUMMARY OF MAJOR FINDINGS, CONCLUSIONS AND RECOMMEDATIONS

5.0 Summary of Major Findings

In trying tofind out thefactorsthat influence credit denial among SMEs in Ghana using Kumasi metropolis as case study, this study sought to achieve the following specific objectives; examine the characteristics of the SMEs in the Kumasi Metropolis, examine the factors that influence SMEs credit denial by the financial institutions and finally identify other sources of SMEs financing apart from credit from financial institutions.

With respect to the first objective, the study revealed that majority (338) of the SMEs have permanent place for business and majority (215) have also been in operation for a period of 6 years and beyond. The study further showed that, 247 of the SMEs have business plan

that guides firms' activities and the average profit level for each SME for the past two years for the 400 SMEs sampled is about GH¢57,200.00. Again, the result revealed that 316 SMEs are single owned other than partnership and family owned and 355 of them are registered with registrar general department. The study in addition showed that, majority (294) of the SMEs engage in retail and services activities, 290 of them have collateral that they use in securing credit and finally 290 of the SMEs keep record of the activities that goes on in the firm.

Regarding the second objective, this study reveals that there is significant and negative relationship between permanent place for business, age of firm and business plan. This implies that, SMEs that have permanent place for business are less likely to be denied credit by the financial institutions. Again, SMEs that have been in operation for relatively longer years are less likely to be denied credit as well as SMEs that have business plan that guide its activities. This study has also revealed that SMEs that are registered with registrar general department, owned by partnership and with higher profit are also less likely to be denied credit by financial institutions. It is also shown by this study that, SMEs that request credit and agree to repay within shorter duration, have collateral and keep records of activities have lesser chances of being denied credit upon request. This study has also established that, SMEs that have ever defaulted and have credit from different financial institutions are more likely to be denied credit by the financial institutions.

On the final objective, the study reveals that apart credit from financial institutions the SMEs also have other sources of financing firms' activities. These sources include own

income, income from family members, contributions by partners and reinvesting of profit generated. The result further revealed that majority (249) of the SMEs plough back profit into the business followed by use of own income which was mentioned by 119 SMEs as other source of financing firms' activities.

5.1 Conclusions

The main objective of the study was to find out thefactors which influence credit denial by financial institutions to the SMEs in Ghana using Kumasi Metropolis as a case study. The study basically relied on primary data and employed simple random sampling technique to select 400 respondents for the study.In achieving the study objective, logistic regression estimation method was employed and its robustness is checked using probability regression estimation technique.

In view of the results obtained and the discussion, the study concludes that, Most SMEs have permanent place for business, registered with registrar general department, business plan, keep record of activities and majority are single owned SMEs. Again, larger fraction of the SMEs engage in retail and services and have collateral to secure credit from financial institutions.

The study further concludes that, permanent place for business, age of firm, business plan, firms' profit level, ownership structure, registration with registrar general department

status, credit history, credit maturity period, availability of collateral, and record keeping are the major factors that influence credit denial among SMEs in Kumasi Metropolis.

The study also concludes that own income, income from family members, contributions by partners and reinvesting of profit generated are the other sources of financing SMEs in the Kumasi Metropolis.

5.2 Recommendations

Based on the discussions on the regression results in Chapter Four, the following recommendations are made.

First, SMEs are encouraged to have permanent place for business since the result revealed that SMEs that have permanent place for business are less likely to be denied by the financial institutions. This will ensure that SMEs have access to credit for expansion of business and also to enhance growth and development of the country.

Secondly, this study recommends thatSMEs should try as much as possible to have business plan that will guide their activities as the study has revealed that SMEs which have business plans are less likely to be denied. This is likely to enable the SMEs to obtain credit from the financial institutions and also to avoid rejection in terms of credit acquisition.

In addition, SMEs are encouraged to register with the registrar general department (RGD). This study has shown that SMEs that register with registrar general department have higher chances of receiving credit from the financial institutions. This will ensure that SMEs gain some credibility and also be trust worthy which will finally reduce the likelihood of credit denial.

Furthermore, the study recommends that SMEs should try every possible avenue to repay credit within shorter period (up to 3 years) and also avoid repayment default. This study has revealed that SMEs that request for credit and agree to repay in shorter period and who have never defaulted are more likely to receive it and this is likely to reduce credit denial.

Finally, this recommends that SMEs should make it a desire to keep records of the activities that go on in the firm. This study has shown that SMEs that keep records of activities have lesser chance of being denied credit. If SMEs try and keep records on firms' activities, they are more likely to receive credit upon request from the financial institutions which will enable them to expand and grow.

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APPENDICES

Appendix I

QUESTIONNAIRE

I am Nicholas Benful, a Master of Science (Msc) student at the Economics Department of Kwame Nkrumah University of Science and Technology (KNUST). **I am undertaking a research on the topic "Factors Influencing Credit Denial to Small and Medium Scale Enterprises (SMEs)".**

Therefore, I should be grateful if you could answer the questions below to enable me successfully undertake the research. **The information given is purposely for academic study and will be treated with utmost confidentiality**.

……

PERSONAL CHARATERISTICS OF RESPONDENT

1. Gender: Male [ ] Female [ ]
2. Age (years): 18 – 24 [ ] 25 – 39 [ ] 40 – 54 [ ] 60 55 – 60 [ ] Above [ ]
3. Educational Level: None [ ] Primary [ ] JHS/MSLC [ ] SHS /O'Level [ ] Tertiary [ ]
4. Marital Status: Single [ ] Married [ ] Divorced [ ] Other (specify)……...

FIRM DATA-CHARACTERISTICS OF THE FIRM

5. Does the firm have permanent place/office for operation? Yes [ ] No [ ]
6. What type of business/Economic activities does the firm engaged in?

Agriculture [ ]
Construction [ ] Manufacturing [ ] Retail [ ] Services [ ]
Other (please specify)……..….

7. What is the ownership structure of the firm? Single ownership [ ] Family owned [ ] Partnership [ ] Other (please specify)……..…….……
8. Is the firm registered with Registrar General's Department (RGD) of Ghana?

   Yes [ ] No [ ]
9. Does the firm have limited liability status? Yes [ ] No [ ]
10. What is the total number of employees? 5-29 employees [ ] 30-99 employees [ ] Other (please specify)……..…..
11. What is the size of the firm (Measured by number of employees)? Small [ ] Medium [ ] Other (specify)…….....
12. How long has the firm been operating? 0-2 years [ ] 3-5 years [ ] 68years [ ] Above 8 years [ ]
13. What is the gender of the owner of the firm? Male [ ] Female [ ] Neutral (Partnership) [ ]
14. What is the education level of the owner of the firm? No education [ ] Primary [ ] JHS/MSLC [ ] SHS/O'Level [ ] Tertiary [ ] Unknown (Partnership) [ ]

FIRM DATA-MANAGEMENT (RECORD KEEPING)

15. Does the firm keep records on firm's activities? Yes [ ] No [ ]
16. Does the firm keep books of account (Financial information)? Yes [ ] No [ ]
17. Does the firm have bank account? Yes [ ] No [ ]
18. How long has the account been opened? 0-3 years [ ] 4-7 years [ ] Above 7 years [ ]
19. Does the firm have business plan? Yes [ ] No [ ]
20. How many people form part of the management? ……

FIRM DATA-MANAGEMENT (FINANCES)

21. What is the firm's financial capital/owner equity (Please state it in Ghana cedis)? GH¢……..……

……

22. What is the average profit level of the firm for the past two years (please state it in Ghana cedis)?

GH¢……..……...

23. Does the firm or the owner have property(ies) (eg. land, buildings etc.) to be used as collateral to secure credit from bank? Yes [ ] No [ ]

24. What are the other sources of finance for the firm's activities apart from credit from financial institutions? Own income [ ] Income from family members [ ] Contributions by partners [ ] Reinvesting of profits [ ] Credit from other individuals [ ]
Other (please
specify)……....

25. Has the firm demanded credit from other (several) financial institutions? Yes [ ] No [ ]

26. Has the firm applied for loan in the past one year? Yes [ ] No [ ] **If YES**

27. What was the outcome of the credit application? Received full amount applied [ ]

Did not receive full amount applied [ ] Rejected outrightly [ ]

28. What was the duration of the requested credit?
Within 1 year [ ] 2-3 years [ ] 4-5 years [ ] Above 5 years [ ]

29. Has the firm defaulted in credit repayment before? Yes [ ] No [ ] 30. How long have you known the officers in the bank? Less than 1 year [ ] 2-3
years [ ]
4- 5 years Above 5 years [ ]

Thank you very much.

Appendix II

RELIABILITY TEST RESULT

```
. alpha PPOB AOF BP FPL OS RS TEA CMP AOC CH CFFMFI RK Credit_Denial, item std
Test scale = mean(standardized items)
 average
item-test     item-rest       interitem
Item          |  Obs  Sign   correlation   correlationcorrelation     alpha
--------------+-----------------------------------------------------------------
PPOB          |  400    +       0.2094        0.0655          0.2539      0.8033
AOF           |  400    -       0.6960        0.6086          0.2031      0.7536
BP            |  400    +       0.5193        0.4009          0.2216      0.7735
FPL           |  400    -       0.6246        0.5231          0.2106      0.7620
OS            |  400    -       0.3150        0.1760          0.2429      0.7938
RS            |  400    +       0.5693        0.4584          0.2163      0.7681
TEA           |  400    +       0.2347        0.0917          0.2512      0.8011
CMP           |  400    +       0.5259        0.4085          0.2209      0.7728
AOC           |  400    +       0.6237        0.5220          0.2107      0.7621
CH            |  400    -       0.6968        0.6096          0.2030      0.7535
CFFMFI        |  400    -       0.6886        0.5997          0.2039      0.7545
RK            |  400    +       0.5129        0.3937          0.2222      0.7742
Credit_Den~l|  400    +       0.6682        0.5751          0.2060      0.7569
--------------+-----------------------------------------------------------------
Test scale    |                                                0.2205      0.7862
------------------------------------------------------------------------------
```

Appendix III

CHI-SQUARE TEST OF INDEPENDENCE RESULTS

Credit denial * Permanent place for business

Chi-Square Tests[c]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	3.513[a]	1	.061	.098	.098	
Continuity Correction[b]	1.672	1	.196			
Likelihood Ratio	4.653	1	.031	.098	.098	
Fisher's Exact Test				.098	.098	
Linear-by-Linear Association	3.504[d]	1	.061	.098	.098	.098
N of Valid Cases	400					

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.39.
b. Computed only for a 2x2 table
c. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.
d. The standardized statistic is 1.872.

Credit denial * Age of firm

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)		
				Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Pearson Chi-Square	159.633[a]	3	.000	.000[b]	.000	.000
Likelihood Ratio	184.603	3	.000	.000[b]	.000	.000
Fisher's Exact Test	181.959			.000[b]	.000	.000
Linear-by-Linear Association	155.473[c]	1	.000	.000[b]	.000	.000
N of Valid Cases	400					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 37.93.
b. Based on 10000 sampled tables with starting seed 79654295.
c. The standardized statistic is -12.469.

Credit denial * Business Plan

Chi-Square Tests[c]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	16.629[a]	1	.000	.000	.000	
Continuity Correction[b]	15.798	1	.000			
Likelihood Ratio	16.865	1	.000	.000	.000	
Fisher's Exact Test				.000	.000	
Linear-by-Linear Association	16.587[d]	1	.000	.000	.000	.000
N of Valid Cases	400					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 70.76.
b. Computed only for a 2x2 table
c. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.
d. The standardized statistic is 4.073.

Credit denial *

Firm profit level

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)		
				Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Pearson Chi-Square	186.712[a]	80	.000	.000[b]	.000	.000
Likelihood Ratio	239.867	80	.000	.000[b]	.000	.000
Fisher's Exact Test	179.958			.000[b]	.000	.000
Linear-by-Linear Association	33.383[c]	1	.000	.000[b]	.000	.000
N of Valid Cases	400					

a. 141 cells (87.0%) have expected count less than 5. The minimum expected count is .46.
b. Based on 10000 sampled tables with starting seed 92208573.
c. The standardized statistic is -5.778.

Credit denial * Ownership structure

Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)		
				Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Pearson Chi-Square	1.323[a]	2	.516	.527[b]	.517	.537
Likelihood Ratio	1.331	2	.514	.527[b]	.517	.537
Fisher's Exact Test	1.324			.527[b]	.517	.537
Linear-by-Linear Association	.409[c]	1	.522	.533[b]	.523	.542
N of Valid Cases	400					

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 2.78.
b. Based on 10000 sampled tables with starting seed 624387341.
c. The standardized statistic is .640.

Credit denial * Registration status

Chi-Square Tests[c]

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	37.082[a]	1	.000	.000	.000	
Continuity Correction[b]	35.175	1	.000			
Likelihood Ratio	40.705	1	.000	.000	.000	
Fisher's Exact Test				.000	.000	
Linear-by-Linear Association	36.990[d]	1	.000	.000	.000	.000
N of Valid Cases	400					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 20.81.
b. Computed only for a 2x2 table
c. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.
d. The standardized statistic is 6.082.

Credit denial *

Type of economic activity

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)		
				Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Pearson Chi-Square	3.929[a]	4	.416	.421[b]	.412	.431
Likelihood Ratio	3.968	4	.410	.422[b]	.412	.431
Fisher's Exact Test	3.940			.415[b]	.405	.425
Linear-by-Linear Association	.727[c]	1	.394	.404[b]	.394	.413
N of Valid Cases	400					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.94.
b. Based on 10000 sampled tables with starting seed 2000000.
c. The standardized statistic is .853.

Credit denial * Credit maturity duration

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)		
				Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Pearson Chi-Square	133.562[a]	2	.000	.000[b]	.000	.000
Likelihood Ratio	161.047	2	.000	.000[b]	.000	.000
Fisher's Exact Test	157.870			.000[b]	.000	.000
Linear-by-Linear Association	38.458[c]	1	.000	.000[b]	.000	.000
N of Valid Cases	400					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 38.85.
b. Based on 10000 sampled tables with starting seed 1993510611.
c. The standardized statistic is 6.201.

Credit denial * Availability of collateral

Chi-Square Tests[c]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	81.210[a]	1	.000	.000	.000	
Continuity Correction[b]	79.199	1	.000			
Likelihood Ratio	85.654	1	.000	.000	.000	
Fisher's Exact Test				.000	.000	
Linear-by-Linear Association	81.007[d]	1	.000	.000	.000	.000
N of Valid Cases	400					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 50.88.
b. Computed only for a 2x2 table
c. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

Credit denial *

d. The standardized statistic is 9.000.

Credit history

Chi-Square Tests[c]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	91.178[a]	1	.000	.000	.000	
Continuity Correction[b]	88.832	1	.000			
Likelihood Ratio	102.478	1	.000	.000	.000	
Fisher's Exact Test				.000	.000	
Linear-by-Linear Association	90.950[d]	1	.000	.000	.000	.000
N of Valid Cases	400					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 38.39.

b. Computed only for a 2x2 table

c. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

d. The standardized statistic is -9.537.

Credit denial * Credit from more financial institution

Chi-Square Tests[c]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	84.819[a]	1	.000	.000	.000	
Continuity Correction[b]	82.546	1	.000			
Likelihood Ratio	94.286	1	.000	.000	.000	
Fisher's Exact Test						
Linear-by-Linear Association				.000	.000	
N of Valid Cases	84.607[d]	1	.000	.000	.000	.000
	400					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 37.93.

b. Computed only for a 2x2 table

c. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.

d. The standardized statistic is -9.198.

Credit denial *
Credit denial * Record keeping

Chi-Square Tests[c]

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)	Point Probability
Pearson Chi-Square	18.449[a]	1	.000	.000	.000	
Continuity Correction[b]	17.497	1	.000			
Likelihood Ratio	18.538	1	.000	.000	.000	
Fisher's Exact Test				.000	.000	
Linear-by-Linear Association	18.403[d]	1	.000	.000	.000	.000
N of Valid Cases	400					

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 50.88.
b. Computed only for a 2x2 table
c. For 2x2 crosstabulation, exact results are provided instead of Monte Carlo results.
d. The standardized statistic is 4.290.

Appendix IV

VARIABLE DESCRIPTION AND MEASUREMENT

Variables	Description	Categorical values
CD	Credit denial – Dependent variable	YES = 1(Credit denied) NO = 0 (Received full credit)
PPOB	Permanent place for business	1=Yes (Has permanent place) 0, otherwise
AOF	Age of firm	1=0-2 years 2= 3-5 years 3= 6-8 years 4= Above 8 years
BP	Business plan	1=Yes (Has business plan) 0, otherwise
FPL	Firm profit level	Amount in Ghana cedis
OS	Ownership structure	1=Single ownership 2= Family owned 3= Partnership
RS	Registration status	1= Yes (Registered) 0, Otherwise
TEA	Type of economic activity	1= Agriculture 2= Construction 3= Manufacturing 4= Retail 5= Services
CMP	Credit maturity period	1= Within 1 year 2= 2-3 years 3= 4-5 years 4= Above 5 years
AOC	Availability of collateral	1= YES (Has collateral) 0, Otherwise
CH	Credit History	1= Yes (Defaulted before) 0, Otherwise
CFFMFI	Credit facilities from many financial institutions	1= Yes (Has multiple credit from many financial institutions) 0, Otherwise
RK	Record keeping	1= Yes (Keep record of activities) 0, Otherwise

Appendix V

LOGISTIC REGRESSION RESULTS

```
Logistic regression                                     Number of obs   =        400
                                                        Wald chi2(18)   =      86.96
Prob> chi2     =     0.0000
Log pseudolikelihood = -129.69606                       Pseudo R2       =     0.5303
------------------------------------------------------------------------------
             |               Robust
CD_Denied |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
PPOB_Have~|  -1.038078   .4772876    -2.17   0.030    -1.973545    -.102612
AOF_3_5_ye~s |  -1.187278   .8096254    -1.47   0.043    -2.774115   .3995583
AOF_6_8_ye~s |  -2.113646   .8211054    -2.57   0.010    -3.722983   -.5043096
AOF_Above_~s|  -3.508315   .8190218    -4.28   0.000    -5.113569   -1.903062
BP_Have_BP|  -.8454108      .36967    -2.29   0.022    -1.569951   -.1208709
         FPL |  -.6290429   .2419315    -2.60   0.009    -1.10322     -1548658
OS_Partner~p|  -1.066265   .4707437    -2.27   0.024    -1.988905   -.1436241
RS_Registe~d|  -.2409814   .7664644    -0.31   0.039    -1.743224    1.261261
TEA_Constr~n |   .9005509   1.457184     0.62   0.537    -1.955476    3.756578
TEA_Manufa~g|  -.1329141   .7575616    -0.18   0.861    -1.617708    1.351879
TEA_Retail|  -.7080692   .7030472    -1.01   0.314    -2.086016    .6698781
TEA_Services |   .0329163   .6779599     0.05   0.961    -1.295861    1.361693
CMP_Within~r|  -4.549205   1.624407    -2.80   0.005    -7.732985   -1.365426
CMP_2_3_ye~s |  -5.348905   1.623975    -3.29   0.001    -8.531838   -2.165973
AOC_Have_c~l|  -.0940524   .5095995    -0.18   0.047    -1.092849    .9047443
CH_Default~e |   2.150883   1.097884     1.96   0.050    -.0009295    4.302695
CFFMFI_Ha_~t |   .2052529   1.186724     0.17   0.863    -2.120684    2.531189
RK_Keep_Re~d|  -.1184321   .3913294    -0.30   0.032    -.8854237    .6485595
       _cons |   9.566242   2.404526     3.98   0.000     4.853457    14.27903
------------------------------------------------------------------------------


. mfx

Marginal effects after logit y
=Pr(CD_Denied) (predict)
=  .67561742
```

```
------------------------------------------------------------------------------
variable |      dy/dx    Std. Err.      z    P>|z|  [    95% C.I.   ]       X --
---------+--------------------------------------------------------------------
 PPOB_H~*|  -.1941242      .07848    -2.47   0.013  -.347933 -.040316       .845
AOF_3_~s*|  -.2769248      .18695    -1.48   0.047  -.643343  .089494      .2375
AOF_6_~s*|  -.4830426      .16034    -3.01   0.003  -.797311 -.168774       .205
AOF_Ab~s*|  -.7030632      .10481    -6.71   0.000   -.90848 -.497646      .3325
BP_Hav~P*|  -.1894119       .0844    -2.24   0.025  -.354843 -.023981      .3825
     FPL |  -.1207656      .06131    -1.97   0.049  -.240929 -.000602    .066667
OS_Par~p*|   -.203888      .08535    -2.39   0.017  -.371162 -.036614        .79
RS_Reg~d*|  -.0509792      .15625    -0.33   0.035  -.357217  .255259      .8875
TEA_Co~n*|   .1640977      .20896     0.79   0.432  -.245464  .573659        .04
TEA_Ma~g*|  -.0295389      .17111    -0.17   0.863  -.364907  .305829      .1875
TEA_Re~l*|  -.1586269      .15898    -1.00   0.318  -.470221  .152967       .375
TEA_Se~s*|   .0072021      .14809     0.05   0.961  -.283056   .29746        .36
CMP_Wi~r*|  -.8062845      .13829    -5.83   0.000  -1.07733 -.535244      .2675
CMP_2_~s*|  -.8321021      .08935    -9.31   0.000  -1.00722 -.656982      .5225
AOC_Ha~l*|  -.0207616      .11327    -0.18   0.044  -.242771  .201248       .275
CH_Def~e*|   .3483417      .13775     2.53   0.011   .078352  .618331      .2075
C~Ha_M~t*|   .0458851      .27092     0.17   0.866  -.485114  .576884       .795
RK_Kee~d*|  -.0257051      .08409    -0.31   0.038  -.190514  .139103       .725
------------------------------------------------------------------------------
(*) dy/dx is for discrete change of dummy variable from 0 to 1
Probit regression                                 Number of obs   =        400
                                                  Wald chi2(18)   =     106.39
Prob> chi2     =     0.0000
Log pseudolikelihood = -129.32801                 Pseudo R2       =     0.5316
------------------------------------------------------------------------------
             |               Robust
CD_Denied |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
PPOB_Have~|  -.5452005   .2720525    -2.00   0.045    -1.078414   -.0119874
AOF_3_5_ye~s |  -.6824112   .4186543    -1.63   0.013    -1.502959    .1381361
AOF_6_8_ye~s |  -1.224342   .4289297    -2.85   0.004    -2.065028   -.3836549
AOF_Above_~s |    -2.0197    .425489    -4.75   0.000    -2.853643   -1.185757
BP_Have_BP|  -.4998907   .2114599    -2.36   0.018    -.9143446   -.0854368
         FPL |  -.5290429   .2419315    -2.60   0.039     -1.10332   -.1549658
OS_Partne_~p |  -.5668439   .2648537    -2.14   0.032    -1.085948   -.0477402
RS_Registe~d|  -.1670933   .4328001    -0.39   0.048    -1.015366    .6811793
TEA_Constr~n |   .4819315   .7491474     0.64   0.520    -.9863704    1.950233
TEA_Manufa~g|  -.1075711   .4431458    -0.24   0.808    -.9761209    .7609787
TEA_Retail|  -.4034903   .4185458    -0.96   0.335    -1.223825    .4168444
TEA_Services |    .007105    .407241     0.02   0.986    -.7910726    .8052826
CMP_Within~r|  -2.544078   .7965861    -3.19   0.001    -4.105358   -.9827978
CMP_2_3_ye~s |  -3.008221     .78682    -3.82   0.000     -4.55036   -1.466082
AOC_Have_c~l|  -.0198973   .2884637    -0.07   0.034    -.5852758    .5454812
CH_Default~e |    1.29173   .6689933     1.93   0.054    -.0194732    2.602933
CFFMFI_Ha_~t |   .2274294   .7028159     0.32   0.746    -1.150064    1.604923
RK_Keep_Re~d|  -.0611468   .2238167    -0.27   0.027    -.4998195    .3775258
       _cons |   5.247959   1.268648     4.14   0.000     2.761455    7.734464
------------------------------------------------------------------------------
Note: 0 failures and 1 success completely determined.
```

Appendix VI

MAP OF KUMASI METROPOLIS

MAP OF KUMASI METROPOLIS