

Financing Small-Scale Manufacturing Firms
In Ghana

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CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTORY SECTION

In the period after independence, many African countries attempted to leap directly to a modern industrial structure through public investment in large-scale industries (Steel and Webster 1992). The state often took the lead for lack of a strong indigenous entrepreneurial class and to avoid dependence on foreign investors. But inadequate attention to economic viability and market prospects resulted in substantial excess capacity, with many large firms unable to survive without heavy protection or subsidies. Many enterprises were squeezed, first by economic crises and, subsequently by adjustment policies that reduced protection, cut back subsidies, restrained demand and changed relative prices. Given budgetary restraints and a policy shift away from direct ownership of productive enterprises, governments have had to look increasingly to the private sector to take the lead in future industrialization.

The important role played by small-scale manufacturing enterprises in developing economies has been increasingly realized over the past years. Not only are they important for the vitality of the business sector, they also provide new jobs. But in order to play their role in future, there is need for researchers and policy makers to identify this role and constantly interact to bring about a sustainable policy framework. For industrial development methods to have maximum effectiveness, they must include methods specifically adapted for work with small industries. It has long been known that technique suited to promoting large-scale industries is not the best in promoting modernization and growth in small industry and vice versa (Stanley and Morse, 1965). It is in the light of this that those functional differences that justify separate analysis of the role of small industry in development and growth must be outlined, and what is seen as a constraint be analyzed.

The idea that problems in financing small firms have significantly hindered the role they play in the overall macroeconomic performance of the Ghanaian economy is deeply rooted since the overthrow of the first Republic of Dr. Nkrumah (Boapeah, 1993). The overthrow of the first republic saw the small-scale industries beginning

to play a progressive expanded role in the economy, from the early 1970s. According to Dawson (1988), the expansion of the small enterprises was more of a consequence of economic mismanagement than due to deliberate change in economic strategy. However, since there was no deliberate policy to stifle the growth of small businesses, it implied that the subsequent governments realized their potential.

Stanley and Morse (1965) identified three types of policies towards SSEs development namely, passive, protective and developmental. A passive policy is one of neglect, resulting from indifference, lack of information, or lack of leadership. A protective policy is designed to defend existing small enterprises against competition from large and modern enterprises. The developmental approach to small scale enterprise promotion has as its objective the creation of economically viable enterprises which on their own feet without perpetual subsidy can make a positive contribution to the growth of real income, and therefore to better living standards. Ghana's policies on SSEs though not explicitly stated, seem to gear towards the developmental approach. Policy instruments that can be used to achieve developmental policy objectives include the following,

- ❏ The provision of industrial advisory services,
- ❏ The training of entrepreneurial managers and supervisory personnel,
- ❏ Provision of developmental finance.

The policy instruments identified above are by no means exhaustive. However, these are the main problem areas identified by researchers of SSEs. Financial constraint has been identified as the most threatening challenge (Morse and Stanley, 1965).

1.2 STATEMENT OF THE PROBLEM

There are numerous problems that hinder the growth of small-scale enterprises (SSEs) in Ghana. Among them are, lack of access to credit, competition from the large-scale industries, the over liberalization of the economy, and difficulty in access to advisory services and research findings (Boapeah, 1993). The cardinal issue of lack of credit to small-scale enterprise development is particularly prominent in developing countries, and pertaining mostly to credit from formal financial institutions. According to Bigsten et al. (1999), about 90% of small firms are refused loans when applied for from the formal financial intermediaries, due to inability to fulfill conditions such as collateral security. Many small firms for reasons such as too difficult processes and fear that they will be refused if even

applied refuse to apply for formal loans. It is therefore not uncommon to see most of the SSEs resorting to “traditional” sources of finance such as company-retained earnings, personal savings, borrowing from friends and relatives, supplier credit, borrowing from moneylenders, and other sources including “susu” revolving fund and inheritance.

It is against the background of this lack of formal source of credit that the government of Ghana has formulated a policy measure that establishes credit facilities to promote the sustainable growth and development of the SSEs. The funds established are mostly operated by the National Board for Small Scale Industries (NBSSI). From the 1980s to date NBSSI has operated seven revolving fund loan schemes for operators of small enterprises. Out of the scheme, some can be said to be NBSSI’s own credit scheme whilst others have been operated in collaboration with other government institutions. The collaborative schemes include:

- ❑ NBSSI/NFED-Development Assistant Project
- ❑ PAMSCAD Credit line for SSEs
- ❑ NBSSI Revolving Fund Scheme
- ❑ Developing Cottage Enterprise Project.

The NBSSI also gives credit to SSEs under the Business Assistance Fund (BAF). It is the policy framework of the credit scheme as operated by the NBSSI, and the performance (outcome) of the selected schemes that the study attempts to evaluate. To this end, firm-level data from the manufacturing sector will be used. The study will mainly examine the sources of financial capital, both formal and informal, as well as the internal sources of capital.

1.3 OBJECTIVE OF THE STUDY

The purpose is to analyze and evaluate the capital structure of SSEs with particular emphasis on informal credit sources, which are believed to be the main external financial source in their financial structure, and the NBSS credit lines. The following objectives have been set:

- To evaluate the credit policies of SSEs;
- To discuss factors which limit SSEs to access of credit from the formal financial market;
- To identify which types of credit are easily obtainable to SSEs;
- To make relevant policy recommendations to enhance the financing of SSEs.

1.4 RESEARCH QUESTIONS

Apart from the research objectives, research questions further delineate the boundary of the research and give it an overall direction. For this study, the following are the major research questions:

Do the credit policies include support services that make any meaningful impact on the growth and development of SSEs, such as training of entrepreneurs and provision of technical and advisory service etc?

Do firm level characteristics such as location and sectoral features influence the financing of SSEs?

Can any meaningful inferences be made on internal and external capital relations?

Do company factors such as the firm's age and ownership characteristics affect SSEs' financial requirement and acquisitions?

1.5 SCOPE OF THE STUDY

Spatially, the study is limited to the operations of SSEs in the Accra, Kumasi, Takoradi and Cape Coast metropolis. These locations are chosen due to data availability and also because it is acknowledged that most manufacturing activities are concentrated in these regional capitals. The credit lines that the research would be focusing on can be classified into,

- ❑ Formal credit (Bank loans)
- ❑ Overdraft.
- ❑ Government Financing, (NBSSI Credit Schemes)
- ❑ Informal credit sources such as;

- 1) Credit unions.
- 2) Susu groups.
- 3) Borrowing from friends and relatives,
- 4) Supplier credit,
- 5) Borrowing from moneylenders.

The study covers the following areas of the manufacturing sector of the Ghanaian economy,

- ❑ Food processing,
- ❑ Bakery,
- ❑ Wood products,

- ▣ Furniture works,
- ▣ Metal works,
- ▣ Machinery works,
- ▣ Textile,
- ▣ Garment.

Small-scale enterprises (SSE's) have not been spared with definition problems that are usually associated with concepts with many components. The definition of firms by size varies among researchers and statistical bureaus. Some attempt to use the capital asset; others use skill of labors and turnover levels. Some even define SSEs in terms of their legal status and method of production. Storey, (1985) tries to sum up the danger of using size to define the status of a firm by saying that in some sectors all firms may be regarded as small whilst in other sectors there are possibly no firms which are small. It is generally admitted that most definitions of firms by size are centered on the number of employees. The classification of firms by size as given by the RPED survey paper is as follows:

Micro enterprise	less than 5	employees
Small enterprise	6 - 29	employees
Medium enterprise	30 – 99	employees
Large enterprise	100 and more	employees

(Teal et al. 1998)

The study mostly covers the period 1991 to 1993, as the time period is informed by the availability of data, as given by the Regional Project on Enterprise Development (RPED) data panel, which is our main source of data, and is expected to be supplemented with some information on the NBSSI operations.

1.6 JUSTIFICATION OF THE STUDY

Successful industrialization must have an indigenous base, and expansion of the small-scale manufacturing sector would help develop entrepreneurial and managerial skills as a basis for efficient indigenous investment in and management of larger industries (Kilby, 1988). Because SSEs tend to be labor-intensive and to use low levels of technology, a strategy to expand the SSE sector is likely to be consistent with employment and income distribution objectives, while allowing for sustained productivity increases through improvements in technology (Stanley and Morse, 1965). Also SSEs can respond flexibly under difficult and changing conditions because they do not depend heavily on infrastructure, and because their typically low levels of technology allow product lines and inputs to be changed at

relatively low cost (Steel, 1977). Even when large-scale industries dominate, many SSEs retain competitive advantage by serving dispersed local markets, providing differentiated products with low-scale economies for niche markets, or specializing as sub-contractors for larger firms (Anderson, 1982). Small-scale enterprises are fairly distributed across the length and breadth of Ghana, and their potentials in economic activities involving employment, sales, and export, forms an interesting area to be studied. Policies such as financial and technical assistance to help in their growth and development are thus worth studying. The evaluation of the public sector financial assistance scheme would serve as a guide to private and non-governmental organizations that have established or are to establish similar facilities for the SSEs. In summary therefore, if SSEs are important to employment generation, income distribution and all those prospects we have seen, then how they are capitalized and the difficulties they may experience in financing, are important policy issues.

Moreover, evaluating the credit-related policies for SSEs would go a long way to helping their development and growth. Finally, a modest contribution would also be made towards the general literature of small-scale manufacturing industry in Ghana.

1.7 RESEARCH METHODOLOGY

The study will be carried out using three main procedural methods, namely,

- ❏ Literature review
- ❏ Analysis of survey data, and
- ❏ Econometric models and statistical analysis, for the analysis and synthesis of the survey material.

1.8 LITERATURE REVIEW

The theoretical or conceptual framework of the capital composition and factors that affect liquidity flow to SSEs will be discussed in Chapter 3. The second part of Chapter 3 will focus on the review of existing empirical literature on the financial development and role of small-scale manufacturing industries in the economic development of mainly developing countries, with special emphasis on Ghana. The various sources of capital as well as other support services from governmental and non-governmental organizations will also be discussed.

1.9 SOURCE OF DATA

The synthesis and statistical analysis of data will be based on survey data drawn from a comprehensive panel data on a sample of manufacturing firms in Ghana, referred to as the survey on the Regional Program on Enterprise Development (RPED), organized by the World Bank. The RPED panel data provides a comprehensive source for identifying employment and output levels, and the source of credit at various levels of establishment.

1.10 ECONOMETRIC MODEL

We will use econometric models namely linear regression analysis and probit models to test hypothesis like the relationship between access to the various forms of finance and ownership characteristics, profit, firm age and other firm level characteristics.

CHAPTER TWO

THE CASE OF GHANA

Ghana introduced an Economic Recovery Program (ERP) in 1983 to redress some of the causes of its long economic decline (Steel, 1992). The ERP's key elements had different implications for different types of industries. Supported by adjustment lending, import liberalization increased access to previously restricted inputs (especially for small firms), and also broadened competition from imported products. Also massive realignment of the highly overvalued exchange rate created new export opportunities and import substitution, but adversely affected import-dependent industries by sharply raising the prices of imported inputs and the cost of financing them.

The fundamental issue is how to create a policy and business environment that enables SSEs to contribute productively to industrial development, not whether SSEs have a role to play (Liedholm 1990; Schmitz 1982). Hence the focus of the study on financial and investment decisions of SSEs, and the constraint posed by the financial markets under which they operate. We expect that SSEs, defined in the Ghanaian context as having fewer than 29 employees, would serve more as a safe haven for surplus labor.

2.1 SSE - DEFINITION IN GHANAIAN CONTEXT

In Ghana, the number of employees is the common criterion used in official circles to classify firms by size. However, there exist some inconsistencies in this as employed by various official sources. The Ghana Statistical Service (GSS) for instance, in its industrial statistics, (classifies) firms with ten or more employees as medium and large scale, and companies engaging nine or fewer persons as small and medium. (Boapeah et al., 1993)

The National Board for Small-Scale Industries (NBSSI), the main governmental institution charged with the responsibility of small enterprises development, uses multiple criteria of fixed assets and employment size to distinguish small-scale industry from medium and large-scale industries. The NBSSI defines a small enterprise as one employing not more than twenty-nine persons with plant and machinery value (excluding land, buildings and vehicles) not exceeding 10 million cedis (NBSSI, 1990).

For the purpose of our study, and owing to data availability, we classify firms with less than thirty employees (1-29) without regards to the capital base, as small-scale enterprise (SSE). This is consistent with the RPED panel data definition for micro plus small business.

2.2 MACROECONOMIC BACKGROUND OF GHANA

After 10 years of successful adjustment, with real economic growth averaging 5 percent per year, Ghana's recorded savings and investment rates remain very low even by sub-Saharan African standards. However, survey evidence suggests that actual savings and investment rates are much higher than recorded rates. National accounts statistics do not capture a large part of the underlying savings and investment activities of the household, rural, and informal sectors.

Table 2.2.1 Some financial and economic indicators

	1991	1992	1993	1994	1995	1996
M2/GDP	0.09	0.12	0.11	0.13	0.11	0.11
Growth in GDP	0.05	0.04	0.05	0.04	0.04	0.04
Nominal interest rate %	20	30	35	33	45	32.6
Real interest rate %	1.9	20	10	8.1	-29.3	2.14

Source: Bigsten et al. (1999).

Comparative financial indicators confirm that Ghana's financial system is not particularly extensive and as a result not fully contributing to economic growth, as shown in Table 2.2.1. Ghana's broad money holdings are small relative to GDP when compared to other countries with similar per capita income. Also, currency holdings are relatively large, suggesting that Ghanaians prefer cash to bank accounts. Meanwhile, the bulk of financial savings has financed public sector deficits, leaving little for private investment finance. There is considerable evidence that a lot of household savings are invested in real assets yielding zero, or negative, returns. Widespread lack of trust in formal financial channels makes these nevertheless the preferred form of investment. Ghana can grow faster with existing savings by improving the efficiency of investments through enhanced financial intermediation. This will require sustaining policies that encourage

bringing more of the existing savings into financial intermediaries and ensure that competition for funds allocates resources to their most productive use. A number of steps have already been taken to strengthen the financial system. Ghana's commercial banks have gone through a financial repair exercise. Further steps need to include measures to build savers' confidence and create a more competitive market environment. Proposed measures include maintaining a stable and viable macroeconomic environment, aggressively phasing out government ownership of financial institutions, broadening the role of non-bank financial institutions, strengthening rural financial institutions and the linkages between the formal and informal sectors, and improving the financial infrastructure, including the legal and administrative framework. Evidence from Table 2.2.2 suggests that private investment needs to be stimulated.

Table 2.2.2 Macroeconomic indicators (1993)		
Percentage of GDP		
Private investment	4	Population (annual growth). 3.1
Government investment	10	Inflation 25
Consumption	101	Enrollment ratio:
National savings	0.2	Primary 71
Broad money	17	Secondary 39
Foreign financing	9	
<i>Source: World Bank Report (1995).</i>		

2.3 AN OVERVIEW OF GOVERNMENT SUPPORT POLICES IN SSE DEVELOPMENT

2.3.1 INTRODUCTION

In this section, government and non-governmental organizations contribution to the development and promotion of SSEs is examined. These institutions include the banking sector, the National Board of Small-Scale Industries (NBSSI), Ghana Enterprise Development Commission (EGDC) and Ghana Appropriate Technology Industry Service (GRATIS). The section also examines the trends of donor funds

given as credit to the central bank and commercial banks. The chapter concludes by discussing government special financial schemes for SSE development with greater emphasis on the PAMSCAD credit line for small-scale enterprises, the MBSSI Revolving Fund (RFLS) and the Business Assistance Fund (BAF).

2.3.2 INSTITUTIONAL SET UP FOR SMALL-SCALE ENTERPRISE DEVELOPMENT

Institutions are the apparatus that provide the channel through which policies that manifest themselves in projects and programs are articulated to achieve policy goals. In this regard, institutions have been established to promote the growth and development of SSEs. Among these institutions are the capital market (banks), NGOs, GEDC, NBSSI and GRATIS. These assist and promote the financial, technical and managerial needs of the SSEs. The institutions mentioned are examined below.

2.3.3 THE INSTITUTIONAL CAPITAL MARKET IN GHANA

Ghana has had a history of influencing the financial systems development since pre-independence era. The Ghana Commercial Bank was established in 1953 among other things to provide loans and advances to indigenous farmers and entrepreneurs that were perceived to be ignored by the foreign banks (Aryeetey, 1993). Few commercial banks and development banks have been established since then. Another dimension of the institutional capital market was established in response to the need and the demand to make institutional credit and banking services accessible to small farmers and other small-scale rural entrepreneurs. Table 2.3.3.1 shows that there are about 524 banking institutions spread over the country.

Region	Area (sq. km.)	Estimated population in millions (1990)	No. of bank offices including rural banks	Area covered per bank office (sq. km.)	Population density per bank office (in thousands)
Western	23921	1.29	61	392	21.1
Central	9826	1.33	57	172	23.3
Greater Accra	3245	1.64	82	40	20.0
Eastern	19323	1.94	73	256	26.6
Volta	20570	1.38	50	411	27.6
Ashanti	24389	2.41	83	294	29.0
Brong-Ahafo	39557	1.36	73	542	18.6
Northern	70384	1.34	18	3910	74.4
Upper east/west	27318	1.39	27	1012	51.5
Total	238533	14.08	524	7038	26.9

Source: Aryeetey et al. (1997)

2.3.3.1 COMMERCIAL BANKS

Presently there are a number of commercial banks with branches and sub-branches operating throughout the country. These banks account for over 60 percent of total deposits in the economy (Adzah-Gidi, 1998). Nearly all the lending done by commercial banks is short-term (two years or less) and the bulk of the credit is in the form of bank overdrafts.

A few major banks namely the Ghana Commercial Bank (GCB), Standard Chartered, Barclays Bank and the Social Security Bank (SSB), dominate the commercial banking system. These commercial banks are conservative in their lending policies, and lending to SSEs does not form a significant part of their portfolio (Aryeetey, 1993). This conjecture is based on the fact that most commercial bank lending has land, building and equipment as the main form of collateral. Commercial banks are reluctant to offer collateral-free loan although they are willing to develop functional equivalent to the collateral.

Commercial banks in Ghana are not required by law to report on their lending to certain sectors. They are also extremely reluctant to disclose information on their relationship with SSEs to third parties, making it difficult to know the extent of their lending to small business. In 1984, the distribution of loans granted by the commercial banks reveals that while average loan size to indigenous sole proprietorships was only 8000 cedis, credit to indigenous limited liability companies were far larger with an average figure of 596,000 cedis. The indigenous sole proprietorship thus received on average the smallest amount and share of total domestic credit from commercial banks (Adza-Gidi, 1998).

The reasons for the reluctance of the Ghanaian commercial banks to lend to SSEs are not different from what we have discussed above. These commercial banks are profit oriented and operate in a competitive environment. They are therefore less likely to lend to sources where repayment cannot be reasonably guaranteed. In other words they try to minimize credit risk in their loan portfolio.

2.3.3.2 DEVELOPMENT FINANCE INSTITUTIONS (DFI)

Most DFIs in Ghana were formed in the 1960s and 1970s to fill in perceived gaps in financial intermediation and particular the provision of long-term finance. They were sector specific and one of their major impacts appears to be the increase in financial sector segmentation. Examples of DFIs in Ghana are the Agricultural Development Bank (ADB), the National Investment Bank (MIB), and Bank for Housing and Construction (BHC).

The Agricultural Development Bank, established in 1970, was structured to cater for large and small-scale farmers. The National Investment Bank and the Bank for Housing and Construction were similarly formed with the motive of financing large, medium and small business and housing and construction needs of Ghanaians (Boapeah, 1993). DFIs often have special lending programs for SSEs though coverage and impact have not been so noticeable as they tend to prefer lending to large enterprises for reasons previously discussed.

2.3.4 THE NATIONAL BOARD FOR SMALL-SCALE INDUSTRIES (NBSSI)

The NBSSI was established in 1981 by an Act of Parliament, Act 433, as an apex body for development of SSEs in Ghana. The Board became operational in 1985 (Boapeah, 1993). There are six main functions of the Board. These are firstly, the definition and establishment of what constitutes the small-scale industry sector in

Ghana. Secondly, the organizations of a field extension network for the identification of projects, data collection, dissemination of information and provision of feedback. Thirdly, the promotion of entrepreneurship programs for the development of new and existing industries. Fourthly, encouraging the formation of co-operatives, the building of industrial estates and other infrastructure for small-scale industry development. Fifthly, the definition of the roles and the responsibilities of the implementation of special programs in the areas of finance, technology, and management, and sixthly, the implementation of all policies in relation to small-scale industries as approved by the government and seeing that the infrastructure needed for small-scale industry development is established.

The activities of the Board as observed by Boapeah “are not readily seen from the functions assigned to it”. The activities of the Board for the development of the SSEs are performed under few departments. The departments involved are the Policy Planning, Monitoring and Evaluation, Credit and Investment, Entrepreneurship Development and the newly formed Women Enterprises Development Department.

The Policy Planning, Monitoring and Evaluation (PPME) department’s activities are among others, to improve the enabling environment within which micro and small enterprises operate with regard to generation of new business and improvement in productivity.

The Entrepreneurship Development Department (EDD)’s main objective is to develop the capacity of individuals and groups, to enable them start their own business and successfully manage them. In reaching this objective, the EDD organizes training programs to prospective and practicing entrepreneurs through its Business Advisory Centers (BACs).

The Investment and Credit Department (ICD)’s objective is to ensure a continuous flow of credit to micro and small enterprises.

The Women Enterprises Development Department was established in 1996 to act as a focal point to cater for the special concerns of women entrepreneurs (NBSSI, 1996). Specifically this department aims to: Provide the basis for gender-based programming of women in small enterprise development activities, build a comprehensive information flow and exchange mechanisms that relate to gender and small enterprises; and establish a forum or center for networking small enterprises and its collaborators through workshops, exchanges and visits.

2.3.5 GHANA REGIONAL APPROPRIATE TECHNOLOGY SERVICE (GRATIS)

The GRATIS was established in 1987 with branches in all the regions to offer technical and managerial support through training to small and medium-scale enterprises (Boapeah, 1993). Training being offered by GRATIS includes foundries, engineering, masonry, soap making, carpentry, food processing and preservation, and metal fabrication.

2.4 INTEREST RATES POLICY AND CREDIT ALLOCATION

The 1970s saw different interest rates for different sectors through to mid 1980s. The preferential interest rates were based on the assumption that the market rate if universally applied, would exclude some of the priority sectors. Interest rates were, therefore, adjusted periodically to promote increase in the level of investment in the different sectors of the economy. For example in 1983, commercial banks were directed (by the central bank) to charge a preferential interest rate of 8% per annum (when the general interest rate was 9%) on all loans and advances to small-scale farmers whose operations required funds not exceeding 50,000 cedis. Again, in 1984, the agriculture export and manufacturing sectors attracted an interest rate of 14.5% as against 21% of other loans (Aryeetey, 1993).

Currently the government of Ghana is pursuing a market oriented interest rate regime, which does not permit a direct state intervention in the general direct of the economy. The market demand and supply is the driving force of resource allocation. Thus current formal lending policy does not give special interest rate concession to the small-scale industry. The interest on loans is based on the risk factor of the sub-sector that the loan is intended to be invested in. The average lending rate for example, increased from 39% in 1993 to 47.8% in 1996 (Aryeetey, 1996).

The rather high lending rate, coupled with the general perception of SSEs lack of the traditional bank collateral requirement, meant that the SSEs access to formal bank loans would be limited. Aryeetey et al (1997) report that only 14% of bank credit to enterprise went to the small-scale operator. This is a further justification of the creation of special financial schemes for the growth and development of the small enterprises.

2.5 FINANCIAL SCHEMES FOR SMALL-SCALE ENTERPRISES (SSEs)

As we have already discussed, external financing seems a potential obstacle to the development and growth of SSEs in Ghana. To address the problem, credit schemes for SSEs have been established by the public, quasi-governmental institutions, and non-governmental organizations (NGO).

2.5.1 GOVERNMENT SPECIAL LENDING PROGRAMS

The credit schemes instituted by the government and managed by the NBSSI are discussed below.

2.5.1.1 THE PROGRAM OF ACTION TO MITIGATE THE SOCIAL COST OF ADJUSTMENT (PAMSCAD) CREDIT LINE FOR SMALL-SCALE ENTERPRISES

The advent of the economic recovery program (ERP), as we saw above, and the subsequent structural adjustment program (SAP), meant a chartered course of painful decisions and experiences at least in the short-run. The PAMSCAD was meant to soothe the adverse effect of the programs (ERP and SAP). Among the project portfolio under the PAMSCAD were employment generation projects including a credit line for SSEs.

The target group under this PAMSCAD credit scheme was the redundant workers and unemployed who require credit to establish small businesses. The existing SSEs were also to benefit from this scheme (PAMSCAD, 1989).

The policy framework sets the maximum loan limit under the PAMSCAD credit scheme as not above 2.5 million cedis (about \$10,000) This limit was considered as high enough to meet the needs of the target group. The guideline further stipulated that at least 80% of loanable funds should be earmarked for SSEs.

2.5.1.2 LOAN APPLICATION PROCEDURE AND APPROVAL

Applications are to be submitted through The Regional Secretariat of MBSSI or the District Administrative office or through a promotional agency, for example an advertising agent network like National Council on Women and Development (NCWD). An initial screening is carried out after the submission of the application. The lead questions seek to find out the following:

Whether applicant is a Ghanaian
Whether enterprise is fully Ghanaian owned
Whether applicant is conscientious and capable of running an enterprise
To find out whether the enterprise falls within the priorities of the credit line.

NBSSI staff then meet the entrepreneurs, screen firms and then short-list them for interview and inspection.

2.5.1.3 GUARANTEES AND COLLATERAL (SECURITIES)

The guarantees and securities demanded are related to the risk involved in the enterprise. Generally the following conditions are applied in the PAMSCAD credit line.

Guarantors of applicants complete guarantee forms and provide evidence of their annual earnings and financial commitments. Loans are secured by the means of mortgage on real property before the provision of valid title to property and proper valuation. The borrower or the guarantor that are duly registered at the Deeds Registry surrenders the title deed in respect of the property to be mortgaged. Life assurance policies where loan repayment period and amount of loan do not exceed the corresponding maturity period and the value of the policy. The life policies and other relevant documents shall be surrendered to the implementing agency (Adzah-Gidi, 1998).

2.5.1.4 PRE-FINANCE SERVICES

The PAMSCAD credit line guideline made provision of training programs aimed at preparing entrepreneurs to face the psychological as well as operational challenges of business running. This package was to be delivered after the approval of the credit.

2.5.1.4.1 INTEREST RATE AND CREDIT DISBURSEMENT

The interest rate chargeable in PAMSCAD credit line is just 20%. The beneficiary of the loan collects it through the Ghana Commercial Bank.

2.5.1.5 CREDIT RECOVERY

The disbursement document indicates the effective loan repayment date. The beneficiary is required to make a direct repayment on the schedule amounts to the bank. One month in default invites a staff of the NBSSI to ascertain the reasons for default, and a reminder is sent to the defaulter in the second month of his

commitments to the Board. An appropriate action is taken when the default is four months.

2.5.2 NATIONAL BOARD FOR SMALL SCALE INDUSTRIES REVOLVING LOAN FUND SCHEME

The revolving loan Fund scheme (RLF) of NBSSI became operational in 1992 with a seed capital of 80 million cedis (about \$57,000) with the principal objective of promoting the development of SSEs in Ghana. Like the PAMSCAD credit line, the RLF was set up to benefit both existing and new businesses and was targeted at enterprises in the manufacturing and service sectors of the economy.

2.5.2.1 CREDIT ALLOCATION AND LIMIT

The beneficiaries of RLF credit lines is normally required to be organized into sectoral or subsectoral associations, co-operatives or societies. Individuals who operate under a registered name with the RLF scheme permits, allow loans to be granted through the purchase of raw material.

2.5.2.2 CREDIT APPLICATION ROUTE

The application for assistance is submitted to the Regional Secretariat of NBSSI, specifying in writing, quantity, quality, specification and source of supply to enable the exact type of equipments to be procured by the Board. A simple report on the feasibility of the request is required from the applicant. This can be prepared by the NBSSI for the client for a fee of 4% of the project cost. Requests that are found to be viable by the loan committee are recommended and forwarded to the management committee for disbursement.

2.5.2.3 GUARANTEE AND SECURITIES

For limited liability companies, two personal guarantors are required, while a guarantee of a registered association is required from co-operatives or for group requests. The agreement forms and deeds of assignment forms are further guarantees of the credit secured. The policy and guidelines for the administration of the RLF are silent about the credit recovery as detailed in the PAMSCAD credit line.

2.5.3 THE BUSINESS ASSISTANCE FUND (BAF)

The BAF was launched in 1995 with an initial capital of 10 billion cedis from the government's budget. The facility was introduced to restore the productive capacity of enterprises and industries of proven potential but which because of the vagaries of ERP could not perform satisfactorily. In order to ensure a more equitable spread of beneficiaries of the BAF and also to make it more accessible to SSEs, the fund was decentralized in 1996. The SSEs were to be allocated 2 billion cedis of the seed capital. The interest rate of the BAF is 15% per annum, subject to changes when necessary.

2.5.3.1 CREDIT ALLOCATION AND LIMIT

The regions received a minimum of 50 million cedis paid into the Regional BAF Account with the regional Coordinating Director, the Regional manager of NBSSI and the Regional Planning officer signatories to the account. The Agricultural Development bank was given the responsibility of managing the BAF account but restructured rural banks were to participate where feasible. The limit to regional credit under the BAF is pegged at 300,000 cedis at the maximum and minimum of 100,000 cedis. Loan application forms are available at SSB Bank at 2,000 cedis each.

2.5.3.2 CREDIT ELIGIBILITY CRITERIA

The SSEs wishing to access the credit facility are required to be duly registered in Ghana and engaged in the productive sectors of the economy, including manufacturing, agro related industries, industrial support services and tourism. Enterprises worth more than 10 million cedis in fixed assets, excluding land and buildings are eligible for the regional BAF finance. Other considerations include SSEs producing for exports contributing to reduction of post harvest losses (preservation and food processing), introduction of new technology and innovative idea. The BAF policy document stipulates that all loans are paid within a maximum period of ten months.

2.6 DONOR FUNDING

External donors, with the government, central bank and commercial banks acting as mere intermediaries, fund most of the lending in this category. A typical special program will identify the specific business enterprise category to benefit, provide guarantors to the bank to minimize credit risk exposure, provide funds to cover

administrative costs and subsidize funds for further lending to the target SSEs. Usually banks are asked to contribute part of the fund to be lent out (Adza-Gidi, 1998). The banks that have been involved in this type of lending are the Ghana Commercial Bank (GCB) and the Social Security Bank (SSB). Some of the special program lending schemes that have been implemented include the following.

In 1970, the Bank of Ghana (central bank) established a credit guarantee scheme with funds from International Development Agency (IDA) to underwrite loan to small-scale businesses made by the commercial banks. This scheme did not work out (Boapeah, 1993). For example, in 1985, the Bank of Ghana obtained a US\$ 28 million credit from IDA to establish the Fund for Small and Medium Enterprise Development (FUSMED). FUSMED was to provide financial services through some participating financial institutions to SSEs in all sectors other than primary agricultural, trading and real estate. Also under the Program of Action to Mitigate the Social Cost of Adjustments (PAMSCAD), a revolving credit to the tune of US\$ 2 million was instituted to assist SSEs.

2.6.1 NGO AND OTHER PRIVATE SECTOR CREDIT SCHEMES

Non-governmental organizations (NGOs) play an important role in SSE assistance deliveries. The NGOs are much more cost effective in their activities than public agencies, are more highly motivated and generally have greater understanding of the cultural and social environment in which they operate (Levitsky, 1989). NGOs are rooted in societies in which they operate and they would be able to efficiently use the scarce resources at their disposal if they received some support from NGOs in the developed countries.

Currently there are about 415 NGOs operating in Ghana (www.Africaonline.com.gh/nghonet/). Most of them have strong links with foreign NGOs that are usually the parent organization. These NGOs are extremely dependent on donor support, as most of them will not survive without its support (Adza-Gidi, 1998). Their operations tend to be area specific though many of them have a nation-wide network. Most NGOs in Ghana begin as community welfare associations, although over the years many of them come to include credit provision in their operations. NGOs in Ghana run a whole range of credit schemes including revolving loan funds, seasonal credit schemes, small enterprise development schemes, loan guarantee schemes and individual credit schemes (Adza-Gidi, 1998). NGOs of late are emerging as a promising source of extra household funds used in small enterprise development. While some NGOs focus exclusively on female entrepreneurs, others have no gender focus.

CHAPTER THREE

LITERATURE REVIEW

3.1 INTRODUCTION

This chapter reviews the theoretical and empirical literature on financing and investment decision of the small firm. It begins with the theory of the small firm. The second section of the chapter discusses the theoretical framework of the capital structure of the firm and the credit market. The third section reviews the empirical literature related to the first and second sections.

3.2 THEORY OF THE SMALL FIRM

Small firms have long been a matter of concern for government and policy makers. In the populist tradition of thought, an economy based on small firms has been regarded as the alternative to the standard course of capitalist industrialization, generated, with its tendency towards increasing concentration of industries in the hands of a few large firms (Kitching, 1982).

Size theories of the firm can be classified into four approaches, namely, conventional microeconomic approach (or the technological approach), the transaction cost approach (or the institutional approach), industrial organization approach, and the dynamic model of size distribution approach (You, 1995).

In the conventional microeconomic approach, firm size is determined by technical and allocation efficiency. The traditional analysis of firm size is conducted in the context of a competitive equilibrium. In a competitive equilibrium, the actual firm size will be the efficiency size in the sense that the long-run average cost is minimized at that point. Here, the technologically determined economies of scale and scope are the principal determinants of firm size (You, 1995). The efficient firm size can be determined uniquely only if the long run average cost curve is U-shaped. One way by which decreasing returns to organization size may occur is where there is a fixed input such as the entrepreneurial input. Kihlstrom and LaFont (1979) see the propensity to take risk in the face of uncertainty as the central quality of entrepreneurship. Firm size therefore, depends on the individual entrepreneur's willingness to take risk. Marx (1976) posits that changes of efficient firm size over time depend on the nature of technological change. Lucas (1978) posits that there is a given distribution of managerial talents across entrepreneurs.

In equilibrium therefore, the greater the talent of an entrepreneur, the greater the size of the firm (measured in number of employees) he manages. Those with talents below that of marginal manager, who is indifferent between being a manager and being an employee, will automatically be employees. According to Lucas, in this way a full size distribution of firms can be determined from a distribution of talent (skills). The model rationalizes the common observation that the number of small firms increases during recession. Since in this model the wage rate represent opportunity cost of becoming a manager, the falling real wages and the rising unemployment in recession will induce some 'marginal' employees who were previously wage-earners to switch to setting up their own business¹.

In the transaction cost theory, firm size is determined by transaction cost efficiency. Here the efficient size of the firm is determined where the marginal intrafirm transaction cost (cost of internalizing one more transaction) equals the market transaction cost (Coase, 1937). While market transaction costs explain why firms exist, intrafirm governance costs explain why the efficient firm size is limited.

The third approach is the industrial organization approach. Firm size and its distribution (market structure) are determined by market power. In this approach there is no presumption that the observed firm size or its distribution is efficient or in the process of adjustments towards the efficient equilibrium. Rather, the size distribution of firm is thought to reflect the distribution of market power and the competitive structure of the market. The market share of firms in an industry with heterogeneous products will depend not only on the pricing strategy but also on which segment of the market they serve. The size of a firm serving different segments of the market may differ for at least two reasons. One is that they may require different technologies. Another reason is that the magnitude of demand (the location of the demand curve) may differ across different segments of the market. In this vein, firms producing mass-consumption goods will be larger than firm producing specialty goods (You, 1995).

The fourth theory is the dynamic model of the size and distribution of a firm's approach. This includes stochastic models, life-cycle models and evolutionary models. The stochastic model for instance, is based on the Gibrat's law, which states that the growth rate of a firm is independent of its current size and its growth

¹ This is only a special case of prediction of the model, namely a positive correlation between the level of income and the average size of the firm, which is the hypothesis Lucas (1978) tests in his paper with the US data. In fact it is hard to believe that such a model that equates a firm with a manager can be applied to large corporations. This model seems to make more sense when it is applied only to small firms.

history (You, 1995). If every firm experiences the same growth rate subject to random variations year after year, the size distribution will turn to a log normal distribution. That is a skewed distribution rather closed to the typical size distribution of firms actually observed in most industries.

It is also important to acknowledge the qualitative factors that distinguish a small business from a large firm. In the United States, the Committee for Economic Development has out-lined four characteristics that describe the domain of a small business (Hodgetts and Kuranthko 1998).

The factors are:

Management of a small business is independent, since the manager usually owns the firm.

Capital is usually supplied by an individual or a few individuals hold ownership.

The area of operations is primarily local, although the market is not necessarily local.

The firm is small in comparison with the largest competitors in the industry.

Taken together, these characteristics provide a qualitative description of small business.

3.3 THEORETICAL FRAMEWORK ON FINANCE

A decision to start a business or expand an already existing firm by increasing the productive assets, involves an implicit decision to raise money capital in order to finance the growth. There are three main sources of funds; namely equity financing (issues of shares), debt financing (issues of bond), and the use of retained earnings.

The first two sources, equity financing and debt financing constitute external financing, while retained-earnings are an internal source of finance (Koutsoyiannis, 1982). The financing decisions involve the determination of the optimal mix of the various sources of funds required for financing the assets of the firm. Given the different sources of funds, the financing decisions imply two separate types of decisions. First, management must decide the optimal capital structure of the firm, that is, the optimal proportion of debt in its total capital. The capital structure is reflected in the firm's debt-equity ratio, (that is the proportion of debt to equity in the total assets of the firm). Second, management must decide an optimal dividend-payout ratio (the ratio of dividends to total earnings available to shareholders after payment of interest and corporate taxes) that implies the determination of the

retention ratio, the proportion of earnings to be retained for financing investment projects that will yield increased earnings in future periods (Koutsoyiannis, 1982). The financing decisions therefore involve the determination of an optimal debt-equity ratio (capital structure decision) and optimal dividend-payout decision (retention-dividend policy).

The optimality of a decision is related to the goal of the firm (in other words, a decision is considered as optimal if it contributes to the attainment of the goal of the firm). In the traditional theory of finance the goal of the firm is assumed to be the maximization of the market value of the firm to its shareholders.

There are three main theories, on the goal of stockholder-wealth maximization, that deserve consideration. All three examine the question as to whether there is a capital structure that maximizes the value of the firm by minimizing the average cost of its capital (Koutsoyiannis, 1982).

The first theory, known as the classical or traditional theory postulates that there is a unique optimal capital structure which maximizes the market value of the firm by minimizing the average cost of its capital. A version of this theory, developed by Solomon (1963), postulates that there is a range of optimal capital structures, over which the discount rate (average cost of capital) attains its minimum value, resulting in the maximization of the market value of the firm.

The second theory was developed by Modigliani and Miller (1958) under the assumptions of perfect capital markets and no corporate taxes. This theory postulates that the value of the firm and consequently the wealth position of stockholders are not affected by the capital structure (type of financing) (Koutsoyiannis, 1982).

The third theory, also developed by Modigliani and Miller (1958), takes into account corporate taxes and postulates that a firm should use as much debt as possible to maximize its value.

3.3.1 DETERMINANTS OF CAPITAL STRUCTURE

From the discussion in the previous sections we may draw a list of factors that are thought to affect the financing decisions of firms.

The goal of the firm

We mentioned that if the goal of the managers is the maximization of stockholders wealth, the optimal capital structure is the one that maximizes the market value of the firm to its original stockholders. If the goal of the managers is on the other hand the maximization of their job security, the optimal capital structure is the “typical” average leverage of other similar firms in the industry (Koutsoyiannis, 1982).

Availability of internal funds: the rate of growth of earnings

There is ample evidence that managers have a preference for internal funds over external sources of capital. The main determinant of internal funds is the growth in earnings of the firm. A high earnings growth rate enables management to have more funds from retained earnings, so that less external finance will be required. Thus one might expect a negative relationship between the rate of growth of earnings and the debt-equity (D/S) ratio. The rate of growth in earnings may affect the D/S ratio indirectly in two ways (Koutsoyiannis, 1982): Firstly, a high rate of growth, if financed with debt, will increase the earnings per share by more than if it were financed by common stock, due to the tax-deductibility of interest payment (tax shield) (Copeland and Weston, 1992). The effect of the growth of earnings on the debt/equity ratio in this event would be positive. This effect, however, may well be expected to be absorbed by the corporate tax rate which itself is another determinant. Secondly, a high earnings growth rate will almost certainly boost the price of the common stock, making equity financing more attractive than debt financing. This effect of growth in earnings on the D/S ratio should be absorbed by the stock price, which is also a separate determinant of capital structure.

Availability of internal funds: the retention policy of managers

The amount of internal funds does not depend only on the growth of total earnings but also on proportion of earnings retained (retention ratio). This in turn depends on the growth potential of the firm and the ability of managers to persuade shareholders that the available investment opportunities are profitable. The retention ratio is expected to be negatively related to the debt/equity ratio, since a high proportion of retained earnings reduce the need for debt financing.

Credit limit (or debt capacity of the firm)

The attempt of managers to adjust their actual D/S ratio to their desired level is constrained by the attitudes of creditors. It is generally accepted that lenders in the capital market ultimately define the debt capacity of firms, that is the level of safe (risk free) borrowing, or the amount of debt which firms can undertake without serious danger of financial failure (Koustoyiannis, 1982). Creditors beliefs about

the debt capacity of a firm are thus based on such variables as the size of the firm, its potential growth, and its business risk.

The size of the firm:

It is observed that large firms can borrow funds more easily and on better terms than small firms (ibid). This may be attributed to creditors' beliefs that larger firms are less likely to become insolvent. In this event, "size" is expected to be positively related to the debt/equity ratio. (However, although the size of assets enlarges the debt capacity of firms, large firms may not be willing to avail themselves of the larger availability of loanable funds, preferring to rely on retained earnings).

The growth potential:

The growth of assets may be considered as a fairly satisfactory indicator of the future development opportunities of the firm. Furthermore, the growth of assets reflects the total needs for funds of the firm. On both accounts one should expect a positive relation between the growth of assets and the debt/equity ratio, ceteris paribus.

Business risk:

Usually measured by the variability of earnings. Creditors are inclined to provide capital to firms whose earnings are stable since earnings uncertainty increases the risk of bankruptcy (Copeland, and Weston, 1992). For job-security reasons managers are also affected in their decision to use debt by the stability of earnings of the firm. Stable earnings allow a more liberal use of debt, because the firm can regularly meet the fixed costs of debt. In either case the variability of earnings is expected to be negatively related to the debt/equity ratio.

The cost of debt

Debt has a direct (explicit) cost, consisting of interest payments, and an indirect (implicit) cost, in that it increases the cost of equity capital (Koustoyannis, 1982).

$$k_e = k_o + (k_o - k_d) D/S$$

Where k_e is the discount rate on equity,

k_o is the market rate,

k_d is the discount rate on debt,

This relationship states that k_e is higher than k_o by the result of $(k_o - k_d) D/S$. Since k_o reflects the business risk of total earnings, the second term is the premium for the additional risk arising from the use of debt for financing the operations of the firm. In this case, the greater the D/S ratio, the greater the cost of equity capital

of the firm (k_e). On a priori grounds, the greater the cost of debt, the less attractive it becomes as a source of finance, *ceteris paribus*.

The cost of equity financing

The cost of equity financing is reflected in the price of the shares. An increase (decline) in stock price creates expectations of cheap (expensive) equity financing and hence makes debt relatively less (more) attractive. Thus the change in the price of common stock is expected to be negatively related to the debt/equity ratio.

The corporate tax rate

Interest payments are tax-deductible for companies and this contributes to the attractiveness of debt financing. Thus the corporate tax rate and the D/E ratio are expected to be positively related.

Dilution of ownership

Widely held stocks encourage the issue of new shares when additional funds are required, because the voting control of shareholders is not likely to be changed substantially. On the other hand where ownership of stocks is concentrated in the hands of a small number of shareholders, management feels reluctant to issue new shares, for the fear that it will dilute the ownership control. The relationship between concentration of voting control and the D/E ratio is expected to be negative.

Rate of inflation

Inflationary expectations affect both demand and supply of loanable funds. Managers may favor debt financing, *ceteris paribus*, because the repayment of debt will be less cumbersome due to the fall in the real purchasing power of money. However, creditors may be unwilling to supply funds in inflationary conditions for the same reason, unless they are compensated with high interest rates. However, interest rates are normally beyond the control of creditors, being defined by government policy. Thus it is more likely that inflationary expectations will have a stronger effect on creditors rather than on borrowers (firms). One should thereby expect a negative relationship between the debt/equity ratio and the rate of inflation (Koutsoyiannis, 1982)

In the real business world that is characterized by uncertainty, each type of fund has a different cost. The overall cost of capital to the firm is the weighted average of the costs of the various sources of finance (Ross, and Westerfield, 1996).

The determination of the cost capital is important for two reasons:

It defines the supply of investable funds to the firm
It is widely used as a criterion for investment decisions of the firm

Availability of loanable funds

The supply of credit is to a large extent influenced by government policy. The imposition of a tight monetary policy makes debt financing scarce and expensive. In such conditions firms are coerced to rely on retained earnings and use more equity financing, despite its higher cost. This factor is closely related to the previous one, since a tight monetary policy is mostly adopted in inflationary periods, and vice versa. Thus the rate of inflation is a fairly good proxy for the availability of loanable funds. Its relation to the debt/equity ratio would be negative.

3.3.2 CREDIT MARKET THEORY

Credit markets differ from the goods markets in that the goods markets, which are the focus of classical competitive theory, involve a number of agents who are buying and selling a homogeneous commodity where payment for the commodity occurs simultaneously (Jaffee and Stiglitz, 1990). In contrast, credit (in money or goods) received today by an individual or firm is exchanged for a promise of repayment (in money or goods) in the future.

Accordingly a credit market is sometimes assumed to have the following features: (1) A multiplicity of freely operating financial intermediaries constituting the credit supply side, while homogenous deficit-spending investors make up the demand side; (2) Both intermediation and investment activities are driven by profit-maximization motive; (3) Intermediaries mobilize financial resources through the issue of primary securities to surplus spending units or savers; (3) Resources mobilized are allocated among investors through the issue of secondary debt securities; (4) Both types of securities are designed in such a manner that they suit the investment and financing needs of both the savers and investors respectively with regards to maturity, risk-return preferences, liquidity and marketability etc; (5) Since transactions are competitive, agents do not possess undue market power which they can use to manipulate the quantity of credit or interest rates to their advantage; (6) The assumption of perfect market symmetry and completeness of information holds as intermediaries and borrowers possess similar and all the required information on the quality of the investment projects. (7) And intermediation transaction cost is negligible (Mwenda, 1993).

All things being equal, given the above assumptions and other things held constant, credit supply increases monotonically while demand decreases with interest rates. If credit markets were like standard markets then interest rates would be the "prices" that equate demand and supply for credit. However, excess demand for credit is common, applications for credit are frequently not satisfied. As a result the demand for credit may exceed the supply at the market interest rate (Jaffe, 1990). Credit markets deviate from the standard model because the interest rate indicates only what the individual promises to repay, not what he will actually repay (which means that the interest rate is not the only dimension of a credit contract).

The issue of the allocation of credit has profound implications at both the macro and micro levels. At the micro level, in the absence of a credit market, those with resources would have to invest the resources themselves, probably receiving a lower return than could be obtained by others. When credit is allocated poorly, poor investment projects are undertaken, and the nation's resources are squandered. The special nature of credit markets is most evident in the case of credit rationing, where borrowers are denied credit even though they are willing to pay the market interest rate (or more), while apparently similar borrowers do obtain credit (ibid).

3.3.3 UNCERTAINTY AND INFORMATION ASYMMETRY

Differences between promised and actual repayments on loans are the result of uncertainty concerning the borrower's ability (or willingness) to make the repayments when they are due. This creates the risk of borrower default (Jaffe and Stiglitz, 1990). The sources of uncertainty can be analyzed by distinguishing between two types of risks, namely business risk and financial risk.

Business risk arises from the uncertainty of the realization of the expected earnings of the firm. This uncertainty arises from possible changes in prices of the products and of the factors of production, changes in consumers' tastes, changes in the methods of production, and the reactions (decisions) of competitors. In other words, business risk arises from general business conditions in the economy (general economic and political conditions).

Financial risk arises from the use of debt for financing the firm's operations. As indebtedness increases, the fixed costs of servicing the debt rise. Since debt holders (creditors) have a priority claim on earnings, the existence of debt increases the uncertainty of the flow of net earnings available to the entrepreneur (after interest payments). Furthermore, the use of debt exposes the entrepreneur to a potential loss

of his total equity, if total gross earnings fall below the fixed charges of debt, that is if the firm becomes insolvent (which may lead to legal bankruptcy).

Given that borrowers and lenders may have differential access to information concerning a project's risk, they may form different appraisals of risk; we refer to symmetric information as the case in which borrowers and lenders have equal access to all available information. The opposite case asymmetrical information is where the borrower knows the expected return and risk of his project, whereas the lender typically knows only the expected return and risk of the average project in the economy (Jaffee and Stiglitz, 1990).

The amount of information about an enterprise is generally not neutral with respect to size. Peterson and Rajan (1992) observe that small enterprises are most likely to face credit rationing because most potential lenders have little information on the managerial capabilities or investment opportunities of such firms and are unlikely to be able to screen out poor credit risks, or to have control over borrowers' investment. This information gap problem on credit supply is buttressed by Jaff and Russel (1976) when they indicated that if lenders were unable to identify the quality of risk associated with particular borrower, then credit rationing would occur. This phenomenon is analogous to the lemons argument advanced by Akerlof, (1970).² The existence of asymmetric information prevents the suppliers of funds from taking the right investment decision.

In their analysis of Business Angels, Harrison and Mason, (1994) pointed out that there are business owners, whose firms are constrained in their growth by a "shortage" of equity, and who would be prepared to share their equity with the informal investors. The implication of their research is that an information barrier exists between the two groups and that it would be beneficial to the economy as a whole if this barrier were overcome. In other words there is the problem of asymmetric information in the equity market as far as small business operations are concerned and this leads to market failure that calls for government intervention.

3.3.4 THE SOURCES OF LOANABLE FUNDS

Lenders obviously need funds to make loans, so the cost and availability of loanable funds necessarily interacts with loan market activities. Mostly "banks" is used as descriptive shorthand of lenders and "deposits" used for sources of loanable

² In his lemons market argument, Akerlof illustrated the possibility of nonexistence of equilibrium in hidden-information problems due to adverse selection.

funds (Jaffee and Stiglitz, 1990). However, the following points indicate how the analysis generally applies to all types of lenders.

Bank lending is typical of most lending. Although the bank loan is the dominant form of credit in many countries, capital market instruments, such as bonds, are also used for credit transactions. Capital markets and loan markets share similar problems, and solve many of them in comparable ways, as the following examples illustrate:

The underwriting process for new risky bonds is intensive in gathering information concerning the borrower's credit worthiness, and likelihood of default is reflected in the rate of return required by investors.

Credit ratings are used to classify risk levels (although the screening and lending functions tend to be separated more in capital market transactions than in lending transactions).

Restrictive covenant in corporate bond contracts are comparable to non-price terms in loan contracts, both reflecting attempts by lenders to control the extent of default risk.

Bank deposits can be treated as safe securities. For simplicity, deposits are treated as the source of loanable funds-as though they were free of default risk. This is actually the case with respect to bank deposits insured by federal deposit insurance. Even without such insurance, depositors generally receive the fixed return promised by a bank because banks hold diversified portfolios of loans and their capital and loan loss reserves provide a further tier of protection (Jaffee and Stiglitz, 1990).

3.3.5 BORROWER CLASSIFICATION THEORY OF CREDIT RATIONING

Jaffee and Modigliani (1969) developed a borrower classification theory of equilibrium or long-run credit rationing (Mwenda, 1993). In this model a lender uses objective criteria such as industrial classification, firm size, standard financial characteristics such as dividend policy or profitability etc. to classify borrowers into groups. Risk adjusted and profit-maximizing lending rates are then determined for each borrower in a given group. Next, an optimal rate to be applied uniformly to borrowers in each group is determined. This rate is determined so that it falls between the smallest and largest individual rates. Then in each group, borrowers whose credit demand exceeds supply at the uniform rate are rationed. A lender prefers rationing to increasing interest rates to clear loan applications, as the latter (increasing interest rates) would violate the borrower classification scheme.

3.3.6 INSTITUTIONAL THEORIES OF DISEQUILIBRIUM CREDIT RATIONING

The institutional or financial repression theories of disequilibria credit rationing are of two types. These are comprised of original macro-based theory attributed to both Mckinnon (1973) and Shaw (1973), and a micro-based theory developed by Tybout (1983).

3.3.6.1 MACRO-BASED THEORY

Mckinnon (1973) and Shaw (1973) proposed different mechanisms by which financial markets function. In Mckinnon's view, financial markets operate according to the complementary hypothesis, whilst Shaw's mechanism is based on the debt-intermediation hypothesis. For the analysis of credit rationing, we examine the context of the debt-intermediation hypothesis.

The debt-intermediation hypothesis states that perfect and freely functioning financial markets operate according to the Walrasian market (Mwenda, 1993). Accordingly whilst demand for loanable funds is inversely related to interest rates, financial savings are highly responsive to interest rates. Equilibrium is characterized by market clearance as flexible interest rates equalize the demand and supply of credit. The hypothesis further states that financial repression, generally defined as administrative setting of interest rates below their market clearance levels, distorts credit markets. Thus at any rate below the equilibrium interest rate, financial savings and hence credit supply are discouraged but demand for credit is boosted. The ensuing demand deficit compels intermediaries (banks/lenders) to ration credit on non-interest criteria such as customer reputation, political connections, size and quality of collateral and related attributes.

3.3.6.2 MICRO-BASED THEORY

Micro-based theory of financial repression was developed by Tybout (1983) to improve upon the original macro model by characterizing the nature of credit allocation bias at the firm level. According to Tybout, the absence of financial repression, intermediaries offering unique sets of loan contracts to individual borrowers characterize credit market equilibrium. The contracts are unique in the sense that they reflect the peculiarities of the credit worthiness attributes of each borrower in terms of risk, profitability, initial indebtedness etc. Furthermore, the debt contract term for each borrower is set such that the bank maximizes expected profits on loan.

Tybout then hypothesizes that financial repression makes loan contracts of certain borrower categories unprofitable from the intermediaries' viewpoint. He specifically proposes that loan contracts of small-scale borrowers are rendered unprofitable by financial repression. This is because repression lowers lending rates below those required to maximize expected profits on loans to these categories of borrowers. Thus in the absence of repression, intermediaries would charge small-scale borrowers higher interest rates to maximize expected profits, since these borrowers are assumed to have the poorest credit worthiness. Consequently, in order to avoid incurring losses, intermediaries prefer to ration small-scale borrowers from their loan portfolios under repression.

3.3.6.3 FIRM SIZE AND LIQUIDITY CONSTRAINT

Whilst recently generated evidence points to the importance of financial structure and liquidity constraint to the investment decision, their source and severity remain an open question (Chirinko, 1993). In reviewing the role of financial constraints on investment behavior, Chirinko (1993, pp. 1094) states, "the investment literature has been schizophrenic concerning the role of financial structure and liquidity constraints". Empirical models of business investment rely generally on the assumption of a "representative firm" that responded to prices set in centralized security markets.

Indeed, if all firms have equal access to capital markets, firms' responses to changes in the cost of capital or tax-based investment incentives will differ only because of differences in investment demand (Fazzari, Hubbard and Peterson, 1988). That is the financial structure of a firm that does not play an important role in investment decisions, since the firm can costlessly substitute external funds for internal capital. Under the assumption of perfect capital markets, then, firm-specific investment decisions are generally independent of the financial condition of that firm.

The assumption of the perfect capital market has of course been challenged rigorously. And once it is no longer assumed that capital markets are perfect, it also can no longer be assumed that external capital is a costless substitute for internal capital (Audretsch and Elston, 1995). An implication of this view is that the availability of internal finance access to new debt or equity finance, and other financial factors may shape firms' investment decisions. Modigliani and Miller's (MM) representative firm models in which financial structure is irrelevant to investment decision may well apply to mature firms with well-known prospects.

For other firms like the young and smaller firms however, financial factors appear to matter in the sense that external capital is not a perfect substitute for internal funds, particularly in the short-run. (Fazzari, Hubbard and Peterson, 1988)

Stiglitz and Weiss (1981) argue that liquidity constraints become more severe as firm size decreases. They pointed out that unlike in most markets, the market for credit is exceptional in that the “price of the good”, the rate of interest, is not necessarily at a level that equilibrates the market. They attribute this to the fact that interest rates influence not only the demand for capital, but also the risk inherent in the different borrowers.

As the rate of interest rises, so does the riskiness of borrowers. This leads to adverse selection, as we expect only the “high-risk-high-return” business to participate in the market at these high interest rate levels. This in turn may lead suppliers of capital to rationally decide to limit the quantity of loans they make at any particular interest rate.

3.3.7 HYPOTHESES TO BE TESTED

Based on the theory, we shall hypothesize and test the relationship between access to credit of several forms and;

Firm size,

Profitability of firm,

Entrepreneurial characteristics,

Location of firm, and sector within which the firm operates.

3.4 EMPIRICAL LITERATURE REVIEW

This section takes a look at the empirical literature pertaining to the investment and financial decisions of small business units and their external financial constraints. It also tries to examine some previous studies on sources of loanable funds to small-scale enterprises in the developing economies.

3.4.1 STARTUP CAPITAL

Small firms or firms that do not require huge initial capital and any high technology, are more apt to finance start-ups through personal savings or credit from relatives and friends. Manigart and Struyf (1995), in their explorative study on financing the high technology start-ups in Belgium, they indicated that besides venture capital, the traditional financing means are the available form of startups.

These include in the first place the capital of the entrepreneurs themselves, occasionally supplemented with capital or loans from family members or friends.

In their paper, “informal credit markets in support of micro business”, Anand and Chandavarkar (1997) stated that initial investments in developing countries are almost wholly financed from personal savings or those of relatives and friends and subsequent investments are financed largely from retained earnings. (Levitsky, 1988)

3.4.2 WORKING CAPITAL

On working capital, larger or more profitable firms are likely to have access to a larger pool of earnings that can easily be reinvested in the firm, as well as a broader set of credit instruments. Petersen and Rajan (1992) state that once the initial startup phase is completed, banks are the most important providers of financial means in the early growth phase in the United States. On the other hand, small firms that are profitable can reinvest retained earnings but are less likely to get access to a broader set of credit instruments, especially from the formal financial market. Also, the type of business that a firm engages in and the sector of manufacturing activities, in which a firm finds itself, will have an important effect on its need for physical and financial capital (ibid).

3.4.3 ACCESS TO CREDIT

The ability of firms to obtain credit will also vary widely, based on the perceived riskiness of the loan. Small firms may represent a greater risk, because of factors such as: Lack of a significant credit history, inadequate collateral and inadequate equity capital on their balance sheet.

Ownership characteristics such as the education and the working experience of the owners of the firm and their personal wealth or family resources may also play a role in a firm's propensity to gain access to the financial market (Cavalluzzo, 1999).

Bates (1991) showed that commercial banks are more likely to lend to individuals with more human capital, more equity and with demographic traits that are associated positively with business viability. In this context human capital is likely to be reflected in the levels of education, their age, whether or not they have previous managerial experience and family's small business background.

We should also not forget that the nature of an enterprise or the sector in which it operates would also affect its riskiness. A producer of dairy products or perishable products e.g. cheese and butter, may face higher risks on its products than a furniture producer. Perhaps more important than the attributes of the business or their owners, the credit history of the firm and its principal owner, (such as late payment of business or personal obligations, whether legal judgments have been levied or whether its owners have declared personal bankruptcy) sends a strong signal to lenders about the risk of repayment.

3.4.4 NON-INTEREST RATE DETERMINANTS OF CREDIT DEMAND

The main factors determining the demand for credit include first, those that explain whether a firm wants to expand its activities and secondly, whether it wants to use external sources of finance for it (Bigsten et al, 1999).

	Micro (1-5)	Small (6-25)	Medium (26-100)	Large (100+)	All
Number of firms	576	1045	783	645	
Did not apply	89	79	74	72	79
Applied and denied	7	11	8	3	8
Applied and received	5	10	18	25	14

*Note: size is measured as number of employees.
Source: Adopted from Bigsten et al (1999).*

Using data survey on manufacturing firms in some African countries, including Ghana, Bigsten et al. (1999), indicated that the large number of firms that did not apply, does not mean that they are not credit constrained, but it is because they may not want to incur the transaction cost if they suspect they would be denied the loan. This shows that transaction cost is also a factor that determines credit demand.

Table 3.4.4.1 above, shows the access to formal credit by all the firm size categories. It is surprising to notice from the table that about 79% of firms surveyed did not apply for any formal loan at all.

In their study it came out that 40% of firms reported that they did not apply because they did not need one, and another 12% did not want to incur debt or already had too much debt. This is consistent with the theory that capital structure is another determinant of credit demand. The study further shows that 11% did not apply because of high interest rate, 8% did not apply because they do not have sufficient collateral whereas 70% found the process too difficult. This is consistent to the theory that collateral is a determinant of credit demand as well as credit supply, as we saw earlier on. They further indicated that a third of micro firms do not participate in the credit market simply because they do not want to; meanwhile more than 60% of these micro firms appear to be credit constrained (Bigsten et al. 1999).

3.4.4.1 EQUITY CAPITAL DEMAND

Much of historical discussion of the provision of equity to small firms has assumed that the problem is on the supply side: providers of equity do not offer enough funds to businesses that need them. From small business research literature, it has been identified, however, that entrepreneurs and small business owners in Sweden usually see equity partners as their last resort. Smaller firms, especially those in the manufacturing sector are less likely to seek and to take on new owners than larger firms and more likely to see borrowing as an alternative to loss of voting power (Cressy and Olofsson, 1995).

3.5 RELEVANCE OF THE LITERATURE TO AFRICA

3.5.1 START-UP CAPITAL IN SOME AFRICAN COUNTRIES

Aryeetey (1993), also writes that most surveys of enterprise financing in Africa indicate that startup of micro business are primarily funded by source form the informal units such as credit cooperative societies, susu groups, friends, relatives and landlords.

Table 3.5.1.1 Sources of finance for initial investments by small enterprises in some African countries (percentage of initial investment by source)						
Source of funds	Western Nigeria	Ibadan Nigeria	Ghana	Tanzania	Sierra Leone	Uganda
Own savings	97.7	59.0	90.8	78.0	60.2	77.5
Relatives	1.9	35.0	10.8	15.0	19.5	---
Banks	0.02	2.0	10.8	1.0	0.9	0.8
Government	---	---	---	1.0	---	---
Money-lenders	0.03	---	---	---	0.9	---
Other	---	4.0	---	6.0	18.3	21.7
<i>Note: Most firms used several sources of finance that is why total percentage exceeds 100 in the case of Ghana.</i>						
<i>Source: Levitsky, 1988.</i>						

Table 3.5.1.1 above shows the initial source of financing small businesses in six regions in Sub-Saharan Africa. In all, about 77% of start-up capital comes from personal savings of entrepreneurs, followed by that from their relatives and friends. Unlike small firms, larger or more profitable firms are likely to have access to loans from banks and also equity from contributors or partners.

The formal banks view small borrowers as riskier than large ones for reasons often related to the difficulty of obtaining accurate information about them: geographical remoteness, illiteracy and unreliable incomes (Aryeetey et al.1997). Through heavy emphasis on stringent collateral requirements, banks effectively screen out the vast majority of small clients.

Informal lenders on the other hand draw heavily on information obtained through personal, social, and business relationships in order to pre-select clients. Most informal lenders do not use interest rates to discriminate among clients. Through screening, all of the borrowers of each lender fall into a similar risk category (ibid).

Informal lenders generally require security but are more flexible than banks in accepting personal guarantees, arrangements with guarantors and movable property. According to a study done by Aryeetey and Steel (1997) about 83% of moneylenders in Ghana require such securities as listed above.

Interest rates vary widely across informal institutions as well as between formal and informal markets. According to Aryeetey and Steel (1997), moneylenders' rates are generally at least 50% above formal rates, with average monthly interest rate ranging from under 10% in Tanzania to 48% in Malawi, reaching as high as 100% month in individual cases.

Aryeetey and Steel (1997) noticed that delinquency and default rates of informal lenders are generally low relative to banks in the sample of African countries. In Ghana, 70 to 80% of informal lenders are confident that delinquent borrowers will repay within three months of the loan maturing.

The loan administration cost (screening, monitoring and contract enforcement) is generally lower as a percentage of loan amounts for informal lenders than for banks (Aryeetey and Steel, 1997). Most of the informal lenders' cost is in prescreening the client's ability to repay, not the particular use of the funds, whereas banks denote considerable resources to project evaluations.

3.5.2 FORMAL AND INFORMAL FINANCIAL MARKET

In most African countries, the indigenous private sector consists largely of households and small-scale enterprises that operate outside the formal financial system. Analysts refer to the informal sector by many terms, such as unorganized, non-institutional, and curb markets. Conforming to recent trends in literature, the term informal finance is defined by Adams and Pischke (1992) as all transactions, loans and deposits occurring outside the regulation of a central monetary or financial market authority. This definition permits the inclusion of a wide range of financial activities whose operation scope may differ across countries.

Informal savings activities in Africa are widespread but generally self contained and isolated from those of formal institutions. These are the general types of informal units to be found in Africa (Aryeetey and Udry, 1997). These are: Savings mobilization units that do little or no lending, lending units that seldom engage in savings mobilization, and units that combine deposits mobilization with some amount of lending, albeit mainly of members of distinct associations or groups.

Their definition of informal financing in Africa pull in such schemes as the operations of savings and credit association (SCA), known all over Africa, professional money lenders, part time money lenders, relatives, friends, mobile banks generally known as SUSU collectors in West African credit unions, co-op societies etc.

Table 3.5.2.1 Survey sample of informal non-bank financial institutions in some African countries, 1992-93. (Number of observations, including branches)

Country	Savings collectors	Money lenders	Traders landlords	Rotating credit savings and cooperati	Savings and credit unions	Other ^s	Total
Ghana	28	12	--	18	12	2	90
Malawi	--	23	29	9	9	--	70
Nigeria	15	20	--	12	10	4	64
Tanzania	--	--	30	10	19	--	59
Total	43	55	59	49	50	5	283
Percent	15.2	20.8	20.8	17.3	17.7	7.8	100.

Note:

-- *Not available.*

a: *Savings and loan companies, finance houses.*

Source: Adopted from Aryeetey, Hettige, Nissanke, and steel.

Table 3.5.2.1 above shows a sample list of some nonbank credit institutions, which are active in the African region. It is important to distinguish between these credit institutions and the formal nonbank financial institutions, though there is no clear-cut criterion for distinction. In some surveys such as the RPED³ survey, some credit unions are classified under formal financial institutions.

³ RPED is Regional Project on Enterprise Development, organized by World Bank, it includes three years' Ghana manufacturing sector survey from 1991-1993.

Table 3.5.2.2 Survey sample of formal banking institutions in some African countries, 1992-93. (Number of observations, including branches)					
Country	Commercial and merchant banks	Development banks	Other ^a	Total	Total in rural areas
Ghana	38	14	18	70	35
Malawi	14	3	17	34	15
Nigeria	34	0	6	40	8
Tanzania	6	15	9	30	5
Total	92	32	50	174	63
Percent	52.9	18.4	28.7	100.0	36.2
<i>Rural banks (Ghana), community and people's banks (Nigeria), building society and union of savings and credit cooperatives (Malawi), postal bank (Tanzania).</i>					
<i>Source: Adopted from Aryeetey et al (1997).</i>					

Table 3.5.2.2 above shows some formal lending institutions in the African region. What is labeled 'others' here may include insurance companies, government lending programs, and even some credit unions, depending on various countries' classification criteria. It is clear from the table that commercial banks form the greatest percentage of formal financial institutions.

Moneylenders: Money lending covers a wide range of credit arrangements that differ across countries, with interest ranging from zero to as much as 100% a month (Aryeetey et al. 1997). Most informal moneylenders base their lending decisions on firsthand knowledge of the borrower. More commonly, part-time moneylenders use surplus funds from other sources such as a commercial business.

Savings Collectors: In their survey, Aryeetey et al discovered that individuals who operate primarily on the savings side are found only in West Africa, including Ghana and Nigeria. Savings collectors take regular deposits (usually on a daily basis) of an amount determined by each client and return the accumulated sum (typically at the end of each month) minus one day's deposit as a commission. These mobile bankers form a symbiotic relationship with small business owners and market traders, protecting daily earnings from competing claims and ensuring working capital to restock supplies at the end of the month (Aryeetey and Steel,

1997). Savings collectors place most of their deposits in banks for safekeeping, but they sometimes extend advances to their best clients before the end of the month.

Rotating Savings and Credit Associations (ROSCA): These are pervasive in most African countries. ROSCAs are known as (among other names) “susu” in Ghana, “esusu” in Nigeria, “upata” in Tanzania and “chilemba” in Malawi. ROSCA is a membership groups in which all members pay in set amounts in regular intervals to a common pool, which goes to each member in turn (usually randomly, but some variations allow bidding). Mutual trust offsets the risk that early recipients will drop out. In another type of savings and credit association, members save jointly towards common objectives such as school fees, annual festivals or community development, sometimes making loans at high rates to increase the accumulated amount.

Traders (suppliers): Suppliers are also an important source of informal credit⁴ in Africa. They supply either inputs or cash advances to small business operators. Landlords and estate owners too are often seen lending to their tenants.

Savings and Credit Cooperatives (SCCs): these societies raise savings from and make loans to members. Although they are membership organizations, sometimes raising money from shares or voluntary deposits, they are relatively large and open to new members, unlike ROSCAs.

Credit Unions: they are registered as such and represent a more formal form of SCC based on share capital.

3.6 EMPIRICAL LITERATURE REVIEW ON GHANA

At the time Ghana undertook its Economic recovery Program (ERP) in the mid-1980s, its financial system was fragmented. It was repressed by restrictive policies that controlled interest rates, attempted to allocate credit directly by sector and limited competition in the commercial banking system, which was dominated by the state-owned Ghana Commercial Bank. Informal financial institutions operating outside the scope of banking laws and regulations included moneylenders, rotating

⁴ Advocates of special credit programs for operators of small enterprises and farms, never propose that imposing more “debt” on poor people is an appropriate development strategy. This might be the rationale behind the use of the term “credit” often in small-enterprise finance literature, when describing their capital composition.

Believes in “credit needs” inevitably view formal loans as being entirely beneficial. It is a curious linguistic twist that the terms “loan and credit” carry a positive aura, although “debt” often has a negative connotation (Adams and Pischke, 1992).

savings, credit associations and savings collectors. The latter commonly assisted market traders to accumulate funds through daily deposits that are returned at the end of each month (minus a small fee). There was little interaction between the formal and informal segments, apart from deposits by savings collectors in bank accounts. Also, neither segments paid much attention to small enterprises.

Ghana's ERP included the liberalization of financial markets, as well as the removal of many other restrictions on the free operation of private enterprises and markets. Nevertheless, the World Bank study conducted in 1991-92 indicates that reforming financially repressive policies had little immediate effect on the conditions that inhibited banks from financing small enterprises, leaving their demand for credit largely unsatisfied.

On the other hand, the study found the following; Firstly, many successful small enterprises did have at least some access to bank finance, secondly, other forms of external finance, such as customers' advances and supplier's credit, were at least as important as bank credit; and thirdly, some small firms achieved rapid growth through reinvestment of profits.

Sources of finance survey results reveal the overwhelming importance of equity finance in the start up of small enterprises in Ghana, as in other countries the more so the smaller the enterprise. On the other hand credit for start-up is relatively rare. Banks do not normally risk lending to new investors, large or small, who do not have a track record. Many small entrepreneurs begin with very small amounts of capital from personal savings (their own and relatives' or friends') and steadily build up their enterprise by reinvesting profits. As firm size grows, the likelihood of obtaining external finance rises, although internal financing dominates even the largest size category in the survey.

Many small enterprises do manage to finance rapid growth from their own profits and from non-bank sources. Most important among these non-bank sources for start-up was supplier's credit usually for equipment. Supplier's credit was used as frequently as bank loans for start-up (10 % of sample firms) and more frequently for working capital (15%), at least by micro enterprises (Table 3.6.1). Once a small enterprise was established, advances from customers become the most important source of finance after retained earnings, and was used by 29% of sample firms (more so for those with fewer than 30 workers than with more). Data from the World Bank's Regional Program in Enterprise Development.

Table 3.6.1 Major sources of initial finance and working capital for SSEs in Ghana (1993).

Source of finance	Startup capital			Working capital		
	Total Sample	Micro	Small	Total Sample	Micro	Small
Own savings	81	81	80	26	28	26
Retained earnings	Na.	Na.	Na.	70	66	77
Relations	31	33	31	7	9	9
Bank loan	10	8	8	10	3	15
Overdraft	1	1	0	16	15	15
Suppliers credit	10	5	15	15	15	15
Advances	2	3	0	29	28	23
Special agency	7	11	3	11	13	8

Source: World Bank Report, 1994.

CHAPTER FOUR

DATA AND DESCRIPTIVE STATISTICS

4.1 DATA

We used data from the 1991-1993 Regional Project on Enterprise Development (RPED) survey on a sample of manufacturing firms in Ghana, to investigate most of the hypotheses set out in Chapter 3. These include the relationship between:

Firm size and source of finance
Ownership education or managerial experience and access to credit from the financial market
Sector and access to credit
Location and access to credit
Output and type of credit line⁵

The RPED data set is an extensive panel data set available of the manufacturing sector of Ghana. Our sample consists of 215 manufacturing firms operating in four cities, Accra, Kumasi, Takoradi and Cape Coast. The RPED panel data was collected over the period 1992 to 1994 in a series of three annual surveys, referred to here as Waves I-III, as part of the Regional Program on Enterprise Development organized by the World Bank. The data was collected by a team from the Center for the Study of African Economics (CSAE), University of Ghana, University of Oxford and the Ghana Statistical Office. The firms constituted a panel representative of the size distribution of firms across the major sectors of Ghana's manufacturing industry. These sectors include food processing, textiles and garments, wood products and furniture, metal products and machinery. The data collected over these three waves of the survey, give firm level information relating to the years 1991, 1992 and 1993 (Teal, 1998).

The Ghanaian RPED data set provides extensive information of how manufacturing firms in the economy have performed during the post-structural adjustment period and focuses on a wide variety of areas of firm behavior (Velenchik, 1995). It includes modules covering the history of the firm: current production sales, the characteristic of entrepreneurship, competition, technology, labor markets,

⁵ Relationships between sources of credit and location, sector, ownership characteristic and profit per employee will be measured with OLS regression and probit models.

infrastructure, regulation, financial markets, adjustment investor confidence and business support services.

The panel data set classifies sources of external funds into formal and informal borrowing. The formal borrowing is comprised of loans from banks, non-bank financial institutions, government programs and similar facilities, foreign bank loans including loans from the International Finance Company (IFC), and others.⁶ Informal borrowing on the other hand, is made up of credits from non-institutional sources such as relatives and friends⁷, moneylenders, informal groups, suppliers, clients and other enterprises. The third category of funds, which is mostly equity capital, includes personal savings, company retained earnings, holding or parent companies, sale of equity and new partners. For details about sample selection and construction of variables, see Data Appendix.

4.2 DESCRIPTIVE STATISTICS

We used the RPED data set to develop descriptive analysis of financial, sector, ownership and employment characteristics of firms shown in Tables 4.1 and 4.2. These variables are used in the description of the various size categories and their locations. Further variable descriptions are provided where necessary. The section also involves analysis on the entire sample, thus all size categories inclusive. This makes it possible for clear comparison to be made.

Tables 4.1 and 4.2 give us some spatial characteristics of the sample firms in the survey. Table 4.1 indicates that 47.5% of micro firms are located in Kumasi, followed by Accra with 45 %, Takoradi with 5% and Cape Coast with 2.5%. This is consistent with a study done by Dawson, (1992), in which he claims that, Kumasi, the Ashanti Regional capital has the densest population of micro enterprises in Ghana. Accra tops the medium and large firm categories, with 73.36% and 63.67 % respectively. Looking at the distribution of firms in each of the four cities, Table 4.2 indicates that in all the manufacturing firms in Accra, the small firm category forms 45.5 %, followed by medium firms with 27.4%, then micro with 16.9%, and lastly, large firms, with 13.2 %. The situation in Kumasi is a bit different, with small firms topping the list with 54.8 %, followed by micro firms with 30.6 %, then medium and large, with 11.3 % and 3.3 % respectively. Both Takoradi and Cape Coast have the same trend, with small firms leading, followed by medium, then large and micro in that order.

⁶ Overdraft is clearly distinguished from loans from formal financial institutions.

⁷ Funds from relatives and friends in most cases, especially in the small firm literature, are classified under equity finance.

Table 4.1 Geographic distributions of firms-size categories. (In numbers and percentages)					
Firm size	Proportion of firms in Accra	Proportion of firms in Kumasi	Proportion of firms in Cape Coast	Proportion of firms in Takoradi	Firm categories in all
1-5 (micro)	18(45.0%)	19(47.5%)	1(2.5%)	2(5.0%)	40 (100%)
6-29 (small)	45(51.7%)	34(39.0%)	5(5.8%)	3(3.5%)	87 (100%)
30-99 (medium)	29(74.4%)	7(17.9%)	1(2.7%)	2(5.0%)	39 (100%)
100+ (large)	14(63.7%)	2(9.1%)	3(13.6%)	3(13.6%)	22 (100%)
Firm size unknown	5	5	1	1	12
Subtotal	111	67	11	11	200
Missing firms.					15
Total Number of firms.					215
Table 4.2 (Percentage of) firm-size categories within cities.					
	Accra	Kumasi	Cape coast	Takoradi	
1-5 (micro)	16.9	30.6	20	10	
6-29 (small)	42.5	54.8	30	50	
30-99 (medium)	27.4	11.3	20	10	
100+ (large)	13.2	3.3	30	30	
Total	100	100	100	100	
<i>Source: authors' construction, Oct. 1999.</i>					

What is interesting to note from the statistics so far is that, in all the four cities, small firms (6-29 employees) dominate the manufacturing activities. This suggests that the small size firm category is an important area to study in the Ghanaian economy. Since the financial and organizational characteristics of small firms

aresimilar to those of micro firms, there is justification to study the two categories together.

Table 4.3 Ownership Structure of the firms in Ghana in 1993					
Firm size (by number of employees)	STATE (Number of firms)	SSTATE (Number of firms)	SFOR (Number of firms)	GHOWN (Number of firms)	Total
Micro (1-5)	0	0	5(18.5%)	22(81.5%)	27
Small (6-29)	1(1.1%)	0	5(5.4%)	85(93.4%)	91
Medium (30-99)	4(8.5%)	2(4.3%)	14(29.85)	27(54.4%)	47
Large (100+)	3(11.5%)	2(7.7%)	9(34.6%)	12(46.2%)	26
Size unknown	2	1	0	21	24 ^a
Subtotal	10	5	33	167	215
<p><i>Source: Authors' construction.</i></p> <p><i>Note:</i></p> <p><i>a: Firms have no data in the variable of EMP.</i></p> <p><i>STATE: 100% state owned enterprise,</i></p> <p><i>SSTATE: any firm with some % of state ownership,</i></p> <p><i>SFOR: private firms with some % of foreign ownership including 100% foreign ownership,</i></p> <p><i>GHOWN: private firms with 100% Ghanaian ownership.</i></p> <p><i>The table is based on wave 3 (1993) of the data set "common.sas".</i></p> <p><i>There are 215 firms in the data set.</i></p>					

From Table 4.3 above, there is no micro enterprise in the public sector (state owned), thus all micro firms are found in the private sector. Small firms form only 6.7 % of public sector firms. A greater proportion of the small firms are found in the private sector. About 93.4 % of small firms and 81.5 % of micro firms reported are fully Ghanaian owned private firms. About 18.5 % of micro firms and 5.4 % of small firms respectively are private firms with some percentage of foreign ownership. This suggests that some micro firms in Ghana have some degree of external equity in their capital structure, contrary to the generally held opinion that

owners of SSEs in developing countries would not like to share control, thus they try to avoid dilution of equity.

Of all the firms studied, 77.7% are fully Ghanaian owned private firms, and 15.3% are private firms with some foreign ownership. In all, the private sector constitutes about 93% of the survey firms, as against about 7% in the public sector. This shows the important role the private sector plays in the economic development of Ghana.

This part of the section discusses the financial statistics. This includes borrowing characteristics, type of capital spent on plant and equipment, and profit levels.

The evidence from Table 4.4 indicates that most of the micro and small firms used informal borrowing. For example, about 37.5% of micro firms had outstanding informal loans in 1991, followed by 7.5% with overdrafts. No micro firm used formal loans. (Formal loans here include government credit lines) The situation is not different with small firms, where 35.6% employed informal loans with only 5.7% using formal loans. This development is consistent with the literature which indicates that SSEs in developing countries have, in their financial structure, informal borrowing as the largest form of credit. Various reasons have been assigned to this, which include the relatively high risk involved in lending to SSEs by formal financial institutions, the problem of information asymmetry, lack of sufficient collateral security, among others.

A greater proportion of medium size firms interestingly have got more overdraft in their financial structure than any other form of external funds. As indicated in Table 4.4, about 33.3% of the medium size firms used overdraft, followed by 20.5% with informal loans and lastly 17.9% with formal loans. The case of large size firms is different. About 54.5% of large firms used overdraft, followed by 18.2% with formal loans, and 13.6% with informal loans. This is consistent with various studies that, large size firms are apt to employ more formal loans than informal loans.

Another interesting feature in Table 4.4 is that the garment sector seems to have used informal loans more than any other sub sector, irrespective of the firm size. For instance 40% of micro-size firms, which used informal loans was from the garment sub sector, followed by 26.7% from the food sub sector. In the small-size category, 38.7% of firms with informal loans were from the garment sector, but in this size category it was followed by the furniture sub sector with 29% of the firms.

Table 4.4 Borrowing characteristics of the firms in Ghana in 1991						
1991						
Firms	Source of borrowing			Firms have more than one source of borrowing in the three borrowing categories	Firms without data in the three kinds of borrowing	Total of firms
	Formal borrowing	Informal borrowing	Overdraft			
1-5 (Micro) subtotal	0	15	3	2	24	40
BAKERY	0	2	2	2 ^a	9	11
FOODS	0	4	0	0	1	5
FURN	0	1	0	0	3	4
GARMENT	0	6	0	0	6	12
MACHINES	0	0	0	0	1	1
METAL	0	1	0	0	4	5
TEXTILE	0	0	1	0	0	1
WOOD	0	0	0	0	0	0
Firms' sector unknown	0	1	0	0	0	1
6-29 (Small) subtotal	5	31	11	4	44	87
BAKERY	0	2	1	0	5	8
FOODS	2	1	1	0	3	7
FURN	0	9	1	0	11	21
GARMENT	2	12	2	2 ^b	7	21
MACHINES	0	1	2	0	3	6
METAL	1	6	4	2 ^c	12	21
TEXTILE	0	0	0	0	1	1
WOOD	0	0	0	0	2	2

Firms' sector unknown	0	0	0	0	0	0
30-99 (Medium) subtotal	7	8	13	7	19	39
BAKERY	0	0	0	0	1	1
FOODS	3	2	4	3 ^d	3	9
FURN	0	2	2	1 ^e	4	7
GARMENT	1	4	1	1 ^f	3	7
MACHINES	1	0	1	1 ^g	0	1
METAL	2	0	4	1 ^h	4	9
TEXTILE	0	0	0	0	3	3
WOOD	0	0	1	0	1	2
Firms' sector unknown	0	0	0	0	0	0
100+ (Large) subtotal	4	3	12	3	7	22
BAKERY	0	0	1	0	0	1
FOODS	0	0	0	0	2	2
FURN	2	0	3	0	1	6
GARMENT	0	0	1	0	0	1
MACHINES	0	0	0	0	0	0
METAL	2	3	6	3 ⁱ	0	7
TEXTILE	0	0	0	0	0	0
WOOD	0	0	1	0	4	5
Firms' sector unknown	0	0	0	0	0	0
Firms' size unknown	0	1	5	0	6	12
BAKERY	0	0	0	0	0	0
FOODS	0	0	4	0	1	5
FURN	0	0	0	0	2	2
GARMENT	0	1	0	0	1	2
MACHINES	0	0	0	0	0	0

METAL	0	0	0	0	0	0
TEXTILE	0	0	1	0	0	1
WOOD	0	0	0	0	0	0
Firms' sector unknown	0	0	0	0	2	2
Total	16	58	44	16	100	200

Source: authors' construction, Oct. 1999.

Note:

a: Two firms in the bakery sector have both Informal Borrowing and Overdraft.

b: Two firms in the garment sector have both Formal Borrowing and Overdraft.

c: Three firms in the metal sector have two borrowing sources, one firm from Formal Borrowing and Overdraft, the other from Informal Borrowing and Overdraft.

d: Three firms in the foods sector have double borrowing sources; two of them from both Formal Borrowing and Overdraft, the other one is from Informal Borrowing and Overdraft.

e: One firm in the furniture sector has double borrowing sources, from Informal Borrowing and Overdraft.

f: One garment firm has all three kinds of borrowing.

g: One machines firm has two borrowing sources, from Formal Borrowing and Overdraft.

h: One metal firm has two borrowing sources, from Formal Borrowing and Overdraft.

i: Three metal firms have more sources of borrowing, one from Formal Borrowing and Overdraft, one from Informal Borrowing and Overdraft, and the last one has all three sources of borrowing.

In the medium-size category, about 50 % of the firms with informal loans were from the garment sub sector. We can infer that owners of SSEs in the garment sub sector prefer informal loans to formal loans due to some impediments in the application and acquisition of formal loans. At any rate, it is clear from Table 4.4 that only few SSEs might have been benefited from government credit lines such as the NBSSI credit lines put in place for the development of these SSEs.

As indicated in Table 4.4, the distribution of overdraft is relatively uniform among all the sub sectors and size categories of the sample firms. One can infer from this

that a greater proportion of credits attracted from the formal financial institutions are in the form of overdrafts. This, to a large extent indicates the preparedness of firms from all sectors and of all sizes to do business with the formal financial institutions.

A major characteristics of informal lending in Ghana, as applied to any other African country is that, whereas credit from an individual lender to any set of borrowers may vary in terms of what credit package each borrower actually receives, the more significant variation is in terms of what package different types of lenders may be able to put on the market. While loans from moneylenders may be more expensive than other informal loans, they are believed to be the only informal source of credit open to the general public. They do not usually require that borrowers satisfy specific social obligations, such as membership in a group. Hence their higher interest rates in Ghana may represent partly a risk premium for having given up a sanctioning authority that is inherent in other informal arrangements involving membership in a group (Aryeetey and Udry, 1997).

Table 4.5 above presents the main sources of financing plant and equipment (capital equipment). The sources of finance here can be classified into equity capital and credit (debt capital) by one criterion, and internal and external finance, by another criterion. Equity capital includes retained earnings and personal savings, whereas debt capital includes loans from friends and relatives, bank loans and overdraft, suppliers credit and loans from moneylenders. With particular reference to our study of SSEs, we classify, retained- earnings and personal savings as internal finance, and the rest, including sale of equity are external finance by the second criterion. This is consistent with the theory in chapter 3.

The evidence from Table 4.5 suggests that internal source (retained-earnings and personal savings) were the major source for financing capital equipment in all the firm size categories. At least 62 % of micro firms and 83 % of small firms reported as having data on capital equipment acquisition financed their capital equipment by internal source of finance in 1992. The situation of medium and large firms was that, though a greater proportion of them used internal finance, they were purely retained earnings. There was no medium or large firm that used personal savings as a source of finance. At least 77 % of medium firms and 93 % of large firms reported, financed capital equipment by retained earnings.

On external source of finance, only a few micro and small firms used loans from friends and relatives, and bank loans and overdraft to finance capital equipment. For instance only one micro firm and 9.5 % of small firms borrowed from friends

and relatives to finance capital equipment in 1992. No firm in all the four categories financed capital equipment with loans from moneylenders.

Table 4.5. Investment made in Plant & Equipment in 1992, and their main sources of financing											
Firm size	Sources of financing										Total firms
	PCRE	PPS	PBFR	PBLOD	PSC	PBML	POTH	Firms with more than one source of financing in the investment	Firms with investment data in plant & Equipment	Firms without investment data in plant & Equipment	
1-5 (micro)	3	2	1	2	0	0	0	0	8	21	29
6-29 (small)	31	4	4	3	1	0	2	3 ^a	42	45	87
30-99 (medium)	20	2	0	2	1	0	5	4 ^b	26	23	49
100+ (large)	13	0	0	2	1	0	1	3 ^c	14	7	21
Firm size unknown	2	0	0	1	0	0	0	1 ^d	2	27	29
Subtotal	69	8	5	10	3	0	8	11	92	123	215
Total	69	8	5	10	3	0	8	11	92	123	215

Note:

PCRE: Company-retained earnings

PPS: personal savings

PBFR: borrowed from friend or relative

PBLOD: bank loan or overdraft

PSC: supplier credit

PBML: borrowed from money lender

POTH: other forms of financing

For wave 1, there is no detailed description on sources of financing for Investment made in Plant & Equipment.

For wave 2 (1992), there is no detailed description on this item - POTH.

a: Three firms have been double counted. One firm has sources of financing from PBFR and PPS, one firm from PCRE and PBLOD, one firm from PCRE and PBFR.

b: Four firms have been double counted. One firm has sources of financing from PCRE and POTH, one firm from PCRE and PSC, one firm from PCRE and PBLOD, one firm from PCRE and PBLOD.

c: Three firms have been double counted. One firm has sources of financing from PCRE and PBLOD, one firm from PCRE and PBLOD, one firm from PCRE and POTH.

d: One firm has been double counted; the sources of financing are from PCRE and PBLOD.

Source: Authors' construction.

The extensive use of retained-earnings and personal savings in the financing of capital equipment by SSEs is an indication of the reliance on internal sources of funds as the major source of capital for their investment. This could be as a result of denial, high cost, and rationing of external capital. While this study cannot make any final judgments on either of these causes, our investigation into the determinants of the various types of external capital, may provide some insight to their easy accessibility to SSE entrepreneurs to enable them fill any capital gap in their financial structure.

From Table 4.6 we can see that micro firms are more profitable than the small and medium firms in all the three waves. Large firms are the most profitable, followed by micro firms. If the statistics of Table 4.6 are true, the question then is, if the small firms are not as profitable as the other three categories, why do most of the firms fall under this category? In attempting to answer this question, we will say that our data is subject to the limitation that, by construction there is no information on pre-1991 profit levels, otherwise one might suggest that small firms used to be

more profitable before 1991 and this might have attracted more investors to the sector. In a competitive market situation, as more firms entered the small firm market, *ceteris paribus*, profit per employee might have fallen. Another argument is

Table 4.6 Profit/Employee for the 3 waves (1991-1993) (median)			
Firm size	PROFIT/EMP in 1991 (million €)	PROFIT/EMP in 1992 (million €)	PROFIT/EMP in 1993 (million €)
1-5 (micro)	0.261	0.190	0.285
6-29 (small)	0.117	0.117	0.134
30-99 (medium)	0.202	0.214	0.164
100+ (large)	0.459	0.587	1.078
Number of firms subtotal	171	181	168
Number of firms without EMP or PROFIT data	29	34	47
Number of firms involved	200	215	215

Source: Authors' construction Nov. 1999.

that, the profitability of micro firms is an indication of their growth potential. There is the likelihood that most of the small firms were hitherto micro firms which have grown to become small firms. Though these analyses may seem speculative, the underlying theoretical concept is valid. We can also infer from Table 4.6 that while micro firms may grow to become small firms due to their high profit levels, it is not likely that small firms would grow to become medium or large firms.

4.3 ECONOMETRIC ANALYSIS

In this section we try to investigate with econometric models, if variations in external funds employed by firms can be explained by firm level features such as firm age, education background of entrepreneur, the sectoral and location dummies

and other relevant features of these firms. We hereby break the external finance into formal loans, informal loans, and overdraft, and examine how each of these sources of finance relates to the aforementioned firm level variables.

We assume that SSE owners are apt to finance their business with both internal and external sources of finance. Also there is a demand from SSE owners for external funds. These assumptions follow the Miller-Modigliani's theorem that under perfect competitive credit markets, firms should be indifferent between internal and external sources of funds.

To specify our model, we convert the dependent variables namely formal borrowing, informal borrowing, and overdraft, from continuous to discrete variables, so as to use dummy dependent variables. The reason is that we are mainly interested in analyzing the binary question of whether or not firms have access to certain sources of credit. We shall use both linear⁸ probability models and probit models to test the hypothesis that the source (supply) of credit is a function of education of manager, firm age, sectoral, and location, ownership structure, profit and value added per capital. We have eight sub sectors in the sector dummy, viz food, bakery, furniture, wood, garment, textile, machines, and metals. Under location, we have four cities, namely Accra, Kumasi, Cape coast and Takoradi. It is postulated that there is a correlation between sources of credit and the aforementioned features of the firm. In the absence of any strong theoretical arguments in favor of a specific functional form, a linear relationship is fitted.

$$y_{it} = x_{it} \mathbf{b}_1 + z_{it} \mathbf{b}_2 + e_{it}$$

Where y_{it} is a particular source of credit in one of the three waves, and x_{it} and z_{it} are the explanatory variables representing the aforementioned firm characteristics. Notations i denotes firm, t is time, \mathbf{b}_1 and \mathbf{b}_2 are vectors of coefficients, and e_{it} is a residual.

We intend to use the linear probability model because it is simple and it avoids certain technical problems associated with the use of probit. The problem with the linear probability model is that standard errors need to be corrected for heteroskedasticity. Also, we prefer to use probit due to advantages illustrated in section 4.3.2.

For the sizeable number of observations on sub-sample of firms with less than 30 employees (SSEs), we have sufficient data points available to estimate regression

⁸ The term linear in "simple linear regression models" means not a linear relationship between the variables, but a model in which the parameters enter in a linear way. It is linear in parameters and not linear in variables. (See Hills, Griffiths and Judge, 1997)

to determine the statistical significance of the aforementioned independent variables to the possible access to various types of credit by SSEs in Ghana. Already we have established from the various empirical literatures that, lack of safe source of finance is a hindrance to the growth and development of SSEs in Ghana and most African countries.

4.3.1 REGRESSION RESULTS

The data allows for tests regarding the availability of different types of external finance and how the availability varies with the characteristics of SSEs. In Tables 4.7, we present OLS regression results for sources of credit and explanatory variables.

On Formal borrowing⁹, the result shows that apart from profit and value-added per capital, all other factors, including location dummy, sectoral dummy, firm age and owners' education are statistically not significant. On informal borrowing, wave 3 is the only significant variable that explains access to credit. It implies that wave 3 (1993) is less likely to influence access to credit than wave 1 (the omitted dummy). All other factors are insignificant in explaining access to informal borrowing. Entrepreneurs' educational backgrounds are significant only in the explanation of access to overdraft. Profit, value-added per capital, wave 3, and textile and garment are also significant in explaining access to overdraft. To a larger extent, location, ownership structure and sectoral characteristics are not significant in the explanation of access to external capital by small scale manufacturing enterprises in Ghana. Since the OLS results on our study is consistent with the probit results, we intend to present detailed interpretation of both results in the subsequent section, under the probit analysis.

Variables	Formal Credit	Informal Credit	Overdraft
Intercept	-0.045 (-0.483)	0.598* (2.575)	0.079 (0.449)
Entrepreneurs' education	0.003 (1.113)	-0.004 (-0.581)	0.011* (3.091)
Firm age	0.002 (1.029)	-0.001 (-0.286)	0.001 (0.363)

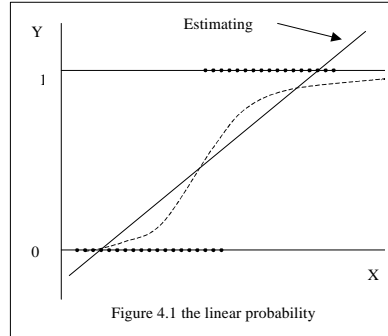
⁹ Formal loans here include government (NBSSI) credit lines.

Employment	-0.001 (-0.138)	-0.005 (-1.355)	0.001 (0.354)
Profit/employee	0.052 * (1.811)	-0.009 (-0.194)	0.081* (1.847)
Value-added/Capital	-0.003 * (-2.294)	-0.001 (-0.257)	-0.003* (-2.138)
Wave 2	0.002 (0.058)	-0.100 (-1.498)	-0.031 (-0.894)
Wave 3	-0.003 (-0.134)	-0.125 * (-1.856)	-0.017* (-2.061)
Ghanaian owned	-0.002 (-0.027)	0.056 (0.493)	0.098 (1.124)
Accra	0.048 (1.435)	-0.199 (-1.115)	-0.180 (-1.127)
Kumasi	0.039 (1.001)	-0.204 (-1.097)	-0.220 (-1.370)
Takoradi	-0.019 (-0.460)	-0.264 (-1.270)	-0.301* (-1.904)
Food and Bakery	-0.023 (-0.494)	0.133 (1.161)	-0.043 (-0.707)
Wood and Furniture	-0.027 (-0.270)	-0.269 (-1.049)	-0.114 (-0.826)
Textiles and Garment	-0.115 (-1.217)	0.266 (1.119)	0.352* (2.753)
Metal and machines	-0.456 (-1.591)	0.019 (0.875)	0.003 (0.077)
No of Observations	270	260	270
F value	1.280	0.847	3.179
P>F	0.215	0.625	0.001
<i>In brackets= t values based on ACOV corrected standard errors</i>			
<i>*Significant at 10%</i>			
<i>Source: Authors calculations.</i>			

4.3.2 PROBIT MODEL

We decided to use probit model as an alternative estimation as a result of some limitations in using OLS when the dependent variable is a dummy.

When dependent variables are represented by dummy variables, they create special estimation problems. For example the problem of explaining whether or not a firm will use overdraft facilities (Kennedy, 1995). If the dependent variable is set up as a 0-1 dummy variable (for example the dependent variable is set equal to 1 for firms which use overdraft and equal to 0 for those not using overdraft) and regressed on the explanatory variables, we would expect the predicted values of the dependent



variable to fall mainly between the interval between 0 and 1, as illustrated in Figure 4.1. This suggests that the predicted value of the dependent variable could be interpreted as the probability that a firm will use overdraft, given that individual firm's characteristics. This is in fact the accepted convention (ibid). In Figure 4.1 the dots represent the sample observations: most of the high values of the explanatory variable x correspond to the dependent dummy variable

value of unity (implying that overdraft was used), whereas most of the low values of x correspond to the dependent dummy variable value of zero (implying that no overdraft was used). One should notice that for extremely low values of x , the regression line yields a negative estimated probability of using overdraft while for extremely high values of x , the estimated probability is greater than 1. R^2 should not be used as an estimation criterion in this context. An obvious drawback of this approach is that it is quite possible to have estimated probabilities outside the 0-1 range to either 0 or 1 as appropriate. This defines the linear probability model.

What is needed is some means of squeezing the estimated probabilities inside the 0-1 interval without actually creating probability estimates of 0 or 1, as shown by the

dashed lines in Fig 4.1. Some of the possible functions of this nature are the cumulative normal function and the logistic function. Using the cumulative normal function for this purpose creates the Probit model, using the logistic function creates the Logit model.

The relationship between credit markets and the owners' education, firm age, wave dummies and profit levels and other characteristics have been estimated with the probit model in Table 4.8. The dependent variable takes the value 1 if the firm uses a particular type of credit, and zero otherwise. In this model we dropped the sectoral and location dummies due to technical problems. The effect of each explanatory variable on the probability that a firm uses a particular form of credit is indicated by the parameter estimate. For continuous variables, this represents a change in probability in response to one unit change in the explanatory variables, but for dummy dependent variables, the probit estimate represents the difference in the probability of having access to a credit facility rather than not having it. In probit models with intercept, the omitted variable becomes a base or benchmark to which the others are compared (Kings, 1995). In that case the dummy variable coefficient measures the extent to which it differs from the base. In this model we can examine the effect of one unit change in for instance firm age on the probability that the firm uses an overdraft etc.

Table 4.8 presents coefficients from the probit model that estimates the probability that a firm may have access to or used either of the various types of credits, based on the explanatory variables (firm attributes).

On formal borrowing, the coefficients for profit and value-added/capital are statistically significant. All other factors including entrepreneurs' educational backgrounds, employment levels, the waves and ownership structure appear irrelevant. High profit rate increases the use or need for formal loans. High value-added per capital ratio decreases the use of formal credit. This could imply a high need for working capital, consequently the need for more internal finance which is mostly used by SSEs.

On informal borrowing, all but employment and waves 2 and 3 are statistically insignificant. High employment levels in SSEs are an indication of profit and growth. SSEs may thus prefer using internal sources of finance such as retained-earnings to external sources of finance. The coefficients on waves 2 and 3 here suggest that, all else equal, wave 1 (1991) is more likely to influence the use of informal credit.

In the case of overdraft, all but employment levels, wave 2 and ownership structure are significant. This implies that entrepreneurial educational background, profit, and value-added per capital, are likely to influence the access to overdraft. What is interesting to note here is that, like formal borrowing, profit levels are positively related to overdraft. This suggests that high profit SSEs are still more likely to have access to and use credit from the formal financial institutions.

Variables	Formal Credit	Informal Credit	Overdraft
Intercept	-2.1919 * (4.0643)	-0.0929 (0.0350)	-3.1517* (12.3206)
Entrepreneur education	0.0204 (0.1937)	-0.0063 (0.0983)	0.1107* (6.9547)
Firm age	0.0227 (1.7672)	0.0029 (0.1347)	0.0186 (1.7966)
Employment	-0.0209 (0.6053)	-0.0163 (1.7941)	0.0055 (0.0887)
Profit/employee	0.3889 * (6.0707)	-0.0449 (0.1161)	0.3919* (6.9847)
Value-added/capital	-0.2514 * (2.7214)	-0.0039 (0.1647)	-0.0714* (2.3646)
Wave 2	0.0088 (0.0005)	-0.2942 * (2.2613)	-0.2446 (0.6556)
Wave 3	-0.0931 (0.0480)	-0.3937* (3.6603)	-0.6534* (3.2002)
Ghanaian owned	0.3034 (0.2239)	-0.0467 (0.0205)	0.3606 (0.5657)
No. of observations	270	270	270
-2Log L Covariates	15.14	6.82	28.
<i>Note:</i> *10% significance level In brackets=Wald chi-Square Source: Authors' calculations.			

CHAPTER FIVE

CONCLUSION

5.1 SUMMARY OF FINDINGS AND RECOMMENDATIONS

This chapter outlines a strategic framework for developing credit schemes for SSE activities. On the basis of the findings derived from the research, the text is divided into two sections. The first section presents a summary of the findings, and indicates their policy implications. The second section is the strategic framework that outlines recommendations aimed at the realization of the objective of the study.

5.2 SUMMARY OF FINDINGS

The analysis of the panel data on manufacturing firms in Ghana has brought to light some important findings and issues which are worth noting.

Empirical evidence shows that Kumasi has the densest population of micro firms among the four cities in the survey. Accra has the greatest concentration of medium and large firms. More than 90% of small-scale manufacturing firms in Ghana are found in the private sector, most of which are fully Ghanaian owned.

On finance, a greater proportion of small-scale firms used informal loans than formal loans. A considerable proportion of small-scale firms used overdraft. Formal credit is the least form of external capital employed by these small-scale manufacturing firms. It also came to light that the textile and garment sub-sector used loans from the informal sources more than any other sub-sector, though this does not imply that they did not use other sources of capital as well. Another revelation was that a greater number of SSEs in the survey used internal sources of finance, mainly personal savings and retained-earnings in the financing of capital equipment.

The econometric results indicate that high profit small-scale firms are more likely to have access to loans from the formal financial institutions, and government credit schemes. High profit firms are likely to attract loans with high interest rates, thus they tend to be risk neutral. In other words, the cost of credit is not a barrier to high profit SSEs in Ghana. Firms with high value-added per capital are less likely to use formal credit and overdraft to finance their operations. Since high value-added per capital indicates the need for working capital, it implies that SSEs in

Ghana with high value-added per capital are more likely to use internal sources, mainly retained-earnings and personal savings for working capital. This confirms that external capital is more costly than internal capital in Ghana.

The use of informal loans was lower in the years 1992 and 1993 (wave 2 and wave 3). The socio-economic atmosphere in 1991 might have caused more SSEs to use informal loans than that of 1992 and 1993. This implies that time period is an important factor as far as the use of informal loans is concerned.

The case of access to overdraft is not much different from that of formal credit, as far as predictions are concerned. The unique feature here is that entrepreneurs with high educational backgrounds are more likely to have access to overdrafts. This is consistent, because those entrepreneurs keep good accounting records and make savings with the banks regularly.

5.3 STRATEGY AND RECOMMENDATION

The problem is not shortage of finance per se, but the cost of capital and information opacity. Information opacity in the sense that small-scale firms in Ghana are not given the publicity that will make the lending public know their potential and thus have confidence in them. The large firms, on the other hand promote themselves through the media and some are even listed on the stock market. The financial institutions too do not avail themselves information wise to small-scale firms as they do to the large firms.

We can talk about the cost of capital in relation to profit and competition (if firms are faced with little competition especially). The Ghanaian chronicle, a by-weekly newspaper reported on September 4 1999 on the statement made by the trade and industry minister with regards to how the over-liberalization of the Ghanaian economy is hurting small-scale industries. According to the minister it has been identified that unfair competition in the present liberalized environment, coupled with inefficient production methods are hindering the SSE sector from contributing its full potential to the country's economic development. This is consistent with the result of our study. We therefore recommend that if SSEs can be made more competitive in the market, it may to a large extent need non-financial support including some level of protection from the government against unfair competition with imported goods. There will be no need for special credit lines with subsidized interest rates for that matter since the evidence from our study has shown that the more profitable firms become, the more indifferent they are to cost of capital (interest rates).

The banks, the government (NBSSI) the Association of Small Industries, and all stake holders should see to the possibility of creating a constant rapport in order to eliminate the problem of information opacity.

We also recommend that the role of the NBSSI should focus more on its training and technical assistance role rather than the numerous credit lines, as far as small-scale manufacturing firms are concerned. The evidence from the study in fact has made it clear that the assorted NBSSI credit lines have not shown any positive impact on the development of small-scale manufacturing firms. We further recommend that any technical assistance must be properly designed to address the needs of its beneficiaries. This we believe will give the firms more efficient production methods. We also stress that any entrepreneurship development programs must have a substantial component devoted to the training of accounting record keeping and bank transactions. This will increase the confidence the bank has in the SSE entrepreneurs and especially give them more access to overdraft.

Our findings notwithstanding, we further recommend the following cost effective strategies to increase SSEs' access to credit:

To reduce the high processing costs relative to small loan amounts and to minimize time-consuming project appraisals, banks (and NBSSI) should focus initially on working capital credit as against investment loans. Working capital loans may indirectly generate investment by successful firms, which are likely to plow back profits into expansion of capacity. Investment lending should be concentrated on SSEs that have already reinvested substantial internal resources but need supplementary external finance in order to move to a larger scale or higher productivity.

Risk can be controlled through character-based lending to entrepreneurs who have a good track record and close on-site monitoring. The cost of frequent monitoring can be minimized through greater decentralization of responsibilities for small loans provided local branch officers are adequately trained.

To expand small enterprise lending, banks need to develop alternatives to property as collateral to secure loans, such as personal guarantors, sales contracts, and liens on equipment financed. All of these, however, may depend on improvements in the ability of the legal system to enforce commercial contracts.

Besides training, local branch bank officers need incentives to undertake small enterprise lending and savings mobilization. Working arrangements with non-governmental organizations may help reduce costs of screening and monitoring. Banks and informal financial agents may be able to enter into relationships that take advantage of the latter's superior information about small clients and their relatively low cost of frequent, small transactions.

APPENDIX

A 1. THE DATA SETS AND THE VARIABLES

The SAS library of the Ghana data sets used in the study is consisted of a group of sub-data sets from the survey of Regional Project On Enterprise Development (RPED) Ghana Manufacturing Sector Survey Wave 1-3 (1991-1993) organized by the world bank¹⁰. These sub-data sets are:

genfirm.sas – contents of the data set are general firm variables including output, employment levels, wage rates, input costs, capital stock and investment levels;
common.sas – contents of the data set are firm-level variables that are common across waves including dummy variables for firm sector, location and size;
finance.sas – contents of the data set are firm-level financial variables including both formal & informal sector borrowing, banking arrangements and firm lending;
invest.sas – contents of the data set are firm-level investment variables including values of investment in land, buildings and plant & equipment, sources of financing and investment capital ratios.

The following additional notes provide further information on the definition and derivation of some of the more important variables:

Capital Stock (**CAP**) – This is the replacement value of the firm's total capital stock, which is the measure used in all derived variables using capital. Another variable CAPSALE measures the capital stocks estimated resale value.

Capacity Utilization output (**CAPACT**) – The variable measured as actual output/potential output in %. Potential was determined by asking firms how much additional output they could produce with no additional investment in plant and equipment. Note: the original data was not collected on a consistent basis.

Entrepreneur's Education (**EDUCENT**) – A continuous variable, representing total years of education, been derived from responses regarding the highest level of education completed by the entrepreneur. This assumes that primary = 6 years; middle school = 10 years; secondary = 14 years; university = 19 years; secondary plus vocational = 15 years and secondary plus polytechnic = 16 years.

¹⁰More detailed information about the survey can be found on the website: <http://www.economics.ox.ac.uk/CSAAdmin/datasets/main.html>

Firm's Profits (**PROFIT**) – Calculated by taking sales revenue less wages less intermediate inputs and indirect costs. There is no allowance for depreciation. This is a measure of gross profits before tax and other charges.

Value Added (**VAD**) – Calculated by taking firm output less intermediate inputs and indirect costs.

Location dummies:

ACCRA Dummy = 1 for firms based in Accra
KUM Dummy = 1 for firms based in Kumasi
TAK Dummy = 1 for firms based in Takoradi
CAPE Dummy = 1 for firms based in Cape Coast

Sector dummies:

FOODS Dummy = 1 for food sector
BAKERY Dummy = 1 for bakeries
WOOD Dummy = 1 for wood products sector
FURN Dummy = 1 for furniture sector
METAL Dummy = 1 for metal products sector
MACHINES Dummy = 1 for machinery sector
GARMENT Dummy = 1 for garment sector
TEXTILE Dummy = 1 for textile sector

Size at establishment dummies:

MICRO00 Dummy = 1 for micro enterprises (classified as firms with between 1 – 5 employees inclusive)
SMALL00 Dummy = 1 for small firms (6 – 29 employees inclusive)
MEDIUM00 Dummy = 1 for medium-sized firms (30 – 99 employees inclusive)
LARGE00 Dummy = 1 for large firms (100 or more employees)

Ownership dummies:

STATE Dummy = 1 for 100% state-owned enterprises
SSTATE Dummy = 1 for any firm with some degree of state ownership
SFOR Dummy = 1 for private firms with some degree of foreign ownership

GHOWN Dummy = 1 for private firms with 100% domestic ownership
ANYFOR Dummy = 1 for any firm with some degree of foreign ownership

Other variables:

EMP – This is the total employment level of a firm (includes both full-time and part-time salaried employees).

PREMP – Gross profit per employee (= Profit/employee)

FMAGE91 – Firm's Age (=1992-Year of firms establishment)

Credit market variables:

BORRFOR – Total borrowing from formal and semi-formal financial institutions.

BORRINF – Total borrowing from informal sources.

ODRAFT – Level of overdraft facilities.

A 2. ABOUT THE TABLES

All the tables of descriptive statistics in the later chapters of the study are made from those sub data sets. Although the numbers of firms involved in the survey of 1991 (wave 1), 1992 (wave 2) and 1993 (wave 3), are 200, 215 and 215 respectively, the numbers of firms selected in different samples used in making the tables are quite different depending on the natures of various tables' contents and the data availability of variables in the data sets. Because of this, as well as to keep data consistency between different tables, all firms involved in each particular year are carefully investigated, the observations are calculated and the firms having missing values are listed in each table.

A 3. ABOUT THE REGRESSIONS

All those four sub-data sets had been merged into a single data set when running various regressions, and all the firms involved are limited to those with no more than 30 employees. There are 270 observations found in the merged data set.

In the Probit model regressions, dependent variables are three dummy variables defined by the authors; BORFORD (formal borrowing), BORINF (informal borrowing) and ODRAFTD (overdraft), and the explanatory variables are EDUCENT (education level of management), FMAGE91 (firm's age), EMP (employment level), PREMP (profit/employee), VADCAP (value added/capital), three waves (dummy) variables, ownership (dummy) variables, sector (dummy) variables as well as location (dummy) variables. Two explanatory variables of

ownership, STATE (state owned) and SSTATE (some percentage of ownership is owned by the state), have been deleted in the model because of no observation exists in the small firm category. WAVE1 (dummy) and SFOR (dummy, some percentage of ownership owned by foreigners) were deleted because of the dummy variable traps, and sector variables as well as locations variables were deleted because of their too small sample size. Finally the model formulas became:

$$\begin{aligned} \text{Borford} &= \hat{\alpha}_1 \text{educent} + \hat{\alpha}_2 \text{fmage91} + \hat{\alpha}_3 \text{emp} + \hat{\alpha}_4 \text{premp} + \hat{\alpha}_5 \text{vadcap} + \hat{\alpha}_6 \text{wave2} + \hat{\alpha}_7 \text{wave3} + \hat{\alpha}_8 \text{ghown}; \\ \text{Borinf} &= \hat{\alpha}_1 \text{educent} + \hat{\alpha}_2 \text{fmage91} + \hat{\alpha}_3 \text{emp} + \hat{\alpha}_4 \text{premp} + \hat{\alpha}_5 \text{vadcap} + \hat{\alpha}_6 \text{wave2} + \hat{\alpha}_7 \text{wave3} + \hat{\alpha}_8 \text{ghown}; \\ \text{Odraft} &= \hat{\alpha}_1 \text{educent} + \hat{\alpha}_2 \text{fmage91} + \hat{\alpha}_3 \text{emp} + \hat{\alpha}_4 \text{premp} + \hat{\alpha}_5 \text{vadcap} + \hat{\alpha}_6 \text{wave2} + \hat{\alpha}_7 \text{wave3} + \hat{\alpha}_8 \text{ghown}; \end{aligned}$$

In the linear probability models, some further changes have been made for the explanatory variables, location variables and sector variables are included in each formula, the variables FOOD (dummy), MMETAL (dummy), FWOOD (dummy) and GTEXTILE (dummy) in the sector variable group are combinations of FOODS (dummy) and BAKERY (dummy), METAL (dummy) and MACHINES (dummy), FURN (dummy for furniture) and WOOD (dummy), GARMENT (dummy) and TEXTILE (dummy) respectively. In the location variable group, the dummy variable CAPE for the city Cape Coast has been deleted because of the dummy variable trap. After much trial and error, the formulas of the regressions finally became:

$$\begin{aligned} \text{Borford} &= \hat{\alpha}_1 \text{educent} + \hat{\alpha}_2 \text{fmage91} + \hat{\alpha}_3 \text{emp} + \hat{\alpha}_4 \text{premp} + \hat{\alpha}_5 \text{vadcap} + \hat{\alpha}_6 \text{wave2} + \hat{\alpha}_7 \text{wave3} + \hat{\alpha}_8 \text{ghown} + \hat{\alpha}_9 \text{accra} + \hat{\alpha}_{10} \text{kum} + \hat{\alpha}_{11} \text{tak} + \hat{\alpha}_{12} \text{food} + \hat{\alpha}_{13} \text{fwood} + \hat{\alpha}_{14} \text{gtextile} + \hat{\alpha}_{15} \text{mmetal}; \\ \text{Borinf} &= \hat{\alpha}_1 \text{educent} + \hat{\alpha}_2 \text{fmage91} + \hat{\alpha}_3 \text{emp} + \hat{\alpha}_4 \text{premp} + \hat{\alpha}_5 \text{vadcap} + \hat{\alpha}_6 \text{wave2} + \hat{\alpha}_7 \text{wave3} + \hat{\alpha}_8 \text{ghown} + \hat{\alpha}_9 \text{accra} + \hat{\alpha}_{10} \text{kum} + \hat{\alpha}_{11} \text{tak} + \hat{\alpha}_{12} \text{food} + \hat{\alpha}_{13} \text{fwood} + \hat{\alpha}_{14} \text{gtextile} + \hat{\alpha}_{15} \text{mmetal}; \\ \text{Odraft} &= \hat{\alpha}_1 \text{educent} + \hat{\alpha}_2 \text{fmage91} + \hat{\alpha}_3 \text{emp} + \hat{\alpha}_4 \text{premp} + \hat{\alpha}_5 \text{vadcap} + \hat{\alpha}_6 \text{wave2} + \hat{\alpha}_7 \text{wave3} + \hat{\alpha}_8 \text{ghown} + \hat{\alpha}_9 \text{accra} + \hat{\alpha}_{10} \text{kum} + \hat{\alpha}_{11} \text{tak} + \hat{\alpha}_{12} \text{food} + \hat{\alpha}_{13} \text{fwood} + \hat{\alpha}_{14} \text{gtextile} + \hat{\alpha}_{15} \text{mmetal}. \end{aligned}$$

Table A1. Descriptive Statistics Of Variables Used In The Regressions

Variable	No. obs	Mean	median	S. Dev.
EDUCENT	270	10.14	10	4.67
FMAGE91	270	10.94	8	11.31
EMP	270	11.16	9	7.15
PREMP	270	0.41	0.15	0.70
WAVE1 [#]	270	0.37		
WAVE2 [#]	270	0.33		
WAVE3 [#]	270	0.30		
STATE [#]	270	0.00		
SSTATE [#]	270	0.00		
SFOR [#]	270	0.08		
HOWN [#]	270	0.92		
BORFORD [#]	270	0.03		
BORINF [#]	270	0.28		
DRAFTD [#]	270	0.07		
CAP	270	17518967.59	1070000.00	47639014.69
VAD	270	5993252.87	2630231.00	10084730.36
VADCAP	270	5.00	1.54	9.69
ACCRA [#]	270	0.48		
KUM [#]	270	0.44		
TAK [#]	270	0.05		
CAPE [#]	270	0.03		
BAKERY [#]	270	0.17		
FOODS [#]	270	0.07		
FURN [#]	270	0.20		
WOOD [#]	270	0.01		
GARMENT [#]	270	0.28		
TEXTILE [#]	270	0.01		
MACHINES [#]	270	0.05		
METAL [#]	270	0.19		
FOOD [#]	270	0.07		
FWOOD [#]	270	0.01		
GTEXTILE [#]	270	0.01		
MMETAL [#]	270	0.19		

Dummy variables
 Source: authors' construction.

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