

**Small and Medium Enterprise (SME) Financing Constraints in Developing  
Countries: A Case Study of Bhutan**

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## **ABSTRACT**

Small and medium sized enterprises (SMEs) play a crucial role in the socio-economic development of a country through business opportunities, employment generation and poverty alleviation. However, constraints on the provision of finance to SMEs is a key challenge faced by developing countries. Most of the empirical studies on SME financing constraints are based in developed economies, with limited applicability to developing countries like Bhutan with a different level of economic and financial development. Though the SME financing constraint is widely recognised by the Royal Government of Bhutan (RGoB), academic research has not been carried out on the Bhutanese SME sector. The primary aim of this study is to investigate the cause and nature of the SME financing constraint, in terms of accessibility to bank loans, in Bhutan.

Banks are the main source of external financing for SMEs in developing countries. This study is based on the economic theories of information asymmetry, agency theory and pecking order theory. Academic works on SME capital structure provided the foundation of the conceptual framework and econometric model of this study. This study encompasses critical factors related to the firm's loan repayment capacity (collateral and owner's equity); the firm's financial information; loan characteristics (interest rate, loan term); firm characteristics (age, size and sector) and owner characteristics (age, gender and educational qualification). This study investigated and quantified the effect of these factors on SMEs' accessibility to bank loans, from the perspective of both SMEs and the banks.

This thesis employs a sequential explanatory mixed method approach to investigate SME financing constraints from the SMEs' perspective in research Phase I and the banks' perspective in research Phase II. For the quantitative Phase I, primary data was collected through a field survey of SME owners in Bhutan in the form of cross-sectional data for the year 2013. The data was empirically analysed through a multiple linear regression model and hypotheses testing. For the qualitative Phase II, the data was collected through semi-structured interviews of six credit officers of banks in Bhutan. Thematic analysis was used to analyse the qualitative data, which explored the SME loan appraisal process, in particular the factors used by the banks to assess SME loan applications.

A key finding of the study is that the size of collateral and the availability of internal finance were key factors in determining SME's accessibility to bank loans. The study provided strong empirical evidence and support for a positive effect of a firm's repayment capacity and financial credibility on its accessibility to bank loans. Hence, the availability of collateral and internal

finance requirement was found to be vital in determining SME's accessibility to bank loans in Bhutan. The study findings are also consistent with the theoretical predictions of past studies about the central role of information. SMEs' inadequate financial information resulted in high information asymmetry between SMEs and the banks, inducing adverse selection and credit rationing on the part of banks and moral hazard on the part of SMEs. Given the limited information, the banks apply stringent lending terms and conditions, such as high collateral and internal finance and shorter loan terms as risk management strategies.

The thesis results establish that SME financing constraints in Bhutan are caused by factors arising from both SMEs and the banks: lack of financial information on the part of SMEs and the requirement for high collateral and internal finance on the part of the banks. In Bhutan other factors influenced the accessibility of debt finance for SMEs, although these were not the major predictor of debt accessibility. Debt accessibility was found to be a function of firm and owner characteristics and loan characteristics: smaller and younger firms faced more difficulties in gaining bank loans in comparison to their larger and older counterparts. Industry sector had a moderate effect on accessibility to bank loans while the age and educational qualification of borrowers was found to have a positive relationship to debt accessibility. The gender of the owner did not have a substantial effect on a firm's debt accessibility.

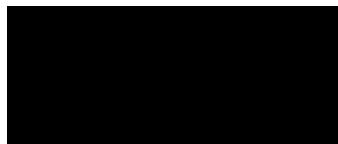
These results have implications both for SMEs and banks and also for government policy. To improve access to finance, there is a strong incentive for SMEs to improve the quality of information that they provide to banks. There may also be a case for government to support SMEs to provide better information. The emphasis of banks in Bhutan on owner's equity and a high level of collateral as the primary condition of lending seems to be out of line with international practice, which places greater weight on the financial assessment of the business and on the firm's credit history. Not only does this emphasis, limit the flow of credit to SMEs in Bhutan but it may also penalise the banks, as lending to small business is regarded as a profitable area of activity internationally. The government should give consideration to instituting an independent review of the lending practices of the banks in relation to SMEs, relative to best practice in other developing countries, with a view to introducing policies to change these practices if necessary.

## **DECLARATION**

I, Chokey Wangmo, declare that the DBA thesis entitled, Small and Medium Enterprise (SME) Financing Constraints in Developing Countries: A Case Study of Bhutan, is no more than 65,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Signed,

Date: 31 March 2016



Chokey Wangmo

## **PRESENTATION AND PUBLICATION**

Some sections of this thesis have been presented in a conference and published in an academic journal:

### **1. Refereed International Conference Presentation**

Wangmo, C 2015, 'Small Medium Enterprise (SME) bank financing constraints in developing countries: a case study of Bhutan', paper presented at *International Conference for Business and Economics*, 19-23 April 2015, FHWien University of Applied Sciences of WKW, Vienna, Austria.

### **2. Refereed Journal Article:**

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## **LIST OF ABBREVIATIONS**

ADB	Asian Development Bank
AGEF	Age of the Firm
AGEO	Age of the Owner
BDBL	Bhutan Development Bank Limited
BIL	Bhutan Insurance Limited
BNB	Bhutan National Bank
BoB	Bank of Bhutan
BOIC	Business Opportunity Information Centre
BP/CW	Breusch-Pagan/Cook-Weisberg test
COLL	Size of Collateral
CSMI	Cottage, Small and Medium Industry Policy
CSO	Civil Society Organization
DA	Debt Accessibility
EDP	Economic Development Policy
EDUO	Education Qualification of the Owner
EU	European Union
FININFO	Financial Information
FL	Financial Leverage
FYP	Five Year Plan
GENO	Gender of the Owner
GDP	Gross Domestic Product
GNHC	Gross National Happiness Commission
GNI	Gross National Income
HMLR	Hierarchical Multiple Linear Regression
INT	Interest Rate on the Loan
INTFIN	Internal Finance
MLR	Multiple Linear Regression
MoEA	Ministry of Economic Affairs
MoLHR	Ministry of Labour and Human Resources
NSB	National Statistical Bureau
Nu.	Ngultrum (Bhutanese currency)
OLS	Ordinary Least Square
POT	Pecking Order Theory
RGoB	Royal Government of Bhutan
RMA	Royal Monetary Authority
RSEB	Royal Securities Exchange of Bhutan
SECF	Sector of the Firm
SIZEF	Size of the Firm
SME	Small and Medium Enterprises
TERM	Loan Term
UNDP	United Nations Development Program
VIF	Variation Inflation Factor
VIUHREC	Victoria University's Human Research Ethics Committee

## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Introduction to Small Business Finance**

Small and Medium Enterprises (SMEs) contribute immensely to the socio-economic development of a country by generating an employment base, greater business competition, stimulus for innovation and a wider distribution of economic wealth and business opportunities (Becchetti & Trovato 2002; Beck, Demirgüç-Kunt & Pería 2008). They are also the foundation of future generations of companies owing to their potential to grow and expand despite small beginnings. There is no standard definition of SME, varying across different countries and also within financial institutions in the same country (Beck 2013; Rao 2003). The categorisation of firms is based on qualitative features like organisational structure, legal entity and number of employees, and on quantitative features such as assets size, annual turnover and investment cost (Berger & Udell 2006; Drever, Stanton & McGowan 2007).

The definition of SME is also influenced by the geographical location and economic growth of a country, whereby a small firm in developed countries such as America and Australia might be defined as a large firm in developing countries like Bhutan (Ang 1991; Berger & Udell 2006; Drever, Stanton & McGowan 2007). SME classification is also based on legal structure namely: sole ownership; partnership and proprietary company. SMEs in Bhutan are defined and classified based on the size of the initial cost of investment of the firm and its number of employees (MoEA 2012a; MoEA & ADB 2012). The key distinct feature of SMEs is that they are not publicly traded and rely mainly on owner's equity and the debt market to raise capital (Ang 1991, 1992; Grunert & Norden 2012).

Though the socio-economic importance of the SME sector has been universally acknowledged, it is faced with serious financing constraints. Holmes, Hutchinson, Forsaith, Gobson and McMahon (2003) defined SME finance as the funds required to start a business and to carry on business activities such as management and investment decisions. Garvin (1971) and Baird and Lucey (2010) defined SME financing in terms of the capital structure of SMEs which is determined by the capital needs of the firm, its size, stage of development, asset structure, profitability, and many more factors.

Claessens (2006, p. 210) has defined accessibility to finance as, '*...availability of a supply of reasonable quality financial services at reasonable costs*'. This definition of access to finance takes into account the four major concepts of availability, reliability, flexibility and continuity of access. The definition of accessibility to finance as the availability of financing at a reasonable cost without barriers was also proposed by (Demirgüç-Kunt & Levine 2008).

Prior studies have proven that there is positive relationship between accessibility to external finance and business performance (Mcmahon 2001; Oncioiu 2012; Watson, J 2010). Accessibility to finance has been marked by an increase in the number of SME start-ups and opportunities for existing SMEs to invest into different areas and grow into larger and more dynamic and productive firms (Beck 2013; Beck, Demirgüç-Kunt & Pería 2008, 2011). A positive correlation between the growth and development of SMEs and an increase in job creation was also reported by Beck, Demirgüç-Kunt and Pería (2008) and Tucker and Lean (2003). Gaining accessibility to finance boosts SME investment in business operations and higher return projects, creating economic growth, innovation and employment (Berger & Udell 1998; Oncioiu 2012). Therefore, SME finance is very important not only for SME owners but also for policy makers because of its significant contribution to a country's socio-economic development.

## **1.2 Research Problem**

Gaining access to financing is vital for the survival, growth and development of SMEs (Beck, Demirgüç-Kunt & Singer 2013; Holmes et al. 2003). It is critical for SMEs to get access to an efficient and effective supply of finance in order for them to grow and compete in the market. However, there is a vast literature indicating that SMEs face more obstacles than larger firms in gaining access to financing and investments (Berger & Udell 2006; Cassar 2004; Hyytinen & Väänänen 2006). Prior studies have reiterated that the primary cause of SME failure is inadequate financial resources caused by inaccessibility to financing (Coleman 2000; Gregory, Rutherford, Oswald & Gardiner 2005). Access to finance is important since inadequate financing leads to a lower growth rate and failure in most cases of SMEs. SMEs' financing constraints transcends to both availability of finance and to the terms and conditions under which SMEs obtain the finance from the financial institutions (Klonowski 2012; Tagoe, Nyarko & Anuwa-Amarh 2005).

The internal finance of SMEs consisting of retained earnings, personal funds, and funds from family and friends are not sufficient for expanding its operations (Hall, Hutchinson & Michaelas 2000; Kira & He 2012). Owing to the small size of the internal finance, there is a need for additional financing from reliable external sources to grow and survive in the market (Beck 2013; Beck, Demirgüç-Kunt & Pería 2008). The banks are the main sources of external financing for SMEs in developing countries where the financial market is small and young (Jayaratne & Wolken 1999; Klonowski 2012; Rao 2003). However, SMEs face difficulties in accessing finance from financial institutions. Bauchet & Morduch (2013) also indicated that SMEs face limited accessibility to financing from the formal financial sector.

This limited accessibility to financing has been attributed mainly to SMEs' information opacity resulting in an information gap between SMEs and financial institutions (Brent & Addo 2012; Deakins & Hussain 1994; Roberts 2015). SMEs' high information opacity renders them as risky borrowers making it difficult, in particular for new firms, to obtain debt finance from financial institutions (Kirschenmann & Norden 2012; Sarapaivanich & Kotey 2006). SME information asymmetry is severe and conspicuous in developing countries (Ezeoha 2008; Green, Kirkpatrick & Murinde 2006). The underdeveloped financial and legal systems in developing countries aggravate SMEs' access to external financing (Beck, Demirgüç-Kunt & Pería 2008; Mateev, Poutziouris & Ivanov 2013). It is therefore reported that the banking sector in developing economies underserves the SME sector (Holmes et al. 2003; Ramlee & Berma 2013).

Ramlee and Berma (2013) report that despite SME's genuine need of financing; bank financing is largely unavailable to SMEs resulting in the issue of financing lacuna, a perennial issue in many developing countries like Malaysia. Levy's (1993) study on SMEs in Sri Lanka and Tanzania reported the lack of access to finance as the most pressing issue faced by SMEs in comparison to other constraining factors such as regulatory, technical and marketing constraints. Most of the times, SMEs remain under capitalised with mismatched loans from the banks not suiting their needs (Oncioiu 2012; Roberts 2015). Therefore, a gap is created between the financial needs of SMEs and the provision of finance by the lenders. Due to their inability to borrow, SMEs are credit constrained characterised by low productivity affecting their ability to survive (Carreira & Silva 2010; Chakraborty & Mallick 2012; McMahon 2001).

Owing to the socio-economic importance of SMEs, a large body of empirical work has surfaced over the years enriching the literature on SMEs. Most of the studies on SME financing have been conducted in economies with developed banking systems such as Australia (Cassar & Holmes 2003; Holmes & Kent 1991; Johnsen & McMahon 2005), America (Allee & Yohn 2009; Rajan & Zingales 1995) and Europe (Chittenden, Hall & Hutchinson 1996; Hall, Hutchinson & Michaelas 2004). Authors like Osei-Assibey, Bokpin and Twerefou (2012) and international organisations have raised the applicability of these empirical studies conducted in highly industrialised and matured economies to SMEs in developing countries. Furthermore, these studies are focused more on the higher end of SME spectrum (medium enterprises) neglecting the lower end (micro enterprises), which forms a major part of developing countries' SME sector (Beck, Demirguc-Kunt & Singer 2013; Berger & Udell 2006; Holmes et al. 2003).

Furthermore, the issue of SME financing constraints has been studied either from the perspective of SMEs (borrower) or financial institutions (lender) with more importance being given to the former (OECD 2007; Ramlee & Berma 2013). Hence, the majority of the studies are focused on obstacles faced by borrowers without investigating the ability and capacity of SMEs to borrow from financial institutions. The literature on the SME financing gap from the perspectives of both SMEs and banks is lacking and the integration of the two components of the SME financing gap is necessary. This study therefore, aims to investigate the nature and causes of SME financing constraints in developing countries through an econometric model based on economic theories.

Bhutan is taken as a case study to illustrate the aims and objectives of the study. The Bhutanese private sector is dominated by SMEs, which have been recognised the Royal Government of Bhutan (RGoB) as one of the key drivers of the economy (Osmani, Bajracharya, Tenzing & Wangyal 2007; Planning Commission 1999). The Bhutanese SME sector is underdeveloped mainly because of financial constraints faced by the SME sector (GNHC 2013a; MoEA & ADB 2012; Osmani et al. 2007). A survey conducted on small and cottage industries in Bhutan reported that inaccessibility to financing was rated the highest obstacle in comparison to other obstacles faced by SMEs (MoEA & ADB 2011). Banks are the largest source of external credit for the SME sector in Bhutan. Unlike the matured financial market in developed economies marked by several small and locally operating banks and larger international banks, in

developing countries like Bhutan, the financial market is small and underdeveloped (Rahut, Velásquez Castellanos & Sahoo 2010; Rao 2003). Bhutan's financial sector is involved in large commercial transactions rather than in financing SMEs due to the high risk and costs involved in SME financing (Chetri & Dhar 2004; MoEA & ADB 2012).

Inaccessibility to credit has been identified as the key constraint faced by SMEs and has been excessively covered academically. However, similar academic research has not been carried out on the Bhutanese SME sector. The information available on Bhutanese SMEs are study reports carried out by the RGoB and international development organisations which is focused on the general constraints faced by SMEs and does not address SME financing constraints specifically. This lack of academic research may be attributed to the lack of information, in particular financial information on SMEs, as there is no database on SMEs in the country. To the researcher's knowledge, this is the first academic study of Bhutanese SMEs investigating SMEs' inaccessibility to bank loans. Therefore, this study is built on the understanding that SMEs in Bhutan are credit constrained and there is an SME financing gap in Bhutan.

### **1.3 Research Aims and Objectives**

SME financing consists of two components: SMEs that need financing and banks that have the capacity to provide financing. There is a mismatch between SMEs' financing needs and the provision of funds by banks resulting in the SME financing gap, which is wide more widespread in developing countries like Bhutan. The majority of the literature on SME financing constraints has been carried out from the perspective of SMEs, overlooking the standpoint of the second component of the SME financing gap, the finance providers. Also, most of these studies are carried out in the context of developed economies, which are different to the economy and financing environment in developing countries like Bhutan.

The main objectives of the study are to:

- Analyze the nature and causes of the financing constraints in Bhutan by adopting a theoretical framework based on the literature of the economic theories Information Asymmetry, Agency Theory and Pecking Order Theory.
- Identify factors arising from SMEs and the banks that cause the SME financing gap in Bhutan.

The main objective of this study is to investigate the cause of the SME financing gap from the perspectives of the two key players, that is, SMEs and the banks in Bhutan. The study aims to establish how the factors arising from SMEs and the banks impact SMEs' accessibility to bank loans in Bhutan. These factors constitute firm and owner characteristics and loan characteristics. The study is focused on providing empirical evidence on the influence of these factors on SMEs' accessibility to debt financing from the banks in Bhutan. The research foundation is built on the theoretical concepts of Information Asymmetry, Agency Theory and Pecking Order Theory (POT) through the development of conceptual framework of the study. To better understand SME financing constraints in Bhutan, the proposed study was undertaken within the context of Bhutan's unique economic, financial and social system. The study provides a list of recommendations for SMEs, banks and policy makers, based on the study's key findings, to alleviate the SME financing gap in Bhutan.

#### **1.4 Research Questions and Hypotheses**

To achieve the research objectives, the following broad research questions have been formulated to direct the course of the study:

1. How do the issues of information asymmetry and agency theory play a role in SME financing gap in Bhutan?
2. What are the factors that cause SME financing constraints from the perspectives of SMEs and the banks in Bhutan?

Specifically, the study aims to address the research questions through identification of the key variables affecting SME financing constraints. The five main hypotheses of the study were used to investigate the effect of each factor on SME's accessibility to bank loans. The findings were then integrated with the qualitative thematic analysis from interviews of credit officers of the banks to generate comprehensive findings on SME financing constraints in Bhutan. In this study focused on investigating SMEs' inaccessibility to bank loans, the term bank loan(s) have been used interchangeably with external finance and debt finance. Therefore, SMEs' accessibility to bank loans has also been described by phrases such as accessibility to debt or external financing.

## **1.5 Research Design and Methodology**

The study adopted a mixed methodology, specifically the Sequential Explanatory Design, which is characterised by the collection, and analysis of quantitative data followed by a qualitative method built on the results of the quantitative method (Creswell 2009; Newman & Hitchcock 2011). The sequential explanatory research design was found to be suitable for investigating the SME financing gap from the perspective of SMEs in Phase I and the perspective of the banks in Phase II. The key feature of this research design is that Phase I quantitative method forms the core methodology of this study supported by the Phase II qualitative method. Accordingly, two different forms of data collection method were employed to collect data from two different stakeholders:

- Phase I – Field survey questionnaire of SMEs owners
- Phase II – Telephonic interviews of credit officers of the banks

In Phase I, a total of 400 questionnaires were distributed to SME owners/managers in the cities of Thimphu and Phuntsholing, Bhutan, through random sampling to represent the total population of SME establishments in Bhutan, including micro enterprises. Though the initial response rate was 98.5% (394 forms), the preliminary examination of SME survey responses led to use of only 176 forms (firms that obtained bank loan) as the study sample, explained in detail in chapter 6. The empirical analysis of the cross-sectional quantitative data for the year 2013 was carried out through descriptive statistics, econometric multiple linear regression and hypothesis testing using the Stata IC13. The descriptive statistics also explored the details of 218 firms that did not seek bank loans, to understand the financing behaviour of Bhutanese SMEs.

The data collection for Phase II commenced only after completion of Phase I data analysis. In Phase II, a semi-structured telephonic interview was conducted with six credit officers of the banks in Bhutan. A sample size of six credit officers was considered suitable to be interviewed to understand the perspective of the finance providers, owing to the lesser weighting of the qualitative phase. Thematic analysis explored the banks' lending mechanisms and identified the loan approval criteria.

## **1.6 Conceptual Framework**

Given the importance of both components of the SME financing that is SMEs' financial needs and the provision of finance from the banks, a holistic conceptual framework was developed to undertake the study. It is primarily based on previous work carried out by Sunder and Myers (1999) on the capital structure of firms. Through the economic theories of Information Asymmetry, Agency Theory and POT, this study attempted to understand the dynamics of financing between SMEs and banks. The conceptual framework was developed to establish the interaction of factors originating from both the SMEs and banks of the SME financing gap. The factors in the first component of the gap are associated mainly to SMEs' information asymmetry and owner's characteristics, while the factors in the second component of the gap are associated with lending technologies (loan size, collateralization, interest rate) adopted by the banks.

## **1.7 Contribution and Significance of the Study**

The study is expected to make a credible theoretical contribution to SME financing literature in Bhutan. There are few academic works available in reference to developing economies like Bhutan creating a gap of knowledge. To the researcher's knowledge this is the first academic study on Bhutanese SMEs that investigates the issue of SME financing constraints in terms of its accessibility to bank loans. Information on the Bhutanese SME sector is limited to government reports focused on general constraints faced by SMEs and not specific SME financing constraints. Therefore, from a theoretical perspective, this is the first academic study based on theoretical contexts with reference to Bhutan and its unique economic and social environment. The study is based on the economic theories of Information Asymmetry, Agency Theory and POT.

The study's contribution is also important in terms of research methodology. The study adopted a mixed method (sequential explanatory approach) to investigate the issue of SME financing constraints from the perspectives of both SMEs and the banks. This approach is a significant academic contribution to the literature, which is dominated by investigation of the issue from the perspective of SMEs and less from the perspective of the financial institutions, using either a quantitative or qualitative method. It provides a balanced, integrated and holistic approach on SME financing constraints. Therefore, the comprehensive outcome of the study includes an accurate representation of the

financing constraints faced by SMEs in Bhutan and the bank's lending behaviour towards SME sector.

Prior studies have focused on the upper end of the spectrum of SMEs while the smaller firms in the lower end (micro enterprises) of the spectrum are neglected. This group deserves equal attention as it forms a major part of SME population, especially in developing countries. Therefore, by including micro firms in SME sample population, the study has made a contribution to closing the literature gap in regards to the lower end of SME spectrum. Thus, the results of the study will be applicable in the context of developing countries' SME sector.

It holds practical significance for key stakeholders, SMEs, the banks and the government. The study offers insights to SMEs to assist them to understand the causes of debt inaccessibility and to evaluate their position to improve debt accessibility. Steps need to be undertaken at SME level to mitigate the issue of information asymmetry with the banks, to enhance the sector's financial credibility. As for the banks, despite the high risk and cost associated with SME financing, SME sector offers a large and profitable market owing to the number of SMEs. Therefore, it will be to the advantage of the banks to develop different SME financing mechanisms and gain from the large and profitable SME market.

SME financing constraint is a key challenge faced by developing countries and a study like this one, which investigates the issue of SMEs' inaccessibility to bank loans, is a huge significance in terms of policy development to Bhutan. It provides meaningful insights to assist policy makers to understand the financial need of SMEs and the predicament of the banks, to create a sound financing environment for both SMEs and the financial institutions. The findings have practical significance for developing well-examined and defined measures at the policy level to address SME financing constraints and stimulate the sector's growth.

Despite the small economy of Bhutan, it shares many common SME sector characteristics with the developing countries in the region (Bangladesh, Nepal, Sri Lanka, India). The SMEs in developing countries face similar challenges and constraints of same nature. Hence, the study findings that provide a better understanding

of the financing constraints faced by SMEs in Bhutan are applicable to other developing countries. It provides insights to developing economies that place SME development as foundation of the economy. The significance of the study is extended to policy implications for policy makers, SMEs and financial institutions in these developing countries. The findings from this study can serve as a reference in drafting policies and measures to address SMEs' financial inaccessibility.

### **1.8 Structure of the Thesis**

The thesis is arranged into eight chapters and the overview of each thesis chapter is provided here:

Chapter 1 is an introduction to the thesis, covering the outline of the research aims and objectives, research questions and the hypotheses that are addressed in subsequent chapters. It also briefly covers the study's academic and practical contributions.

Chapter 2 is a case study of Bhutan covering the country's background in terms of its geographical, political and economic environment. It also describes Bhutanese SMEs and their financing constraints and their importance to the Bhutanese economy.

Chapter 3 is a literature review of the studies in the area of SME financing highlighting the theoretical concepts of Information Asymmetry, Agency Theory and POT. The literature review is discoursed from the perspectives of two key players, SMEs and the banks, in an attempt to portray a complete picture of the SME financing gap.

Chapter 4 outlines the research paradigm, design and methodology. It covers the development of the conceptual framework, model and hypotheses of the study. The sequential explanatory method consisting of a major quantitative method (Phase I) and minor qualitative method (Phase II) was chosen for the study. The data collection processes for both methods are covered in detail highlighting the sample and questionnaire development. The ethical issues of conducting field work have also been highlighted.

Chapter 5 covers the descriptive statistics of the data collected through the questionnaire survey of SME owners in Thimphu and Phuntsholing Bhutan. The description of the characteristics of SMEs, its owner and financial information are presented in the form of means, frequency, cross tabulations and graphs. The statistical findings are systematically presented and their significance interpreted to produce an overview of the basic features of the data.

Chapter 6 outlines the empirical analysis of the Phase I quantitative survey data using Stata IC13 in the form of multiple linear regression. The relationship between SME's debt accessibility and the various independent variables identified through extensive literature review is quantified. The statistical assumptions such as multicollinearity, heteroscedasticity, normality and model misspecification were diagnosed and accordingly addressed with corrective measures.

Chapter 7 outlines the thematic analysis of the Phase II qualitative data obtained through the telephonic interview of credit officers of the banks in Bhutan. Using QSR NVivo 10, the interview data was categorised under the five main themes identified in Phase I to explore the SME financing gap from the perspective of the banks.

Chapter 8 provides discussion insights into the SME financing gap from the perspective of both SMEs and banks through the integration of findings from the quantitative and qualitative analyses. It presents the conclusion of the study along with the theoretical and practical contributions of the study and recommendations. It also covers the research limitations and future scope of research in the area.

## **CHAPTER 2**

### **BHUTANESE SME: A CASE STUDY**

#### **2.1 Introduction**

This chapter covers the background of Bhutan and Bhutanese SMEs in terms of geographical, political and economic context. Bhutan has been chosen as a case study to investigate SME financing constraints. Government statistics show that over 98% of the Bhutanese private sector is dominated by SMEs emphasising their central role in fostering economic growth. SMEs play a crucial role not only in economic growth but also social development through employment generation and poverty reduction. A brief overview of initiatives undertaken by the RGoB to promote and develop SME sector has also been covered.

#### **2.2 Country Background – Geographical, Political and Economical**

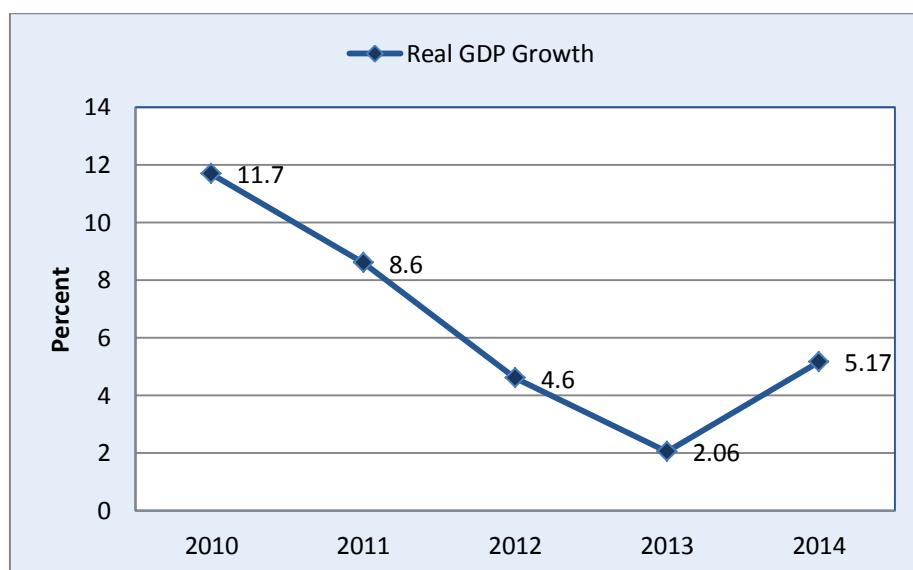
The Kingdom of Bhutan is located in the eastern Himalayas, landlocked between China and India with a total area of 38,394 square kilometres and a population of 750,000 (NSB 2013). The physical topography of Bhutan is dominated by high mountains, rugged terrains and deep gorges with altitude ranging from 160 metres to more than 7000 metres above the sea level. Bhutan is divided into 20 districts known as Dzongkhags and the districts are further divided into 306 village blocks known as Gewogs (NSB 2013). Bhutan's political system transitioned from absolute monarchy to constitutional monarchy in 2008 with the endorsement of the First Constitution of Bhutan alongside the first ever democratic general elections (GNHC 2013a).

His Majesty the Fourth King Jigme Singye Wangchuck, consciously initiated the decentralisation and democratisation process through devolution of executive power to the Council of Ministers in 1998 and initiation of the drafting of Bhutan's first Constitution in 2001. His Majesty the King Jigme Khesar Namgyel Wangchuck ascended the throne on 6 November 2008 upon the voluntary abdication of the throne by His Majesty the Fourth King on 14<sup>th</sup> December 2006 (GNHC 2013a). Bhutan's development philosophy is deeply rooted in the Gross National Happiness (GNH) concept, which was conceptualised by His Majesty the Fourth King to introduce decentralisation and public participation in the decision making process (Planning Commission 1999). The four foundation pillars of GNH form the guiding elements of

the country's socio economic development activities: i) Promotion of equitable and sustainable socioeconomic development; ii) Preservation and promotion of cultural values; iii) Conservation of the natural environment and iv) Good governance (GNHC 2013a; Planning Commission 1999). Therefore, the GNH concept works towards achieving holistic and sustainable socio-economic development through a balance between economic growth and spiritual development.

Bhutan started its socio economic development with the inception of the first Five Year Plan (FYP) in 1961 (Chetri & Dhar 2004; Osmani et al. 2007). The Bhutanese economy is dominated by SMEs including micro enterprises and self-operated and family owned firms, characteristics of a developing economy. The Bhutanese paper currency Ngultrum (Nu) was introduced in 1974 and pegged at par with the Indian rupee (Osmani et al. 2007). Bhutan's economy is considered the world's smallest economy characterised by limited integration with the global economy (GNHC 2013a). According to the World Bank (2014), Bhutan falls under the category of "Lower middle income" based on their Gross Domestic Product (GDP) of \$1.595 billion and Gross National Income (GNI) per capita of US \$2390 in 2013. Bhutan's economy is largely driven by the hydropower and tourism sectors but highly dependent on international aid and heavily reliant on imports for both consumption and capital goods (GNHC 2013a; NSB 2013).

**Figure 2.1: GDP Growth Rate of Bhutan (2010 - 2014)**



Source: National Statistics Bureau (NSB), 2015

As reflected in Figure 2.1, the country's GDP growth declined consistently from 11.7% in 2010 to 2.06% in 2013 indicating an unhealthy economic condition in the country (NSB 2015; RMA 2015). A rise in the GDP growth rate to the value of 5.17% was observed in the year 2014, an indication of value addition to the country's economy (RMA 2015) . Bhutan's GDP per capita in 2014 was increased to US\$ 2,611.70 from US\$ 2463.80 in 2013 (NSB 2015). The growth in the economy has mainly been driven by the tertiary sector, followed by the primary and secondary sectors (NSB 2015; RMA 2014) The primary sector comprises of agriculture, livestock and forestry; the secondary sector comprises of hydro power, mining, manufacturing and construction works; and the tertiary sector is dominated by service industries comprising of tourism, hospitality, retail and wholesale, real estate and business services.

In terms of each sector's share in nominal GDP; the agriculture, livestock and forestry sector, the construction sector, the electricity and water sector, the general government sector (community, social and personal services), and the transport, storage and communication sector have been the five largest sectors for the last decade (RMA 2015). The consistent rise in the GDP is due the commissioning of several hydro-power projects. Electricity is the biggest export of Bhutan to India which increased by 11.8% from 2012 to 2013 from Nu.9.7 billion (Nu.50≈AU\$ 1 & Nu.65≈US\$ 1) in 2012 to Nu.10.9 billion (NSB 2015). India is the largest trading partner of Bhutan, accounting for about 93.9% of its exports in 2012 and 79.4% of imports (RMA 2014).

The MoEA (2012b) has recognised that the banking sector is characterised by high volatility in its liquidity with a coefficient of 0.79 during the tenth FYP. The widening of the current account deficit with India since 2011 resulted in acute shortage of Indian rupee reserve and a severe credit crunch in the banking sector (RMA 2014). This is attributed to a substantial growth of 132% of imports in comparison to only 30.5% of growth in exports in the five years from 2008 to 2013 (GNHC 2013a). The balance of trade with India which was in surplus until 2009 went into deficit with imports outpacing exports on commencement of three major hydropower projects in 2010 and 2011 (GNHC 2013a). Hence, Bhutan's economy is challenged by a prolonged Indian rupee shortage that affects all sectors of the economy but in particular the already financially constrained SME sector.

## 2.3 Entrepreneurship in Bhutan

The definition of a SME varies from country to country and organisation to organisation based on which set of criteria are used. Various factors, such as the number of employees, total assets, sales, ownership style and industry type have been used to define SMEs for research and development purposes (Berger & Udell 2006; Drever, Stanton & McGowan 2007). The European Union (EU) adopted SME definition based on the number of employees and the annual turnover of the firm in 2003 (European Union 2014). According to EU, the medium firms have  $< 250$  employees with  $\leq \text{€} 50$  million turnover; small firms have  $< 50$  employees with  $\leq \text{€} 10$  million turnover; and micro firms have  $< 10$  employees with  $\leq \text{€} 2$  million turnover. Similarly, the World Bank's definition of SMEs is based on the number of employees, assets and revenue where firms with 300 employees, total assets of US\$15 million or less and total sales of US\$15 million or less fall under SME sector.

**Table 2.1: Definition of SMEs in Bhutan**

Firm Size	Employment Size	Investment Size
Large	100+	$> \text{Nu. } 100$ million
Medium	20 – 99	$\text{Nu. } 10\text{-}100$ million
Small	5 – 19	$\text{Nu. } 1\text{-}10$ million
Cottage/Micro	1 – 4	$< \text{Nu. } 1$ million

*Source: Ministry of Economic Affairs (MoEA), RGoB, 2012.*

*\*Employment and investment will apply; where there is a conflict, investment will take precedence.*

SMEs in Bhutan are defined and classified based on the size of the initial cost of investment of the firm and the number of employees (MoEA 2012a; MoEA & ADB 2012). According to Table 2.1, firms with less than Nu 1 million investment cost and employing up to 4 people are classified as micro firms; firms with investment cost between Nu 1 million and Nu 10 million and employing 5 to 19 people are classified as small firms; firms with investment cost between Nu 10 million to Nu 100 million and employing 20 to 99 people are classified as medium firms; firms with investment cost more than Nu 100 million employing more than 100 people are classified as large firms (MoEA 2012a). For the purpose of managing statistical data, SMEs were further divided two sectors: trade enterprises and industrials enterprises. The trading sector is inclusive of retail while the industrial sector further classified into production and manufacturing, service and construction.

Owing to its isolation until the 1960s and the prevalence of the barter system, the entrepreneurship culture is new to Bhutan (Chetri & Dhar 2004). SMEs form the majority of the private sector and represent a significant portion of the Bhutanese economy. The Bhutanese SME sector is dominated by cottage and small scale firms including micro enterprises, which are largely comprised of small family run businesses such as restaurants, and retail (Osmani et al. 2007). SME sector makes up about 98% of the industrial sector in Bhutan and is concentrated in urban areas dealing in agro products, handicrafts and textiles industries (MoEA 2012a).

The RGoB has accorded high priority to SME sector development since the sixth FYP in 1987 (Moktan 2007; Planning Commission 1999). The Bhutanese SMEs have been identified as drivers of competitiveness and innovation in addition to their socio-economic potential in the areas of employment, poverty reduction and balanced regional growth (GNHC 2013b). As cited by Hallberg (2000), Bhutanese SMEs are the foundation of economic growth, as in other developing countries. The government reports have reiterated the importance of a private sector dominated by SMEs as the engine of economic growth of the country. However, the overall effect of government interventions has been modest and the development of the private sector has been slow, failing to translate into a vibrant sector (Chetri & Dhar 2004; MoEA 2012b).

The SME sector is faced with constraints such as: small financial sector; inadequate infrastructure; inaccessibility to market information and an absence of SME oriented policies (ADB 2007; Bastien 2009). The development of SMEs with high potential is constrained by its inaccessibility to capital, technology and markets (MoEA 2012a; Moktan 2007). Most of the firms are sole proprietorship and traditional in form with no opportunity or scope to grow into larger firms. Osmani et al. (2007) stated that the Bhutanese SME sector is handicapped demographically by its small size of internal market and geographically by its difficult, mountainous terrain, which limits entry into the international market. However, given a sound policy environment and appropriate interventions, these traditional SMEs have the potential to grow into the new industries (Moktan 2007; Osmani et al. 2007).

## **2.4 Interventions: Policies and Programs**

SMEs constitute the major component of the private sector in developing countries and are a vital base for private sector-led growth (Hallberg 2000; IFC 2010). Therefore, developing countries have paid attention to SME policy formulation and implementation. In terms of policy level intervention, the RGoB adopted the Economic Development Policy (EDP) in 2012 in an effort to address difficulties faced by the private sector and diversify the economy (GNHC 2013a). One of the prerogatives of the EDP is to facilitate access to finance and incentives through the development of different financial mechanism and tools to suit the Bhutanese market and local specifications. Following the EDP, the RGoB adopted the Cottage, Small and Medium Industry (CSMI) Policy in 2012 with the main aim to provide an enabling and conducive policy environment for SME development (MoEA 2012a).

The CSMI policy was formulated for cottage, small and medium industries (MoEA 2012a) with the main objective: “To develop a dynamic, competitive and innovative SME sector in harmony with the Gross National Happiness (GNH) philosophy, thus promoting employment, poverty reduction and balanced regional development”. The CSMI policy is significant for the SME financing gap since one of the objectives of the policy is to facilitate SMEs’ accessibility to finance and incentives. It was supplemented by CSMI Development Strategy (2012) to develop strategies to achieve the policy objectives and CSMI Action Plan (2012) highlighting government programs and projects at ground level.

Firms in the business sectors of retail, production and manufacturing, services and construction works, with a turnover of more than Nu.1 million are required to get business licenses. However, to ease administrative procedures, micro enterprises with investment costs of less than Nu.100, 000 are exempt from the licensing regime and use a simple registration process as in the Bhutan Micro Trade Regulation (2006). The Companies Act of Kingdom of Bhutan (2000) and the Income Tax Act (2001) state the requirement for financial reporting of business entities such as proper book keeping, annual returns, balance sheets, profit and loss statements and auditors’ reports with cottage and micro enterprises exempted (MoEA 2012a).

Governmental direct interventions for SMEs range from entrepreneurship development programs, financial grants, special loan schemes and technical support in collaboration with different organisations. One of the flagship interventions was the establishment of the Entrepreneurship Promotion Centre in the early 1990s that offered credit guarantee schemes and entrepreneurship trainings to promote entrepreneurship in the country (Bastien 2009; MoEA & ADB 2012). Since 2010, the same program has functioned under the Entrepreneurship and Self-employment Division, Ministry of Labour and Human Resources as a skills development and employment generation program. The government in collaboration with financial institutions has drawn up collateral free and lower interest rate loan schemes known as credit guarantee schemes to provide self-employment opportunities to youth with vocational skills (MoLHR 2015).

As an integral part of the CSMI initiative to facilitate access to finance and incentives, the government initiated the Economic Stimulus Programme with Nu. 5 billion to inject liquidity in the financial system to address the credit crunch and ease financing to productive sectors (GNHC 2013a). Hence, the Business Opportunity Information Centre (BOIC) was established within the Ministry of Economic Affairs (MoEA) as a time bound autonomous agency managing revolving funds with the main objective to stimulate the growth of cottage and small industries through both financial and administrative support (BOIC 2015).

Recognising SMEs' role in the areas of employment generation, income generation and regional balanced development, the RGoB has continuously supported the SME sector through various interventions. However, the success of these programs has been moderate, as the existing legal and regulatory frameworks are unclear when applied to SMEs, resulting in inconsistencies in implementation (Chetri & Dhar 2004; MoEA & ADB 2010). BOIC, which was established with the aim of promoting small and cottage industries, has been clouded with confusion surrounding its legality as an organisation providing financial services like financial institutions. This reveals the presence of a huge gap in programs initiated and implemented by the government and the reality of the application issue at ground level. Such incidents make the legal and regulatory environment a bottleneck, rather than creating an enabling environment for SMEs.

In addition to government and financial institutions, Civil Society Organisations (CSOs) such as Tarayana Foundation and Loden Foundation have played a key role in providing social and financial support to underprivileged sections of society (NSB 2012). Tarayana Foundation's mission is, "to help the vulnerable and the disadvantaged help themselves". Among other objectives, the foundation's objectives related to the SME sector range from helping communities through income generating activities; facilitation of sale of arts and craft products; and supporting the establishment of micro and community enterprises and microfinance (Tarayana Foundation 2015). Similarly, the Loden Foundation started the Loden entrepreneurship program in 2007, with an objective to provide avenues of employment to increasing numbers of the younger population (Loden Foundation 2015). The assistance comes in the form interest and collateral free loans (Nu.150,000 - Nu.1,500,000) and entrepreneurial skills training.

## **2.5 SME Financing Constraints in Bhutan**

SMEs' inaccessibility to financing is a prominent issue faced by SMEs in Bhutan. In the absence of other sources of finance in the Bhutanese financial market, commercial banks continue to play a vital role in providing financing to businesses, in particular to SMEs (Chetri & Dhar 2004; Osmani et al. 2007). The financial market in Bhutan is represented by small and concentrated banking systems and is in its nascent stage (Rahut, Velásquez Castellanos & Sahoo 2010; RMA 2014). The banking system in Bhutan is made up of five bank and three non-bank financial institutions.

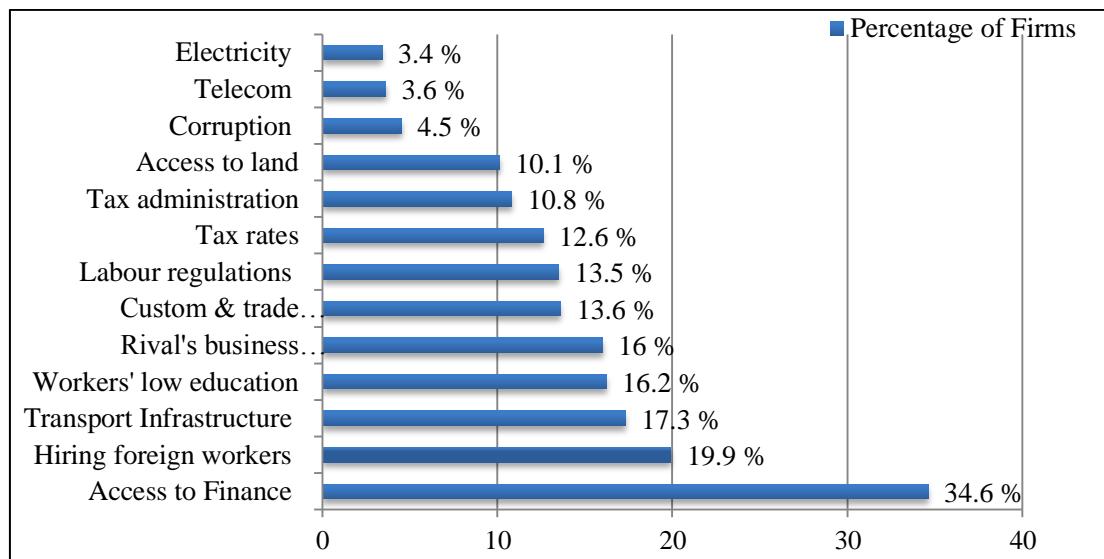
The five banks are listed as Bank of Bhutan (BoB); Bhutan National Bank Limited (BNBL); Bhutan Development Bank Limited (BDBL); Druk Punjab National Bank Limited; Tashi Bank Limited and three non-bank financial institutions are Royal Insurance Corporation of Bhutan Limited; National Pension & Provident Fund and Bhutan Insurance Limited (RMA 2014). The Royal Monetary Authority (RMA) is Bhutan's central bank with the mandate to regulate the financial sector through monetary policies and to ensure the sound growth of the financial sector through consolidation of the accounts of other banks and financial institutions (Rahut, Velásquez Castellanos & Sahoo 2010). The Royal Securities Exchange of Bhutan (RSEB) was set up in 1996 to support the financial market.

Though comparatively small and young, the Bhutanese financial sector has grown over the last decade in terms of assets, loans and investment, deposit base, revenue and profit (NSB 2013; RMA 2014). Rahut, Velásquez Castellanos and Sahoo (2010) have associated the financial sector growth with the joint venture hydropower projects between the RGoB and the Indian Government, the growth of the tourism industry and the establishments of special economic zones. However, the Bhutanese financial market also suffers from non-competitiveness due to its small size and lack of economics of scale of financial intermediation (Chetri & Dhar 2004; Moktan 2007).

Despite the entry of new banks, the financial market operates as a natural monopoly in the form of a duopoly where two larger banks the Bank of Bhutan and Bhutan National Bank lead the market price and benefit from the rent associated with the monopolism (Osmani et al. 2007; Rahut, Velásquez Castellanos & Sahoo 2010). The EDP (2012) though recognizing SMEs' inaccessibility to finance has not looked into the possibility of a financing mechanism to foster loan availability options for SMEs. There is no indication of framing alternative financing policy for the SME sector that is different from the existing financial and monetary policies. Such a situation is reflective of inadequate institutional and legal factors that aggravate the financing obstacles faced by SMEs.

The formal banking sector in Bhutan is mostly involved in stable and large commercial transactions (Chetri & Dhar 2004; MoEA & ADB 2012). The Bhutanese banking sector is bias towards the SME sector due to the high risk and costs involved in SME financing in comparison to larger firms. Due to Bhutan's small and underdeveloped financial market, equity finance, funds from venture capitalists and bootstrapping is less prevalent. Thus, the banks remain the dominant source of financing for the Bhutanese SME sector as revealed by SME financing literature (Berger & Black 2011; Cosh & Hughes 1994; Holmes et al. 2003).

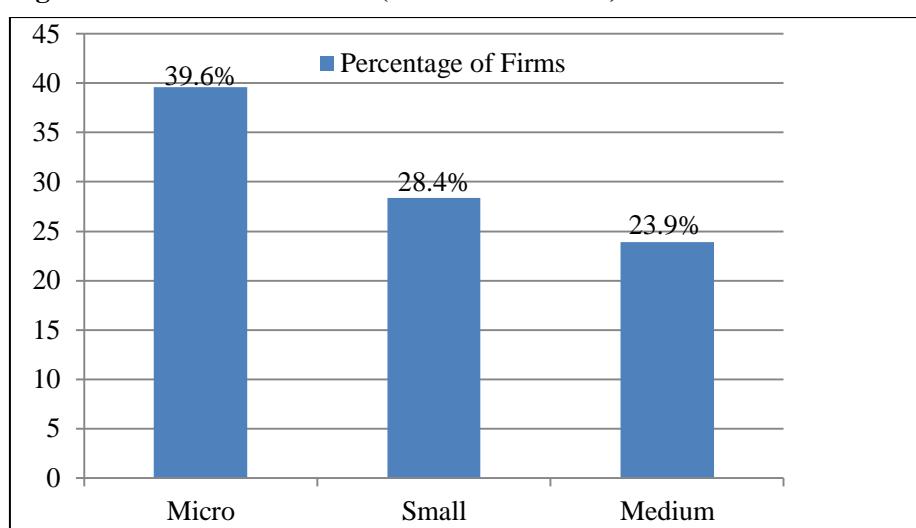
**Figure 2.2: Major Constraints faced by Bhutanese SMEs**



Source: MoEA & ADB, 2011.

According to the enterprise survey conducted by RGoB in 2011 on a sample size of 512 cottage and small industries across all sectors in Bhutan, inaccessibility to financing was rated highest by the firms in comparison to other obstacles faced by the SME sector (MoEA & ADB 2011). The main objective of the survey was to identify critical challenges faced by Bhutanese SMEs that hamper their growth and development. A list of 13 factors was pre-identified. Figure 2.2 show that 34.6% of SMEs (a major chunk of the sample) attributed access to finance as the biggest obstacle faced by SMEs.

**Figure 2.3: SME Constraints (Access to Finance) in terms of Firm Size**



Source: MoEA & ADB, 2011.

From the group of firms that rated access to finance as its biggest constraint, 39.6% were micro firms, 28.4% small firms and 23.9% medium firms (Figure 2.3 and Table 2.2). This break-up of the statistics of firms that rated access to finance as the biggest constraint further revealed that micro firms faced more financing constraint than medium firms within the SME spectrum. It has been reported that most SMEs in Bhutan start on a small scale and remain small throughout due to lack of finance to grow (MoEA & ADB 2012).

**Table 2.2: Constraints faced by Bhutanese SMEs (in terms of Firm Size)**

Constraints	Percentage of Firms		
	Micro	Small	Medium
Access to Finance	39.6	28.4	23.9
Hiring Foreign Workers	14.4	15.3	30.6
Transport Infrastructure	17.8	16.9	21.8
Workers' Low Education	8.9	16.6	21.9
Rival's Business Practices	13.8	15.4	18.9
Custom & Trade Regulation	11.3	13.4	16.2
Labour Regulations	13.1	12.9	14.6
Tax Rates	10.9	14.8	30.6
Tax Administration	9.1	11.1	14.6
Access to Land	8.7	9.9	11.7
Corruption	4.7	3.8	5.1
Telecom	3.5	4.5	2.8
Electricity	1.5	4.5	6.5

*Source: MoEA & ADB, 2011.*

Likewise, an international survey carried out by the World Bank (2013) ranked Bhutan 141 out of 189 countries on 'Ease of doing business (SMEs)' and 109 out of 189 in the area of 'Getting credit to do a business'. Hence, Bhutan's ranking indicates the existence of a higher degree of financing obstacles faced by SMEs. The survey report agrees with the literature stating that SMEs operating in underdeveloped capital and financial markets like Bhutan are more prone to financing constraints. The enterprise survey also reported that the high interest rate and high collateral policies adopted by the commercial banks increased SME difficulties in accessing bank loans in Bhutan (MoEA & ADB 2011). Similarly, Osmani et al. (2007) also related the high cost of bank borrowing faced by SMEs to the high interest rate and collateral charged by the banks despite financial liberalization.

The Bhutanese commercial banking sector applies the same regulations to SMEs as to larger firms, making it difficult for SMEs to meet the borrowing criteria set up by the banks. The requirements of collateral against the loan availed and the high interest rate increased the cost of borrowing. The absence of formal microfinance institutions is apparent except for the lending mechanism initiated by the BDBL (Bastien 2009; Osmani et al. 2007). There is absence of any competent financial institution endowed with sustainable funds to target the SME sector specifically. BDBL is the only bank that was established by the government with a mandate to cater to SMEs focusing on the agricultural sector. Lack of outreach by banking services has resulted in the rural population depending on informal sources for financing their businesses at escalating interest rates, thus worsening their financial situation (Bastien 2009; Chetri & Dhar 2004).

The extent of financing constraints faced by the SME sector is also highlighted by several studies in the developing countries within the region. World Bank (2010) study reported that 32% of SMEs had access to formal financial market in Bangladesh; 48% in India and 59% in Sri Lanka. A survey carried out by an online business portal on the challenges faced by SMEs in India reported access to finance and credit instruments as the most critical challenge (79%) faced by SMEs in India (FGKG 2014). Similarly, Bhutta, Rana and Asad (2007) and Bhutta, Khan, Omar and Asad (2008) also reported that the SME sector in Pakistan has not been able to perform to its mark mainly due to difficulty in accessing credit hampering SME growth and development. A survey of 107 SMEs in Islamabad and Rawalpindi region in Pakistan reported ‘Financial constraints’ as the highest ranked amongst six major obstacles (Sherazi, Iqbal, Asif & Shah 2013).

## **2.6 Summary**

Bhutan makes an interesting case study for the fact that while on one hand, the private sector made up of SMEs has been recognised by the RGoB as the engine of economic growth of the country and on the other hand, its growth is stunted by inaccessibility to adequate financing. The SME sector is faced with numerous constraints hindering its growth, ranging from a small domestic market, inadequate infrastructure and regulations and inaccessibility to finance topping the list.

Due to Bhutan's late entrance to a market driven economy, the SME operating systems and economic and financial environment in Bhutan is different. Hence, the difference in the social and cultural context and different levels of economic development within developing countries calls for a thorough investigation of SME financing constraints from the perspective of a developing country like Bhutan. Bhutanese SMEs fall under the category of traditional industries dominated by micro firms inclusive of family owned firms and self-operated firms, started on a small scale and remaining small mainly due to limited financial resources.

The role of the Bhutanese government has been fundamental in promoting socio-economic growth through creation of a sound business environment for the private sector, in terms of macro-economic policies, regulatory guidelines and direct interventions. However, the governmental reports also highlight that the private sector has not achieved its full potential in income generation and employment creation mainly because of financial constraints faced by SMEs. The small, uncompetitive banking sector with its restrictive and conservative lending policies based on a high interest rate and collateral based lending has increased SMEs' inaccessibility to financing. The Bhutanese banking sector caters to larger firms and is reluctant to invest in the SME sector due to the high risk involved in SME financing.

## **CHAPTER 3**

### **LITERATURE REVIEW**

#### **3.1 Introduction**

Chapter three explores the theoretical foundations of the financing obstacles pertaining to SMEs in developing countries. This review of the economic theories forms the basic foundation of the conceptual framework of the study, eventually leading to development of the econometric model and the research hypotheses. The issue of SME financing constraints and the financing gap is explored from the perspective of the two main stakeholders, the borrower (SMEs) and the lenders (banks). The intervening role of government and other agencies in promoting SME growth and development has also been covered. The chapter ends with a discussion on the literature gap in the field of SME financing.

#### **3.2 Theoretical Contexts**

The SME financing literature is founded primarily on the theories of Information Asymmetry (Stiglitz & Weiss 1981); Agency Theory (Jensen & Meckling 1976); and Pecking Order Theory (Myers 1984; Sunder & Myers 1999). These theories have been used to study SMEs' financing behaviour and their accessibility to debt financing. SMEs' accessibility to debt is subject to information asymmetry between SMEs and the finance providers, and the related agency costs ultimately determine the financial structure of the firm.

##### **3.2.1 The Theory of Information Asymmetry**

The basic concept of Stiglitz and Weiss's (1981) theory of information asymmetry is a phenomenon where one group is better informed than other groups creating an unbalanced information power play. The theory of information asymmetry arises when the company shareholders and management are better informed about a company's financial prospects than the external investors (López-Gracia & Sogorb-Mira 2008). In the case of SME financing, SME owners are privy to information on the firm's future prospects, in particular the financial status, while investors are not provided by SMEs with the same information leading to an information gap between the two (Binks, Ennew & Reed 1992; Holmes et al. 2003).

The asymmetric information theory is extended into principal-agent issues and credit rationing in the market. The theory of information asymmetry is the theoretical foundation of SME financing constraints in relation to finance providers. The critical deterrent of SMEs when it comes to access to external finance is higher level of information opacity than larger firms and absence of information on which investors can base their investment decisions. Information asymmetry in SMEs is caused by their informal financial structure with limited feedback on their financial planning, operation and performance eventually acting as a deterrent to external borrowing (Berger & Udell 2006; Drever, Stanton & McGowan 2007; Liu, Margaritis & Tourani-Rad 2011). In general, SMEs are characterised by low levels of credit accountability, poor accounting records and low information transparency.

SMEs' high information asymmetry from the lack of accounting records and inadequate financial statements is directly translated into high risk by the finance providers (Allee & Yohn 2009; Altman, Sabato & Wilson 2008, 2010). Hence, SMEs' poor financial management practices further accentuate the severity of information asymmetry between finance providers and SMEs. Zambaldi, Aranha, Lopes and Politi (2011) reported that even if SMEs maintained financial records, these were mostly incomplete or inaccurate, without any value addition to the firm. SMEs' informational opacity has also been attributed to SMEs being typically new entrants to the formal market, lacking any credit history and obscure financial records (Ang 1991, 1992; Okura 2008). Financial institutions regard SMEs as high risk borrowers due to their information opacity and financial ambiguities (Berger, Frame & Miller 2005; Deakins & Hussain 1994; Palliam 2005). SMEs' high risk impedes their ability to obtain bank loans, increasing their financial distress.

Prior empirical studies on SMEs' capital structure were founded on the investigation of the effect of firm related factors on the debt accessibility. These studies found that information asymmetry was negatively correlated with a firm's physical characteristics (size and age) and financial characteristics such as assets and credit history (Dennis & Sharpe 2005; Hull & Pinches 1994). Brent and Addo (2012) reported that the issue of information asymmetry is heightened in younger and smaller firms due to their insufficient reputation, poor credit history and lack of tangible asset. Hence, the financial institutions are reluctant to lend to high-risk SMEs. It was also observed that

the banks' lending approach and behaviour towards SMEs changed as the firm grew bigger with time, due to a lower risk premium and cost of lending (Deakins & Hussain 1994; Irwin & Scott 2010). As a firm grew, it achieved information transparency enhancing its financial credibility and easing accessibility to external finance (Bhaid & Lucey 2010; Binks & Ennew 1996; Mateev & Anastasov 2010).

Healy and Palepu (2001) argued that corporations and large firms are more efficient than SMEs in minimising information asymmetry due to the use of international accounting standards and public disclosure of its financial information. Public disclosure consists of information sharing through regulated financial reports, statements, forecasting and corporate reports prepared by financial analysts and industry experts. It is legally mandatory for listed companies to carry out financial reporting and disclosures in accordance to standard accounting principles that make their financial performance available to all stakeholders in the market (Brent & Addo 2012; Volpe & Schenck 2008). However, SME financial reporting in many developing countries is not regulated by the security exchange bodies, hence, little is known about their financial reporting practices amplifying the information asymmetry with lenders (Allee & Yohn 2009; Healy & Palepu 2001).

Previous studies indicated a positive significant association between financial leverage and the level of voluntary information disclosure. Jensen and Meckling (1976)'s work indicated that financial statements of the firms helped not only in informed decision making, but mitigated the issue of information asymmetry for banks in assessing firm risk (Drever, Stanton & McGowan 2007; Michaelas, Chittenden & Poutziouris 1999). Kira and He's (2012) work on Tanzanian SMEs revealed that it was easier for larger firms and corporations with publicly declared financial statements to access debt financing than SMEs. SMEs are not under any legal obligation to produce and share any verifiable information with the public. Drever, Stanton and McGowan (2007) argued that even when SMEs maintained financial reports; it was mainly produced in relation to tax reporting or for other non-securities regulatory filing purposes and not to be shared in the financial market.

Allee and Yohn (2009) reported that American SMEs using accrual-based financial statements enjoyed more benefits in terms of greater access to external credit and a

lower cost of credit. McMahon (2001) also stated that firms using accrual based financial statements were more likely to be granted credit by banks. The high quality financial statements did not guarantee that SMEs would successfully obtain loans, but it assisted the lenders to make a better informed decision on the loan application (Drever, Stanton & McGowan 2007). The banks were also found to charge lower interest rates on loans to firms with accrual based accounting than to those not maintaining any financial information (Allee & Yohn 2009; Barton & Waymire 2004). These studies established the importance of information, in particular financial information in determining SMEs' accessibility to debt finance.

### **3.2.2 Agency Theory**

The Agency Theory (Jensen & Meckling 1976) explores the relationship between key players of a firm, that is shareholders (agent) and managers (principal), with different motivations and incentives in regards to the firm's financial operation. The theory deals with the principal-agent conflict of interest between these different stakeholders, mostly in regard to the financials of the firm (Healy & Palepu 2001; Mira 2005). The conflict of interest arises when the management of the firm, which has been delegated to maximize the value of the firm on behalf of the shareholders, undertake risky decisions at the expense of the shareholders' interests. Hence, the agency cost is attributed to the conflict of interest between the shareholders of the firm and the management of the firm regarding strategies to maximize the firm wealth while moderating the risk exposure.

The conventional principal-agent conflict between the owner and the manager is typically less severe in SMEs because the owner and the manager is often the same person (Cassar 2004; Hutchinson 1999). The agency problem of corporate governance and choice of capital structure, caused by separation of ownership and control, is not truly relevant to SMEs. However, SME's unique organisational structure compounded by information asymmetry between SMEs and the lenders, gives rise to a different form of agency issue (Binks & Ennew 1996; Caneghem & Campenhout 2012). Ang (1991) stated that SMEs are privy to relevant information regarding the project concerned, while the lender is deprived of the same information, causing a conflict of interest between the two. Due to an information asymmetry induced principal-agent relationship, the bank is in the role of the principal and the SME as an agent, to generate return on the loan extended (Binks & Ennew 1996; Lean & Tucker 2001).

The unconventional principal-agent conflict in SMEs is extended to the issues of adverse selection, moral hazard and credit rationing (Binks, Ennew & Reed 1992; Diamond & Dybvig 1983; Irwin & Scott 2010). The Agency Theory explores the conflict of interest between SMEs and banks and the accompanying agency cost. The agency cost is made up of monitoring expenses incurred by the principal and transaction costs incurred by the agent. The issue of adverse selection and credit rationing on the part of the lenders is caused by SMEs' hidden information, while the cost of SME's hidden action is associated with the issue of moral hazard (Boyce & Ville 2002; Takagi 2002; Uchida 2011). Steijvers, Voordeckers and Vanhoof (2010) reported that smaller firms, characterised by low cash flow, less tangible assets and low growth rate, were more vulnerable to adverse selection and credit rationing.

### **3.2.2.1 Adverse Selection**

The agency issue is extended into adverse selection of the firms by the lenders to overcome the risk of imperfect information associated with SME lending (Binks & Ennew 1996; Stiglitz & Weiss 1981). The presence of imperfect and asymmetric information results in ex-ante evaluation of the business project and the entrepreneurs prior to loan transaction. Holmes et al. (2003) defined adverse selection as a situation prior to loan transaction, where a bank decides to lend to some SMEs only. In this scenario, banks make a conscious and calculated decision to omit SME borrowers from participating in the loan application process due to lack of information on the capability of the borrowers to comply with the transaction requirements (Hyytinne & Väänänen 2006; Shen & Reuer 2005).

Due to the high level of SME information opacity, the issue of adverse selection is enhanced, preventing many SMEs from obtaining external financing. Prior studies have reported that smaller firms are more prone to the problem of adverse selection and credit rationing that limit SMEs' ability to raise funds from external sources (Hernández-Cánovas & Martínez-Solano 2007). The assertions of Diamond (1989) that physical characteristics of the firm, such as their age and size, are inversely related to the challenges of adverse selection and moral hazard, were empirically proven by Hyytinne and Väänänen (2006). Their study on Finnish SMEs revealed that adverse selection of SMEs is inversely related to owners' characteristics and the availability of financial information.

### **3.2.2.2 Moral Hazard**

Moral hazard in a financial market is defined in the context of a loan transaction between a borrower and a lender, where the borrower's conduct after the transaction is complete exposes the lender to a risk without the latter's knowledge, to gain extra benefit and mileage (Holmes et al. 2003; Hyttinen & Väänänen 2006). The intention and action of the borrower does not correspond to the terms laid out in the contract and hence the issue of ethical conduct and morality arises. The issue of moral hazard arises when the lender can foresee an ex-ante risk but still cannot predict the borrower's actions after the loan is granted due to information asymmetry between the borrower and the lender (Deakins & Hussain 1994; Dietsch & Petey 2002; St-Pierre & Bahri 2011). According to Fry (1995) and Jensen and Meckling (1976), the higher the leverage acquired by the firms to finance their projects the bigger was the principal-agent problem, with the increase in agency cost mainly caused by the fact that the borrowers' interests may not coincide with that of lenders.

There is a high probability of the issue of moral hazard arising when a firm has a tendency to exercise less caution in the loan transaction contract, possibly increasing risk exposure and adversely affecting the lending party (Ang 1991; Bhaird & Lucey 2010; Cassar 2004). Similarly, authors like Beck and De La Torre (2007) and Holmes et al. (2003) described that moral hazard occurs after a loan transaction has been initiated where the borrowers invest funds in riskier projects concealing such behaviour from the lenders. The issue of moral hazard occurs when the agent (SME) carries out high risk investment without the knowledge of the principal (banks), increasing the risk exposure of the banks. Therefore, the issue of moral hazard is associated with hidden actions on the part of borrowers, rather than the more common issue of hidden information associated with opacity of borrowers (Takagi 2002; Uesugi & Ono 2009). The moral hazard issue increases the risk of non-performing loans for the banks and thereby increases the cost of lending and monitoring the investment (Bester 1985, 1987; Binks & Ennew 1996).

### **3.2.2.3 Credit Rationing**

The theory of credit rationing originated from the works of Jaffee and Russell (1976) and Stiglitz and Weiss (1981). The theory informed about an equilibrium phenomenon required to offset the risk of asymmetric information between lenders and borrowers.

Credit rationing is an integral part of credit risk management, adopted by financial institutions to mitigate excessive credit risk through imposition of credit limits to smaller loan amounts than is required by the borrowers, either at the same or higher interest rates (Craig, Jackson & Thomson 2007; Steijvers & Voordeckers 2009; Wolfson 1996). In the case of SMEs, credit rationing is a tool used by the banks to eliminate the credit risk associated with SMEs' information asymmetry by revoking or reducing the lending amount and levying strict terms of borrowing, such as increased interest rates and collateral (Levenson & Willard 2000; Steijvers & Voordeckers 2009; Xiao & Jie 2003).

According to Kundid and Ercegovac (2011), these strict lending terms not only lowered the credit risk for the banks but also worked as an incentive towards borrowers' commitment to loan repayment. However, credit rationing also increased the probability of attracting risky projects that have the capacity to pay high collateral and interest and low performing borrowers and of missing out on viable projects (Levenson & Willard 2000; Palliam 2005). Binks and Ennew (1996) also argued that as the loan interest rates rise, low risk borrowers with viable projects, without the capacity to pay higher interest, drop out leaving only high risk borrowers. Though the banks reduced the cost of SMEs' information asymmetry and moral hazard through credit rationing, it negatively affected SMEs; escalating transaction costs and difficulty in obtaining bank loans (Binks & Ennew 1996; Levenson & Willard 2000; Rauch & Hendrickson 2004).

Studies (Cassar & Holmes 2003; Hall, Hutchinson & Michaelas 2004) revealed that credit rationing severity compelled SMEs to use internal funds where available and seek external funds as a last resort, due to high costs induced by high interest and collateral. Smaller firms being more credit rationed due to their severe information asymmetry translating into high risk in comparison to bigger firms (Carreira & Silva 2010; Jaffee & Russell 1976; Petersen & Rajan 1994). Steijvers, Voordeckers and Vanhoof (2010) found that credit rationed SMEs in Belgium were characterised by smaller and younger firms with low cash flow, low growth rate and less tangible assets to guarantee the repayment of debt. In China, the banks reduced the total loan amount and subjected small manufacturing firms to high interest rates than the price prevailing in the market and collateral requirements (Okura 2008). Likewise, Zambaldi et al. (2011) also verified that Brazilian SME owners were faced with severe credit rationing from the banks.

### **3.2.3 The Pecking Order Theory**

Pecking order theory (POT) has been used to describe the financing behaviour of SMEs (Cosh & Hughes 1994; Lopez-Gracia & Aybar-Arias 2000; López-Gracia & Sogorb-Mira 2008). The financing behaviour of SMEs is caused by varying degrees of information asymmetry and related agency costs associated with financing sources. The POT is an extension of Modigliani and Miller's (1958) work on capital structure which is defined as a mix of finances used by firms from different sources in the form of debt and equity (debt-equity ratio). It was first proposed by Donaldson (1961) and developed by Sunder and Myers (1999), providing theoretical evidence as to how SMEs finance their operations. POT states the existence of a hierarchy of financing sources, where firms prefer to use retained earnings first, followed by external debt and then equity financing as the last option. However, as argued by Petersen and Rajan (1994, 2002), SMEs are not in the position to issue equity (publicly held debt) due to their small size limiting their external finance source to banks, as in the case of Bhutanese SMEs.

In the case of SMEs, POT describes a firm's financing hierarchy with its preference to use internal finance over external debt based primarily on the accessibility level, ultimately defining its capital structure (Beck, Demirgürç-Kunt & Singer 2013; Berger & Udell 2006). The internal finance sources are composed of mainly owner's personal funds and funds from family and friends, while external sources for SMEs are short term and long term debt from the banks. Prior studies have revealed that the financial leverage (proportion of debt in a firm's capital structure) is lower for SMEs due to the use of internally available funds before seeking funds from external sources (Cassar 2004; Hall, Hutchinson & Michaelas 2004). Due to information asymmetry, SMEs face more difficulty in gaining accessibility to external funds, therefore relying more on internal funds in the context of POT (Beck 2013; Gregory et al. 2005; López-Gracia & Sogorb-Mira 2008).

Xiang, Worthington and Higgs (2014) stated that the POT theory was developed to cope with the distortions caused by asymmetric information between SMEs and the banks. Likewise, Howorth (2001) and Ang (1991) stated smaller firms do not bother to access external finance, thus reflecting an extreme version of POT termed as a 'constrained POT'. This financing preference has also been linked to limited funding options available to SMEs in comparison to larger firms (Ebiringa 2011; Petersen & Rajan

1994). Indicating the presence of constrained pecking order, Holmes and Kent (1991) reported that for Australian manufacturing SMEs, internal funds were the only alternative financing due to difficult accessibility to external finance. Similarly, Okura (2008) observed that, despite China's rapid economic development, SMEs relied more on informal financing sources due to its inability to access finance and high intermediation costs.

The financing hierarchy in SMEs is also in keeping with SME owners' aversion to dilution of ownership in the firm (Holmes & Kent 1991). According to some studies (Ang 1991, 1992; Gebru 2009; Paul, Whittam & Wyper 2007), SME preferential funding was sought to minimise external intrusion into the business. Hamilton and Fox (1998) and Freel, Carter, Tagg and Mason (2012) also proposed that SME owners willingly did not seek out external finance in order to keep the ownership and control of the business. These studies confirm that SME owners are not comfortable with the idea of external intrusion into their business, shaping their strong preference for internal finance over external finance. Many authors (Norton 1991; Hall et al. 2000) assert the application of POT to SMEs is defined by information asymmetry and agency problems between SMEs and external finance investors. Hence, POT is pertinent in explaining SMEs' accessibility to external finance and their financial structure.

According to Sunder and Myers (1999)'s POT model, a firm's leverage is a function of its financing needs, that is, its financial deficit at a given time. SMEs face a higher cost of adverse selection and credit rationing than larger companies, hence, it is difficult for SMEs to access external finance (Leary & Roberts 2010). On the other hand, internal finance is not affected by information asymmetry and agency cost, since it is internally available. A firm resorts to internal finance due to difficulties in accessing external finance and the accompanying high cost (Bhaird & Lucey 2011; Myers 1984). Hence, internal finance is the first and dominant choice of financing for SMEs. López-Gracia and Sogorb-Mira (2008) found that high information costs prevented Spanish SMEs from accessing external finance, and they only sought external finance when short of internal finance. Due to additional costs and restrictions associated with external financing, SMEs are strongly dependent on internal resources. In view of the higher cost associated with external financing and no cost associated with internal finance, there is pecking order behaviour in SME financing.

### **3.2.4 Trade-off Theory**

Contrary to the theoretical assertions of POT, the static Trade-off Theory (TOT) has also been used to understand a firm's capital structure and financing behaviour. According to Kraus and Litzenberger (1973)'s trade-off theory, a firm's capital structure is determined by balancing the cost of bankruptcy and the tax saving benefits of debt (Fischer, Heinkel & Zechner 1989; Frank & Goyal 2003). A firm's capital structure is based on the choice of an optimal level of debt by trading off the benefits of debt financing against its cost (López-Gracia & Sogorb-Mira 2008; Sunder & Myers 1999). The TOT is based on the use of right debt value reducing the weighted average cost of capital while increasing returns on investments, and thus ultimately increasing the firm's value. Hence, the principle of leverage lies in choosing the right ratio of debt, minimising the cost of capital and maximising the firm's value.

Authors like Chen (2004) and Mira (2005) favoured the use of TOT over POT to define firms' financing behaviour in the case of distortions caused by taxation and bankruptcy. López-Gracia and Sogorb-Mira (2008) also placed greater significance on TOT to explain SMEs' financial behaviour, despite his empirical study on Spanish SMEs showing robust results for both POT and TOT. In contradiction to POT, the younger and smaller firms were found to have higher leverage during their initial growing stage and lower leverage in later stages resorting to internal funds accumulated over their growth period (Frank & Goyal 2003; Gregory et al. 2005). Okura (2008) also found that younger and smaller firms had a higher percentage of debt in comparison to larger ones, because they would not have had time to generate enough internal funds. Likewise, older and larger firms with more accumulated retained earnings are more likely to first utilize internal funds before seeking out external funds for their business activities (Chittenden, Hall & Hutchinson 1996; Watson, R & Wilson 2002).

Despite TOT's popularity and usefulness in defining capital structure, its applicability in SMEs is questionable primarily due to SMEs' lack of financial sophistication and the information required for technical computations (Bhaird & Lucey 2010; Gebru 2009; Paul, Whittam & Wyper 2007). Osei-Assibey, Bokpin and Twerefou (2012) argued that SMEs' lack of financial sophistication and reliable data in application of techniques such as value optimisation is incompatible with TOT. The fiscal benefits (tax saving) highlighted by TOT are typically smaller for SMEs compared to large firms because

they typically have lower profitability levels and are typically subject to lower tax rates. Hence, TOT is not applicable to SMEs, due to small-scale operations where the benefit of trade-off between the costs and benefits of debt is not as significant as in larger firms.

Zambaldi et al. (2011) reported from his study on Central and Eastern Europe that SMEs used debt financing because of a shortage of internal funds and not because of the benefits of using debt financing, dismissing the TOT. Bhaird and Lucey (2010, 2011)'s studies on Irish SMEs confirmed that the source of financing of SMEs was consistent with POT, with smaller and younger firms seeking lower external financing in comparison to larger and older firms. These studies support the applicability of POT, where SMEs rely mainly on internal finances and only a small fraction using external finance, for business operations. Therefore, for this study, POT is identified as the appropriate theory to describe SMEs' capital structure reflecting their access to different types of finances.

### **3.3 SME Component of the SME Financing Gap**

The universal finance theory states that all firms have equal access to the financial market, but SMEs, in comparison to larger firms, face more difficulty in accessing credit from external sources (Carreira & Silva 2010; Morduch 1999). Holmes et al. (2003) and Takagi (2002) evidenced that the issue of inadequate SME financing is further enhanced by the largely bank based financial system of developing countries. A survey of Chinese SMEs revealed that owner's funds were the major source of finance for more than three-quarters of SME population (Okura 2008). According to Berger and Udell (1998)'s model, the financial growth cycle of SME's show that the inaccessibility to finance in their initial growth stage resulted in a failure of the business and developmental stagnation in the later stage (Ebiringa 2011; Zambaldi et al. 2011). International organisations (ADB 2007; Beck & Demirguc-Kunt 2006) also recognised the specific financing needs of SMEs, mainly during their initial growth phase, and their need for special financing mechanisms unlike conventional corporate financing.

### **3.3.1 Firm Characteristics**

Prior studies support a positive relationship between firms' characteristics (size, age, and sector) and the capital structure determined by their accessibility to finances from different sources (Berger & Udell 2006; Cassar & Holmes 2003; Degryse, de Goeij & Kappert 2012; Rao 2003). These studies revealed strong associations between factors endogenous to SMEs, such as firm and owner characteristics and loan repayment capacity and their accessibility to external financing. Empirical studies established that a firm's accessibility to external finance was directly proportional to its physical characteristics defined in terms of its size and age (Bhaird & Lucey 2010; Chen 2004; Degryse, de Goeij & Kappert 2012).

#### **3.3.1.1 Firm Size**

Several studies have established a positive relationship between firm size and its accessibility to financing from the financial institutions (Berger & Udell 2006; Binks & Ennew 1996; Brent & Addo 2012). Kounouwewa and Chao (2011)'s work in African countries confirmed that firm size and ownership were used as the first screening factors for loan approval decision by the banks. Through their study on the SME financing growth cycle, Gregory et al. (2005) established that larger firms are more likely to use public equity funding or long term debt over internal funding, due to their easy accessibility. A firm's financial characteristics such as liquidity, profitability and assets also influenced the degree of accessibility to external financing (Caneghem & Campenhout 2012; Neeley & Auken 1996). Cassar (2004) and Dennis and Sharpe (2005) associated larger firms with real assets and diversified operations that serve as a proxy to firm stability and insolvency, and hence easier access to external finance.

The smaller firms with high information opacity and few tangible assets, are less likely to obtain debt financing from the formal sector (Brent & Addo 2012; Hall, Hutchinson & Michaelas 2000; 2004). Cassar (2004) and Mateev, Poutziouris & Ivanov (2013) found that it was relatively costly for smaller firms to resolve the issue of information asymmetry making it difficult to access external financing. Smaller firms are associated with high risk and high transaction cost making it less preferable for the financial institutions. Due to limited accessibility to external financing, the smaller firms are more dependent on their internal finance (Cassar & Holmes 2003; Michaelas, Chittenden & Poutziouris 1998; 1999). Therefore, smaller firms face a severe form of

credit rationing while trying to raise capital from external sources. However, as a firm operates in the business environment, it grows and garners credit reputation based on its performance, which mitigates the issues of information asymmetry, moral hazard and credit rationing (Gregory et al. 2005; Mateev & Anastasov 2010).

### **3.3.1.2 Firm Age**

The older and established firms have higher accessibility to bank loans in comparison to younger and new firms (Caneghem & Campenhout 2012; Frank & Goyal 2003). The theory of information asymmetry induces the POT financing behaviour particularly in new SMEs. Younger firms are associated with high information opacity and loan repayment uncertainty rendering him risky (Brent & Addo 2012; Chittenden, Hall & Hutchinson 1996). These factors make it more difficult for younger firms to access external financing. Due to inadequate tangible assets and a financial record in the market, the smaller firms within the SME sector are offered fewer loans by the banks (Caneghem & Campenhout 2012). It is been reported that the difficulty in accessing external financing is severe in start up firms with no prior record in the financial market.

On the other hand, older firms have established financial track record and reputation in the financial market that is able to mitigate the issue of information opacity and moral hazard enabling easier accessibility to financing (Cassar 2004; Degryse, de Goeij & Kappert 2012). Osei-Assibey, Bokpin and Twerefou (2012) also upheld the findings of prior studies that new and young firms tend to use less external financing in the initial stages, due to difficult borrowing conditions, and resort to external debt in later stages as they acquire a better financial position. Hence there is positive relationship between the firm age and loan accessibility whereby, older firms are characterised by a higher proportion of debt in their capital structure, in comparison with younger or new firms.

### **3.3.1.3 Firm Sector**

Prior studies identified firm sector as one of the determinants of debt accessibility. Firm sectors and industries with different degrees of competition, profitability in the market and asset composition determines SMEs' accessibility to external debt (Chakraborty & Mallick 2012; Degryse, de Goeij & Kappert 2012; Lopez-Gracia & Aybar-Arias 2000). Likewise, Hall, Hutchinson & Michaelas (2000)'s study also evidenced that capital intensive sectors with higher tangible assets had easier access to external finance because

of guaranteed collateral and higher expected return on investment. Therefore, SMEs' financing accessibility is also defined by the size of investment and income generating capacity of the sector.

Storey and Wynarczyk's (1996)'s study reported that accessibility to debt might be influenced by the sector of the firm, due to its growth and survival rate and market. Since asset structure and asset value varied across industries, the firms belonging to the highest asset structure or collateral were found to be the ones with the highest debt levels, owing to easy access to external funds (Hall, Hutchinson & Michaelas 2000; Johnsen & McMahon 2005). Likewise, Degryse, de Goeij & Kappert (2012) indicated that banks looked less favourably on sectors that are associated with a high loan default risk. Hence, many empirical studies have used sectoral classification as a proxy for business risk while establishing its relationship with financial leverage.

### **3.3.2 Owner Characteristics**

The owner is responsible for all business operations and thus plays a dominant role in determining the firm's path of growth including its capital structure (Hamilton & Fox 1998; Holmes et al. 2003). The thin line between the business and the owner, due to SME's organisational structure, has led to a blending of owner's personal goals with that of the business (Ang 1991; Neeley & Auken 2009). The traits of SME owners such as age, gender, educational qualification and managerial experience were found to influence a firm's accessibility to external finance (Cassar & Holmes 2003; Coleman 2000; Neeley & Auken 2009). Norton (1991) and Osei-Assibey, Bokpin and Twerefou (2012) supported with their respective studies that a firm's capital structure was influenced by the socio-economic characteristics of the owner, in addition to the firm's asset value and ownership structure. These studies highlight the central role of SME owners in its accessibility to external financing.

#### **3.3.2.1 Owner's Age**

The age, education level and experience of SME owners were positively correlated to debt accessibility, as these traits created higher value for the firm (Carter, Shaw, Lam & Wilson 2007; Neeley & Auken 2009). In the absence of required quantitative information the lenders rely on owner's age to evaluate SMEs' financing demand and its repayment capacity. Literature indicates a strong positive relationship between SME

owner's age and its accessibility to external financing (Altman, Sabato & Wilson 2008; Baas & Schrooten 2006; Uchida 2011). These studies indicate that older owners had easier accessibility to financing when compared to younger owners.

Older age was associated with maturity level and also work experience adding value to the firm's financial credibility easing its accessibility financing (Kira & He 2012; Levenson & Willard 2000; Paul, Whittam & Wyper 2007). Bruder, Neuberger and Räthke-Döppner (2011) reported that an entrepreneur's lack of managerial experience had a negative effect on a firm's potential to borrow funds from the banks. Grunert and Norden's (2012) study also reported that owner's managerial skills, which come with age strongly, influenced the firm's loan taking ability. The managerial competency of SME owners was measured in terms of age, which determined the firm's ability to access debt financing from the bank (Gebru 2009; Hutchinson 1999). Therefore, prior studies have provided empirical evidence that the owner's age is directly proportional to loan accessibility from the banks.

### **3.3.2.2 Owner's Educational Qualification**

Lenders tend to use qualitative measures such as owner's age and educational qualification and gender to evaluate the credit risk of SMEs due to limited financial information (Altman, Sabato & Wilson 2008; Baas & Schrooten 2006; Uchida 2011). Owners' age is directly associated with an established track record and reputation, in particular an ability to meet their financial obligations (Ang 1992; Bruder, Neuberger & Räthke-Döppner 2011). Empirical studies have established that borrowers with higher educational qualification had better access to external financing in comparison to borrowers with low educational qualification (Neeley & Auken 2009; Rao 2003).

A higher level of educational qualification was associated with a basic knowledge of books of accounts and financial management (Ang 1991; López-Gracia & Sogorb-Mira 2008). Through their studies, Altman, Sabato and Wilson (2010) and Watson and Wilson (2002) also confirmed that higher education of the owner added value and financial credibility to the firms in the eyes of the lenders. Higher educational qualifications corresponds to better knowledge and a better capacity of owners to manage the business operations and finances enhancing their chances of obtaining external debts.

### **3.3.2.3 Owner's Gender**

Gender of the owner has been identified as one of the factors that influenced the firm's accessibility to external finance (Coleman 2000; Coleman & Cohn 2000). Muravyev, Talavera and Schäfer (2009) reported that even in developed economies like the United States of America (U.S) and Europe, there was gender-based disparity in small business lending. The probability of female owners receiving debt was lower than that of the male counterparts. Birley's (1989) and Carter et al. (2007) provided evidence that female entrepreneurs were less likely to get bank financing, compelling them to rely more on internal finance. A higher percentage of loan applications from firms owned by women are rejected than those from male owned firms.

Several studies also indicated that men sought higher loan amounts to invest in the business than female owners (Bellucci, Borisov & Zazzaro 2010; Storey 2004). Furthermore, Muravyev, Talavera and Schäfer (2009) revealed that female owners who were successful in getting external finance were charged higher interest rates by the lenders. Studies also pointed out that female owners may voluntarily choose not to use debt financing for reasons ranging from risk aversion external intrusion, discrimination and perception of rejection (Abor 2008; Freel et al. 2012; Watson, R & Wilson 2002). The literature therefore indicates the presence of gender disparity in SMEs' ability to access bank financing, where female owners are more credit constrained than male owners.

## **3.4 Bank Component of the SME Financing Gap**

One of the salient features of the financial market in developing countries is the existence of both formal and informal lending (Rao 2003; Takagi 2002). However, for the purpose of this study only the formal financing source, that is the banks has been taken into account as it forms the main source of external finance in developing countries (Holmes et al. 2003; Rao 2003). Authors have raised the question of the readiness of the SME sector to participate in the formal financial market as they do not have adequate financial information to base their investment decisions on (Barton & Waymire 2004; Beck & De La Torre 2007; Choe 2007). The financial institutions are exposed to high risk and accompanying transaction costs arising from information asymmetry caused by SMEs obscure accounting systems and financial opaqueness (Cassar 2004; Dietsch & Petey 2002; Ramlee & Berma 2013). Hence, the banks have

justifiable reasons to consider SMEs as a high risk investment as they are not bankable from a commercial point of view (Holmes et al. 2003; Ramlee & Berma 2013).

SMEs' small firm and loan size hinder financial institutions from achieving economies of scale while lending to SMEs (Beck & De La Torre 2007; Okura 2008). In a loan transaction, the benefit of economies of scale is derived from the fact that per unit cost of screening and monitoring a loan decreases as the size of the loan increases. The transaction cost for SME loans are costlier than for larger firms because the small size of loans to SMEs increases the average cost incurred by the banks in allocating loans to them, thereby increasing cost per unit (Beck 2013; Beck, Demirguc-Kunt & Pería 2008; Choe 2007). St-Pierre and Bahri (2011) also argued that since a bank's transaction cost for a loan is fixed, SME financing costs become relatively expensive for the smaller loan amounts required by SMEs. Therefore, the SME financing issues from a lender's perspective fall into three categories, namely: cost ineffectiveness of loans to SMEs (lack of economies of scale); SME information asymmetry and high transaction costs. These factors identify SMEs as high risk investments resulting in a low number of SMEs receiving loans from the banks. In addition to issues of information opacity, investors are also exposed to the risk of SMEs' moral hazard.

### **3.4.1 SME Financing Risk**

The risks associated with a firm are both systematic risks originating from the external environment and unsystematic risks, which are endogenous to the firm and, caused by firm characteristics (Birley 1989; Palliam 2005; St-Pierre & Bahri 2011). The systematic risk or market risk is caused by macroeconomic uncertainty (such as volatile inflation rate, high interest rate and exchange rates), a weak legal environment and natural calamities (Beck & De La Torre 2007). The systematic risk is un-diversifiable, as firms do not have control over it to lower the risk. On the other hand, the unsystematic risk is caused by random events within the firm such as liquidity and solvency risks (Palliam 2005; Rao 2003). Since unsystematic risk is unique to a particular firm, it can be diversified to lower the risk and gain better access to external financing.

Of the two, systematic risk is more relevant to SMEs when accessing finance from external sources for firms operating in developing economies with a low level of

financial market sophistication (Kundid & Ercegovac 2011). The most common unsystematic risk is credit risk is caused by the uncertainty in SMEs making loan repayments leading to high loan default rates (Beck, Demirgüç-Kunt & Pería 2008; Bruns & Fletcher 2008). The non-requirement of SMEs to declare their information reduces their financial credibility and increases the associated risk in the eyes of the lenders (Caneghem & Campenhout 2012; Healy & Palepu 2001). Unlike larger firms, SMEs do not diversify their risks to different business activities, further enhancing its risk factor (Berger & Udell 2006; Holmes et al. 2003).

In the absence of SME credit history and financial records, lenders are not able to fully assess and determine the loan repayment capacity of SMEs. VAR (value at risk) and CAPM (capital asset pricing model) are popular models used by financial institutions to manage credit and operational risk (Drever, Stanton & McGowan 2007; Rao 2003). However Holmes et al. (2003) and Palliam (2005) argued that these models are not applicable to SMEs, in particular to the lower spectrum of SMEs with a low level of financial information. These firms' risk management models are mostly based on quantitative factors (financial ratios like liquidity and profitability) and less on qualitative factors like business form, employee number, industry type, location (Altman, Sabato & Wilson 2008, 2010; Dietsch & Petey 2002; Lehmann 2003).

The level of risk associated with the firm influences the willingness of the banks to extend credit (Kundid & Ercegovac 2011; Steijvers & Voordeckers 2009). Berger and Udell (2006) noted that the lenders perceive SMEs as high risk borrowers because of the lack of business plans, financial forecasting and a growth roadmap making it less attractive for lenders to invest in the SME sector. Hence, in the absence of an SME's financial information, banks have used available and applicable qualitative firm and owner's characteristics as proxy for firm reputation and risk (Michaelas, Chittenden & Poutziouris 1999; Steijvers & Voordeckers 2009). The firm's characteristics, age, size and asset value are positively related to the firm's reputation and negatively related to the firm's risk. Similarly, the characteristics of the owner in terms of age, gender and educational qualifications and experience were directly convertible to the firm's value and negatively related to the firm's risk.

### **3.4.2 Bank Lending Technologies**

Financial institutions have adopted different lending techniques to mitigate the risk of SME informational asymmetry and avoid financial loss from investment in the SME sector (Bhaird & Lucey 2010; Hyttinen & Väänänen 2006; Zambaldi et al. 2011). These lending technologies include asset based lending, credit scoring, relationship lending and loan related strategies (credit rationing, higher interest rate, short loan term). According to St-Pierre and Bahri (2011) and Steijvers, Voordeckers and Vanhoof (2010), the banks advanced credit to SMEs based on the firm's repayment ability, line of credit size and guarantees to minimise loan default and recovery of its investments.

#### **3.4.2.1 Asset Based Lending**

Asset based lending is a prominent risk management strategy adopted by the banks while issuing loans to SMEs, to address the information opacity and risk in SMEs (Daniel & Nicolae 2011; Jimenez, Salas & Saurina 2006; Ono & Uesugi 2009; Uchida 2011). For the banks, the collateral mitigates the issues caused by information asymmetry, in particular the risk exposure, moral hazard and cost of monitoring the borrower's behaviour. Jimenez, Salas and Saurina's (2006) study on Spanish SMEs' loan data showed that the smaller banks used collateral based lending for evaluation of the credit risk of smaller firms. Similarly, Uchida (2011) revealed that the banks in Japan relied heavily on collateral to make their SME lending decisions. There is substantial evidence of a strong positive relationship between the size of collateral and borrowers' ex-ante risk (Steijvers, Voordeckers & Vanhoof 2010; Uesugi & Ono 2009). It was found to induce positive moral hazard behaviour in SMEs thereby reducing the loan default risk and increasing the loan repayment rate in favour of the banks.

A firm's tangibility, which is defined by the ratio of tangible fixed assets to total assets, was found to have a significant effect in gaining bank loans and ultimately increasing SME's financial leverage (Carpenter & Petersen 2002; Steijvers & Voordeckers 2009; Uchida 2011). Tangible fixed assets is used since only assets that can be used as collateral to secure debt determine the firm's tangibility. Hence, in asset based lending, the banks undertake valuations of the personal and business assets that are pledged as collateral by SMEs to assess their repayment capability. A firm with more tangible assets created higher value of the firm and were subjected to lower level of adverse selection and credit rationing by the lenders (Kira & He 2012; Steijvers & Voordeckers

2009; Uchida 2011). Higher tangibility meant that the firm had sufficient assets to meet the loan repayment increasing credit worthiness in the eyes of the lenders. It therefore, reduced the lenders' exposure to risk of lending such as moral hazard and adverse selection.

The higher the valuation of the collateral pledged by SMEs, easier it was for them to get loans disbursed and at a lower interest rate (Chittenden, Hall & Hutchinson 1996; Hall, Hutchinson & Michaelas 2004). The bank's supply of credit was determined by the size of the collateral liquidity pledged against the loan amount, even though it did not necessarily eliminate the informational opacity of the borrowers (Ono & Uesugi 2009; Steijvers, Voordeckers & Vanhoof 2010; Uchida 2011). A study on Brazilian SMEs by Zambaldi et al. (2011) also evidenced that liquid collateral held more credibility than illiquid collateral in reducing risks and loan initiation by the banks. Prior studies provided empirical evidence that a firm's tangibility is positively correlated to the firm's financial leverage level i.e. accessibility to external financing. Therefore, a higher tangibility corresponds to greater access to external finance.

### **3.4.2.2 Relationship Lending**

In the absence of hard information, banks adopted a relationship lending approach based on soft information to overcome the risk associated with SME lending (Berger & Udell 1995; Ono & Uesugi 2009; Petersen & Rajan 1994). Baas and Schrooten (2006) reported that relationship lending was easily adopted by smaller banks in comparison to larger banks. The simple organisational structure of smaller banks helps them nurture relationships with SMEs, which is difficult in larger banks' complex structures focused more on hard information lending (Berger & Udell 1995; De la Torre, Martínez Pería & Schmukler 2010; Silver & Végholm 2009). The credit officer plays a key role in building the bank to SME lending relationship and in collecting information through communication with the stakeholders of the firm, like suppliers and customers (Berger & Udell 1995; De la Torre, Martínez Pería & Schmukler 2010; Petersen & Rajan 1994). Hence, relationship lending is a significant feature of SME finance and is more relevant to developing countries with small financial markets and small local banks.

Relationship building also facilitates in the evaluation and monitoring of SME performance to minimise loan defaulting by SMEs, benefiting both stakeholders. Diamond (1989) and Petersen and Rajan (1994) reported that the duration of the relationship also lowered the interest rate and collateral charged on the loan, because the banks accumulate information on SMEs over the course of relationship. The soft information on SMEs' credit behaviour, acquired by the banks, provides an advantage to SMEs to overcome the information asymmetry issue and increase debt accessibility (Baas & Schrooten 2006; Hernández-Cánovas & Martínez-Solano 2007; Sharpe 1990). Hence a closer relationship between the bank and the firm facilitates the reduction of information asymmetry between the two stakeholders, by lowering the risk exposure for the banks and financing constraints for firms.

#### **3.4.2.3 Loan Characteristics**

The banks resort to using stringent loan contractual terms like high interest rate, collateralization and short term loan in an effort to override the risk associated with SMEs' information asymmetries (Chakraborty & Mallick 2012; Chittenden, Hall & Hutchinson 1996; Liu, Margaritis & Tourani-Rad 2011; Rauch & Hendrickson 2004). Likewise, Uchida (2011) pointed out that SMEs are subjected to strict lending terms, particularly during the initial phase of transactions when the borrowers are unknown, which might ease over the time with relationship lending and the accumulation of information. Prior studies support that SME's debt accessibility was positively influenced by the interest rate on the loan and the size of collateral (Beck, Demirgüç-Kunt & Pería 2008, 2011; Canales & Nanda 2012). Beck and De La Torre (2007) also advocated that the banks curtailed the loan amount and loan duration to mitigate the adverse selection of riskier projects and borrower's negative moral hazard behaviour. The banks preferred to finance SMEs for shorter duration as short term loans are cost effective and low-risk, enabling banks to recover their investment faster than long term loans (Berger & Black 2011; Chittenden, Hall & Hutchinson 1996; Ezeoha 2008).

These terms and conditions of borrowing are adopted by banks to mitigate and avert the impact of adverse selection and moral hazard in SMEs (Binks, Ennew & Reed 1992; Choe 2007; Hyttinen & Väänänen 2006). These strategies adopted by the banks have a serious adverse effect on SMEs' accessibility to debt, aggravating SMEs' financial situation (Canales & Nanda 2012; Ma, Liu, Dai & Huang 2013; Rand 2007). Stiglitz

and Weiss (1981) and Zambaldi et al. (2011) also reported that tougher lending terms like higher interest rates and collateral had adverse effects on the lenders themselves, because risky borrowers are more likely to accept these stringent lending terms and conditions. It has resulted in attracting high risk borrowers, in the position to meet the stringent lending terms while missing out on viable and low risk borrowers who are not able to meet the lending conditions (Binks & Ennew 1996; St-Pierre & Bahri 2011; Steijvers, Voordeckers & Vanhoof 2010).

### **3.5 SME Financing Interventions**

The role of governments and development organisations in terms of macro-economic, legal, regulatory and financial interventions is critical to ensure SMEs' access to finance (ADB 2014; IFC 2010; OECD 2009; World Bank 2006). Different forms of interventions such as credit guarantee schemes, tax incentives, credit subsidies and credit insurance have been undertaken by the governments of developing countries with the aim of supporting the SME sector (Carreira & Silva 2010; Honjo & Harada 2006; Li 2002; Zecchini & Ventura 2009). These interventions have been found to be effective to some extent in reducing the severity of financing constraints faced by SMEs inducing positive impact on their growth and survival.

Okura (2008) observed that Chinese SMEs that received accounting and legal services, export rights and government agencies' assistance enhanced their access to bank credits. Diversification of services offered by financial institutions and specialised microfinance institutions have been initiated in many countries to resolve the financial shortage faced by SMEs, in particular micro firms (Garmaise & Natividad 2013; Gulli 1998; Morduch 1999; Morduch & Bauchet 2013). The primary objective of the microcredit model of Muhammad Yunus (1994) was to empower poor communities financially towards self-employment ventures and poverty reduction (Green, Kirkpatrick & Murinde 2006; Jain 1996; Khandker 1996; Mair & Schoen 2007).

At the same time, there are authors and studies that do not support SME financing interventions. Fry (1995) and Shaw (1973) indicated that special financial institutions created uncompetitive markets and an inefficient distribution of credit. Similarly, critics of micro-finance argue that the typical micro loan is too small to meet the needs of SMEs and charges high interest rates and hence are not suitable for SMEs (Bauchet &

Morduch 2013; Morduch 1999). It is also argued that the workings of SME finance and micro-finance are different and therefore should be dealt with differently (Brewer 2007; Galak, Small & Stephen 2011; Morduch & Bauchet 2013). SME finance therefore is broader than microcredit, dealing with SME financing issues at firm as well as policy level covering all micro, small and medium sized firms.

Also, several authors (Cosh, Cumming & Hughes 2009; Hughes 1997; Oakey 2007) have raised doubts of the importance of technical and financial interventions in the development of the SME sector in both developed and developing economies. Furthermore, the success rate of government interventions is questionable, since they have not been effective in resolving SMEs' financing constraints (Green, Kirkpatrick & Murinde 2006; Volpe & Schenck 2008; World Bank 2006). This has led to questions on the relevance of existing interventions to the actual needs of SMEs. Klonowski (2012) evidenced that government policies and programs developed to provide assistance to SMEs were only vaguely related to the needs of Polish SMEs, especially in the field of financing needs.

### **3.6 Literature Gap**

Despite the explanation of POT that SMEs prefer to use internal finance over external finance, it is well established that internal finance is not adequate and firms need additional external financing for growth and expansion. The banks are reluctant to lend to the SME sector due to the high risk associated with SMEs' information asymmetry. Hence, the SME financing gap is created by a mismatch between the financing needs of SMEs and the insufficient finance provision from the banks. The SME financing gap therefore is caused by a combination of issues from both the banks and the SME sector. The literature indicates that SMEs' dependence on internal finance is not solely motivated by SMEs' preference but also by difficulties in accessing bank loans. The financing behaviour of SMEs is influenced by the reluctance of financial institutions to extend loans to SMEs and under developed capital markets in the developing countries.

Most of the literature has investigated issue of the SME financing gap the perspective of SMEs, not taking into account the perspective of the finance providers. These studies focus on factors originating finance providers, while overlooking the factors originating from borrowers such as the ability and capacity of SMEs to borrow from financial

institutions. On the other hand, studies investigating the SME financing gap from the perspective of lenders and focused on SME originated causes are few. The literature falls short in integrating these two perspectives of SME financing constraints with reference to a developing country like Bhutan. Hence, it calls for a holistic investigation of the SME financing gap from the perspectives of the two key players, SMEs and the banks. The integration of the two key components is necessary to resolve the critical issue of the SME financing gap.

SME financing constraints studies have been carried out in the developed economies America, Europe and Australia (Cassar & Holmes 2003; Johnsen & McMahon 2005; Michaelas, Chittenden & Poutziouris 1999; Rajan & Zingales 1995). These empirical studies on SME financing constraints are based in industrialised and matured economies and hence the theoretical and practical applicability to developing countries with lower levels of economic and financial growth is questionable. Furthermore, these studies are focused on the upper end of the SME spectrum overlooking the micro-firms at the lower end. Hence, there is a lack of relevant literature on studies concentrated on micro-firms, which form the majority of the SME population in developing countries like Bhutan.

There is a literature gap in terms of Bhutanese SME financing constraints, as similar academic research has not been carried out on the Bhutanese SME sector. The information available on Bhutanese SMEs are reports carried out by the Bhutanese government and international development organisations that are focused on general constraints faced by SMEs but do not address SME financing constraints in particular. Thus, despite the extensive literature available, there are still many questions left unanswered concerning SME financing constraints in Bhutan.

### **3.7 Summary**

The information asymmetry theory, agency theory and POT developed the foundation for understanding SME financing constraints from the perspectives of the two key stakeholders. This chapter presented the existence of gap between the financing needs of SMEs and the supply of finance from the banks.

It was established that the information asymmetry between SMEs and the banks is the main cause of the SME financing gap. SMEs' information opacity renders them a high

risk investment sector for the banks increasing transaction cost and credit risk. The credit risk in SMEs is primarily caused by their financial opacity enhanced by the absence of credit history and financial records in the market.

Banks' access to incomplete information regarding SME is extended into the problems of principal-agent, adverse selection and credit rationing. There is a high risk of SMEs diverting bank loans into riskier projects, giving rise to the problem of moral hazard and increasing the risk and cost for the banks. Therefore, to overcome the credit risk and avert financial loss, the banks adopted stringent lending terms and conditions such as requiring collateral, high interest rates and short term loans.

The banks screen out SME borrowers from participating in the loan transaction process and also impose credit limits on SME loan amounts as a part of their risk management strategy. Therefore, SMEs' access to finance is influenced by their funding preference, as dictated by POT, and the risk aversion behaviour of the banks as explained by the Agency Theory.

Firm characteristics defined by size, age and sector and owner characteristics by age, gender and educational qualification were identified as important determinants of SMEs' access to bank loans. The age and size of the firm is positively correlated to accessibility to external finance where larger and older firms are associated with real assets and financial stability. Similarly, the characteristics of SME owners add value to the firm, positively influencing access to finance. A firm's asset tangibility was also found to dictate the degree of SMEs' accessibility to external financing.

## **CHAPTER 4**

### **RESEARCH APPROACH AND METHODOLOGY**

#### **4.1 Introduction**

Chapter four outlines the research paradigm, design and methodology of the study including the conceptual framework and hypotheses development. Based on the review of the literature, a mixed methodology was found to be the appropriate approach for this study. This chapter covers the steps involved in data collection and analysis for both quantitative and qualitative phases of the study in order to achieve the research objectives. It introduces the econometric model construction including the selection of dependent and independent variables and model estimation method.

#### **4.2 Research Paradigm and Design**

A research paradigm is a framework of principles and ways to carry out a research study. Research paradigms are based on ontology (what is real?), epistemology (how do we know what we know?) and methodology (researcher's perception of how the issue can be explained) (Creswell 2009; Veal 2005). Ontology deals with the nature of reality that is the research problem, while epistemology is the method that a researcher adopts to understand the research problem. There are two main research paradigms namely positivist and interpretivist paradigms (Creswell 2009; Veal 2005).

A positivist paradigm is objective, deductive and confirmatory and forms the foundation of the quantitative methodology (Bryman & Bell 2011). Since it is quantitative in nature, statistical and mathematical techniques form an integral part of the positivist research paradigm (Bryman & Bell 2011; Cooper, Schindler & Sun 2006). Creswell (2009) stated that in a quantitative method, a theory is experimented on by developing and empirically testing hypotheses using numerical data to answer the research questions.

On the other hand, an interpretivist paradigm is subjective reflections of the knowledge of the researcher-participant interaction defining the qualitative research methodology (Zikmund, Babin, Carr & Griffin 2012). Qualitative research recognises interview and observation as ways that better capture information from individuals and hence is dependent on the researcher's skills in extracting information (Newman & Hitchcock

2011; Veal 2005). It depends on inductive reasoning by the researcher on the subject matter. Authors like Denzin and Lincoln (2005) and Bryman and Bell (2011) argue that rich descriptions of data are obtained through qualitative research while quantitative research focuses on numerical estimations rather than details.

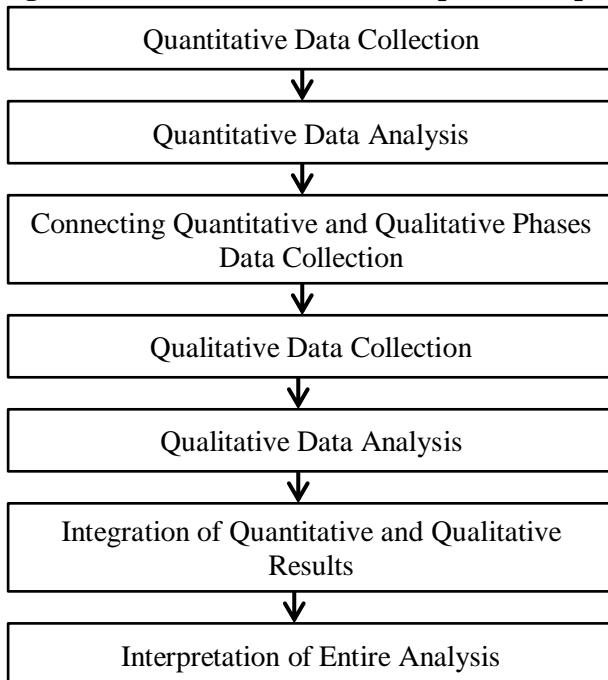
According to Creswell (2009, p. 3), '*research designs are plans and procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis*'. The selection of methodological approach (quantitative or qualitative) for a study is dictated by the nature of the research problem or the context of research purpose rather than by research techniques and paradigms (Creswell 2009; Newman & Hitchcock 2011). For this study, the use of either quantitative or qualitative approaches on their own is inadequate to resolve the issues involving individual groups with different interests. Therefore, for a study investigating SME financing gap between SMEs and the banks by integrating the perspectives of both SMEs and the banks, mixed method was found suitable for the study.

A mixed method is characterised by two forms of data analysis consisting of inferential numeric quantitative data analysis and thematic analysis of qualitative data (Creswell 2009; Creswell & Plano-Clark 2007). Social and human science research studies have used the mixed method in recent years, covering diverse topics (Tashakkori & Creswell 2007). Ivankova, Creswell and Stick (2006) advocated the mixed method as a strong research methodology due to its combined strength of quantitative and qualitative approaches addressing the complexity of research problem. A comprehensive, complete and across the board data is generated by applying both quantitative and qualitative techniques, resulting in more reliable and non-biased results during data analysis (Bryman 2006; Newman & Hitchcock 2011).

Miles and Huberman (1994) and Leech and Onwuegbuzie (2009) pointed out that this method allows for generation of a robust analysis by bringing in strengths of both the approaches and complementing each other. It also increases the validity of the research findings through quantitative method's statistical evidence and qualitative method's rich and detailed description of the subject matter (Creswell 2009; Teddlie & Tashakkori 2003). It therefore assists in investigating SME financing issues from the perspectives of SMEs' financing needs and provision of finance by the banks.

According to Creswell (2009, p. 212), a mixed method study is one that ‘...*involves the collection or analysis of both quantitative and qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process of research*’. A mixed method is further divided into various designs, namely convergent parallel or concurrent design; explanatory sequential design; exploratory sequential design; embedded design; transformative design and multiphase design (Creswell & Plano-Clark 2007; Zikmund et al. 2012). The sequential explanatory mixed method was found appropriate for this study because it provides a better understanding of the research problem through integration of the quantitative and qualitative analyses (Creswell & Plano-Clark 2007; Ivankova, Creswell & Stick 2006). Creswell (2009) remarked that it is helpful to take into consideration four aspects of mixed method, that is: timing, weighting, mixing and theorising.

**Figure 4.1: Mixed Method: The Sequential Explanatory Design**



Source: Creswell, 2009; Ivankova, et al., 2006

The sequential explanatory mixed method begins with quantitative method testing a concept or theory, followed by a qualitative method exploring few cases or individuals (Creswell & Plano-Clark 2007; Johnson & Onwuegbuzie 2004). As reflected in Figure 4.1, the methodology is characterised by collection and analysis of quantitative data followed by the qualitative method and the final integration of findings from two

methods. The key feature of this design is that more weighting is given to quantitative data than qualitative (Ivankova, Creswell & Stick 2006; Teddlie & Yu 2007), thereby making the quantitative phase the core methodology of the study. Phase I quantitative method, the core methodology of the study was focused on SMEs, followed by minor Phase II qualitative method focused on the banks. Therefore, both quantitative and qualitative data collection techniques consisting of field survey of SMEs and semi-structured interviews of the credit officers were employed.

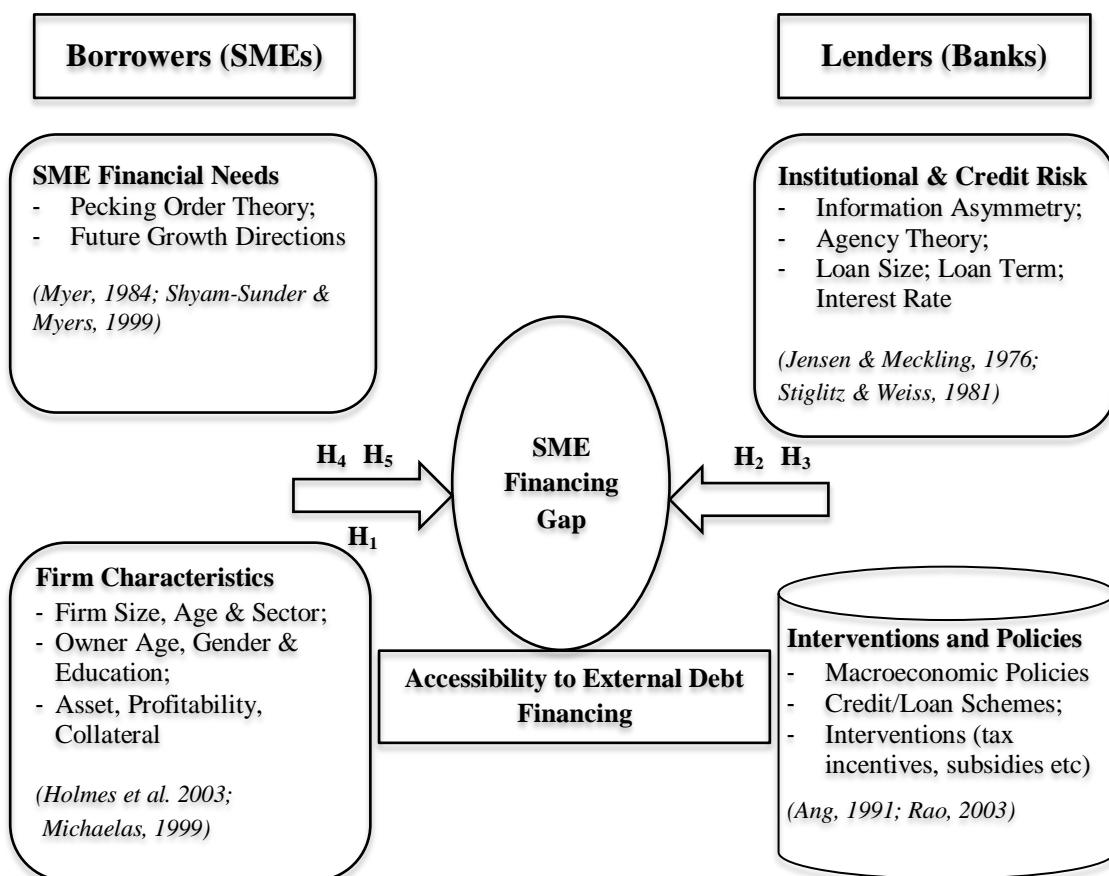
The validity and reliability of both the quantitative and qualitative data was checked in order to achieve accurate research findings (Tashakkori & Creswell 2007; Teddlie & Tashakkori 2003). Johnson and Onwuegbuzie (2004) and Creswell (2009) have pointed out that recent studies are using the term ‘validity legitimisation’ over just validity further emphasising its importance and relevance. In Phase I, hypotheses were tested to investigate the relationship between the firm’s the dependent variable, debt accessibility and the independent variables, factors associated with SMEs and the banks. The econometric results of Phase I were then used to develop the interview questions for Phase II to get the banks’ perspective on SME financing constraints. Therefore, the key principle for employing sequential explanatory mixed method was the holistic and rich study findings from the integration of the quantitative and qualitative results.

#### **4.3 Conceptual Framework**

The study investigates the factors affecting SMEs’ accessibility to external financing which then determines the capital structure of SMEs by applying capital structure theories in the context of SMEs. The conceptual framework of this study is developed mainly from the works of Sunder and Myers (1999) on financial structure in conjunction with the literature and economic theories of information asymmetry and agency theories (Jensen & Meckling 1976; Stiglitz & Weiss 1981). The conceptual framework is the foundation to investigate the nature and causes of the SME financing gap in developing countries. According to Modigliani and Miller (1958), in a scenario where the market is efficient and the information is complete, every firm irrespective of its size, has equal opportunity and ability to raise funds from the formal financial market. Since these assumptions are not true in reality, prior studies have found that smaller firms face bigger financing obstacles than larger firms (Beck, Demirguc-Kunt & Singer 2013; Cassar 2004; Gregory et al. 2005).

The conceptual framework portrays the obstacles faced by SMEs in accessing bank loans in terms of its financial structure. It was built on the extensive literature review has integrated the factors causing SME financing constraints from the perspectives of both SMEs and the financial institution. It reflects comprehensive outlook on SME financing constraints by taking into account the perspectives of SMEs, the finance borrowers and the banks, the finance providers of the SME financing gap. It incorporates the standing point of the banks while lending to SMEs in terms of risk associated with SME credit risk. The interaction between the factors of SMEs and the banks is critical to understanding and alleviating the SME financing gap. SMEs' characteristics and the severe information asymmetry are the problems from the bank's perspective while the stringent lending criteria set up by the capital providers are the main problem for SMEs. Hence, there is mismatch between SME's financial needs and the supply of financing from the banks.

**Figure 4.2: Conceptual Framework of the Study**



Source: Based on works of Myers (1984) and Shyam-Sunder & Myers (1999)

#### **4.3.1 Borrower (SME) Perspective**

The SME component of the framework reflects the factors that are associated with SMEs. The conceptual framework highlights the composition of SMEs' financing needs as explained by Myers' (1984) work on POT reflecting its capital structure. In line with the POT, SMEs' financing behaviour is influenced by the ease of accessibility to external finances. The financing status of the firm plays an important role in indicating the future growth prospective of the firm based on the availability of the funds for the expansion and growth purposes. The SME component of the framework covers the demographic characteristics of a firm and its owners. The demographic and financial attributes of the firm and its owner play an important role in determining the accessibility to financing (Bhaird & Lucey 2010; Bradley, Jarrell & Kim 1984; Mira 2005). The theoretical review of SME financing revealed that the demographic characteristics of the firm in terms of age, size and sector have been reported to influence the firm's accessibility to external financing.

Likewise, the characteristics of the owner in terms of age, gender and educational qualification also played a role in debt accessibility. SMEs' capital structure is shaped by the composition of finances from different sources, which in turn is subject to the firm's level of accessibility to these finances (Bhaird & Lucey 2011; Degryse, de Goeij & Kappert 2012). The financial information of the firm mainly its profitability, liquidity and asset structure (tangibility) also influence the degree of external financing accessibility (Chittenden, Hall & Hutchinson 1996; Mateev, Poutziouris & Ivanov 2013; Okura 2008). The scope of this study is limited to unsystematic risk, caused by factors associated with the physical characteristics of the firms and its owners. Thus, the framework aims to quantify the effect of the factors that are endogenic to SMEs, on its accessibility to the external debt financing, specifically bank loans. It brings out the limitations in SMEs that causes financing constraints of the SME sector, giving a different outlook on the SME financing gap.

#### **4.3.2 Lender (Banks) Perspective**

The lender component of SME financing explores the standpoint of finance providers in relation to the risk associated with SMEs' high information asymmetry and the agency issue. The major risk associated with SME bank financing is credit risk (Beck, Demirgüç-Kunt & Pería 2008). The credit risk in SMEs is default on the loan where

SMEs fail to make loan repayments. Therefore, SMEs are considered as high risk borrowers and the banks are reluctant to lend to SMEs (Beck, Demirgüç-Kunt & Pería 2008; Zambaldi et al. 2011). The main cause of credit risk in SME financing is information asymmetry associated with SMEs, where the lenders are uncertain about SMEs' creditworthiness (Caneghem & Campenhout 2012; Leary & Roberts 2010). SMEs' inadequate financial management and information sharing with the banks has characterised them as highly information opaque, hindering their access to external financing (Berger, Frame & Miller 2005; Deakins & Hussain 1994; Palliam 2005).

The severity of information asymmetry between SMEs (principal) and banks (agent) resulted in the Agency Theory induced issues of adverse selection, credit rationing and moral hazard (Holmes et al. 2003; Irwin & Scott 2010; Rao 2003). The issue of adverse selection and credit rationing on the part of the banks is induced by SMEs' information asymmetry and the moral hazard exhibited by SMEs to mitigate the difficult lending terms (Hyytinen & Väänänen 2006; Kundid & Ercegovac 2011). To offset the SME financing risk, the banks have resorted to stringent lending terms ranging from increased interest rate and collateral requirement to reduction of the loan term, creating an unfavourable lending environment for SMEs (Beck, Demirgüç-Kunt & Pería 2008; Chittenden, Hall & Hutchinson 1996; Liu, Margaritis & Tourani-Rad 2011).

#### **4.3.3 Interventions**

In addition to the SME and the bank component of the SME financing gap is a group consisting of government and the relevant organisations that support the growth and development of the SME sector. Governments in particular in developing countries and international development organisations have recognised SME finance as a priority area for inducing SME and socio-economic growth (Holmes et al. 2003; Rao 2003). Interventions at a policy level in the form of macro-economic legal, regulatory and financial frameworks are essential to sustain a healthy SME based economy (Carreira & Silva 2010; Zecchini & Ventura 2009). In addition, direct interventions in the form of subsidies through tax credits, grants and credit guarantees have reduced the severity of financial obstacles faced by SMEs. Therefore, the role of supporting agencies is an important feature in reducing the gap between the two key stakeholders of SME financing.

#### **4.4 Research Questions**

According to Creswell (2009, p. 138), '*...a strong mixed methods study should start with a mixed methods research questions, to shape the methods and the overall design of a study*'. The research questions and hypotheses are used by the investigators to shape the purpose of the study (Creswell & Plano-Clark 2007). Creswell (2009) and Bryman and Bell (2011) gave importance to the order of research questions and hypotheses, where, in a sequential mixed method, the Phase I questions/hypotheses should be followed by the Phase II questions/hypotheses. For this study, the research questions were developed from the conceptual framework built from an extensive theoretical review. The research questions address the issue of financing constraints holistically from both the borrower and the lender's components of the SME financing gap, thus forming a basis for research hypotheses development.

The study has formulated two broad research questions to achieve the research objectives and guide the course of the study:

1. What are the factors that cause SME financing constraints from the perspective of SMEs and the banks in Bhutan?
2. How do the issues of Information Asymmetry and Agency Theory play a role in the SME financing gap in Bhutan?

#### **4.5 Hypotheses Development**

The five main research hypotheses were built from the research questions as recommended by Creswell (2009). Hypotheses of a research study are predictions of a relationship between the variables through empirical data testing (Teddlie & Yu 2007; Veal 2005). Creswell and Plano-Clark (2007) also state that a study chooses to use hypotheses to indicate some kind of relationship among the different identified variables. The theoretical context of the study is tested through hypotheses testing by investigating the effect of independent variables on the dependent variable. The hypotheses developed could either be in the form of alternative or directional hypotheses in which, based on the literature, a potential outcome or result is predicted or in the form of null hypotheses, which propose that no relationship between the groups of variables exists (Creswell 2009; Creswell & Plano-Clark 2007).

For this study, the hypotheses were developed in the form of alternative and null hypotheses. The five hypotheses have been developed to study the effect of various factors (internal finance and collateral; financial information; loan term and interest; firm size, age and sector; and owner age, gender and educational qualification) on the firm's accessibility to a bank loan. The findings were then integrated with the qualitative analysis from interviews of bank credit officers.

#### **4.5.1 Hypothesis 1: SME Loan Repayment Capacity**

Financial institutions being a profit generating organisations, their main concern with SME financing is the recovery of their investment in the absence of required financial information from SMEs. The bank's decision to lend to SMEs is dependent on the repayment capacity of the firm, which is measured in terms of its asset tangibility (Bester 1987; Steijvers, Voordeckers & Vanhoof 2010; Uchida 2011). The use of collateral as security against the loan extended to SMEs is widely adopted as a risk management strategy by the banks (Jimenez, Salas & Saurina 2006; Ono & Uesugi 2009). The use of collateral in the formal loan contract between SMEs and the banks serves as an incentive to counteract the information asymmetry and credit risk. Similarly, the owner's equity in the business is associated with the firm's financial capacity and commitment. The collateral pledged against the loan and the size of internal finance was associated with positive moral hazard behaviour in SMEs thereby enhancing their credibility in the eyes of the lenders (Berger & Frame 2007; Carpenter & Petersen 2002).

Hence, the effect of SMEs' collateral and internal finance on the accessibility to bank loan is investigated as hypothesis 1:

*H<sub>1</sub> – The accessibility to bank loan is correlated to the loan repayment capacity of the firm (Internal finance and Collateral)*

#### **4.5.2 Hypothesis 2: SME Financial Information**

The information asymmetry is in its highest form in SMEs due to SMEs' inadequate accounting practices and financial management. It is evident that the banks associate SMEs' financial opacity directly with high risk undermining its financial credibility (Berger & Udell 1998; Caneghem & Campenhout 2012). Authors like Allee and Yohn (2009) and Brent and Addo (2012) reiterated the importance of the provision of

financial information to potential investors to build credit worthiness. This allows the lenders to use accounting and financial numbers to evaluate and monitor SME financial behaviour and performance, lowering its risk exposure and cost.

Therefore, the effect of a firm's financial information on its accessibility to bank loans is investigated through hypothesis 2:

*H<sub>2</sub> – The accessibility to bank loan is correlated to the quality of the financial information of the firm*

#### **4.5.3 Hypothesis 3: Loan Characteristics**

Prior studies have indicated that the banks resort to stringent lending terms, such as asset based lending and levying of higher interest rates, to minimise the risk of lending to SMEs (Chittenden, Hall & Hutchinson 1996; Hyttinen & Väänänen 2006). The adoption of these lending terms is motivated by SMEs' inadequate financial information and high rate of occurrence of negative moral hazard exposing the banks to an increasing risk level (Allee & Yohn 2009; Binks, Ennew & Reed 1992; Liu, Margaritis & Tourani-Rad 2011). However, the lending terms have an adverse effect on SMEs' financial situation.

Therefore, the relationship between the loan attributes in terms of interest rate and duration and SMEs' accessibility to bank loan is hypothesised as:

*H<sub>3</sub> – The accessibility to bank loan is correlated to the attributes of the proposed loan (loan interest rate and loan term)*

#### **4.5.4 Hypothesis 4 and 5: SME and Owner Characteristics**

The theory of POT describes the capital structure of an SME in terms of its preference and accessibility to internal funds and external financing (Beck, Demirgüç-Kunt & Singer 2013). It predicts SMEs' capital structure in terms of the ratio of owners' equity to external debt. Literature has established that the demographic characteristics of a firm and its owner influences the SME's financial structure, which in turn is shaped by its accessibility to different financing sources (Neeley & Auken 2009; Romano, Tanewski & Smyrnios 2001). The most common firm attributes are size, age and sector while the owner's attributes are age, gender and educational qualification (Beck, Demirgüç-Kunt & Pería 2008). These factors influenced a firm's access to external finance.

Hence, hypothesis 4 and hypothesis 5 investigate the relationship between firm and owner related factors and accessibility to bank loan:

*H<sub>4</sub> – The accessibility to bank loan is correlated to the firm's characteristics (size, age and sector)*

*H<sub>5</sub> – The accessibility to bank loan is correlated to the firm owner's characteristics (age, gender and educational qualification)*

#### **4.6 Multiple Linear Regression Model**

An econometric model is a mathematical and statistical tool used to investigate the effect of independent variables on the dependent variable, through empirical analysis (Dougherty 2011; Gujarati 2005). The multiple linear regression (MLR) model was chosen as the research model with the objective of providing a numerical estimate of the relationship between the identified factors and SMEs' accessibility to bank loans. These factors were related to SMEs and their owners and the attributes of the loan. MLR is one of the most widely used statistical tools for discovering the relationships amongst different variables of a study (Cohen, Cohen, West & Aiken 2013; Wooldridge 2009). According to Gujarati (2005, p. 8), '*...the primary objective of the linear regression model is to explain the behaviour of the dependent variable in relation to the behaviour of one or more independent (explanatory) variables, taking into consideration the relationship is inexact or statistical*'.

MLR measures the association of independent variables on the dependent variable. Through the regression model and analysis, the cause and effect economic relationship between the variables are quantified (Hopkins & Ferguson 2014; Ray 1989). Hopkins and Ferguson (2014) considered regression analysis as an important and foundational technique to carry out research in the area of family businesses, which makes up the majority of the SME sector. They support the relevance of multiple regression analysis for SME related research because of its simplicity enabling researchers to explore the functional relationship between multiple variables. It offers flexibility and variations to explore more specific questions and the phenomena of the relationship of the variables in the model of this study.

The first step in regression analysis is to specify the explanatory or independent variables and the functional form of the econometric model, based on the economic theories and previous researches in the chosen field of investigation, while constructing the research model (Hair, Tatham, Anderson & Black 2006; Ray 1989). This study is focused on investigating and measuring the effects of multiple numbers of variables related to firm and financial characteristics on SMEs' accessibility to bank loans. The research model is written in the form of a traditional multiple regression model where all the independent variables are entered into the regression equation simultaneously (Tabachnick & Fidell 2007).

#### **4.6.1 Development of the Research Model**

The academic literature on corporate capital structure is vast and has been used as a basis to investigate SMEs' financial structure (Frank & Goyal 2003; Leary & Roberts 2010; López-Gracia & Sogorb-Mira 2008; Mateev, Poutziouris & Ivanov 2013). These studies are focused on the capital structure of firms and investigated by using financial leverage (debt ratio) based on the theories of either POT or TOT. Sunder and Myers (1999)'s work served as a foundation for the studies on capital structure. The capital structure was measured in terms of the major factors, profitability, age, size, tangibility and growth on the leverage of SMEs. A firm's capital structure based on Sunder-Myer's model is represented as:

$$DA = \beta_0 + \beta_1 Size + \beta_2 Profitability + \beta_3 Asset Tangibility + \beta_4 Growth Rate + \beta_5 Liquidity + \beta_6 Dividend Payout + \varepsilon$$

Though these studies provide insights into SMEs' capital structure, they are based predominantly on quantitative factors, which are difficult to access in micro firms, a major component of the SME sector in Bhutan and developing countries. Also, in the case of this study, the survey was not able to gather certain financial information owing to low level of financial sophistication of the Bhutanese SME sector. Many authors (Ang 1991, 1992; Cosh & Hughes 1994) have supported the use of a modified version of POT for SMEs mainly due to the lack of information required to assess risk. Keeping Sunder-Myers' capital structure model as the foundation, the research included firm-level qualitative variables in the research model, which were easily available and relevant to SMEs in Bhutan.

The model represents that SMEs' debt accessibility is a function of factors arising from SMEs and the investors, which were both numerical and categorical in nature. These factors measure a firm's ability and difficulty to obtain capital from external sources:

where:  $DA$  (*Debt Accessibility*) =  $FL$  =  $\frac{\text{Total Debt (TD)}}{\text{Total Asset (TA)}}$

Based on equations 1 and 2, mathematically the MLR research model for the study consisting of factors from SMEs and the banks is denoted as:

$$DA = \alpha + \beta_1 INTFIN + \beta_2 COLL + \beta_3 FININFO + \beta_4 INT + \beta_5 TERM + \beta_6 AGEF + \beta_7 SIZEF \\ + \beta_8 SECF + \beta_9 AGEO + \beta_{10} GENO + \beta_{11} EDUO + \varepsilon$$

#### 4.6.2 Dependent Variable Definition

The dependent variable appears on the left side of the equation and is defined as the outcome, behaviour or effect that is being investigated (Creswell 2009; Gujarati 2005). It is also known as the regressand, regressed on by the independent variables. The dependent variable used for the research model is debt accessibility (DA) from external sources (banks). It is represented by the financial leverage of the firm, which is measured by total debt divided by total asset of the firm.

$$\text{Debt Accessibility (DA)} = \frac{\text{Total Debt (TD)}}{\text{Total Asset (TA)}}$$

Total debt of the firm is measured by the size of the total loan amount obtained from the banks, while total assets consist of sum of fixed assets and current assets of the firm. Studies on SME financing have used financial leverage in terms of the ratio of total debt to total assets (*total debt/total assets*) as the measure of SMEs' accessibility to debt (Degryse, de Goeij & Kappert 2012; López-Gracia & Sogorb-Mira 2008; Sunder & Myers 1999). SMEs' debt accessibility is studied in terms of capital structure underlined by the theories of POT. Studies investigating SMEs' financial structure have mostly

used a binomial logit model incorporating firm and financial characteristics to measure SMEs' debt accessibility based on the work of Sunder and Myers (1999). The dependent variable of the model was dichotomous or binary in nature taking 1 or 0 value to investigate the determinants of a financial structure.

However, departing from previous studies that have largely used logit regression analysis, this study has applied multiple linear regression (MLR) with DA as a continuous variable. This was carried out due to limitations that emerged in the SME survey data. Due to insignificant (3.83%) rejection of SMEs' loan applications by banks, it was not possible to conduct standard logit regression analysis with a binary dependent variable. The percentage of SMEs that received bank loans successfully was 96.17% of the 183 firms that applied for bank loans. Furthermore, the cross-sectional SME survey data was predominantly qualitative in nature, limiting the complete adoption of Sunder and Myers (1999)'s equation. Like any developing countries, limited financial data available on Bhutanese SMEs is aggravated by SMEs' non-requirement of disclosing its information to the public.

The dependent variable, DA therefore measures level of accessibility to loans from the banks. The existing financial literature provides enough evidence to support usage of a firm's financial leverage as a good measure a firm's access to financing. Previous studies have used debt ratio to define financial leverage and to determine a firm's financial accessibility. Hence, the research analysis is based on the central proposition that the dependent variable DA is measured by its financial leverage. Building on the capital structure equation, the research model integrated SMEs' quantitative and qualitative factors to investigate and understand SMEs' accessibility to bank loans. The integration of the theoretical foundations of the financial capital model and firm-level factors is argued to provide a strong method for investigation of SMEs' debt accessibility.

#### **4.6.3 Independent Variables Definition**

The factors affecting SMEs' accessibility to bank loans are the independent factors of the research model. These independent variables, also known as the regressor or explanatory variables, appear on the right hand side of the equation and are responsible for the behaviour of the dependent variable, or influence the outcome (Creswell 2009;

Gujarati 2005). Therefore, the dependent variable is explained in relation to the behaviour or influence of the independent variables. A number of independent variables have been identified based on the literature review and conceptual framework, to investigate the SME's accessibility to debt financing. The independent variables that are key components of the econometric model are categorised as: loan repayment capacity of the firm (INTFIN, COLL); financial information of the firm (FININFO); bank loan characteristics (INT, TERM); firm characteristics (AGEF, SIZEF, SECF) and demographic characteristics of the owner (AGEO, GENO, EDUO). The list of independent variables or factors determining SMEs' accessibility to bank loans, are presented in the econometric model as:

INTFIN	= Internal Finance (owner's equity)
COLL	= Size of collateral pledged against loan
FININFO	= Financial Information of the firm
INT	= Interest rate on the loan
TERM	= Loan term (duration) to pay off loan
AGEF	= Age of the firm
SIZEF	= Size of the firm
SECF	= Sector of the firm
AGEO	= Age of the owner
GENO	= Gender of the owner
EDUO	= Educational qualification of the owner
$\alpha$	= slope (intercept term)
$\beta$	= slope (regression coefficient)
$\varepsilon$	= the unobserved error component

The INTFIN is defined as the internal finance that is invested into the business. The internal finance is comprised mostly of the owner's personal funds followed by funds from family and friends, without any extra cost involved. Hence it is also known as the owner's equity or investment. The COLL is defined as the size of collateral pledged against the loan from the banks. According to the literature, the most commonly used collaterals are land and buildings in developing countries such as Bhutan. For the purpose of the study, collateral has been calculated in terms of monetary value (Nu.) irrespective of the form of the collateral pledged.

The FININFO is defined as the financial information of the firm and was calculated in terms of number of financial statements maintained by the firm and the accounting knowledge of the person handling the finances. The firms maintaining more financial statements and with accounting knowledge were given higher points and categorised into ‘very low’, ‘low’, ‘medium’, ‘high’ and ‘very high’ information levels. The INT was defined as the interest rate charged on the loan by the banks. The TERM is defined as the duration given to the firms to pay off the loan. For the purpose of this study, loan term was divided into short term loan of 1-5 years and long term loan of more than 5 years.

The AGEF is defined as the age of the firm and calculated as the number of years since its establishment. The SIZEF is defined as the size of the firm. All the firms are registered either as micro, small or medium sized firms with the Ministry of Economic Affairs. It was calculated based on the categorization and definition of the business establishments in Bhutan in terms of their investment cost and number of employees. The SECF is defined as the sectoral classification of SMEs into three main sectors namely manufacturing, retail and service sectors. The AGEO is defined as the age of the owner and calculated in the terms of number of years. The GENO is defined as the gender of the owner either as male or female. The EDUO is defined as the educational qualification of the owner. It consisted of six categories: no formal education, primary school, high school, vocational education, bachelor degree and postgraduate degree.

The debt accessibility of a firm has been associated with the loan repayment capacity of the firm. To minimise the risk associated with SMEs’ information asymmetry and to safeguard its investment, the banks require collateral to back up the loan transaction and owner’s equity in the business (Bester 1987; Cowling 1999; Menkhoff, Neuberger & Suwanaporn 2006). The owner’s equity in the business and the collateral value serve as proxy to the SME owner’s commitment, lowering the risk for banks (Behr, Norden & Noth 2013; Berger & Udell 2006). The quality and quantity of financial information provided by SMEs to the banks has a strong influence on the debt accessibility (Allee & Yohn 2009; Caneghem & Campenhout 2012; Drever, Stanton & McGowan 2007). A firm’s financial information has been measured in terms of the availability of financial statements and expertise of the person handling the firm finances (Caneghem & Campenhout 2012).

Literature (Berger & Udell 1998; Chittenden, Hall & Hutchinson 1996; Frame & Woosley 2004; Ma et al. 2013) has indicated that loan characteristics in terms of the size of the loan amount, interest rate charged on the loan and the loan term, influenced SMEs' accessibility to bank loans. Firm characteristics were found to be statistically significant and explained variations in the debt accessibility (Degryse, de Goeij & Kappert 2012; Kounouwewa & Chao 2011). The firm size, age and sectoral classification were equated to its financial credibility in the eyes of the finance providers. Due to the organisational structure of SMEs, the demographic characteristics of the owners have an important role in shaping the financing structure of the firm. The variables related SME owners are associated with risk taking calibre and control desire, which in turn influence the firm's accessibility to debt financing (Coleman 2000; Neeley & Auken 2009).

#### **4.7 Phase I Quantitative Data Collection (SME Survey)**

According to Creswell (2009, p. 178), '*...data collection involves collecting information for research through unstructured or semi-structured observations and interviews, documents and visual materials, as well as establishing the protocol for recording information*'. Based on the literature, positivist approach (Newman & Hitchcock 2011) was appropriate for this study to investigate the factors originating from the SME component of the financing gap. However, no single complete database of SMEs is maintained either by the government of Bhutan or any other agencies involved in the promotion of SMEs in the country. Since little information is available on SMEs in developing countries like Bhutan, the best way to investigate SME financing constraints is through primary data collection using firm level surveys directly addressing the issue of financing constraints faced by SMEs. Therefore, for Phase I data collection, a field survey of SMEs was found to be appropriate to generate a large enough data for analysis to achieve the research aims and objectives. Primary data in the form of cross-sectional data was collected at one point in time (October – December 2013) from SME owners in Bhutan.

##### **4.7.1 Sample of the study**

In quantitative research, using probabilistic and random sampling, a large number of individuals are selected to represent a segment of the population so that each individual in the population has the chance of being selected (Creswell & Plano-Clark 2007). The

target population of the survey is the total population of SMEs of Bhutan, which are registered and listed in the MoEA. A random sampling method (Bryman 2006; Creswell 2009) was used to identify and conduct the field survey in two cities of Thimphu and Phuntsholing, to represent the whole population of SME establishments in Bhutan. The sample is inclusive of the micro firms unlike previous studies, which are more focused on the upper end of the SME spectrum.

Additionally, these two places were chosen because they have the highest population of SME establishments compared to other places, as reported in the annual statistics maintained by the country (NSB 2013), giving fair representation of SME population in Bhutan. Thimphu is the capital of Bhutan with the maximum number of SME establishments and Phuntsholing, the business hub of Bhutan, sharing a border with India has the second largest number of SMEs. The sample population also covered firms across all industries consisting of wholesale retail, manufacturing, construction and service industries. The two geographical locations have the same economic environment with similar regulations, policies and infrastructural support. The easy access to both locations was an added benefit to the researcher in terms of time and resources limitation.

#### **4.7.2 Rational for Sample Size**

Bartlett, Kotrlik and Higgins (2001) stated that the quality and accuracy of research studies are compromised by inappropriate, inadequate, or excessive sample sizes. Similarly, Wunsch and Gades (1986) critiqued that most research studies were flawed by disregarding sampling error while determining the sample size and disregarding response and nonresponse bias. Therefore, a survey research should aim to collect reliable and sustainable data that is sufficient to draw and generalise the findings back to the population within the limits of random error (Bartlett, Kotrlik & Higgins 2001; Ivankova, Creswell & Stick 2006; Leech & Onwuegbuzie 2009). Hopkins and Ferguson (2014) stressed that the sample size has to be sufficient to support the hypothesised relationships with a level of statistical power to detect even the small effects of the variables. The sample size has a direct effect on the statistical significance of the variables and generalisation of the results to the population.

The appropriate sample size can be determined through sample size formulas, such as confidence intervals and power analysis and sampling error formulas, for surveys to gather sufficient data for multiple regression analysis (Creswell & Plano-Clark 2007; Hopkins & Ferguson 2014). The use of these approaches avoids both extremities of too small and too large sample size, which results in either insufficient data or exorbitant data obscuring the data analysis. Confidence interval is preferred over power analysis to calculate sample size because of higher assurance that the parameters value falls within the confidence limits (Kelley & Maxwell 2003; Lenth 2001; Ott & Longnecker 2001). The sample size calculation considers a number of accuracy factors such as the margin of error, confidence level, degree of variability and the response rate of the participants (Aberson, Berger, Healy & Romero 2002; Lenth 2001).

The standard confidence level for most educational and social-science studies is 95% with corresponding Z value at 1.96, which means that provision for a 5% margin of error (P) is acceptable in the research (Hopkins & Ferguson 2014; Wunsch & Gades 1986). Many variations of sample size formula are presented in many statistics books to determine the sample size (Bartlett, Kotrlik & Higgins 2001). The population frame for calculating the sample size for the study was drawn from the statistical data maintained by the National Statistical Bureau of Bhutan (NSB 2013) for the year 2013. Thimphu Dzongkhag had the highest number of industrial firms representing about 35% (7,973), followed by Chukha with 14% (3,094) with a total of 11,034 SME establishments. Using statistical formulae for calculating sample size where the total population is known, the sample size was calculated to be about 400 at estimated variance of 0.5; precision level of 5%; 95% of confidence level with Z value at 1.96 and response rate of 90% owing to face to face survey. The sample size of the study was divided into 200 SMEs in Thimphu and 200 SMEs in Phuntsholing, Bhutan.

#### **4.7.3 Survey Instrument**

Survey sample provides a good representation of population making it possible to draw inferences about characteristics, attitude, or behaviour of the general population involved in the study (Creswell 2009; Rea & Parker 2005). A survey is cost and time effective, when data can be collected easily from an appropriate number of participants in an estimated period of time. When conducted accurately, a survey is advantageous in generating standardised data suitable for quantification and statistical analysis (Rea &

Parker 2005). The survey questionnaire, built on the literature review and conceptual framework, was used to collect the cross-sectional data for the year 2013 (Teddlie & Yu 2007). The database is made up of first-hand information on firm characteristics and their accessibility to bank loans. This section discusses the details of survey instrument development (survey questionnaire) and its validity and reliability testing and final application of the questionnaire in the field.

#### **4.7.3.1 Survey Questionnaire**

Bartlett, Kotrlik and Higgins (2001) stated that a questionnaire is an instrument used in survey research to collect information from a sample of individuals through their responses to the questions developed. It is of utmost importance that the survey instrument or survey questionnaire is well developed to obtain unbiased and reliable information. Rea and Parker (2005) strongly recommended developing the questions for a survey instrument on a strong theoretical foundation about the issue being studied. Hence, for this study, the survey questions were developed based on the conceptual framework that was built on the relevant economic theories and rich literature. The survey instrument consisted of correctly worded questions with the aim of gathering enough information on the different variables of the research model. Therefore, the survey questions ranged from descriptive information of the firm and its owners to the financial information of the firms, which also included loan related information, in an effort to generate maximum information required for the quantitative analysis, the core methodology of the study.

The survey questionnaire consisted of 21 questions structured into four sections organised in a logical sequence: general characteristics of the firm and its owner; financial information of the firm; information on external financing situation; and future growth and obstacles to growth. The first section, introductory in nature, consisted of questions seeking demographic, characteristics and profile information about the firm and its owner. The attributes ranged from age, size and sector of the firm to age, gender, educational qualification and work experience of owners. The second section consisted of financial information about the firm in terms of internal finance and external finance of the firm. The questions also explored financial management within the SME sector. The third section of the questionnaire was focused on the external financing situation in terms of accessibility to bank loans and support services from the relevant agencies. The

fourth and the final sections of the questionnaire were focused on the firm's future growth and anticipated obstacles to seeking external financing.

Questions were logically sequenced so as to keep the flow of the information and make it easier for the participants answer the questions (Teddle & Tashakkori 2003). The questionnaire consisted of different forms of questions such as open-ended and closed ended, multiple choice and forced choice. Rating scale questions are also included where respondents are asked to rate the structured questionnaire with 5-point Likert scale ranging from 1 to 5 with 1 indicating 'strongly disagree' and 5 indicating 'strongly agree'. The questions' phrasing, structure, language and format were designed to develop a simple and understandable questionnaire for participants to answer (Rea & Parker 2005; Tashakkori & Creswell 2007).

#### **4.7.3.2 Validity and Reliability of Survey Questionnaire**

Validity and reliability are two critical characteristics that have to be considered while developing survey instrument to ensure that the final product is accurate and consistent (Bryman 2006; Johnson & Onwuegbuzie 2004). Rea and Parker (2005) and Punch (2014) placed high importance on the reliability and validity of the measuring instruments to collect the right data and produce reliable results. The concept of validity refers to the understanding that the measuring instrument is measuring what the researcher has intended to measure while the concept of reliability refers to the extent to which the items used to measure are error free (Ott & Longnecker 2001; Tashakkori & Creswell 2007). Therefore, it is highly recommended to carry out a pilot testing of the survey instrument prior to field work to ensure the validity and reliability of the questions (Tashakkori & Creswell 2007; Veal 2005). Skipping pre-testing results in sampling error (non-response to questions due to unwillingness or inability of the respondents to answer the questions) and non-sampling error (caused by misunderstanding of questions leading to incorrect answers) and also time required to answer questions (Rea & Parker 2005). Teddle and Tashakkori (2003) noted that data entry error and inaccurate measurement scales cause the measurement error in quantitative survey.

The validity and reliability of the measuring instrument were carefully considered while constructing the survey questionnaire. Bryman and Bell (2011) and Creswell and Plano-Clark (2007) agreed on that less formal pre-testing can be conducted with a smaller convenience sample in certain circumstances. Thus, due to time and resource constraints, a pilot survey was not carried out to check the validity and reliability of the survey questionnaire. Instead, the survey questionnaire for the study was pre-tested on five research colleagues at Victoria University prior to the field survey; to check the content, wording, sequence, design and instructions of the questions (Hunt, Sparkman Jr & Wilcox 1982). The main objective of the pre-test was to identify any limitations of the questionnaire and take corrective measures accordingly.

The study took into consideration that the content validity of the instrument was addressed by its foundation on the thorough literature review and conceptual framework of the study. The results of the pretesting addressing the reliability of the instrument indicated that each respondent had the same understanding of questions, resolving doubts on question clarity, comprehensiveness and question length. The comments of pretesting participants were taken into account during the finalisation of the survey questionnaire to improve the question wording, format, sequence and layout of the questionnaire. Since the survey was self-administered, the researcher was physically present face-to-face with each respondent to explain and clarify their questions. In addition to minimising misunderstanding the questions, the self-administration of the survey also provided the advantage of an increased response rate (Ivankova, Creswell & Stick 2006; Leech & Onwuegbuzie 2009). The reliability of the SME survey responses has been used for the study with the assumption that the SME owner or managers have provided information that is nearest to the actual information.

#### **4.7.3.3 Face-to-Face Survey of SME Owners**

A survey questionnaire can be conducted using different modes, namely: mail, telephone, internet and face-to-face, with each having its merits and demerits (Rea & Parker 2005; Veal 2005). A face-to-face survey questionnaire was used for Phase I because it is an appropriate data collection method to generate a large data size for analysis (Rea & Parker 2005). It involves a direct interaction between the researcher and the participants at a mutually convenient place, increasing the response rate of the survey (Creswell & Plano-Clark 2007). It also provides an opportunity for the

researcher to clarify any misunderstanding about the questions faced by the respondents. SME owners were approached personally at their work place and provided with provided with the Information to Participants Form (Appendix 1) and Consent Form (Appendix 2) to provide a general overview of the research project and requirement of their voluntary participation in the study.

Survey Questionnaire Forms (Appendix 3) were distributed to a total of 400 SME owners with 200 each in Thimphu and Phuntsholing. The list of SMEs to be surveyed for different places was prepared beforehand, to have smooth one-to-one interaction with the participants. The survey was conducted first in Thimphu, followed by Phuntsholing because administrative procedures were done in Thimphu prior to the field survey. The survey literature (Bryman 2006; Creswell 2009) points out two ways of completing the survey forms: respondent self-administered where the respondents write their answers on the form by themselves; or researcher administered where the researcher asks the questions and writes down the respondent's answers on the form. Therefore, some of the questionnaire forms were collected immediately after completion and some forms at an agreed time based on the participants' convenience. The response rate of the survey was 98.5% with 394 forms collected out of 400 forms distributed.

#### **4.8 Phase II Qualitative Data Collection (Credit Officers Interview)**

The research Phase II component adopted an interpretive approach to investigate the factors originating from the finance providers' side of the SME financing gap. It was qualitative in nature and data was collected through telephonic interviews of credit officers of the financial institutions in Bhutan. Interview is one of the most common data collection methods used in qualitative research (Bryman 2006). Interview, in the form of either face-to-face or telephonic, collects data and findings based on the direct conversation between the interviewer and the respondent, providing flexibility for the researcher to adapt and modify the questions as the interview progresses (Creswell & Plano-Clark 2007; Crouch & McKenzie 2006).

Telephone interviews were deemed appropriate for collecting information due to the physical location of the interview respondents in Bhutan while the researcher was based in Australia. It is the best possible way to gather information when the researcher does

not have direct access to the interview respondents (Creswell 2013). The objective of the interview was to identify factors influencing the banks to lend to SMEs and explore the loan appraisal procedures involved. The data collection for Phase II commenced only after the successful completion of Phase I data collection and its analysis, to substantiate that the SME financing gap is caused by a combination of issues originating from both the banks and SMEs. The target population, sample selection, respondents and the interview procedure are discussed in this section.

#### **4.8.1 Sample of the Study**

The most common sampling techniques used in a qualitative study are: convenience sampling where the respondents are chosen based on their accessibility; judgement and purposive sampling where respondents are chosen based on the researcher's understanding of the issue and theoretical sampling where the respondents are chosen based on the theoretical framework of the study (Creswell 2009, 2013; Ivankova, Creswell & Stick 2006). The purposive sampling technique was found suitable since it identifies the respondents who will be able to provide rich and in depth data, compensating for small sample size of the qualitative method (Creswell & Plano-Clark 2007; Miles & Huberman 1994; Punch 2014). Unlike the quantitative method, where the results of a sample are used to generalise to a population, the qualitative method is employed to gain an in depth understanding of the research issue (Denzin & Lincoln 2005; Ivankova, Creswell & Stick 2006). Therefore, the purposive sampling method was used to identify credit officers of financial institutions in Bhutan as the sample for the telephonic interview. The credit officers are directly involved in SME loan processing activities and hence their work experience can generate in depth information on the subject of SME financing.

#### **4.8.2 Sample Size**

Creswell and Plano-Clark (2007) stated that qualitative research is extensive in nature in comparison to quantitative research due to the data collection methods, which are mostly open-ended, leading to voluminous transcripts of information obtained from participants. Therefore, a small range of numbers from 1 to 20 is common as a qualitative research sample size so the researcher can facilitate in depth inquiry of the few identified participants of an analytic, inductive and exploratory nature (Crouch & McKenzie 2006). However, the qualitative sample size should be big enough to

represent the sample and assure that it addresses any issues of sampling error. The study took into account the limitations of time and resources as highlighted in the qualitative research literature in determining the sample size (Bryman & Bell 2011).

A sample size of six credit officers from the financial institutions in the country was considered suitable for the qualitative Phase II of the study owing to the fact that in a sequential explanatory mixed method, the weightage of the qualitative method is less compared to a quantitative phase. The aim was to interview at least one credit officer from each of the seven financial institutions consisting of banks and insurance companies in Bhutan. As argued by Ritchie and Spencer (2002), because qualitative results explicate the issue under investigation rather than generalising the information, a small sample size is acceptable within the scope of this study. The small sample size in qualitative analysis was justified and compensated for by the generation of large, in depth and rich information from the respondents (Crouch & McKenzie 2006)

### **4.8.3 Interview instrument**

This section discusses interview questions development, their validity and reliability.

#### **4.8.3.1 Interview Questions**

The interview method is classified into three broad types based on their level of formality and structure: structured interviews; semi-structured interviews and unstructured interviews (Cooper, Schindler & Sun 2006; Creswell & Plano-Clark 2007). Structured interviews are based on a predetermined and standard set of questions; semi-structured interviews are based on predetermined questions with provision for respondents to add more information and unstructured interviews are informal and open-ended in nature. Assessing the advantages of different question formats, semi-structured interview was chosen for the study since it had the advantage of a pre-determined set of open-ended questions, but also the flexibility to allow respondents to speak and express their opinions and understanding of the topic. The semi-structured interview questions allow the interviewer to guide the interview through a set of open-ended predefined questions and to probe and control the lines of questions while also giving enough scope to the interviewees to discuss their opinions on the issue in depth (Creswell 2009, 2013; Marshall & Rossman 2011).

The interview questions were developed from Quantitative Phase I findings and the literature review. The questions were based on the five main categories (Appendix 4), focused on the loan eligibility criteria and SMEs' credibility evaluation procedures adopted by the banks. The interview was expected to find out the extent of loan allotment to the SME sector and the risk management methods used by the banks to overcome the SME lending risk. The questions were open ended to provide an opportunity to the respondents to share their opinion and perceptions in detail. It did not impose restriction on the format of the questions but allowed enough flexibility to achieve the interview objectives.

#### **4.8.3.2 Validity and Reliability of Interview Questions**

The qualitative research validity involves accuracy checking of the interview findings using certain procedures, while the reliability refers to the consistency of the researcher's approach across the participants (Creswell & Plano-Clark 2007). Different to the quantitative method where the validity and reliability was associated with the survey instrument development, in the qualitative method, it is related to the researcher and questioning approach (Creswell 2009; Marshall & Rossman 2011). High importance is placed on the role of the interviewer in guiding the interview in the right direction to get maximum information from the respondents (Teddlie & Yu 2007). Hence, the researcher, who was the sole interviewer of the study made effort to probe the respondents and clarify any issues that emerged during the course of the interviews.

Past studies reveal that practising helps in boosting the interviewer's confidence and assist to achieve a smooth flow of questions during the interview, which is equivalent to a quantitative method's pilot study (Bryman & Bell 2011; Creswell & Plano-Clark 2007). Hence, prior to actual interviews, the researcher undertook several practice sessions to identify problems with question wording and structuring to avoid interview bias and achieve a smooth interview process (Creswell 2009; Zikmund et al. 2012). Accordingly, corrective measures were taken to refine the structure and flow of the questions, interview bias and duration of the interview (Creswell 2013). The reliability of the interview is also determined by the quality of the recording and documentation of the interview and the ability to interpret it (Bryman & Bell 2011; Creswell 2013). Hence, immediate transcription of the interview enhanced its reliability by reporting all the minute information recorded during the interview.

#### **4.8.3.3 Telephonic Interviews of Credit Officers**

Telephonic interviews were conducted with six credit officers with at least one credit officer from each of the financial institutions in the country in March 2015. The interview was semi-structured and all the interview sessions were conducted in the same format where possible with each interview session lasting for about 30 minutes. The identified interview participants were contacted by email to get their consent to be part of the interview. The Information to Participants Forms and the Consent Forms for Participants were emailed to the respondents to providing details of the research and their voluntary participation in the interview. Upon their consent to participate in the interview, the interview dates and times were predetermined suiting the respondents' convenience. All the interviews were conducted in English, as the respondents were comfortable with English based on prior association through emails written in English.

The actual interview began by the interviewer providing a brief background of the study, adding to the information shared through email. Next the respondents were encouraged to talk about themselves and their work experience in the field of SME financing to facilitate a smooth communication flow. Then the pre-developed questions were used as a guideline during the interview and notes were simultaneously taken which were transcribed on the same day to avoid losing any information. An interactive mode of interview was more suitable to increase extraction of the respondent's knowledge and experience in SME financing to produce richer and extensive data for the study (Johnson & Onwuegbuzie 2004; Tashakkori & Creswell 2007).

Qualitative data recording follows an interview protocol where information is recorded either in the form of a transcript or an audio recording during the interview; including the time, day and place of the interview (Creswell & Plano-Clark 2007; Denzin & Lincoln 2005). The interviews were recorded with an audio-recorder and transcribed on a word document immediately after the interview. The recording of the interviews was carried out after seeking approval from the interviewees. While transcribing the interview recordings, the identity of each respondent was removed and assigned with an identification code, in line with the ethical requirement of confidentiality. Since the qualitative phase is the minor component of the study, a thematic approach, which is the basic qualitative analysis with a generic form of data analysis reporting, was adopted for this study.

#### **4.9 Ethical Issues and Considerations**

Ethical issue arises because research involves data collection from people and about peoples' personal and sensitive information (Creswell 2009; Punch 2014). Obtaining approval to collect data for any kind of research from concerned authorities and individuals is one of the key mandatory requirements (Creswell & Plano-Clark 2007). Since the study involved people and dealt in data not available in the public domain, ethical clearance was obtained from the Victoria University's Human Research Ethics Committee (VUHREC) to collect primary data from Bhutan. VUHREC functions in accordance with the National Statement on Ethical Conduct in Human Research (2007) of Australia to ensure that researchers involved in human researches uphold the principles of ethical conduct while designing, conducting and reporting research findings. Creswell and Plano-Clark (2007) also reported that approval from gatekeepers, who are individuals or authorities in the concerned organisations, has to be sought to facilitate interaction with the participants in the data collection. Prior permission to carry out a field survey of SME owners was obtained from the Ministry of Economic Affairs (MoEA), Bhutan and financial institutions to interview of their credit officers.

It is the moral responsibility of the researcher to collect, handle and use the data in line with the ethical code and conduct by taking into consideration the privacy, trust and integrity of the participating people (Creswell 2009; Teddlie & Tashakkori 2003). Information to Participants Form, which was provided to all respondents, gave a brief description of the research study, its objectives and the significance of the study. Their consent was also sought through the Consent Form for Participants that detailed their voluntary participation in the survey and interview with the guarantee of strict confidentiality and anonymity. The return of the survey questionnaire was taken as their informed consent to participate in the survey. The interview respondents were informed of the interview recording and their approval sought beforehand. The questions in both data collection methods posed minimal risk to the participants in terms of emotional and physical distress. The questions covered general issues relating to financing constraints and did not involve business secrets and confidential information.

#### **4.10 Summary**

The chapter covered research methodology in terms of the research paradigm and design. A mixed method in the form of the Sequential Explanatory Method was identified as the research method of the study to address the research questions. The study was conducted in two phases in a sequential format starting with Phase I, quantitative method and followed by Phase II, qualitative method.

It also covered the development of a conceptual framework of the study from the literature review that was the guideline for structuring research questions and eventually the research hypotheses of Phase I. Accordingly, the research model was constructed in the form of multiple linear regression equation with debt accessibility as the dependent variable, and factors related to the firm, its owner, financial and bank loan information as independent variables. The purpose of the study is to investigate the effect of each of the independent variables on SME's accessibility to the bank loan.

Phase I, which is a quantitative method and deductive in nature, was given more weightage since it involved the primary target population, that is SME owners. A field survey was carried out on a sample of 400 SME owners in two towns of Thimphu and Phuntsholing, Bhutan. The target sample covered all industrial sectors from manufacturing, retail and service. The survey questionnaire was developed from an in depth literature review and met the requirements of the validity and reliability of the questions to gather bias-free data.

The minor Qualitative Phase II, inductive in nature, was made up of semi-structured telephonic interview with six loan officers from financial institutions in Bhutan, to identify the factors that influence the banks to lend to the SME sector. The interview questions were derived from the results of the Phase I quantitative data analysis and its reliability and the validity of the interview questions were also addressed. The data comprised of 30 minutes recorded telephonic interviews with the respondents. All the ethical issues were considered during the course of data collection and analysis in accordance to the VUHREC.

## **CHAPTER 5**

### **DESCRIPTIVE STATISTICS OF SME SURVEY**

#### **5.1 Introduction**

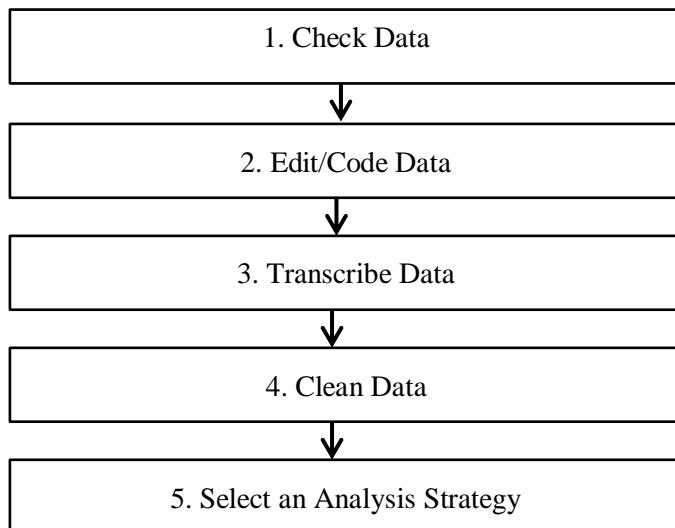
The objective of this chapter is to provide descriptive statistics of data collected through the survey of SME owners. The descriptive findings are systematically presented and their significance interpreted to produce an overview of the data. It covers the characteristics of SMEs in terms of age, size and sectoral composition and the demographic details of SME owners. The financial and loan related information in terms of loan size, interest rate and collateral are also covered in detail. STATA version Stata IC 13 for windows was used for the purpose as it has the capacity to carry out the basic descriptive analysis and regression analysis, the core methodology of the study.

Descriptive statistics describe the sample's characteristics while inferential analysis draws inferences about the population from sample data through hypothesis testing. Authors recommend beginning an empirical data analysis with descriptive statistics to a refine complex raw data structure into a summary format that is easy to understand for the readers (Teddlie & Tashakkori 2003; Zikmund et al. 2012). Hair et al. (2006) stated that descriptive statistics assists in a good understanding of the data enabling to achieve high quality evaluation, analysis and interpretation.

Creswell (2009) describes descriptive statistics as measures of central location of the sample in terms of mean, mode and median; measures of variability in terms of range, standard deviation and co-efficient of variance; construction of frequency and probability distributions and graphs. The most common forms of descriptive analysis are tabulation and graphical representation of frequency distributions and calculation of averages, frequencies and percentages (Punch 2014; Zikmund et al. 2012). Bryman and Bell (2011) and Cohen (1988) stated that descriptive statistics not only summarises distribution attributes of a single variable but also extends into relationship between the variables through a measure of associations.

## 5.2 Data Preparation and Screening

**Figure 5.1: Data Preparation Process**



*Source – Malhotra, 1999*

The process of data preparation and screening involves several steps, such as checking for missing data, incorrect entry and any outliers and preparation for data analysis of the study (Malhotra 1999). The study followed the flowchart of the data preparation and screening process shown in Figure 5.1. The flowchart highlights various data handling techniques starting from data collection through survey and data preparation to data analysis, using software packages to answer the research objectives. First the survey questionnaires collected were thoroughly checked to sort out acceptable and usable forms from the total collected questionnaire forms.

In the second step, the selected forms were coded to maintain the privacy and anonymity of the respondents. Thirdly, the data from the forms was entered into Excel in the matrix format suitable for analysis using the statistical analysis software package Stata in the later stage. The score reversion in the Likert scale rating questions was conducted to get a clearer data analysis. The fourth step of cleaning data involved cross-checking for any missing data, or wrong entry and existence of any extreme data. In the fifth and final step of selection of analysis strategy, two main techniques, descriptive analysis and regression analysis were carried out in sequence as a part of Phase I quantitative research methodology.

### **5.3 Preliminary Information on SME Survey**

This section covers the initial information on SME survey with regards to survey response rate and categorization of SMEs based on the SME survey responses.

#### **5.3.1 Survey Questionnaire Response**

A total number of 400 survey questionnaire forms were distributed to SME owners located in Thimphu and Phuntsholing, Bhutan. 394 forms were collected back from the respondents, representing a high response rate of 98.5%. The remaining 1.5% could not be collected from the respondents within the survey collection period in Bhutan. The mode of survey, which was a face-to-face survey leading to personal interaction between the researcher and the respondents, resulted in a high response rate. It provided the researcher with the opportunity to interact on a one to one basis and also to clarify the respondents' queries regarding survey questions. However, initial examination of SME data (coding, sorting and entry of the questionnaire into Excel) revealed that out of 394 firms, only 176 firms had successfully availed loans from the banks and 211 firms did not borrow from the banks.

**Table 5.1: Break-up of SME Survey Responses**

<b>Category</b>	<b>Description</b>	<b>Frequency</b>	<b>Percent</b>
Borrower SMEs	Firms that received bank loans	176	44.67
Non-Borrower SMEs	Firms that did not seek bank loans	211	53.55
Failed Borrower SMEs	Firms that failed to receive bank loans	7	1.78
	Total	394	100

As reported in Table 5.1, the survey data revealed three categories of SMEs: first category is SMEs that successfully obtained bank loans (Borrower); the second category is SMEs that did not bother to seek bank loans (Non-borrower) and the third is SMEs that were unsuccessful in availing bank loans (Failed Borrower). The survey data consisted of two distinct major groups of borrower (44.67%) and non-borrower firms (53.55%). The third category of failed borrowers whose loan applications were rejected by the banks was very small represented by only 7 firms (1.78%). It shows that less number of firms applied for bank loans (183 firms) in comparison to firms that did not seek bank loans (211). It indicates SMEs' apprehension and difficulties in approaching banks for loans, thus resorting to alternative means mainly internal sources of finance.

The first category of borrower SMEs (176 firms) that successfully availed bank loans was determined as the sample for this study to answer the research questions in regards to SMEs' accessibility to bank loans through the econometric regression model discussed in the Chapter 6.

### **5.3.2 Reasons for Rejection of SME Loan Applications**

**Table 5.2: Reasons for Rejection of SME Loan Applications**

Reasons for Loan Rejection	Frequency	Percent
Insufficient Collateral	6	85.71
No Reason	1	14.29
Total	7	100

From the 183 respondents who had applied for bank loan, 7 firms had failed to secure loans from the banks. The firms whose loan applications were rejected by the banks were asked to specify major reasons for rejection cited by the banks. According to Table 5.2, majority (85.71%) of the applications were rejected due to insufficient collateral and the remaining firms (14.29%) stated that the banks did not provide them any reasons for rejecting their loan applications. The bank loan approval rate was calculated as 96.17% and rejection rate as 3.83%. Even though the bank loan approval rate was high, the key reason of insufficient collateral reinforces the importance of collateral in regards to availing loans from the banks.

### **5.4 Descriptive Statistics of Borrower and Non-Borrower SMEs**

The descriptive statistics of first category of 176 borrower SMEs who had availed bank loans have been covered in detail in the next section. The descriptive statistics of the second category of 211 non-borrower SMEs have also been reported to understand their financing behaviour. The descriptive statistics consist of information on the demographic characteristics of the firm and its owners and financial information and loan characteristics using frequency distributions, frequency tables, cross tabulations, charts and graphs. A brief comparative account of these two groups of SMEs has been covered as well.

### 5.4.1 Characteristics of the SMEs

The background information on SMEs in terms of their size, age and business sector has been presented. Information on the ownership type and number of employees of SMEs has also been covered. SMEs were classified based on their size into micro, small and medium sized firms.

#### 5.4.1.1 Business Sector and Ownership Style of SMEs

**Table 5.3: Classification, Sector and Ownership Style of SMEs**

Category	Business Classification	Sector			Ownership		Total	Precent
		Manufacturing	Retail	Service	Partnership	Sole		
<b>Borrower SMEs</b>	Micro	1	13	5	0	19	19	10.80
	Small	18	52	69	11	128	139	78.97
	Medium	6	4	8	4	14	18	10.23
	<b>Total</b>	<b>25</b>	<b>69</b>	<b>82</b>	<b>15</b>	<b>161</b>	<b>176</b>	<b>100</b>
<b>Non-Borrower SMEs</b>	Micro	0	50	30	2	78	80	37.91
	Small	3	67	47	2	115	117	55.45
	Medium	1	8	5	4	10	14	6.64
	<b>Total</b>	<b>4</b>	<b>125</b>	<b>82</b>	<b>8</b>	<b>203</b>	<b>211</b>	<b>100</b>

According to Table 5.3, majority of the borrower SMEs consisted of small firms (78.97%), followed by micro firms (10.80%) and medium firms (10.23%). Likewise, majority of non-borrower firms also comprised of small firms (55.45%) and micro firms (37.91%). Only a small percentage of medium firms (6.64%) did not seek bank loans. It indicates that the lower end of the SME spectrum represented by micro and small firms dominates the SME sample. The firm size composition of the sample is similar to that of the other developing countries as evidenced by SMEs in Pakistan (Sherazi et al. 2013). The study sample consisted of 77.60% small firms and 22.40% medium firms.

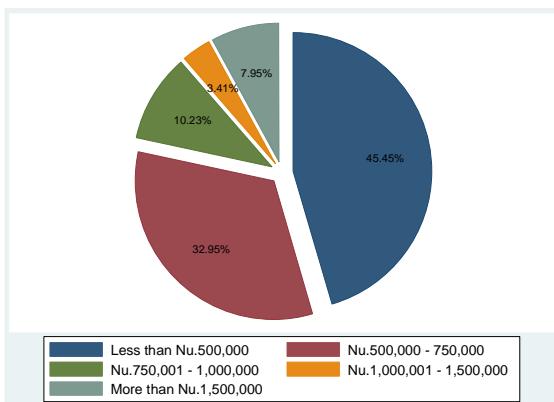
The SME survey revealed only two forms of business ownership namely sole proprietorship and partnership in Bhutan. About 91.48% of the borrowers (161 firms) were sole proprietors and the remaining 8.52% respondents (15 firms) were in a partnership form of ownership. Similarly, 96.21% of non-borrower firms were sole proprietors and remaining 3.79% were in partnership. The dominant sole ownership style is reflective of SMEs in the developing economies with the basic organizational

structure influenced by small size and limited resources. In a study conducted by Chowdhury, Azam and Islam (2015) on SMEs in Bangladesh, 70% SMEs were registered as sole proprietorship and 30% under the partnership. In another study, 40% of SMEs were in partnership followed by 50% in sole proprietorship and family business (Chowdhury, 2007). Similar statistics were also observed in India where 80% of SME individuals were the largest shareholders (FGKG, 2014).

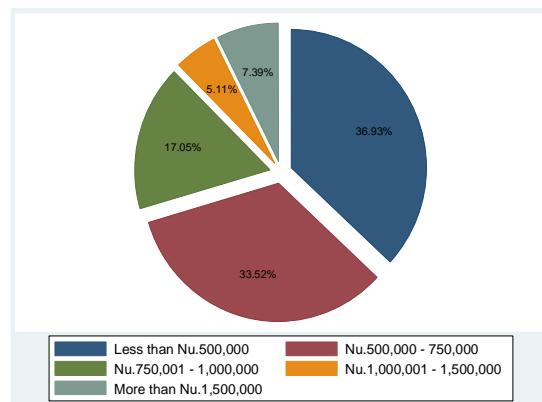
The SMEs were classified into three main sectors namely manufacturing, retail and service sectors for the purpose of this study. As per Table 5.3, the service sector was dominant with 46.59% respondents (82 firms) followed by the retail sector with 39.20% respondents (69 firms) for borrower SMEs. The manufacturing sector was represented by only 14.21% of respondents (25 firms) portraying a less industrialised economy in comparison to developed countries. Chowdhury's (2007) study sample also constituted of 50% of SMEs in trading sector followed by 25% in service sector and 20% in industrial sector in Bangladesh. On the other hand, 59.24% of non-borrowers (125 firms) belonged to retail sector, followed by 38.86% (82 firms) in the service sector and significantly small 1.90% (4 firms) in the manufacturing sector. The majority of retail sector not availing bank loans is in line with financial institutions' less preference of retail sector as covered in Chapter 7 on qualitative analysis of credit officers' interview.

#### 5.4.1.2 Fixed and Current Assets of SMEs

**Figure 5.2: Size of Fixed Assets of Borrower SMEs**



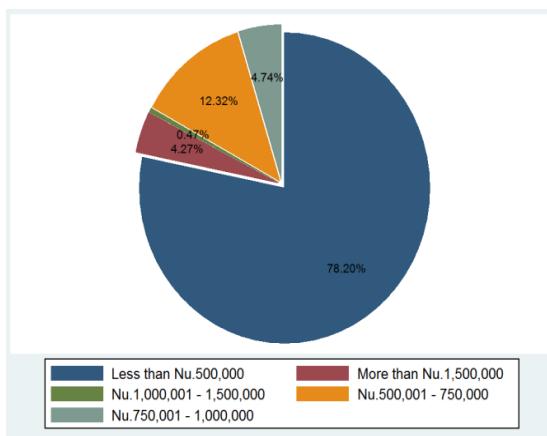
**Figure 5.3: Size of Current Assets of Borrower SMEs**



The size of the fixed and current assets also indicated that the majority of SMEs were small and micro firms. Figure 5.2 shows that 45.45% of the borrowers' fixed assets

were valued at less than Nu.500,000 and 32.96% had fixed assets worth Nu.500,001-750,000. Similarly, Figure 5.3 revealed that about 36.93% firms had current assets valued at less than Nu.500,000 and 33.52% borrowers had Nu.500,001-750,000 worth of current assets. Less than 10% respondents had fixed assets and current assets worth more than Nu.1,500,000. The size and asset value of the borrowers defines the characteristic of the SME sector in developing countries dominated by small and micro level firms and low number of medium sized firms.

**Figure 5.4: Size of Fixed Assets of Non-borrower SMEs**



**Figure 5.5: Size of Current Assets of Non-borrower SMEs**

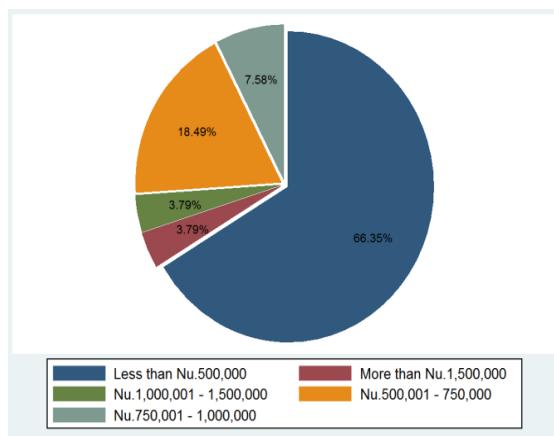
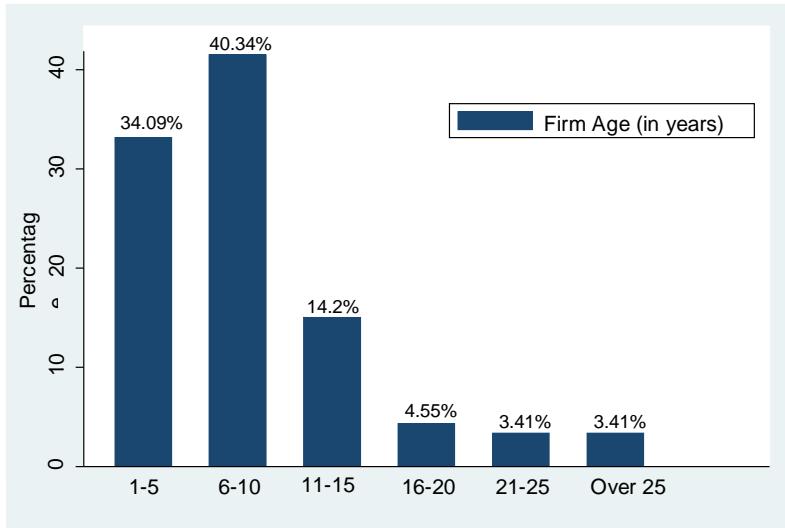


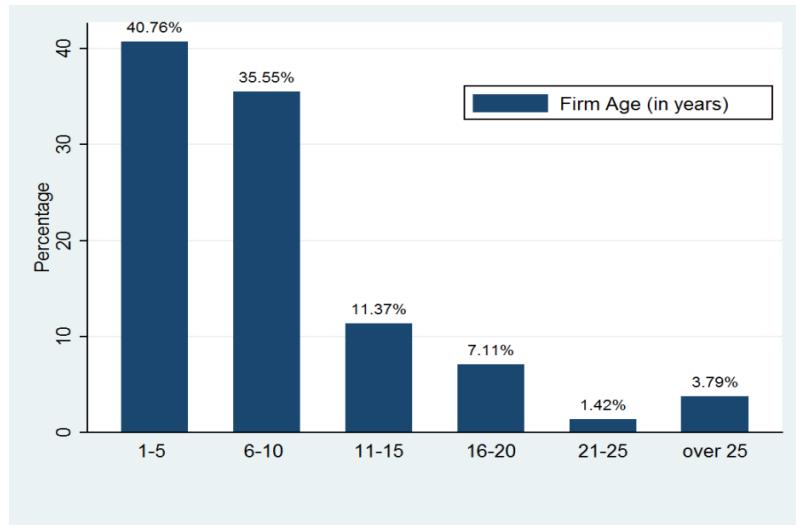
Figure 5.4 shows that 78.20% of non-borrower firms' fixed assets valued less than Nu.500,000 in comparison to borrowers' 45.45%. Figure 5.5 show that 66.35% of non-borrower firms current assets valued less than Nu.500,000 in comparison to borrowers' 36.93%. Only 0.47% non-borrower firms had fixed assets worth Nu.1,000,001-1,500,000 and 4.27% had worth more than Nu.1,500,000. Likewise, 3.79% of non-borrower firms' current assets was worth Nu.1,000,001-1,500,000 and more than Nu.1,500,000 respectively. The statistics indicate that micro and small firms dominated the SMEs that did not avail banks loans. It is in line with the literature supporting small firms' inaccessibility to external finance due to high risk and lack of collateral.

#### 5.4.1.3 Age of SMEs

**Figure 5.6: Age of Borrower SMEs**



**Figure 5.7: Age of Non-borrower SMEs**



A firm's age is one of the most common demographic factors used in SME related studies because of its association to firm stability, viability and survival. Based on Figure 5.6, 34.09% borrower firms were of 1-5 years and 40.34% firms were 6-10 years. Another 14.2 % borrower firms' age was between 11-15 years; 4.55 % in the age group of 16-20 years; 3.41 % in the age group of 21-25 years and 3.41% was over 25 years. The age range of the firms varied from 2 to over 43 years and hence the high standard deviation of 6.51. The average firm age was tabulated as 8.93 years. The overall age statistics indicated that the borrower SMEs comprised largely of young SMEs that were established within the last decade.

Likewise, based on Figure 5.7, 40.78% of non-borrower firms were of 1-5 years and 35.55% in the age range of 6-10 years. A low percentage of older firms did not seek the bank loans as indicated by 1.42% of non-borrower firms between 21-25 years and 3.79% over 25 years. The mean for firm age was tabulated at 8.53 and standard deviation as 7.37. The statistics showed that the non-borrower firms were also dominated by younger firms less than 10 years. The statistics is indicative of a young SME sector irrespective of their financing structure, similar to that of SMEs in other developing countries. The age of SMEs in Pakistan ranged from 5 to 30 years and 86% firms were in the 5-20 years age range and 14% in 21-30 years (Sherazi et al. 2013).

#### **5.4.1.4 Number of Employees of SMEs**

**Table 5.4: Number of Employees of SMEs**

<b>Category</b>	<b>Number of Employees</b>	<b>Frequency</b>	<b>Percent</b>
<b>Borrower SMEs</b>	1-5	148	84.09
	6-10	10	5.68
	11-15	9	5.11
	16-20	5	2.84
	21-25	1	0.57
	31-35	2	1.14
	46-50	1	0.57
	Total	176	100
	Mean: 4.48		
<b>Non-Borrower SMEs</b>	1-5	201	95.26
	6-10	4	1.90
	11-15	3	1.42
	16-20	2	0.95
	21-25	1	0.47
	Total	211	100
	Mean: 2.34		
	Standard Deviation: 2.84		

Based on Table 5.4, 84.09% borrower SMEs employed 1-5 workers, falling under the category of micro and small enterprises, as per the definition of SMEs based on the number of employees. 5.68% firms employed 6-10 workers while another 5.11% firms employed 11-15 employees. Likewise, 95.26% of non-borrower firms had employees from 1-5 categorizing them as micro and small enterprises. The survey also revealed that the remaining 5.12% firms had employees ranging from 16-50 in numbers. As for non-borrower SMEs, only 0.95 % and 0.47% of firms had higher number of employees ranging from 16-20 and 21-25 respectively. Similarly, about 60% of SMEs in Bangladesh employed less than 25 full time employees; 30% employed between 25-49 and the remaining 10% SMEs employed between 50-74 persons (Syed & Abdullah 2009). Data from International Labour Organization (ILO 2005) MSE survey in Nepal in 2005, reported an average employee size of 3.

The average number of employees for the borrower SMEs was calculated as 4.48 and the standard deviation as 6.34. The high standard deviation indicates the high range of number of employees from 1 to 50. The breakup statistics revealed that the sample was reflective of the lower end of the SME spectrum, dominated by small and micro firms. On the other hand, the average number of employees for non-borrower SMEs was calculated as 2.34 and standard deviation as 2.84 (reflected by employee range of 1 to 25), which was lower to that of the borrower SMEs. Thus, majority of micro and small firms did not seek loans from the banks in line with the literature supporting higher inaccessibility in lower end of SME spectrum.

## 5.4.2 Characteristics of the SME Owners

This section highlights the demographic background of SME owners and managers in terms of their age, gender and educational qualification.

### 5.4.2.1 Age of SME Owners

**Table 5.5: Age of SME Owners**

Category	Owner's Age Range	Frequency	Percent
<b>Borrower SMEs</b>	18-25	16	9.09
	26-35	84	47.73
	36-45	47	26.70
	46-55	20	11.36
	over 55	9	5.11
	<b>Total</b>	176	100
	Mean: 36.15		
	Standard Deviation: 9.69		
<b>Non- Borrower SMEs</b>	18-25	25	11.85
	26-35	88	41.71
	36-45	67	31.75
	46-55	18	8.53
	over 55	13	6.16
	<b>Total</b>	211	100
	Mean: 35.99		
	Standard Deviation: 10.14		

As per Table 5.5, borrower SME owners' age ranged from 21 to 60 years with a mean age of 36 years and standard deviation of 9.69. Likewise, the non-borrowers' age varied from twenty one to sixty years with an average age of 35.99 years and standard deviation of 10.14. The high standard deviation of both the categories is acceptable due to high range in the ages of the SME owners. Most of the borrowers (47.73%) and non-borrowers (41.71%) were in the age groups of 26-35 years. It was followed by 26.70% of borrowers and 31.75% of non-borrowers in the age group of 36-45 years.

The lowest 5.11% borrowers were classified under the age group of over 55 years, followed by 9.09% respondents in the age group of 18-25 years and 11.36% in the age group of 46-55 years. As for the non-borrowers, the lowest 6.16% firms fell in the age group of over 55 years old followed by 8.53% in the age group of 46-55 years old and 11.85% in the age group of 18-15 years. Similar statistics was observed in Bangladesh

as reported by Islam's (2009) study with 34.4% of small business owners in the age group of 25-30 years while owners with the age over 45 years constituted of only 3.6%. Chowdhury (2007) also observed that 64.1% of owners were between 35-40 years followed by 25.9% in between 40-50 years in Bangladesh.

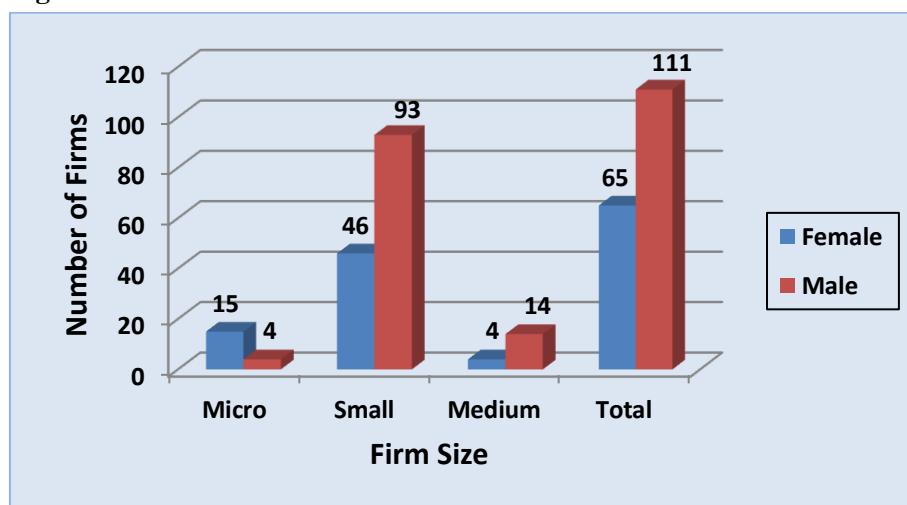
#### 5.4.2.2 Gender of SME Owners

**Table 5.6: Gender of SME Owners**

Category	Gender	Frequency	Percent
<b>Borrower SMEs</b>	Female	65	36.93
	Male	111	63.07
	<b>Total</b>	176	100
<b>Non- Borrower SMEs</b>	Female	117	55.45
	Male	94	44.55
	<b>Total</b>	211	100

In terms of the owner's gender, 63.07% of the borrowers were male and 36.93% were female. It indicated that male owned firms utilised more bank loans than female owners. On contrary, more female owned firms (55.45%) did not seek bank loans in comparison to male owners (44.55%). This is inline with the literature supporting gender disparity in financing accessibility. Chowdhury's (2007) study sample constituted of 76.6% male and 23.4% female. The gender disparity in accessing finance is relatively on the high and still on rise for women in Bangladesh.

**Figure 5.8: Gender of SME Owner vs. Firm Size**

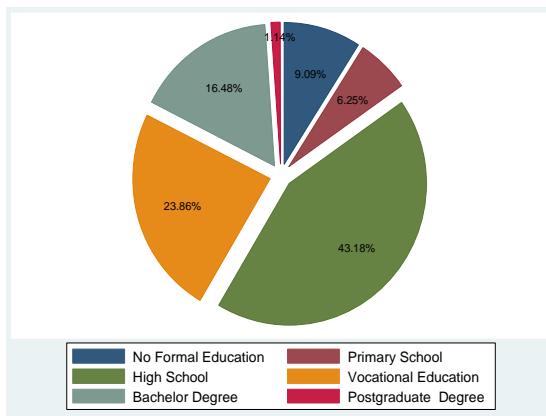


The breakup statistics of the borrower's gender (study sample) in terms of the firm size indicated that mostly women own the lower spectrum of the SME sector while men own

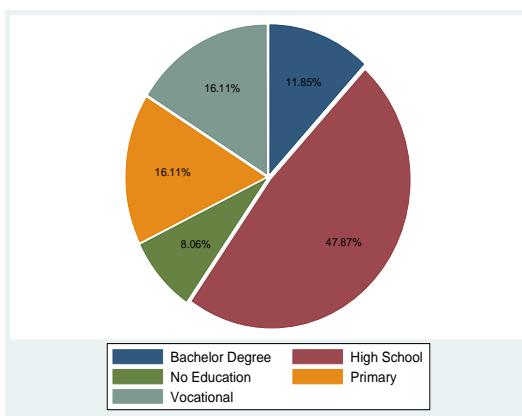
the higher end as reflected in Figure 5.8. The micro firms were owned more by women (8.52%) than men (2.27%) while small firms' ownership was dominated by men (52.84%) in comparison to women (26.14%). Likewise, the majority of medium sized firms were owned more by men (7.95%) than women (2.27%). The statistics reveals gender disparity in the size of the firm with the dominance of male owners over the female owners as evidenced by literature (Coleman 2000; Carter et al. 2007).

#### 5.4.2.3 Educational Qualification of SME Owners

**Figure 5.9: Educational Qualification of Borrower SME Owners**



**Figure 5.10: Educational Qualification of Non-borrower SMEs**



Reflecting a basic level of education, majority of borrowers (43.18%) had graduated high school followed by 23.86% with vocational education, 16.48% with bachelor degrees and 1.14% with postgraduate qualification (Figure 5.9). As per Figure 5.10, majority non-borrowers (47.87%) had high school level education followed by 16.11% with vocational education. On the lower end, 9.09% of borrowers did not have any kind of formal education while 6.25% of respondent had completed only primary level schooling.

Similarly, 8.06% of non-borrowers did not have any kind of formal education while 16.11% had primary level schooling. The statistics indicated that SME owners with minimum education are more reluctant to borrow from the banks. The absence of SME owners with master's degree educational qualification reinforced the basic level of education among SME owners in general.

**Table 5.7: Educational Qualification of Borrower SME Owners**

Firm Size	Owner's Educational Qualification						Total
	No Formal Education	Primary School	High School	Vocational Education	Bachelor Degree	Postgraduate Degree	
Micro	0 (0%)	3 (15.79%)	12 (63.17%)	2 (10.52%)	2 (10.52)	0 (0%)	19
Small	16 (11.51%)	7 (5.04%)	57 (41.00%)	37 (26.62%)	22 (15.83%)	0 (0%)	139
Medium	0 (0%)	1 (5.55%)	7 (38.89%)	3 (16.67%)	5 (27.78%)	2 (11.11%)	18
Total	16	11	76	42	29	2	176

According to Table 5.7 with break up statistics of borrowers' educational qualification and firm size showed that micro firms owners' were with lower educational qualification (postgraduate – 0%; bachelor degree – 10.52%; vocational education – 10.52%; high school – 63.17%; primary school – 15.79%; no education – 0%). Similarly, the small firm owners also had lower educational level with 0% postgraduate, 15.83% bachelor degree, 26.62% vocational education, 41.00% high school, 5.04% primary school, 11.51% no formal education. The educational qualification of medium firms was higher in comparison to micro and small firm owners. 11.11% owners had postgraduate degree, 27.78% with bachelor degree, 16.67% with vocational education, 38.89% with high school education, 5.55% with primary school education and 0% with no formal education.

The overall educational level of SME owners was low, dominated by owners with high school and vocational education. The statistics also revealed that few highly qualified people ventured into the SME sector similar to SME sector in other developing countries. The educational level of the SMEs in Pakistan was represented by 62.1% with higher secondary school; 25.20% with bachelor degree and 12.60% with master degree (Sherazi et al. 2013). Majority of SME owners in Bangladesh had education of high school representing 32% of the total sample (Islam 2009). His study showed that only 4% of SME owners had master degree and 4% without any formal education. Similarly, Chowdhury (2007) reported 48.7% of SME owners in Bangladesh had completed bachelor's degree while only 6.2% sample had higher education qualification and 11.9% SME owners did not have any formal education.

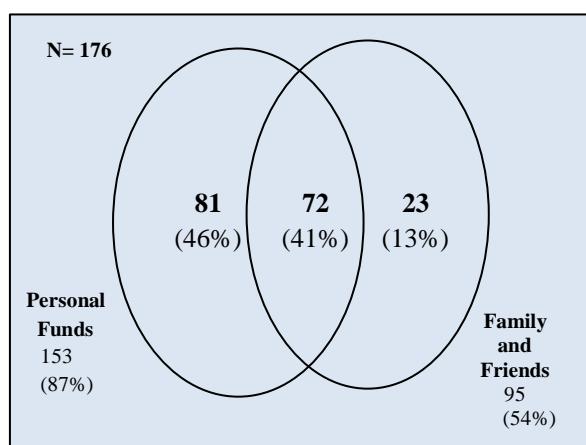
### 5.4.3 Financial Information of the SMEs

SME financing sources have been broadly classified into two main sources: internal finance and external finance. The internal finance is comprised of the owner's personal funds and funds from family and friends, without any extra cost involved. The external financing consists of debt finance from external sources such as loans from the banks, private moneylenders, government and NGO schemes. However, for the purpose of this study, external finance is limited to bank loans in line with the objective of the study.

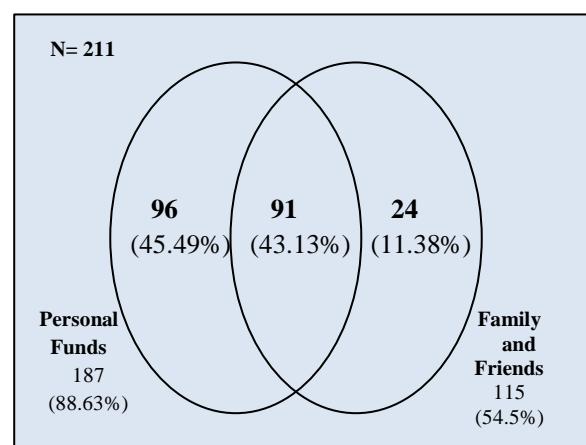
#### 5.4.3.1 Internal Finance of SMEs

##### 5.4.3.1.1 Sources of Internal Finance of SMEs

**Figure 5.11: Sources of Internal Finance of Borrower SMEs**



**Figure 5.12: Sources of Internal Finance of Non-Borrower SMEs**



According to Figure 5.11, about 87% borrowers used their personal savings to finance their business and 54% sought funds from their family and friends. Similarly, 88.63% of the non-borrower firms used their personal savings to finance the business and 54.5% sought funds from their family and friends (Figure 5.12). It was also observed that 41% borrower SMEs and 43.13% non-borrower SMEs used a combination of both personal funds and funds from family and friends to invest in their business. Personal saving is the most dominant source of internal finance for both borrower and non-borrower SMEs. Although the size of internal finance was small, non-borrower firms resorted to solely on the internal finance. The high percentage usage of internal funds to finance the business indicates SMEs' difficulties in accessing bank loans in developing countries.

Even though India's financial market and economy is well developed in comparison to Bhutan, Indian SMEs still face challenge to access finance. 78% of SMEs used internal finance and finance from informal sources and only 22% SMEs had access to formal external finance (IFC 2010). Similarly, in Bangladesh, it was reported that 75% of capital required for SME investment had to be generated through retained earnings in comparison to other countries. Islam's (2009) study sample revealed that a total of 73.99 of SME owners used internal finance (28.27% personal funds and 45.72% from family). In Bangladesh, 58% of SMEs cited lack of investment funds and additional 35% cited lack of operating funds (Daniels 2003).

#### **5.4.3.1.2 Size of Internal Finance of SMEs**

**Table 5.8: Size of Internal Finance of SMEs**

Category	Size of Internal Finance (in Nu.)	Frequency	Percent
<b>Borrower SMEs</b>	Less than 200,000	113	64.21
	200,001 - 400,000	23	13.07
	400,001 -600,000	21	11.93
	600,001 - 800,000	5	2.84
	800,001 – 1,000,000	5	2.84
	More than 1,000,000	9	5.11
	<b>Total</b>	176	100
	Mean:	327,488.60	
	Standard Deviation:	428,300.30	
	Minimum: 30,000	Maximum: 2,500,000	
<b>Non-Borrower SMEs</b>	Less than 200,000	139	65.88
	200,001 - 400,000	38	18.01
	400,001 -600,000	18	8.53
	600,001 - 800,000	5	2.37
	800,001 – 1,000,000	3	1.42
	More than 1,000,000	8	3.79
	<b>Total</b>	211	100
	Mean:	595,137.40	
	Standard Deviation:	3,700,794 .00	
	Minimum: 10,000	Maximum: 50,000,000	

Providing evidence to SMEs' small size in terms of its financial investment, Table 5.8 show that 64.21% of borrower firms' internal finance size was less than Nu.200,000. Likewise, majority (65.88%) of non-borrower firms' internal finance was also under Nu.200,000 indicating small size of internal finance. About 13.07% borrower and

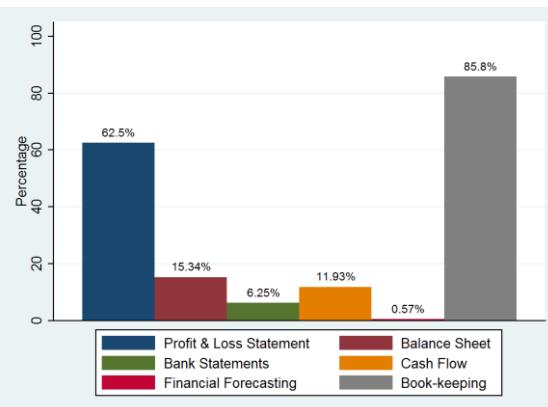
18.01% of non-borrower firms had internal finance size of Nu.200,001 - Nu.400,000. Similarly, 11.93% of borrower and 8.53% non-borrower firms' internal finance size was Nu.400,001 - Nu.600,00. The internal finance size of Nu.600,001 - Nu.1,000,000 was accounted for by 5.68% borrower and 3.79% non-borrower firms, while internal finance of more than Nu.1,000,000 was accounted for by 5.11% borrower and 3.79% non-borrower firms respectively.

The survey revealed that the average internal finance for borrower SMEs was Nu.327,488.60. On the other hand, in absence of external finance, the internal finance average for non-borrower SMEs was higher at Nu.595,137.40 than that of borrower SMEs. The high standard deviation of borrower firms (428,300.30) and non-borrower firms (3,700,794) indicates high variance in the size of the internal finance of SMEs. There is vast difference between the minimum amount of Nu.30,000 to maximum of Nu.25,000,000 for borrower SMEs and minimum of Nu.10,000 to maximum of Nu.50,000,000 for non-borrowers firms respectively. The overall statistics reinforces the smallness of internal finance of SMEs and hence the greater need for external finance for expansion and growth.

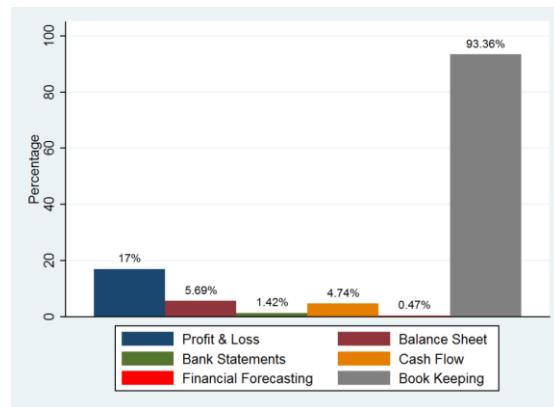
#### **5.4.3.2 Financial Management of SMEs**

##### **5.4.3.2.1 Types of Financial Statements maintained by SMEs**

**Figure 5.13: Financial Statements maintained by Borrower SMEs**



**Figure 5.14: Financial Statements maintained by Non-borrower SMEs**



With regard to the types of financial information maintained by SMEs, Figure 5.13 show that the highest number of borrower firms (85.80%) maintained basic book keeping of business transactions, followed by 62.50% of firms maintaining profit and loss statements. In the same line, Figure 5.14 show that 93.36% of non-borrower firms

maintained basic book keeping of daily business transactions followed by 17.00% firms with profit and loss statement. Depicting a low level of financial management, only 15.34% borrower firms and 5.69% non-borrower firms maintained balance sheet; 11.93% borrower firms and 4.74% non-borrower firms maintained cash flow; and 6.25% borrower firms and 1.42% non-borrower firms maintained bank statements. A negligible 0.57% borrower firms and 0.47% non-borrower firms carried out financial forecasting due to their lack of capacity to undertake complex financing techniques. The financial statements maintained by the borrower and non-borrower firms were similar. The statistics reinforce the basic and low level of financial information within the SME sector in general, in line with SME financing literature.

#### **5.4.3.2.2 Level of Financial Information Management of SMEs**

**Table 5.9: Financial Management of SMEs**

Category	Financial Records Prepared by	Frequency	Percent
<b>Borrower SMEs</b>	1. Professional Accountant	50	28.41
	2. Owner	126	71.59
	• <i>with financial accounting knowledge</i>	49	38.89
	• <i>without financial accounting knowledge</i>	77	61.11
	Total	176	100
<b>Non-Borrower SMEs</b>	1. Professional Accountant	25	11.85
	2. Owner	186	88.15
	• <i>with financial accounting knowledge</i>	43	23.12
	• <i>without financial accounting knowledge</i>	143	76.88
	Total	211	100

Table 5.9 depicts a poor level of financial management within the SME sector. The financial information of only 28.41% borrower firms was managed by professional accountants while the finances of 71.59% of firms was maintained by the owners or managers themselves. Only 38.89% borrower firm owners/managers had the required financing and accounting knowledge while the remaining 61.11% owners managing financial matters did not have any accounting knowledge. Confirming that SMEs have inadequate financial management 11.85% of non-borrower firms' financials were managed by professional accountants while the finances of 88.15% firms were managed by owners. Only 23.12% of owners had required financing and accounting knowledge while the remaining 76.88% of owners did not have required accounting knowledge. Therefore, the statistical figures reinforce that SMEs have a basic financial management system, which is considered as their main weakness by financial institutions.

#### 5.4.3.2.3 Quality of Financial Information

The level of financial information maintained was calculated for borrower SMEs based on the number of financial statements maintained by the firm and the accounting knowledge of the person handling the finances. This was done to calculate the financial information variable (FININFO) of the research model covered in detail in chapter 6. The firms maintaining more financial statements and with accounting knowledge were given higher points and categorised as Very Low Information, Low Information, Medium Information, High Information and Very High Information.

**Table 5.10: Level of Financial Information of SMEs**

Level of Financial Information	Number of Firms			Total	Percent
	Micro	Small	Medium		
Very Low	17 (23.29%)	55 (75.34%)	1 (1.37%)	73	41.48
Low	2 (5%)	38 (95%)	0 (0%)	40	22.73
Medium	0 (0%)	30 (81.08%)	7 (18.92%)	37	21.02
High	0 (0%)	13 (68.42%)	6 (31.58%)	19	10.79
Very High	0 (0%)	3 (42.86%)	4 (57.14%)	7	3.98
Total	19	139	18	176	100

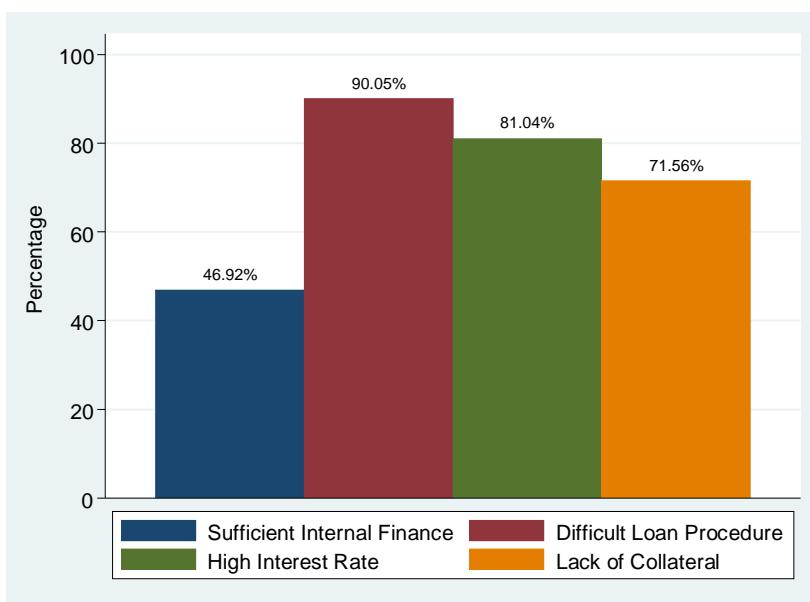
According to Table 5.10 only 7 firms (3.98%) maintained a very high level of financial information and another 19 firms (10.79%) maintained a high level of information in contrast to 73 firms (41.48%) with very low information and 40 firms (22.73%) with low level of information. About 37 firms (21.02%) had a medium level of financial information. The statistics indicates that the financial information of the borrower SMEs was more on the very low and low level corresponding to high level of information opacity. The statistics is consistent with the literature indicating low level of financial and management knowledge and skills in SME sector (Alle & Yohn 2009; Leary & Roberts 2010). SMEs' lack of skills in project and financial proposals has been identified as one of the limitations of the SME sector in the developing countries (Quader & Abdullah 2009; Chowdhury et al. 2015).

The break-up of financial information according to firm size indicated that 17 medium firms had medium to high level of financial information in comparison to only 1 medium firm with very low level of financial information. On the other hand, 19 micro firms' financial information was ranked low and very low. The highest level of financial information for micro firms was low. From a total of 139 small sized firms, 123 firms maintained low to very low levels of financial information in contrast to 16 firms with high and very high levels of information. The statistics indicated the existence of low level of financial information in the lower spectrum than in the higher spectrum of the SME sector.

#### **5.4.3.3 External Finance of SMEs**

##### **5.4.3.3.1 Reasons for not Applying for Bank Loans**

**Figure 5.15: Reasons for not Seeking Bank Loans**

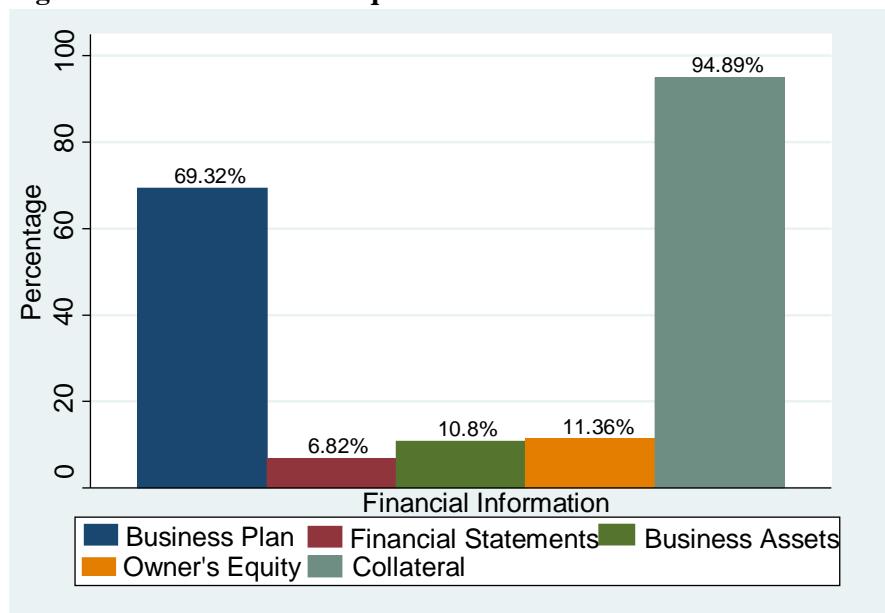


The non-borrower SMEs did not seek any bank loans and were totally dependent on internal finance inclusive of personal funds and funds from family and friends. The 211 non-borrower firms were asked share the reasons for not seeking external finance. As evident from Figure 5.15, the main reasons for not seeking loan from the banks were listed as difficult loan procedure and high interest rate as indicated by 90.05% and 81.04% of respondents. The third important reason cited was lack of collateral by 71.56% of respondents. Lastly, 46.92% of respondents did not seek loan because they had sufficient internal finance.

#### **5.4.3.3.2 Information Required for Availing Bank Loans**

The firms that received bank loans were asked to list information that was provided to the banks when applying for bank loan. Figure 5.16 show that business plan was the most common document submitted by 69.32% of respondents to the banks. A very low percentage of firms (6.82%) submitted financial statements, 10.8% of firms shared information regarding their business assets and 11.36% gave information on owner's equity to the banks. The survey statistics provided strong evidence of 98.89% firms pledging collateral against the bank loans.

**Figure 5.16: Information Required for Bank Loans**



#### **5.4.3.3.3 Description of Loan Amount**

**Table 5.11: Description of Bank Loan Amount**

Description	Mean	Standard Deviation	Minimum	Maximum
Loan Applied (in Nu.)	744,545.50	2,066,795	45,000	25,000,000
Loan Approved (in Nu)	666,278.40	2,006,084	45,000	25,000,000

As per Table 5.11, the average loan amount that was applied for by SMEs was Nu.744,545.50 and the average loan amount approved by the banks was Nu.666,278.40. The maximum loan amount disbursed by the banks was Nu.25,000,000 and the minimum was Nu.45,000. Hence, the standard deviation calculated for loan applied and loan approved was high at 2,066,795 and 2,006,084 respectively. The difference between the loan amount applied for and the loan amount approved by the banks was not significantly different.

#### 5.4.3.3.4 Proportion of Bank Loan Approved to Loan Applied

**Table 5.12: Percentage of Bank Loan obtained by SMEs**

Percentage of Loan obtained	Frequency	Percent
Less than 25%	0	0
26-50%	5	2.84
51-75%	28	15.91
76-100%	143	81.25
Total	176	100

About 81.25% of respondents received 76-100% of the loan amount applied for, from the banks. Another 15.91% of respondents' approved loan amount was between 50-75% of the loan amount applied. Only 2.85% respondents received 26-50% of the loan amount applied for. Table 5.12 show that in the case of successful loan applications, there was not much difference in the loan amount applied for by SMEs and the loan amount approved by the banks. This positive behaviour of the banks is influenced by the provision of collateral as a security by the firms against the loan disbursed.

#### 5.4.3.3.5 Interest Rate charged on SME loan

**Table 5.13: Interest Rates charged on SME Loans**

Interest Rate on Loan	Frequency	Percent
16%	1	0.57
15%	11	6.25
14.50%	1	0.57
14%	70	39.77
13.75%	1	0.57
13.50%	14	7.95
13%	50	28.41
12%	13	7.39
Did not know the interest rate	15	8.52
Total	176	100
Mean :	13.56	
Standard Deviation :	0.75	
Maximum: 16%	Minimum: 12%	

According to the SME sample, the average interest rate charged on the loan by the banks was 13.56% and standard deviation was 0.75 (Table 5.13). The highest interest rate charged on the loan was 16% and the lowest was 12%. About 8.52% of respondents did not know the interest rate charged by the banks on their loan, indicating the limited financial knowledge of SME owners/managers. The low level of SMEs' financial

literacy lowers their financial credibility in the eyes of the finance providers. Application of higher interest rates on SME loans have been cited in the past studies. A World Bank (2010) study on SME banking assessment of Sri Lankan banks reported that the average interest rate charged by Sri Lankan banks was between 12-19%. In Bangladesh, high interest rate was mentioned as a hindrance to finance accessibility with average interest rate of 14-15.6% (Quader & Abdullah 2009; Chowdhery 2007). Similarly, a survey of SMEs in Kenya revealed that the interest rate charged on SME loans were higher to rates charged to larger firms (World Bank 2015). The average interest rate was calculated as 20.6% for micro firms; 18.5% for small firms; 17.4% for medium firms and 15.3% for large firms.

#### **5.4.3.3.6 Loan Term (Duration of loan)**

**Table 5.14: Details of Loan Term**

<b>Loan Term</b>	<b>Frequency</b>	<b>Percent</b>
More than 5 years	36	20.45
3-5 years	98	55.68
1-2 years	42	23.87
Total	176	100

As per Table 5.14, the average loan duration was 3-5 years as reported by 55.68% of SMEs, followed by 23.87% of firms that received loans for 1-2 years. About 20.45% of SMEs received loans for duration of more than 5 years. The survey statistics indicate that the banks preferred short term loans (1-5 years) in comparison to loan duration of more than 5 years.

#### **5.4.3.3.7 Collateral used against Loan by SMEs**

**Table 5.15: Details of Collateral against SME Loan**

<b>Collateral Type</b>	<b>Frequency</b>	<b>Percent</b>
<b>Business Assets</b>		
Yes	118	67.05
No	58	32.95
Total	176	100
<b>Personal Assets</b>		
Yes	161	91.48
No	15	8.52
Total	176	100

Based on Table 5.15, about 91.48% of respondents used their personal assets as collateral to secure bank loans, while 67.05% respondents used their business assets as collateral. These numbers are reflective of collateral based lending, which is highly prevalent in developing countries where the high value personal assets of SME owners are preferred by financial institutions. For financial institutions, the fixed assets serve as security against SMEs' unpredictable and unreliable return on investment.

#### 5.4.3.3.8 Proportion of Collateral Size to Loan Amount

**Figure 5.17: Proportion of Collateral Size to Loan Amount**

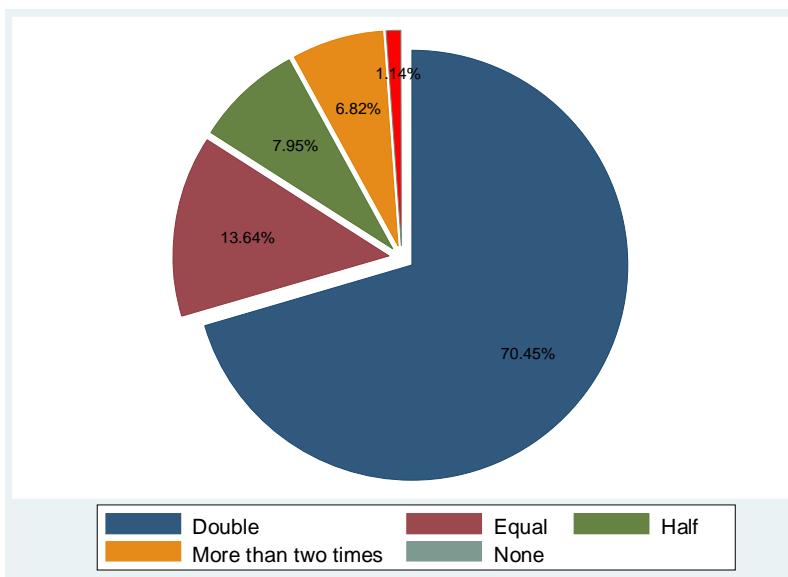


Figure 5.17 reveals that the collateral size provided by firms in proportion to loan amount obtained from banks was relatively higher. About 70.45% of the sample mortgaged collateral worth two times the loan amount and 6.82% firms pledged more than two times the loan amount. About 13.64% of respondents provided collateral value equal to the loan amount and another 7.95% provided collateral of half the value of the loan amount. Unexpectedly, 1.14% of respondents (2 firms) reported not mortgaging any collateral to secure loans from the banks, which was considered as an error in answering by the respondents. It is evident that the value of collateral pledged by SMEs against loan was very high increasing the cost of borrowing. Therefore, the high cost due to high interest rate and collateral requirement is identified as the key constraint to accessibility to finance.

## **5.5 Comparative Analysis of Borrower and Non-borrower SMEs**

Only 6.64% of medium sized firms did not seek bank loans to 10.23% of medium sized firms that sought bank loans. On the other hand, 37.91% of micro firms did not seek bank loans in comparison to 10.80% of micro firms with bank loans. Also, the average number of employees of non-borrower firms was 2.34 while that of the study sample with bank loan was 4.48. The comparison between borrower and non-borrower SMEs showed that more micro firms did not seek bank loans, indicating higher difficulty faced by micro firms in accessing bank loans.

While the average age of firms with and without loans was almost the same (8.93 and 8.53 respectively), the statistics revealed that 40.78% of younger firms (less than 5 years) did not seek bank loans in comparison to 34.09% of SMEs that availed bank loans. Hence, it moderately indicates that firms younger than 5 years tend to rely more on internal finance and less on bank loans. The findings are in agreement with the literature that younger and smaller firms face more difficulty in accessing external financing largely due to information asymmetry between the borrowers and lenders. Larger and matured firms with more assets and retained earnings reverse the issue of information asymmetry to easier access to bank loans. In terms of firm sectors, it was found that 59.24% of retail firms had not availed bank loans in comparison to 39.20% of retail firms with bank loans. Likewise, it was also found that 14.20% of manufacturing firms received bank loans while a small percentage of manufacturing firms (1.89%) did not seek bank loans. The statistic revealed that retail firms faced more difficulty than manufacturing firms in accessing bank loans indicating association between firm sector and bank loan accessibility.

More female owned firms (55.45%) did not seek bank loans in comparison to firms with bank loans (36.93%). On the other hand, 63.07% of male owned firms constituted the total of SMEs that had successfully got bank loans in comparison to 44.55% of male non-borrowers. In concurrence with the literature, the statistics reveal that female owners are less likely to use debt financing due to various factors. This behaviour of female owners not seeking bank loans could be influenced by higher inaccessibility to bank loans in comparison to male counterparts. The statistics indicate existence of gender disparity in SMEs' access to bank loans in favour of male owned firms over female owned firms. In terms of owner's age, the average age of SME owners was 36

years for both the firms with and without bank loans. Hence there was not much difference in terms of owners' age between the two categories.

The statistical break-up of owner's education revealed overall low level of education for both the categories dominated by high school level with 43.18% of SMEs with loan and 47.87% without loan. 16.11% of SME owners with primary education did not seek bank loans in comparison to 6.25% of owners with primary education. Likewise, 23% of owners with vocational education availed loans in comparison to 16.11% of firms without loans; 16.48% of bachelor degree with loans to 11.85% without loans. The statistics indicate a higher level of education of SME owners with loan in comparison to non-borrower firms by a small margin. The statistics therefore reveal a positive association between the educational level of SME owners and bank loans.

The average size of internal finance was higher for non-borrower firms with Nu.595,137 in comparison to Nu. 327,488.60 of SMEs with bank loans. Since the non-borrower firms relied on solely on internally generated funds, the larger size of internal finance is warranted. However, the break-up statistics of internal finance of SMEs with and without loans revealed the smallness size of overall internal finance of SMEs. About 65% of the total 394 survey firms had internal finance less than Nu.200,000 while only about 5% of firms had internal finance worth Nu.1,000,000. It reinforced the urgent need of external financing for both SMEs with and without loans.

Majority of SMEs (85.8% with loans and 93.36% without loans) maintained basic booking of business transactions while very small percentage of SMEs carryout out complex financial forecasting (0.57% with loans and 0.47% without loans). The statistics reveals a poor financial management system within the SME sector as recounted in the existing literature. The statistics also revealed that higher percentage of firms with loans maintained other financial statements. 62.5% firms with loans maintained profit and loss statement to 17% firms without loans. Similarly, 15.34% firms with loans maintained balance sheet while only 5.69% firms without loans maintained balanced sheet. The financials of 19.29% of SMEs with loans was managed by professional accountants to 11.85% of SMEs without loans. Hence, despite of overall low level of financial management of SMEs in Bhutan, the level of financial management complexity was slightly higher in SMEs with loans than without loans.

## **5.6 Summary**

This chapter covered descriptive information on the study sample in terms of its demographic characteristics, financing information and accessibility to bank loans. From the total 394 survey forms collected, only 176 firms (borrower) had successfully availed bank loans while 7 firms' failed to secure any financing from the banks. The remaining 211 firms (non-borrower) did not borrow from the banks citing difficult loan procedure, high interest rate and collateral requirement as their main reasons.

The 176 borrower firms were determined as the sample of the study to answer the research questions through multiple linear regression analysis in Chapter 6. The characteristics of the sample firm and its owners depicted a picture of developing economy. Majority of borrower firms were micro and small sized while the medium sized firms were less in number. The average age of the sample was eight years with a minimum of one year and a maximum of 30 years. Also 94.16% of firms were classified as sole proprietorship and 5.84% as partnership. SMEs were involved mostly in service and retail/trade sectors and low in manufacturing sector.

Males dominated gender of the sample with 63.07% to female representation of 36.93%. Most of the respondents fell under the age range of 26-35 years (41.71%) and 36-35 years (31.75%). The educational qualification of the owners was low dominated by high school (48.87%) and vocational education (16.11%). The financial management and accounting knowledge within the SME was basic and low. The average interest rate charged on loan was 13.56% and average loan term was 3-5 years. 91.48% respondents used personal assets as mortgage to secure loans while 67.05% used business assets. The most predominant value of the collateral pledged against bank loan was two times the loan amount.

The 211 non-borrower firms were comprised mostly of small (55.45%) and micro firms (37.91%) and were younger than 10 years. The smaller and younger firms did not avail bank loans could be associated with the difficulty faced by this category in accessing bank loans. More female owners (55.45%) did not seek bank loans in comparison to the male owners indicating gender disparity in loan accessibility. The size of internal finance of non-borrower firms was comparatively small despite being the only financing source. This reinforced the need for external finance for its growth.

## CHAPTER 6

### DATA ANALYSIS: PHASE I QUANTITATIVE METHOD

#### 6.1 Introduction

This chapter outlines the empirical analysis using multiple linear regression model to test the hypotheses of the study. It investigates the relationship between SMEs' accessibility to the bank loan and factors related to the firm and its owner; financial information, loan characteristics. As reported in chapter 5, only 7 respondents' loan applications were rejected by the banks as compared to 176 respondents who successfully got bank loans. Due to the small loan application rejection rate, investigation of SMEs' accessibility to finance in terms of success and failure of the SME loan application was not possible. Therefore, the dependent variable in the regression model, SMEs' debt accessibility (DA) was represented in terms of financial leverage ratio based on the prior studies on capital structure.

#### 6.2 Descriptive Statistics of Numerical Variables

**Table 6.1: Descriptive Statistics of Numerical Variables**

Variables	N	Mean	Standard Deviation	Minimum	Maximum
DA	176	0.59	0.16	0.19	0.98
INTFIN	176	327,488.60	428,300.30	30,000	2,500,000
INT	176	13.57	0.75	12	16
AGEF	176	8.93	6.52	2	43

DA=Debt Accessibility (Financial leverage), INTFIN = size of internal finance, INT= Interest rate charged on the loan, AGEF= Firm age

Table 6.1 shows descriptive statistics for the numerical dependent variable and numerical independent variables of the regression model. The mean calculated for the dependent variable debt accessibility (DA) was 0.59. The maximum value of DA was reported as 0.98 and the minimum value as 0.19. The standard deviation for DA was calculated as 0.16 since the range of the DA values is not large. The average internal finance (INTFIN) was calculated as Nu.327,488.60 with the highest internal finance recorded as Nu.2,500,000 and the lowest as Nu.30,000. Due to high variance in the INTFIN values, a high standard deviation of Nu. 428,300.30 was reported. The highest interest rate (INT) charged on the SME loan by the banks was 16% and the lowest was 12%. Hence, the average interest rate on the loan was calculated as 13.56% and a

standard deviation was 0.75 due to small difference between the highest and lowest interest rates. The range of the variable AGEF representing firm's age varied from 2 to over 43 years and hence the high standard deviation of 6.51 years. Likewise the average AGEF was recorded as 8.93 years.

### **6.3 Multiple Linear Regression**

Multiple linear regression (MLR) model forms the core data analysis method of the quantitative Phase I of the study. MLR is one of the widely used statistical tools in econometrics for analysing data consisting of multiple variables (Gujarati 2005; Hair et al. 2006). Hopkins and Ferguson (2014) and Cohen et al. (2013) voiced that OLS based regression provided more accurate relationship between the dependent variable and the independent variables. The accuracy of the model parameters is achieved by minimizing the vertical distance between the observed responses and the responses predicted by the linear estimate (Hair et al. 2006; Wooldridge 2009). The regression line minimises the sum of squared vertical distances between the observed points and the linear predicted fitted line. Literature indicates that regression analysis has been used on SMEs and family owned businesses research studies (Anderson & Reeb 2003; Hopkins & Ferguson 2014; Schulze, Lubatkin, Dino & Buchholtz 2001). It is also suitable because the analysis is straightforward and enables multiple statistical tests and wide range of diagnostics (Pedace 2013; Zikmund et al. 2012). It also allows the incorporation of non-numerical categorical independent variables in regression equation, which is the case of this study.

Hence, the MLR model of the study estimated the relationship between SMEs' debt accessibility and factors arising from SMEs' internal and external environment using ordinary least squares (OLS) as the linear modelling estimation technique. OLS was applied to the cross-sectional survey data for the year 2013 to estimate the MLR model and hypotheses of the study. The standard model validation criteria such as  $R^2$ , t-test statistics and corresponding p-values were calculated to determine the validation of the model. The  $\beta$  coefficient of the independent variable was used to measure the strength of their relationship with the dependent variable (Gujarati 2005, 2011). Econometric issues associated with MLR analysis such as multicollinearity, heteroscedasticity and model misspecification were diagnosed and addressed with corrective methods.

## 6.4 Initial Examination of SME Survey Data

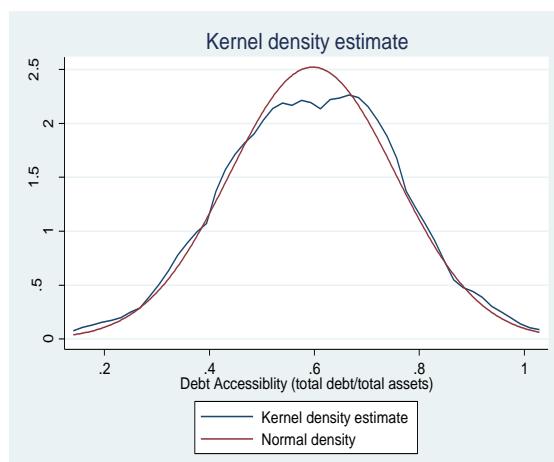
The primary survey data was prepared for the regression analysis through preliminary examination to ensure bias free and valid econometric analysis results. The 2013 cross-sectional data collected through questionnaire survey of SME owners in Bhutan consisted of both quantitative (numerical) and qualitative (categorical) data. Several authors (Bryman & Bell 2011; Seddighi 2012) have recommended to initiate the data analysis with visual and graphical representation like basic scatter plots to detect irregularities within the data. Hence, following initial examination steps were carried out on SME survey data prior to multiple regression analysis:

### 6.4.1 Continuity and Normality of Numerical Variables

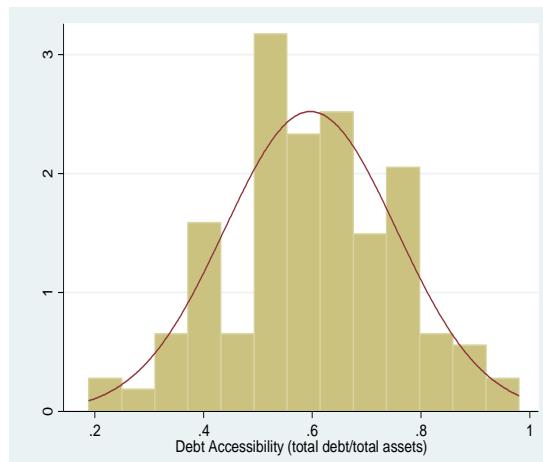
A normality frequency distribution is symmetrically bell shaped with greatest frequency of scores in the centre and smaller frequencies at the extreme ends (Gujarati 2005; Wooldridge 2009). Although a perfect normality of the dependent variable is not necessary, it is important that the dependent variable in a MLR analysis is not sufficiently deviated from normality (Hair et al. 2006). The normality assumption is not strictly applicable to independent variables consisting of mixture of continuous and categorical variables (Hair et al. 2006; Wooldridge 2009). Nonetheless, the deviation from normality causes invalid statistical results (t-test and p values) that are critical for hypothesis testing. It however, does not affect regression coefficient estimates. The graphical and statistical normality checks of the numerical variables of the model were carried out prior to the empirical analysis.

#### 6.4.1.1 Graphical Normality Test of Debt Accessibility (DA)

**Figure 6.1a: kdensity Normality of DA**



**Figure 6.1b: Histogram Normality of DA**

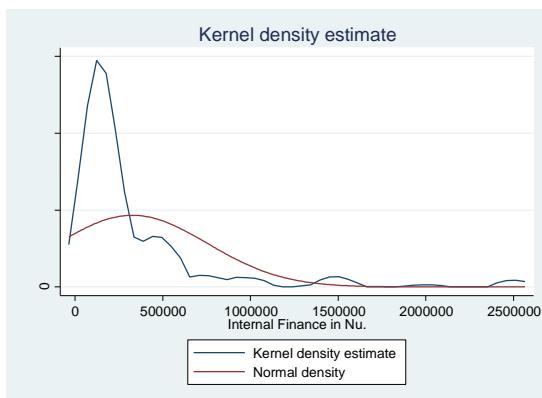


Debt Accessibility (DA), the dependent variable of the model, which is a ratio of total debt to total assets of the firm (financial leverage), has continuous scale suitable for MLR analysis. The normality assumption of numerical dependent variable (DA) was checked through graphical representation of kernel density (kdensity) test and histogram (Pedace 2013; Wooldridge 2009).

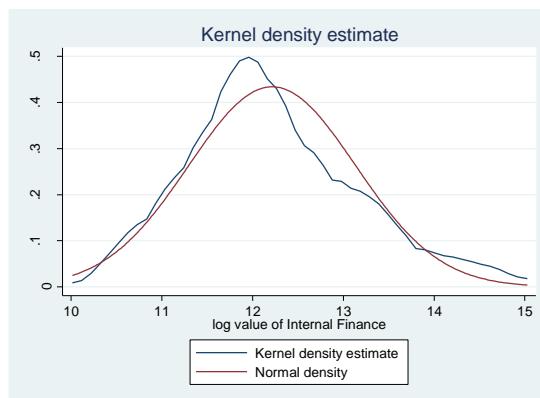
The graphical images of the probability distribution of the variables assist in detection of skewedness in relation to normal bell shaped distribution. The skewness measures the departure of distribution of a random variable from the symmetry wherein it is sharply shifted to one side, either left or right (Gujarati 2005; Wooldridge 2009). Figures 6.1a and 6.1b show that the DA density frequency is almost identical to the normal distribution. Since the deviation from normality is very small, there was no need for transformation of the value of DA in the regression model.

#### **6.4.1.2 Graphical Normality Test of Internal Finance (INTFIN)**

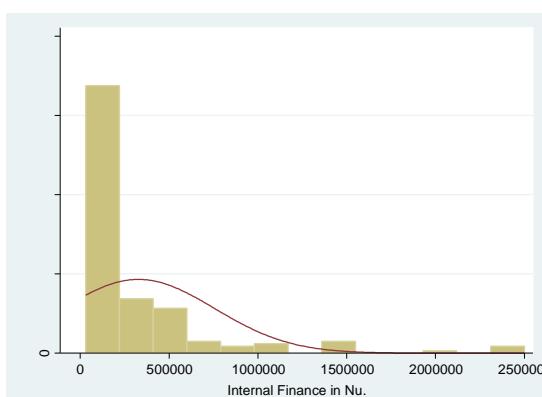
**Figure 6.2a: kdensity Normality of INTFIN**



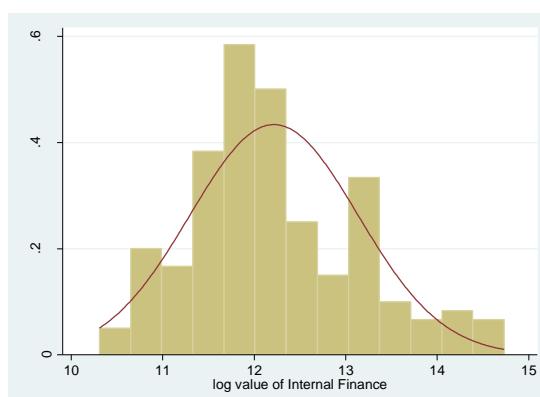
**Figure 6.2b: kdensity Normality of ln\_INTFIN**



**Figure 6.3a: Histogram Normality of INTFIN**



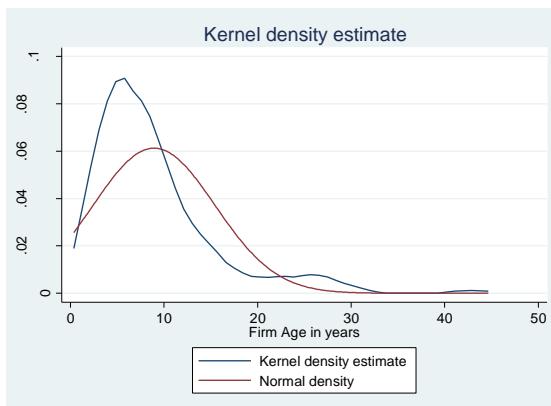
**Figure 6.3b: Histogram Normality of ln\_INTFIN**



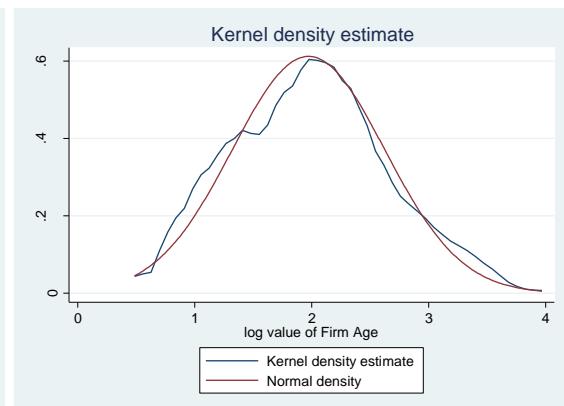
The kdensity and histogram graphical representations of the variable, internal finance (INTFIN) show significant deviation from normality as reflected in Figures 6.2a and 6.3a. The distribution of INTFIN is extremely positively skewed in comparison to normal bell shaped distribution. Thus, it warrants a transformation to overcome the positive skewness.

#### 6.4.1.3 Graphical Normality Test of Firm Age (AGEF)

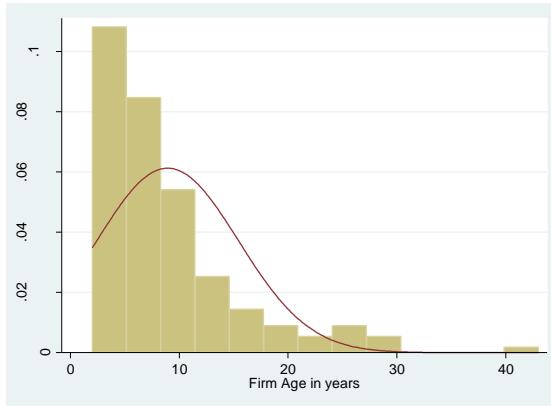
**Figure 6.4a: kdensity Normality of AGEF**



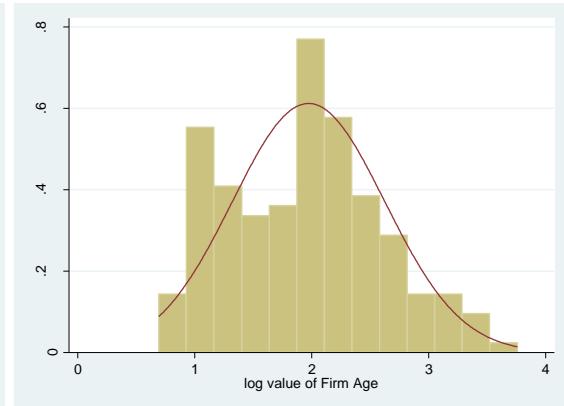
**Figure 6.4b: kdensity Normality of ln\_AGEF**



**Figure 6.5a: Histogram Normality of AGEF**



**Figure 6.5b: Histogram Normality of ln\_AGEF**



The kdensity and histogram graphical representations of the variable, firm age (AGEF) show significant deviation from normality as reflected in Figures 6.4a and 6.5a. The distribution of AGEF is extremely positively skewed in comparison to normal bell shaped distribution. Thus, it also warrants transformation to overcome the positive skewness.

#### **6.4.1.4 Variables Transformation: Natural Logarithm function of Variables**

Transformation of the data into natural logarithm function is common tool used to resolve the normality failure and outliers in the variables (Stock & Watson 2011; Wooldridge 2009, 2010). Log function of a variable rescales down bigger observation and adds on to smaller ones, narrowing down the range and minimizing sensitiveness of outliers in the data (Davidson & MacKinnon 2004; Wooldridge 2009). The logarithm approximation computes the change in coefficients in terms of percentage, that is multiplied by 100 (Wooldridge 2009).

Since the distribution of dependent variable DA was found to be closer to the normality, there was no need for transformation of the variable DA. However, the graphical examination of normality of the independent variables INTFIN and AGEF revealed a huge deviation. Therefore, to resolve the issue of extreme positive skewedness of these variables, natural logarithm function of INTFIN and AGEF was taken to fit into the MLR model. The kdensity (Figure 6.2b) and histogram (Figure 6.3b) representation of log function of INTFIN ( $\ln_{\text{INTFIN}}$ ) and kdensity (Figure 6.4b) and histogram (Figure 6.5b) of log of AGEF ( $\ln_{\text{AGEF}}$ ) indicated that its distribution was closer to normal distribution than normality of INTFIN and COLL respectively.

#### **6.4.1.5 Statistical Normality Test for DA, INTFIN and COLL**

**Table 6.2: Normality of Numerical Variables of the Model**

<b>Variable</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Skewness</b>	<b>Variance</b>	<b>Kurtosis</b>
DA	0.1887	0.9804	0.5967	0.15825	-0.0596	0.02504	2.7485
INTFIN	30000	2500000	327488.6	428300.3	3.2024	1.83e+11	14.4939
$\ln_{\text{INTFIN}}$	10.31	14.7318	12.2156	0.9194	0.5597	0.8454	3.0905
AGEF	2	43	8.9318	6.5147	1.9516	42.4410	7.9131
$\ln_{\text{AGEF}}$	0.6931	3.7612	1.9734	0.6515	0.1833	0.4245	2.5965

The statistical test results of the numerical variables DA, INTFIN and COLL with their respective log functions indicated the need for transformation of the independent variables. Table 6.2 shows the statistical normality test results of DA, INTFIN,  $\ln_{\text{INTFIN}}$ , AGEF and  $\ln_{\text{AGEF}}$  with its skewness and kurtosis values. Skewness of a variable measures the departure of distribution of a random variable from symmetry where skewness value is zero (Gujarati 2005; Wooldridge 2009). Pedace (2013) defined

kurtosis as a measure of peakedness or flatness of the distribution of a variable and has a value of 3 for a normally distributed variable. The skewness of DA at -0.0596 and kurtosis value of 2.7485 indicated that DA was normally distributed. The skewness of INTFIN at 3.2024 and AGEF at 1.9516 was considerably higher than normal value of 0. Therefore, taking log function of INTFIN reduced skewness from 3.2024 to 0.5597 which is closer to 0, skewness value of a normal distribution. Also, the skewness of AGEF was reduced to 0.1833 from 1.9516 when transformed to ln\_AGEF. The kurtosis value of INTFIN at 14.4939 indicates more deviation from normal kurtosis value than ln\_INTFIN at 3.0905.

Likewise, ln\_AGEF recorded kurtosis value of 2.5965, which is closer to 3 in comparison to kurtosis of AGEF of 7.9131. Both the graphical examination and statistical tests evidenced that ln\_INTFIN and ln\_AGEF exhibited behaviour closer to normally distribution than INTFIN and AGEF. The log approximation of INTFIN and AGEF were therefore more suitable to be used in MLR model to achieve valid and non-bias results with clearer interpretation of the coefficients. Therefore, log\_INTFIN and log\_AGEF were used in MLR model to resolve the extreme deviation from normality. It also corrects the presence of any of any outliers or unusual characteristics in the data.

#### **6.4.2 Generation of Dummy Variable for Categorical Independent Variables**

Since the qualitative variables, known as categorical variables cannot be entered directly into the regression model; it was converted into continuous variables termed as dummy variables, through binary coding process (Pedace 2013; Wooldridge 2009). Wooldridge (2009) stated that the dummy coding process transforms the qualitative information into parameters usable in regression model to achieve interpretable results. Accordingly, the coefficients of the dummy variables estimated the effect of the variables on SMEs' debt accessibility, by assigning one of the dummy coded variable as a reference or base category (Hair et al. 2006; Pedace 2013). For one independent variable with n categories, n-1 dummy variables were calculated with one category as the reference. The categorical independent variables (collateral; financial information; loan term; firm size and sector; owner age, gender and education) were appropriately coded with binary value of either 1 or 0.

#### **6.4.3 Check for Missing Data**

Despite, all efforts put in during survey data collection; there is always a risk of encountering missing data and of the sample not being representative of the population. The issue of missing data is resolved in several ways: first by dropping the subject from the sample, secondly by treating missing data as dummy coded categorical variable and thirdly by imputing the missing data with a substitute value (Gujarati 2005; Wooldridge 2009). For this study, the method of dropping subjects (deletion of missing data) from the analysis reduced the size of the sample of only 176. Likewise, the method of treating missing data as a new dummy coded variable, involved extra processes and produces biased estimates (Wooldridge 2009). Thus, the imputation method using mean value was found to be the most suitable to resolve the missing data for this study. The initial examination of the survey data revealed that the size of missing data was very small (2 for COLL; 1 for AGEO and 15 for INT) and hence, the missing data were imputed with mean of the respective variables.

#### **6.4.4 Check for Significant Outliers**

Outliers are deviations points in observations in the data set that are unusually different from the rest of the observations indicating peculiarities in the data (Gujarati 2005). A data set has to be free of any significant outliers because it reduces the predictive accuracy and statistical significance of the regression results. The presence of outliers in the data is checked using scatter plots whereby each variable is regressed against others, which was not possible due to the categorical nature of independent variables of the model. Therefore, it was assumed that any issue of outliers in the data was resolved during the transformation of numerical data into log function and also during the robust regression estimation

#### **6.4.5 Model Specification Error**

Too less or too many independent variables in the model causes model specification errors (Stock & Watson 2011). Increase in the number of independent variables increases the predictive accuracy of the model but is also likely to cause multicollinearity (Hopkins & Ferguson 2014; Wooldridge 2009). Too many variables introduce noise, hindering the precise measurement of variable coefficients resulting in incorrect variance. The issue of the omission of one or more relevant independent variables is more serious in nature because it results in incomplete information in the

regression model (Davidson & MacKinnon 2004; Stock & Watson 2011). A model specification error is related to the assumption that the error term and the explanatory variables are not correlated ( $E(e|X)=0$ ) (Hill, Griffiths & Lim 2011; Stock & Watson 2011). It results in inconsistent regression coefficients and wrong variance values inflating the error term.

#### 6.4.5.1 Ramsey's Tests for Model Specification Error

**Table 6.3: Ramsey's RESET Test for Omitted Variables**

$H_0$ : model has no omitted variables	
$F(3, 146) =$	2.060
Prob > F =	0.108

Ramsey (1969)'s regression specification error test (RESET) was developed to detect the model misspecification, specifically the omission of variables (Gujarati 2005). Ramsey's (1969) RESET test using powers of the fitted values of the dependent variable (DA) was carried out to check that the regression model did not suffer from variable omission bias. The null hypothesis states that the model does not have omitted variables. The result reported p-value (Prob > F) of 0.108. Since the p-value is higher than the usual threshold of 0.05 at 95% confidence level, it failed to reject the null hypothesis. Ramsey's test result therefore, provided evidence that the model does not suffer from omitted variable that would otherwise interfere with the regression results.

#### 6.4.5.2 Linktest for Model Misspecification Error

**Table 6.4: Linktest for Model Specification Error**

DA	Coefficient	Standard Error	t	P> t
_hat	0.974	0.439	2.22	0.028
_hatsq	0.023	0.376	0.06	0.952
_cons	0.007	0.126	0.06	0.954

Linktest, another statistical tool was also used for examining the model specification error in relation to independent variables in the model. It checks the number of variables in the model by running a new regression with the observed dependent variable against predicted Y variable (Yhat) and Yhat-squared (hatsq). The result of linktest seconded the findings of ovtest that the regression model does not suffer from any specification error. The p-value of \_hatsq at 0.952 (p>0.05) failed to reject the null hypothesis that stated there is no specification error. Therefore, the model is correctly specified and there is no need for additional variables in the research model.

## 6.5 Diagnostic Tests

The accuracy of a regression model is dependent on the five principle assumptions of: linearity; random sampling; no multicollinearity; zero conditional mean and homoscedasticity (Adkins & Hill 2008; Hopkins & Ferguson 2014). These five assumptions are collectively known as the *Gauss-Markov* assumptions for cross-sectional regression analysis with random sampling (Heij, De Boer, Franses, Kloek & Van Dijk 2004). Addition of a sixth assumption, normality of residual and independent explanatory variables results in the Classic Linear Model (CLM) assumption (Wooldridge 2009). Measures were undertaken to meet all assumptions underlying OLS regression to avoid biased and unreliable results.

### 6.5.1 Linearity in Parameters

The linearity assumption of MLR demands that the relationship between dependent and independent variables is linear with an additive error term (Hair et al. 2006; Pedace 2013). The dependence nature of the regression model helps in predicting and explaining the behaviour of dependent variable, SME debt accessibility (DA) on the basis of multiple independent variables. The error term ‘e’ is the disturbance in the regression equation that contains missing factors which also affect the dependent variable (Hair et al. 2006). Recalling the research model, the dependent variable (DA) is calculated as a linear function of a group of pre-identified independent variables plus an error term.

$$DA = \alpha + \beta_1 INTFIN + \beta_2 COLL + \beta_3 FININFO + \beta_4 INT + \beta_5 TERM + \beta_6 AGEF + \beta_7 SIZEF \\ + \beta_8 SECF + \beta_9 AGEO + \beta_{10} GENO + \beta_{11} EDUO + \varepsilon$$

### 6.5.2 Random Sampling

Pedace (2013) defined the assumption of random sampling as independent variables' values derived from a random sample of the population and containing variability. The random sample size or ratio of observations to independent variables, determines the generalisation of the regression results (Hair et al. 2006), where ‘n’ observation of a random sample represents the whole population. This assumption assures that observations are always more than the number of variables to be estimated in the regression equation ( $n > k$ , where  $k$  is the number of variables). As covered in Chapters 4 and 5 on research methodology and data collection, the study sample was chosen

randomly from the SME population in the two cities of Thimphu and Phuntsholing in Bhutan, without selection bias. The chosen sample size is appropriate for achieving statistically significant multiple regression analysis and generalisation to the SME population.

### **6.5.3 No Multicollinearity**

The assumption of no multicollinearity demands that there is no perfect linear relationship among the independent variables of the model (Cohen et al. 2013; Wooldridge 2009). Hair et al. (2006) also stated that the issue of multicollinearity arises when two or more independent variables are highly correlated with each other. High correlation between the variables obstructs the measurement of the independent variables' individual effect on the dependent variable's variance (Davidson & MacKinnon 2004; Dougherty 2011). The issue of multicollinearity does not distress the model's predictive capacity but undermines the reliability of the coefficients ( $\beta$ ) of the variables. Nonetheless, it is important to note that this assumption does allow correlation among variables but not perfect correlation. For this study, two methods were used to detect the presence of multicollinearity in the research model: the Pearson correlation matrix and variation inflation factor (VIF).

#### **6.5.3.1 Pearson Correlation Matrix**

**Table 6.5: Pearson Correlation Matrix of Variables in the Model**

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1.DA	1.00											
2.In_INTFIN	0.40	1.00										
3.COLL	0.23	0.05	1.00									
4.FININFO	0.13	-0.48	0.11	1.00								
5.INT	0.06	-0.16	0.04	-0.07	1.00							
6.TERM	0.01	-0.43	0.04	0.30	0.09	1.00						
7.In_AGEF	-0.09	-0.08	-0.08	-0.31	0.28	-0.02	1.00					
8.SIZEF	0.09	-0.39	-0.04	0.49	-0.07	0.21	-0.32	1.00				
9.SECF	-0.15	-0.13	-0.03	-0.02	-0.05	0.10	0.00	0.16	1.00			
10.AGEO	0.08	0.04	-0.01	0.23	-0.22	-0.10	-0.45	0.17	0.04	1.00		
11.GENO	0.04	0.13	-0.04	-0.26	0.05	-0.15	0.25	-0.27	-0.16	-0.14	1.00	
12.EDUO	0.03	-0.44	0.16	0.48	0.09	0.25	0.07	0.17	0.06	-0.27	-0.19	1.00

The Pearson correlation matrix and coefficient is widely used to measure the degree of association among variables by ratio and interval scale (Hair et al. 2006; Wooldridge 2009, 2010). The presence of multicollinearity is indicated by large correlation coefficients between the variables. A correlation value exceeding 0.9 between the variables signifies the existence of multicollinearity in the research model (Tabachnick & Fidell 2007; Wooldridge 2009). Likewise, Hopkins and Ferguson (2014) reiterated that correlation value equal to or greater than 0.5 (correlation value  $\geq 0.5$ ) between independent variables indicated the presence of multicollinearity.

The correlation matrix as presented in Table 6.5 revealed that there is no excessive correlation between the variables. All correlation values were recorded below 0.9 confirming the absence of multicollinearity in the model. The highest value of correlation was reported as 0.49 between the variables SIZEF and FININFO. Thus, the independent variables of the model are not in perfect linear relationship with one another in the sample.

#### **6.5.3.2 Variance Inflation Factor (VIF)**

The Variance Inflation Factor (VIF) is a popular statistical test used to detect multicollinearity (Gujarati 2005; Hair et al. 2006). A VIF value exceeding 10 implies the definite existence of multicollinearity ( $VIF > 10$  or  $1/VIF < 0.10$ ), meriting further investigation of the variables. A higher VIF value indicates the presence of multicollinearity between the variables. A VIF test was run on the independent variables after the regression analysis to detect the presence of multicollinearity. Table 6.6 reported that the VIF values for all the variables are well below 10, with the highest value of 4.56 for the variable EDUO (high school) and an average of 2.37, which is closer to 1. Hence the model meets the criteria of  $VIF < 10$  and  $1/VIF > 0.10$ . The correlation matrix and VIF values indicated that there was no sign of excessive multicollinearity, thereby fulfilling the assumption of no perfect collinearity between the variables in the model.

**Table 6.6: Variance Inflation Factor**

<b>Variable</b>	<b>VIF</b>	<b>1/VIF</b>
<b>ln_INTFIN</b>	2.17	0.46
<b>COLL</b>		
Equal	2.86	0.35
Double	3.32	0.30
More than double	2.13	0.47
<b>FININFO</b>		
Low	1.52	0.66
Medium	1.97	0.51
High	2.15	0.46
Very High	1.98	0.51
<b>INT</b>	1.23	0.81
<b>TERM</b>		
3 - 5 years	1.84	0.54
More than 5 years	2.05	0.49
<b>ln_AGEF</b>	1.69	0.59
<b>SIZEF</b>		
Small	2.43	0.41
Medium	2.97	0.34
<b>SECF</b>		
Manufacturing	1.97	0.51
Service	1.47	0.68
<b>AGEO</b>		
26 - 35 years	3.77	0.27
36 - 45 years	3.62	0.28
46 - 55 years	2.72	0.37
Over 55 years	2.23	0.45
<b>GENO</b>	1.27	0.79
<b>EDUO</b>		
Primary School	1.85	0.54
High School	4.56	0.22
Vocational Education	4.44	0.23
Bachelor Degree	4.36	0.23
Postgraduate Degree	1.53	0.66
<b>Mean VIF</b>	2.37	

#### 6.5.4 Zero Conditional Mean

The assumption of zero conditional mean requires the mean of the error term ‘e’ to have an expected value of zero for any value of the independent variables (Heij et al. 2004; Wooldridge 2009). The error term is defined as the difference between the actual value of dependent variable and the value from the population regression function, that is  $E(e/X) = 0$  (Davidson & MacKinnon 2004; Hair et al. 2006). Hence, for any given value of independent variables, the mean value for the error term is always zero. Failing to meet this assumption means the regression coefficients are biased and poorly estimated and is caused by model misspecification and restricted dependent variable (Heij et al. 2004; Stock & Watson 2011). The model misspecification was checked (section 6.4) and the dependent variable DA was found to be neither a qualitative or limited dependent variable. Hence, the model is correctly specified with error term with zero conditional mean.

#### 6.5.5 Homoscedasticity

The most important requirement for OLS under *Gauss-Markov* assumptions is homoscedasticity, which is homogeneity of variance of the error term for any value of the explanatory variable. A regression model is assumed to have a constant variance of residuals and its violation results in the phenomenon of heteroscedasticity, where the error term has unequal (increasing) variance (Hair et al. 2006; Tabachnick & Fidell 2007). The presence of heteroscedasticity causes incorrect standard errors rendering the test statistics invalid though it does not affect OLS estimators (Tabachnick & Fidell 2007; Wooldridge 2009).

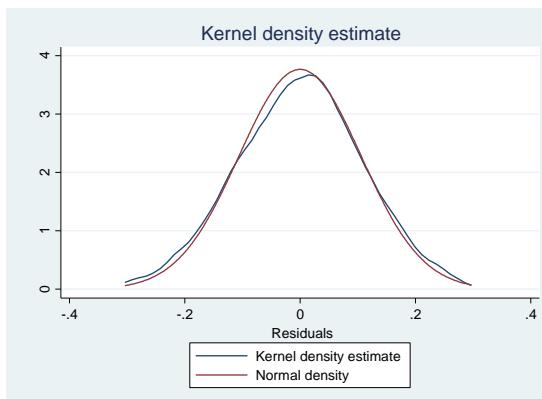
The violation of this assumption is detected either through graphical residual plots or statistical tests. A graphical scatterplot of standardised residuals against standardised predicted values is reflected as an increasing deviation from the standard regression line. Thus, if a regression model is suffering from heteroscedasticity, the OLS residuals exhibit a distinct noticeable pattern. For statistical testing, the Breusch-Pagan/Cook-Weisberg (BP/CW) test is one of the diagnostic tests used to detect heteroscedasticity (Wooldridge 2009). The results of the heteroscedasticity diagnostic tests are explained in detail later in section 6.6.4.

## 6.5.6 Normality of Residuals

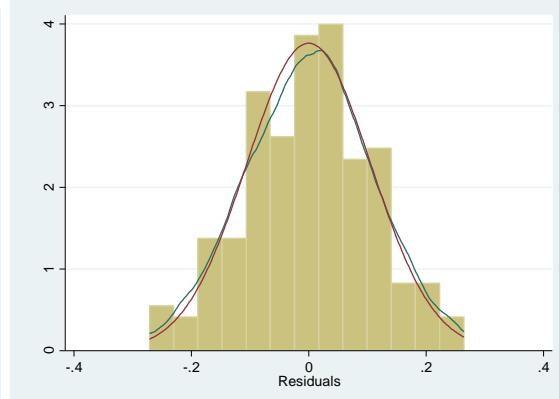
The residual score ‘e’, which is defined by a difference between the observed (Y) and the predicted (Yhat) dependent variable value has to be normally distributed (Tabachnick & Fidell 2007; Wooldridge 2009). Thus, the residual ( $e = Y - Y\hat{}$ ) is graphically represented by a straight line with uniform variance for all predicted scores. The failure to meet this assumption affects the validity and reliability of regression analysis results. Stock and Watson (2011) argue that normality biasness is not too severe when the size of the sample is large. Prior studies (Hair et al. 2006; Tabachnick & Fidell 2007) preferred using graphical inspection, which is considered more powerful and informative than statistical testing. Thus, for this study, the normality of residual ‘e’ was checked using four probability plots namely kdensity, histogram, pnorm (p-p plot) and qnorm (q-q plot).

### 6.5.6.1 Kdensity and Histogram of the Residuals

**Figure 6.6a: kdensity Normality of the Residuals**



**Figure 6.6b: Histogram Normality of the Residuals**



Both kdensity and histogram tests visually revealed that the residual ‘e’ had normal bell shaped distribution in terms of skewness. The residual pattern reflects rather normal distribution with the mean value very close to 0 as depicted by Figure 6.6a and Figure 6.6b.

### 6.5.6.2 Probability Normal Plot and Quintile Normal Plot

Figure 6.7a: p-p Plot of the Residuals

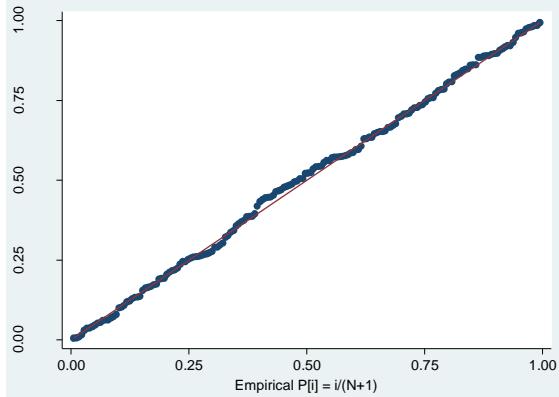
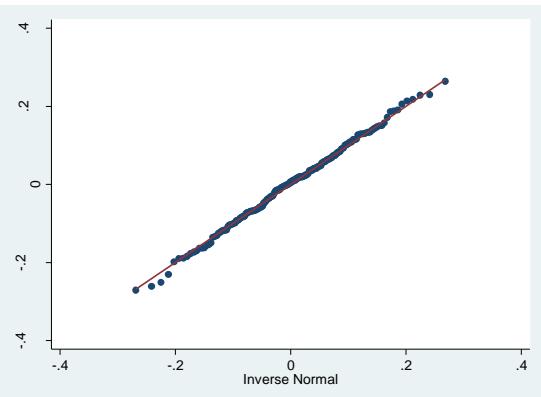


Figure 6.7b: q-q Plot of the Residuals



The probability normal plot (p-p plot) graphical depiction was used to check normality or any presence of deviations from normality in the residuals. The points are the observed residuals, while the line represents the normal distribution. Figure 6.7a depicted that the normality of the residuals was just slightly off the normal line but still closer to the regression line. The quintile-normal plots (q-q plot) checks non-normality in the extremes of the data (tails) by plotting quintiles of residuals vs. quintiles of a normal distribution. Figure 6.7b showed that that the distribution at the head and tail was a bit off but not too deviated from normal distribution. Thus, all the graphical results confirmed that the model has met the assumption of normality of residual.

## 6.6 Interpretation of the Regression Analysis Output

The coefficient of multiple determination ( $R^2$  and adjusted  $R^2$ ); standard error of estimate (F-test); significance tests (t-test and p-value statistics) and the standard regression coefficients ( $\beta$ ) are the most commonly reported regression parameters that are used to interpret the meaning of the regression analysis of a study (Adkins & Hill 2008; Pedace 2013).

**Table 6.7: Multiple Linear Regression Analysis Output**

Number of Obs				
=		176		
F( 26, 149)	=	7.73		
Prob > F	=	0.000		
R-squared	=	0.5517		
Root MSE	=	0.1148		
DA	Coefficient	t	P> t	Robust Std. Err.
<b>ln_INTFIN</b>	0.136 ***	9.39	0.000	0.014
<b>COLL</b>				
Equal	0.089**	1.98	0.049	0.045
Double	0.108***	3.13	0.002	0.035
More than Double	0.086*	1.69	0.094	0.051
<b>FININFO</b>				
Low	0.024	0.84	0.402	0.028
Medium	0.052**	2.11	0.037	0.025
High	0.101***	2.61	0.010	0.039
Very High	0.250***	3.24	0.001	0.077
<b>INT</b>	0.039***	2.97	0.004	0.013
<b>TERM</b>				
3-5 years	0.094***	2.90	0.004	0.032
Over 5 years	0.008	0.33	0.745	0.024
<b>ln_AGEF</b>	0.039**	2.15	0.033	0.018
<b>SIZEF</b>				
Small	0.083**	2.40	0.018	0.035
Medium	0.224***	4.18	0.000	0.054
<b>SECF</b>				
Manufacturing	-0.031	-1.07	0.287	0.029
Service	-0.027	-1.19	0.238	0.022
<b>AGEO</b>				
26-35 years	0.002	0.07	0.947	0.030
36-45 years	0.061*	1.83	0.069	0.033
46-55 years	0.013	0.30	0.762	0.042
Over 55 years	0.096	1.41	0.160	0.068
<b>GENO</b>				
Male	0.033*	1.77	0.079	0.018
<b>EDUO</b>				
Primary School	0.013	0.32	0.749	0.042
High School	0.062*	1.70	0.091	0.036
Vocational Education	0.092**	2.29	0.023	0.040
Bachelor Degree	0.096**	2.04	0.043	0.047
Postgraduate Degree	0.037	0.39	0.700	0.096
<u>cons</u>	1.465***	5.30	0.000	0.277

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

### **6.6.1 Goodness of Fit Statistics**

Three tests: R-squared ( $R^2$ ), F-statistics of the model (Significance Value) and Root Mean Square Residual (Root MSE) were identified to measure the goodness fit of the regression model using OLS estimation.

#### **1. $R^2$ and Adjusted $R^2$ value of the Model**

$R^2$  is referred to as the coefficient of determination and measures the goodness of fit of the regression model (Tabachnick & Fidell 2007; Wooldridge 2009). It measures the percent of variance generated in the output or dependent variable by the independent variables, hence the overall regression accuracy of the model. The  $R^2$  value validates a statistically significant relationship between the dependent and independent variables in the model. Since too many variables introduce extra noise and a reduction in valid predictions, the concept of adjusted  $R^2$  ( $\bar{R}^2$ ) was introduced (Hair et al. 2006; Wooldridge 2009). It adjusts the drawbacks of additional independent variables in the model by incorporating the model's degree of freedom. Gujarati (2005) defines it as an adjustment of the  $R^2$  in terms of the number of variables and sample size.

The difference between the value of  $R^2$  and  $\bar{R}^2$  is smaller when the sample size is large and the number of variables is small. However, it should be noted that it is the overall measure of strength of association and not the individual effect of independent variables on the dependent variable. Hence, the overall goodness fit of the model is represented by the value of the  $R^2$ . Its value is expected to be between 0 and 1 with lower values associated with less variations and higher value with more variations in the dependent variable (Hill, Griffiths & Lim 2011; Tabachnick & Fidell 2007). Hence, the value of  $R^2$  at 1.0 defines 100% variability of the dependent variable explained by the independent variable reflecting a perfect linear relationship between the dependent variable and independent variables of a regression equation.

The regression output results as reflected in Table 6.7 show that the value of  $R^2$  is 0.5517. It means that approximately 55.17% of the variability in debt accessibility (DA) is accounted for by the explanatory variables listed in the model that are associated with the physical attributes of the firm and its owner, financial information and attributes of the bank loan. Similarly, the value of  $\bar{R}^2$  0.4735, prior to robust regression analysis

indicated that 47.35% of the variability in DA is explained by the model, after taking into account the number of independent variables in the model. The difference between the values of  $R^2$  and  $\bar{R}^2$  is small indicating that the variation in DA is caused by the variables in reality and not by the independent variable number in the model. Since the  $R^2$  value is closer to 1, the variation generated in DA by the list of independent variables in the model is statistically significant. Hence, it provided enough evidence to validate the overall goodness of fit for the regression model.

## **2. F statistics and p-value (Prob > F) of the model**

F-statistics determine the validity of the model by measuring the explained variance (Model Mean Square, MSS) by unexplained variance (Residual/Error Mean Square, E/RSS) of the model (Dougherty 2011; Hair et al. 2006). It tests whether  $R^2$  is different from zero, which is the probability that the regression output is not achieved by chance. The p-value of the model also tests whether  $R^2$  is different from zero with a smaller p-value reflecting greater significance of the regression model and the greater probability that the regression output is not by chance (Adkins & Hill 2008; Gujarati 2005). The F-statistic (26, 149) has 26 variables and 149 degrees of freedom and has a value equal to 7.73. Given that (Prob > F) was recorded as 0.000 (<0.05); statistically it confirmed a significant relationship between explanatory variables and the dependent variable. The results of F-statistics and p-value of the model indicates the reliability of explanatory variables to predict the behaviour of DA.

## **3. Root Mean Squared Error (Root MSE)**

The square root of Mean Squared Error (Root MSE), also known as standard error of regression is one of the statistical information that is used for overall diagnostic confirmation of the model, thus is a measure of predictive fit (Pedace 2013; Wooldridge 2009). It is the standard deviation of the error term or unexplained variance of the dependent variable. The closer the value of Root MSE to 0, the better is the fit of the model. The lower value of Root MSE calculated for the model at 0.1148 indicated better fit of the model. It shows the average distance of the estimator from the mean, which, in this case is 0.11 points in estimating DA values.

### **6.6.2 Estimation of the Econometric Model**

The estimation of the model consisted of the calculation and examination of appropriate measures of association and statistical significance tests for each independent variable on the dependent variable. The regression results were then used to infer if the hypotheses were true or not.

#### **1. Stating Null and Alternative hypotheses**

Hypothesis testing is a process where a statement about a population is tested using available data of a sample to see if it holds true or not. The first step in hypothesis testing is to specify a research hypothesis and its corresponding null hypothesis (Dougherty 2011; Gujarati 2005). The five hypotheses ( $H_A$ ) of the study, also known as alternative hypotheses, and its corresponding null hypotheses ( $H_0$ ) were developed, based on the literature. The crucial step in regression analysis is the investigation of statistical significance and meaningfulness of the hypothesised relationships that is, to what extent it is acceptable. Thus, hypothesis testing gives evidence as to whether or not there is relationship between the explanatory variables and the dependent variable (Hill, Griffiths & Lim 2011). On the other hand, null hypothesis ( $H_0$ ), outlines that there is no relationship between the outcome variable and the explanatory variables.

Hypotheses can be either two tailed ( $H_0: \beta_1 = 0$ ;  $H_A: \beta_1 \neq 0$ ) or one-tailed ( $H_0: \beta_1 = 0$ ;  $H_A: \beta_1 > 0$  or  $H_A: \beta_1 < 0$ ) (Gujarati 2005; Hill, Griffiths & Lim 2011; Wooldridge 2009). In the case of the one-tailed hypotheses,  $H_0$  is rejected when the  $\beta_1$  value is a sufficiently large positive value. At a significance level of 5%, the statistical significance testing of independent variables is considered for only one direction that is, positive. In the case of two-tailed testing at a significance level of 5%,  $H_0$  is rejected if  $\beta_1$  has a sufficiently large positive or negative value. Here, the effect of an independent variable on the dependent variable is considered regardless of the direction of the relationship, irrespective of it being either negative or positive. For this study, two-tailed hypothesis testing was carried out at a significance level of 5%. The regression output was also interpreted at a 10% significance level where appropriate to substantiate the findings.

Wooldridge (2009) and Hill, Griffiths and Lim (2011) justified a preference for two-tailed hypotheses because of the possibility of testing both positive and negative relationship between the variables. Although a one-tailed test is considered more

powerful for detecting the statistical significance, it disregards the possibility of relationship in the other direction (Cohen et al. 2013). During hypothesis testing, attention was paid to avoid the occurrence of Type I and Type II errors related to null hypothesis (Hill, Griffiths & Lim 2011). The rejection of a true null hypothesis is called a Type I error which is caused by data falsely indicating a statistically significant result, when it is not so. Similarly, a Type II error occurs when we fail to reject a false null hypothesis because the data failed to achieve a significant result. The probability of making these errors is decreased by altering the level of significance from 0.05 to 0.01 in the case of Type I and to 0.10 for Type II (Stock & Watson 2011).

## **2. T-test and p-value**

The t-test and p-values are critical in determining the statistical significance of individual independent variables on the dependent variable in the model. The t-test statistics is a hypothesis testing tool used to determine the degree of precision of the model, in terms of assessing individual variable significance (Gujarati 2005; Wooldridge 2009). The corresponding value for the t-test is known as the probability value (p-value), which also helps in determining the significance of the results of the hypothesis testing (Dougherty 2011). These statistics reports the significance of the variables at the appropriate significance level of 1%, 5% or 10% determining whether to reject or fail to reject the null hypothesis. The t-test and corresponding p-values determines whether null hypothesis could be true, that is  $\beta$ -coefficient could be 0; quantifying the evidence of statistical significance (Gujarati 2011; Seddighi 2012). The t-test and p-value of each variable indicates that the results are not achieved by chance.

The t-test value is compared to the critical value of t ( $t_{critical}$ ) which is approximately 1.96 for a 5% significance level, depending on degrees of freedom of the model (Dougherty 2011). Hence, a larger value of t-test is considered statistically significant to reject the null hypothesis. Correspondingly, at 5% significance level, p-value less than 0.05 ( $p < 0.05$ ) is reported as statistically significant with enough evidence to reject the null hypothesis (Gujarati 2005; Wooldridge 2009). Therefore, a variable with low p-value is likely to be a meaningful addition to the model because changes in its value are related to changes in the dependent variable. Conversely, a large p-value ( $P > 0.05$ ) is considered insignificant, which fails to reject null hypothesis stating no relationship between the dependent variable and independent variables.

### **3. Variable coefficient ( $\beta$ )**

The  $\beta$  coefficient estimates the strength of the relationship between the independent variables and the dependent variable, in a regression equation (Dougherty 2011; Hair et al. 2006). The estimation process therefore, calculates the effect of each independent variable on the dependent variable while keeping the other factors constant, which is termed as *ceteris paribus* (Tabachnick & Fidell 2007; Wooldridge 2009). *Ceteris paribus* provides statistical significance by separating the role of one individual variable from all of the others in the model. It predicts a numerical estimation of the relationship between the dependent variable and the independent variables. The relative association of each independent variable and DA, the dependent variable was interpreted by  $\beta$  as reflected in the regression output (Table 6.7).

#### The constant ( $\alpha$ or $\beta_0$ )

The constant term represented either as  $\alpha$  or  $\beta_0$  is the y-intercept of the regression line (Gujarati 2011; Hill, Griffiths & Lim 2011). It is included in the multiple regression equation to ensure that the value of coefficients is unbiased, that is the mean of the residuals is equal to zero. The constant term calculated for the regression model was 1.464 for the study.

#### **6.6.3 Hypotheses Testing**

In a multiple regression analysis, a relationship is hypothesised between a single dependent variable and independent variables and the relationship evaluated using econometric and statistical significance tests (Adkins & Hill 2008; Pedace 2013).

##### **6.6.3.1 Loan Repayment Capacity (Hypothesis 1)**

Based on the literature review, the loan repayment capacity of a firm was measured in terms of internal finance (INTFIN) and asset tangibility that is the size of collateral (COLL) pledged to secure a bank loan. INTFIN is defined as the owner's contribution into the business, also known as owner's equity. Thus, Hypothesis 1 (H1) was divided into two sub-hypotheses (H1A and H1B) encompassing these two explanatory variables respectively.

### Size of Internal Finance and Debt Accessibility

*H1A: The accessibility to bank loan (DA) is correlated to the size of the internal finance (ln\_INTFIN)*

*H1A<sub>0</sub>: There is no linear relationship between the size of the size of internal finance (ln\_INTFIN) and accessibility to bank loans (DA)*

The p-value of ln\_INTFIN (owner's equity) was calculated as 0.000 ( $p < 0.05$ ) and the t-test value as 9.39 ( $t > 1.96$ ). Since the p value is drastically smaller than the alpha value of 0.05 and the t-test value drastically larger than the  $t_{critical}$  1.96, the effect of internal finance was statistically significant at 95% confidence interval. The regression results provided strong evidence to support H1A, that there is a relationship between the owner's financial contribution into the business and the accessibility to bank loans (DA), keeping other variables constant. As a result, the null hypothesis H1A<sub>0</sub> stating that there is no relationship between the size of internal finance and accessibility to bank loans was rejected. The coefficient of ln\_INTFIN ( $\beta = 0.136$ ) indicated that for every unit increase in the log of internal finance invested by the owner in the business, the accessibility to bank loan was increased by 13.6%. Thus, in agreement with prior studies, owner's equity was found to have a positive effect on SMEs' accessibility to bank loans.

### Collateral Size and Debt Accessibility

*H1B: The accessibility to bank loan (DA) is correlated to size of the collateral (COLL)*

*H1B<sub>0</sub>: There is no linear relationship between size of the collateral (COLL) and accessibility to the bank loans (DA)*

The value of collateral collected from the SME survey was in proportion to the bank loan amount and hence it was in the form of categorical data. The variable COLL (proportion of collateral) was classified into four dummy variables: half of the loan amount (COLL1); equal to the loan amount (COLL2); double the loan amount (COLL3) and more than double the loan amount (COLL4). Regression results showed that, in relation to the reference variable COLL1, the dummy variables COLL2 and COLL3 were statistically significant at 95% confidence interval with p values of 0.049 and 0.002 and t-test values of 1.98 and 3.13 respectively. The recorded p-values were smaller than the alpha value of 0.05 and t-statistics values were sufficiently larger than

$t_{critical}$  1.96. Also, COLL4 was significant at 90% confidence interval with p-value of 0.094 ( $p < 1.00$ ) and t-test value of 1.69 ( $t > 1.65$ ).

Hence, the regression output provided strong statistical evidence to support the hypothesis H1B that size of the collateral is positively related to the debt accessibility in line with the predictions of the literature. The null hypothesis  $H1B_0$  stating there is no linear relationship between the size of the collateral and accessibility to bank loans was rejected. In comparison firms providing collateral half of the loan amount, the firms providing collateral value equivalent to loan amount (COLL2) had 8.9% more loan accessibility; firm providing collateral value twice the loan amount (COLL3) had 10.8% more loan accessibility; and firms providing collateral value more than two times the loan amount had 8.6% more access to bank loans. Hence, the results revealed that the relationship between the size of the collateral provided and debt accessibility was statistically significant. The collateral provided by a firm against the loan determined its accessibility to bank loan.

#### **6.6.3.2 Firm Financial Information (Hypothesis 2)**

The explanatory variable financial information (FININFO) was used to represent the financial information of the firm for hypothesis 2 (H2).

*H2: The accessibility to bank loan (DA) is correlated to the quality of the financial information of the firm (FININFO)*

*H2<sub>0</sub>: There is no linear relationship between the quality of the firm financial information (FININFO) and accessibility to bank loans (DA)*

Caneghem and Campenhout (2012) and Gregory et al. (2005) used dummy variables to denote information availability in their model of SME financial structure where the value of 1 was given to companies having records of financial statements, like income sheets, expense sheets, balance sheets and tax records and 0 otherwise. Likewise, the variable FININFO of the study, which is the quality and quantity of financial information, associated with the firm was calculated based on the types of financial statements (such as sales, profit & loss and balance sheet) maintained by the firms. The financial knowledge of the person or owner handling the financials of the firm was also incorporated. A firm maintaining more types of financial statements and the accounting knowledge of the person handing firm finances was given a higher ranking. Thus, the

variable FININFO was divided into five dummy variables (F1: Very Low Information, F2: Low Information; F3: Medium Information; F4: High Information and F5: Very High Information).

Keeping F1 as the reference category, the dummy variable F5 (Very High) was found to be statistically significant at a 95% confidence level with a p-value of 0.001 ( $p < 0.05$ ) and t-test of 3.24 ( $t > 1.96$ ). Likewise, categories F4 (High) and F3 (Medium) were also found to be significant with a p-value of 0.01 and 0.037 and t-test of 2.61 and 2.11 respectively. Therefore, there is enough evidence to support the hypothesis H2A that the linear relationship between firms with Very High, High and Medium level of financial information and debt accessibility, in relation to firms with Very low level of information. However, with p-value 0.402 ( $p > 0.05$ ) and t-test ( $0.84 < 1.96$ ), the dummy variable F2 (Low Information) was not statistically significant in establishing its relationship to DA in reference to F1 failing to reject the null hypotheses H2A<sub>0</sub>. Since the information level of SMEs is poor in general, the category of F2 (Low Information) is not considered different to base the category F1 (Very Low Information), resulting in the same level of accessibility to bank loans.

From their respective  $\beta$  coefficients, it was deduced that the firms with ‘Very High’, ‘High’ and ‘Medium’ levels financial information have 25%, 10.1% and 5.2% more accessibility to bank loans in comparison to the firms with Very Low financial information. Hence, the results indicate that with an increase in the level of financial information, the accessibility to bank loans is also increased. The result is in line with the theoretical concept of information asymmetry where the banks are more confident and willing to lend to firms with low information asymmetry. The results of the availability and quality of financial information of the firm reinforced the importance of financial information availability and transparency in determining SMEs’ accessibility to external financing. It is easier for firms with more financial information to access bank loans as the banks have the avenue to assess financial prospects of the borrowers.

#### **6.6.3.3 Loan Characteristics (Hypothesis 3)**

Based on the literature, a loan characteristic is defined by the size of loan applied for, the interest rate charged on the loan and duration of the loan. However, the descriptive statistics of survey data revealed that there was no significant difference in the size of

the loan amount applied to the bank and loan amount approved by the banks. In order to avoid multicollinearity between the two variables, loan amount applied was dropped from the model. Therefore, only explanatory variables INT (loan interest) and TERM (duration of loan) associated with the loan were included in the model, resulting in two sub-hypotheses H3A and H3B.

#### Interest rate on loan and Debt Accessibility

*H3A: The accessibility to bank loan (DA) is correlated to the rate of interest charged on the loan (INT)*

*H3A<sub>0</sub>: There is no linear relationship between size of the rate of interest on loan (INT) and accessibility to bank loans (DA)*

The variable INT recorded its p-value as 0.004, which is lower than the standard alpha 0.05 ( $p < 0.05$ ), and t-statistics as 2.90, which is higher than  $t_{critical}$  1.96. At 95% confidence level, the statistical results provided enough evidence to support the hypothesis H3A that there is a relationship between the interest rate charged on the loan and the accessibility to bank loans and to reject the null hypothesis H3A<sub>0</sub>. While holding other predictors constant, its coefficient ( $\beta = 0.039$ ) stated that for every one percent increase in the interest rate, the accessibility to bank loan increased by 3.9%. The results, as predicted by the literature upheld the statement that there is a positive relationship between the independent variable loan interest rate (INT) and dependent variable loan accessibility (DA).

#### Duration of loan and Debt Accessibility

*H3B: The accessibility to bank loan (DA) is correlated to the duration of the loan (TERM)*

*H3B<sub>0</sub>: There is no linear relationship between size of the duration of the loan (TERM) and accessibility to bank loans (DA)*

The loan term was represented by the dummy variables 1-2 years (TERM1), 3-5 years (TERM2) and more than 5 years (TERM3). The regression result was interpreted by keeping TERM1 as the reference category. The p-value calculated for TERM2 was 0.004, which is significantly lower than 0.05, and t-test value was 2.90, higher than 1.96, which was statistically significant. The regression result provided evidence to

support the hypothesis H3B that the accessibility to bank loan is correlated to the duration of the loan and reject the null hypothesis H3b<sub>0</sub>. Interestingly, in contradiction to literature, the coefficient (0.093) of variable TERM2 was positive indicating that firms seeking loan term of 3-5 years had 9.3% higher accessibility to bank loans in comparison to firms seeking loan for 1-2 years. The theoretical background supports that banks favour short-term loan over long term loans.

Meanwhile, TERM3 was not significant in establishing a relationship with debt accessibility in reference category TERM1 as indicated by its p-value of 0.745 and t-test of 0.33. The result signifies that there is no difference between firms seeking loan terms for 1-2 years and firms seeking loans for more than 5 years. Combining the result of TERM2 and TERM3 in reference to TERM1, we conclude that banks prefers an optimal loan term of 3-5 years in comparison to short terms of 1-2 years, as well as longer terms of over 5 years. Hence, firms seeking loans for an optimal duration have 9.3% more accessibility to bank loan as compared to either very short or very long term loans.

#### **6.6.3.4 Firm Characteristics (Hypothesis 4)**

Since the firm characteristics consisted of firm age, size and sector, hypothesis 4 (H4) was divided into three sub-hypotheses (*H4A*, *H4B* and *H4C*) encompassing individual variables. Studies have used the ownership and legal form of the business to determine its debt accessibility. These studies indicated the bank's preference for lower risk and high growth rate private companies and partnership firms over high risk sole proprietorship firms (Harhoff & Körting 1998; Kon & Storey 2003). However, the Bhutanese SME survey data revealed that 94% of firms operated as sole proprietorships and the remaining 6% as partnership firms. This reflects the basic legal and organisational form of SMEs in developing countries owing to their small size and resources. Owing to the sheer domination of sole proprietorship over partnership, the variable ownership style was not suitable for inclusion in the regression model.

### Firm Age and Debt Accessibility

*H4A: The accessibility to bank loan (DA) is correlated to the firm's age (AGEF)*

*H4A<sub>0</sub>: There is no linear relationship between firm age (AGEF) and accessibility to bank loans (DA)*

In the regression output (Table 6.7), the p-value of the predictor variable, ln\_AGEF (firm age), is reflected as 0.033, which is lower than the standard alpha level of 0.05 ( $p < 0.05$ ). It indicated a statistically significant relationship between the variable ln\_AGEF and debt accessibility (DA). Similarly, the t-test value was reported as 2.15, which is larger than the  $t_{critical}$  value 1.96, providing enough statistical evidence to support hypothesis 4A. Therefore, hypothesis H4A, which stated that firm age is positively related to the debt accessibility, was supported while rejecting the null hypothesis (H4A<sub>0</sub>).

The  $\beta$  coefficient of the variable ln\_AGEF was calculated as 0.039. The positive  $\beta$  value indicated that as the age of the firm increases, the level of agreement with the hypothesis H4A also increases. Numerically, for one unit increase in the log value of firm age (ln\_AGEF), a firm's accessibility to the bank loan was increased by 3.9%, when other variables have been accounted for. The results established that the older and established firms have higher accessibility to bank loans in comparison to younger and new firms.

### Firm size and Debt Accessibility

*H4B: The accessibility to bank loan (DA) is correlated to the firm's size (SIZEF)*

*H4B<sub>0</sub>: There is no linear relationship between firm size (SIZEF) and accessibility to bank loans (DA)*

The categorical variable SIZEF (firm size) was represented by three dummy variables: micro firms (S1), small firms (S2) and medium firms (S3). Regression results of the small firms ( $p = 0.018$ ;  $t = 2.40$ ) and medium firms ( $p = 0.000$ ;  $t = 4.18$ ) variables in reference to micro firms indicated a statistically significant relationship between firm size and accessibility to bank loans. Both S2 and S3 dummy variables with lower p-values ( $p < 0.05$ ) and higher t-statistics values ( $t$ -statistics  $> 1.96$ ) provided strong

evidences to support the hypothesis H4B that SIZEF is positively correlated to the DA and reject the null hypothesis H4B<sub>0</sub>.

The regression results indicated that the small and medium firms had higher accessibility to the bank loans in comparison to micro firms. The results are in line with the theoretical predictions that banks prefer to finance larger firms to smaller firms. The coefficient of small firms ( $\beta = 0.083$ ) indicated that bank loan accessibility was approximately 8.3% higher for small sized firms than micro firms. Similarly, the coefficient of medium firms ( $\beta = 0.224$ ) indicated that the accessibility to bank loans of medium firms in comparison to micro firms was higher by 22.4%. The results provided greater evidence of a positive relationship between the size of the firm and its accessibility to bank loans. This behaviour was depicted by banks' preference for the upper end over the lower end of the SME spectrum.

#### Firm Sector and Debt Accessibility

*H4C: The accessibility to bank loan (DA) is correlated to the firm's sector (SECF)*

*H4C<sub>0</sub>: There is no linear relationship between firm sector (SECF) and accessibility to bank loans (DA)*

The categorical variable SECF (firm sector) was divided into three dummy variables: retail (SEC1); manufacturing (SEC2) and service (SEC3) sectors. Regression results showed that, in relation to the reference sector, retail (SEC1), the manufacturing sector (SEC2) had a p-value of 0.287 ( $> 0.05$ ) and t-test of -1.07 ( $< 1.96$ ), while service sector (SEC3) had a p-value of 0.238 ( $> 0.05$ ) and t-test of -1.19 ( $< 1.96$ ). The t-test and p-values of both the manufacturing and service sectors were not statistically significant in establishing a relationship between firm sector and DA, in comparison to the retail sector. Thus, the hypothesis H4C stating correlation between the firm sector and debt accessibility was not supported. Correspondingly, we fail to reject the null hypothesis H4C<sub>0</sub> that there is no linear relationship between firm sectors and accessibility to bank loans. Hence, the loan accessibility of the firm is not determined by its sectoral classification. It can be generalized that debt accessibility of a firm is independent of its sector and thus any business sector has an equal chance of securing bank loans.

### **6.6.3.5 Owner Characteristics (Hypothesis 5)**

Since the characteristic of owners is defined by their age, gender and educational qualification, Hypothesis 5 (H5) has been divided into three sub-hypotheses (*H5A*, *H5B* and *H5C*) encompassing the individual variables.

#### Age of the owner and Debt Accessibility

*H5A: The accessibility to bank loan (DA) is correlated to the firm owner's age (AGEO)*

*H5A<sub>0</sub>: There is no linear relationship between firm owner's age (AGEO) and accessibility to bank loans (DA)*

The age of the owner (AGEO) was collected in the format of age ranges during the field survey. Hence, the variable AGEO was divided into five dummy variables (A1: 18-25 years; A2: 26-35 years; A3: 36-45 years; A4: 46-55 years and A5: over 55 years) with A1 as the reference group. As per Table 6.7, A3 was the only age group that was significant in establishing its relationship with debt accessibility with a p-value of 0.069 (< 0.10) and t-test of 1.83 (>1.65) at 90% confidence level. Therefore, supporting the hypothesis H5A, the output can be interpreted that SME owners in the age range of 36-45 years had 6% more accessibility to bank loans in comparison to the control age group of 18-25 years.

The remaining age categories A2, A4 and A5 reported p-values of 0.947, 762 and 160 ( $p > 0.05$ ) respectively which were far greater than the common alpha level of 0.05 and therefore not statistically significant in establishing a relationship with DA. Likewise, their t-test statistics were recorded as 0.07, 1.83 and 1.41 lower than  $t_{critical}$  value 1.96, providing more evidence to reject the hypothesis H2A and failed to reject H5A<sub>0</sub> stating that there is no relationship between the owner's age and accessibility to bank loans. Hence, the accessibility to bank loans for owners falling under the age groups of A2 (26-35 years), A4 (46-55 years) and A5 (over 55 years) was no different from owners in the reference age group. The result is in contradiction to the existing literature that supports a positive relationship between owner's age and debt accessibility. Therefore, the regression result did not provide strong evidence on the relationship between the owner's age and access to bank loan except for moderate evidence of positive effect for age range 36-45 years in comparison to age group 18-25 years.

### Gender of the owner and Debt Accessibility

*H2B: The accessibility to bank loan (DA) is correlated to the firm owner's gender (GENO)*

*H2B<sub>0</sub>: There is no linear relationship between firm owner gender (GENO) and accessibility to bank loans (DA)*

The owner's gender (GENO), being a binary variable, was assigned 0 for female and 1 for male. The p-value recorded for GENO (male) was 0.079, which is bigger than standard alpha 0.05 at 95% confidence level while t-test value was 1.77, smaller than  $t_{critical}$  1.96. However, it is significant at 90% confidence level ( $0.078 < 0.10$ ;  $1.77 > 1.65$ ), moderately supporting hypothesis H5B that DA was correlated to owner's gender. Hence, at 90% confidence level, the null hypothesis H5B<sub>0</sub> stating there is no linear relationship between firm owner gender and accessibility to bank loans was rejected. The relationship between debt accessibility and gender of the owner was taken as significant indicating that loan accessibility is moderately determined by the gender of the firm owner. Based on the  $\beta$  coefficient, it is established that male owners' access to bank loans was 3.3% more in comparison to female owners. The result agreed with the theoretical prediction that DA is linearly related to the gender of the firm owner. It is widely accepted that female owners face more difficulty in accessing external finance, and therefore are more credit constrained in comparison to male owners.

### Educational Qualification the owner and Debt Accessibility

*H5C: The accessibility to bank loan (DA) is correlated to the firm owner's educational qualification (EDUO)*

*H5C<sub>0</sub>: There is no linear relationship between the firm owner's educational qualification (EDUO) and accessibility to bank loans (DA)*

The categorical variable, owner's educational qualification (EDUO) was divided into six dummy variables (E1: No Formal Education; E2: Primary School; E3: High School; E4: Vocational Education; E5: Bachelor Degree; E6: Postgraduate Degree). E1 was taken as the reference category in establishing the relationship between the owner's educational qualification and the dependent variable DA. The p-values for E5 (Bachelor Degree) and E4 (Vocational Education) were recorded as 0.043 and 0.023 ( $< 0.05$ ) respectively and their respective t-test values were recorded as 2.04 and 2.29 ( $t > 1.96$ ),

statistically significant at 95% confidence level. Dummy variable E3 (high school) recorded a p-value of 0.091 ( $< 0.10$ ) and t-statistics of 1.70 ( $> 1.65$ ), which is moderately significant at 90% confidence level.

Hence, the regression results provided enough evidence to support hypothesis H5C and reject the null hypothesis H5C<sub>0</sub> of no linear relationship between owner's education and accessibility to bank loans. The individual coefficient of significant variables showed that SME owners with high school qualification had 6.2% more debt accessibility; vocational education had 9.2% more debt accessibility and Bachelor Degree had 9.5% higher debt accessibility in comparison to reference category of SME owners with no formal education. Hence, there is strong evidence that the loan accessibility was positively determined by the educational qualification of the owner, while keeping the other factors constant.

Nonetheless, the categories E2 (Primary Education) and E6 (Postgraduate Degree) with p-values of 0.749 and 0.700 ( $p > 0.05$ ) and t-test of 0.32 and 0.39 ( $t < 1.96$ ) respectively, were statistically not significant to prove its influence on debt accessibility. The results indicate that there is no difference between the owners with no formal education, primary education and postgraduate degrees in their accessibility to bank loans. Since primary level education (E2) is the lowest level of formal education, we can conclude that the banks don't differentiate it from the category of no formal education (E1). Hence, SME owners with no formal education and with primary school education had the same level of bank loan accessibility. The result of E6 (Postgraduate Degree) is in total contradiction to the literature, which associates higher educational qualification with easier accessibility to external finance. This unpredicted regression result pertaining to E6 is associated with a small representation of SME owners with a higher educational qualification as reported in the earlier section 5.4.2.3.

#### **6.6.4 Validation of the Model (Robustness Testing)**

To mitigate the violation of MLR assumptions, heteroscedasticity in particular, additional steps such as transformation of variables, bootstrapping and robust regression are undertaken to provide an accurate model assessment (Hair et al. 2006; Tabachnick & Fidell 2007). Wooldridge (2009) pointed out that OLS inference of econometric analysis becomes doubtful in the presence of heteroscedasticity. The presence of

heteroscedasticity in the model results in biased standard errors which in turn lead to incorrect model estimators, t-test and p-values (Gujarati 2005; Wooldridge 2009). It renders the OLS estimator inefficient. Since the statistical test is sensitive to model assumptions, combining the diagnostic test with graphical testing is recommended to better understand the severity of the heteroscedasticity. Hence both statistical and graphical tests were carried out to detect the presence of heteroscedasticity in the research model and undertake corrective measures.

### **1. Heteroscedasticity – Breusch-Pagan/Cook-Weisberg Test**

The statistical test Breusch-Pagan/Cook-Weisberg (BP/CW) test (Table 6.8) was carried out to detect the presence of heteroskedasticity in the regression model. BP/CW test regresses squared residuals (estimated variance of the residuals are dependent on the set of independent variables) on a set of independent variables in the regression model (Pedace 2013; Wooldridge 2009). The BP/CW tested null hypothesis that error variance is constant that is, error variances are all equal and not multiplicative function of one or more variables. Homoskedasticity (constant variance of residuals) requires that squared regression disturbances are not dependent on any variables in the regression.

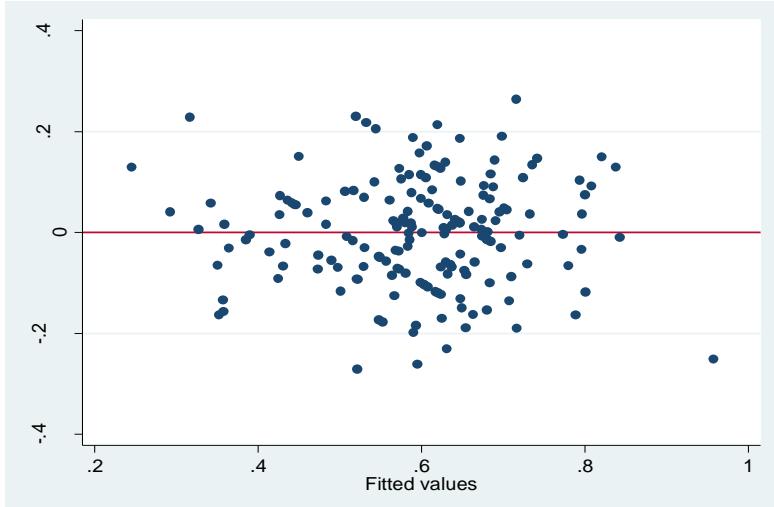
**Table 6.8: Breusch-Pagan/Cook-Weisberg Heteroscedasticity Test**

$H_0$ : Constant Variance Variables: fitted values of DA	
chi <sup>2</sup> (1) =	0.890
Prob > Chi <sup>2</sup> =	0.346

A large chi<sup>2</sup> value and small p-value (prob>chi<sup>2</sup>) in the BP/CW test results indicates the presence of heteroskedasticity, needing corrective measures (Aiken & West 1991). The results of the BP/CW test indicated that there was no heteroscedasticity in the model. The chi-square value at 0.890 was small and p-value at 0.346 was drastically bigger than 0.000, indicating the model does not suffer heteroscedasticity.

## 2. Heteroscedasticity – Graphical Detection

Figure 6.8: Heteroscedasticity Test (*rvfplot*)



The homoscedasticity assumption was checked graphically using a scatter plot between standard residuals against standardised predicted values ( $\hat{Y}$ ). In the case of homoscedasticity, a scatter plot of residual against predicted values has to be random and not exhibit any pattern (Aiken & West 1991; Berry & Feldman 1985). Therefore, using Stata command *rvfplot* (residual versus fitted values) a scatter plot between residuals and predicted values was generated to test for the presence of heteroscedasticity in the model. Figure 6.8 shows the distribution of an array of dots around the zero reflecting a pattern. The pattern shows that the data points are narrower at the left, or starting point and get broader towards the right end. Therefore, the graphical test indicates the presence of heteroscedasticity in the data that needs to be corrected to achieve accurate and bias free results.

## 3. Heteroscedasticity - Corrective Measures

Although the BP/CW test reported no heteroscedasticity and the graphical test suggested the possible presence of heteroscedasticity in the model, appropriate corrective measure was undertaken. Authors Stock and Watson (2011) strongly recommended to always consider the presence of heteroscedasticity in the model and thus take necessary measures to fix the issue. It is essential to address the faulty OLS inference due to the presence of heteroscedasticity by adjusting standard errors, t and F statistics through robustness test (Wooldridge 2009). Three most common ways to correct the issue of heteroscedasticity are: 1) Respecify the model; 2) Weighted least squares (WLS); and 3) Robust standard errors of the model (Stock & Watson 2011; Tabachnick & Fidell 2007).

According to Aiken and West (1991) heteroscedasticity, caused by model misspecification (violation of OLS assumptions such as outliers, missing variables and linearity) demands revisiting and respecifying of the regression model. Since the OLS assumptions for the study were corrected during the course of data analysis, the issue of model re-specification is met. Wooldridge (2009) explained that weighted least squares (WLS) adjusted the t and F statistics along with confidence intervals, to obtain a valid inference after OLS estimation. Even though WLS achieves estimates with the smallest possible standard errors, it is not popular because of its complicated implementation procedure involving many assumptions (Aiken & West 1991; Berry & Feldman 1985). It requires knowledge of conditional variance on which the weights are based, which is rare.

Rejecting the first two methods for robustness checking, the study adopted the third method of robust standard errors. It resolves the issue of heteroscedasticity by correcting the model standard errors through statistical robustness tests and achieving robust standard error values (Pedace 2013; Wooldridge 2009). The value of robust standard error is increased from that of standard error, resulting in drop of the values of t-test statistics, thereby reducing the level of significance of coefficients of estimation. Hence, robust regression produced a robust standard error and robust t-test statistics resolving any possibility of heteroscedasticity in the research model.

## **6.7 Supplementary Analyses to Substantiate Empirical Findings**

To substantiate the empirical findings of the study, supplementary regression analyses were carried out. The Single Linear Regression Analysis and Hierarchical Multiple Linear Regression Analysis provided additional statistical evidence to support the study's key findings. The objective of the extra analyses was to break down the effect of individual groups of independent variables on SMEs' access to bank loans. It established the strength of association between each independent variable groups and SMEs' debt accessibility (DA).

### 6.7.1 Single Linear Regression Analysis

**Table 6.9: Single Linear Regression Analysis Summary**

Variable Group	R <sup>2</sup>	Adjusted R <sup>2</sup>	F (df)	P
1	0.216	0.197	11.74 (4,171)	0.000
2	0.056	0.033	2.51 (4,171)	0.044
3	0.023	0.006	1.35 (3,172)	0.260
4	0.039	0.010	1.37 (5,170)	0.239
5	0.062	0.005	1.09 (10,165)	0.374

The first supplementary analysis was carried out in the form of a single linear regression (SLR) analysis of each of the five groups of the independent variables and SMEs' debt accessibility. The SLR analysis measured one to one effect of the independent variables on SMEs' accessibility to bank loans at a time, in absence of the other variables. It measured the size of the effect of each of the five independent variable groups on the debt accessibility in terms of the value of R<sup>2</sup> and adjusted R<sup>2</sup> or R-bar squared ( $\bar{R}^2$ ).

As per the SLR analysis summary in Table 6.9, Group 1 consisting of the variables internal finance (INTFIN) and collateral (COLL) had the highest R<sup>2</sup> (0.216) and  $\bar{R}^2$  (0.197) values in comparison to the other variable groups. It was followed by the variable Group 2 represented by financial information of the firm with R<sup>2</sup> = 0.056 and  $\bar{R}^2$  = 0.033. Also, the p-values of the regression of Groups 1 and 2 were significant at 0.000 and 0.044 respectively at 5% significance level. On the other hand, the R<sup>2</sup> and  $\bar{R}^2$  values of the remaining variable groups 3, 4 and 5 related to firm, owner and loan characteristics were comparatively very low to Group 1. Furthermore, the p- values of the Group 3 (p=0.260), Group 4 (p=0.239), and Group 5 (p=0.374) were not statistically significant enough to explain the variation on the DA.

Table 6.11 showed that the SLR analysis of ln\_INTFIN was statistically significant (p = 0.000; t-test = 5.09) and every unit increase in the log value of internal finance increased the access to bank loans by 6.2%. Likewise, the relationship between COLL and DA was significant. Firms that provided collateral value equal to the loan amount (p=0.030; t = 2.19) were found to have 10.9% higher bank loan accessibility than the firms with collateral, half the value of the loan amount. Likewise, firms providing collateral double the size of loan amount (p=0.002; t = 3.08) and more than double the loan amount (p = 0.003; t = 3.045) had 12.6% and 17% higher accessibility to bank

loans than firms providing collateral value of half the loan amount. In the case of SLR analysis of group 2 variables, it was significant for the category ‘very high FININFO’ ( $p = 0.011$ ;  $t$ -test = 2.57) in reference to control category ‘very low FININFO’. Its  $\beta$  coefficient showed that the firms with ‘very high’ had 15.8% more accessibility to bank loans in comparison to the firms with very low financial information. On the other hand, the  $t$ -test and  $p$ -value of the rest of the variable Groups 3, 4 and 5 were not statistically significant to establish their effect on DA individually.

Therefore, the SLR analysis of each of the five independent variable groups established that variable Group 1 (firm’s repayment capacity) and Group 2 (financial information) produced significant variation in DA. The firm’s size of internal finance, collateral and financial information determined the SMEs’ debt accessibility. The factors related to loan, firm and its owners did not merit their influence on a firm’s access to external finance on their own. We conclude that a firm’s access to a bank loan is determined by a firm’s repayment capacity on its own, while the other factors do not have a strong determining effect on DA.

### **6.7.2 Hierarchical Multiple Linear Regression Analysis**

A hierarchical multiple linear regression (HMLR) analysis investigates the relationship between the independent variable groups and the dependent variable by adding independent variables in an order (Aiken & West 1991; Tabachnick & Fidell 2007). It assesses the relative effect of each variable group on SMEs’ debt accessibility. The HMLR generates change in  $R^2$  for every additional group of independent variables, indicating their effect on the variance of the dependent variable. Tabachnick and Fidell (2007) stated that a change in  $R^2$  interprets the significance of the individual variables rather than overall  $R^2$  of the model. The null hypothesis states that the addition of independent variables to the regression equation does not produce change in the  $R^2$  value, that is  $R^2$  change = 0.

**Table 6.10: Hierarchical Multiple Linear Regression Analysis Summary**

Model	R <sup>2</sup>	Adj. R <sup>2</sup>	F (df)	p	R <sup>2</sup> Change	F (df) change	p
1	0.216	0.197	11.74 (4,171)	0.000			
2	0.374	0.344	12.456 (8,167)	0.000	0.158	10.546 (4,167)	0.000
3	0.449	0.412	12.160 (11,164)	0.000	0.076	7.495 (3, 164))	0.000
4	0.511	0.462	10.379 (16,159)	0.000	0.062	4.008 (5, 159)	0.000
5	0.552	0.474	7.054 (26,149)	0.000	0.041	1.359 (10,149)	0.006

A five-step hierarchical multiple regression was carried out by adding five groups of variables (repayment capacity, financial information, loan characteristics, firm characteristics, owner characteristics) in an order specified by the researcher based on the theoretical background as proposed by Tabachnick and Fidell (2007). Table 6.10 shows the summary of HMLR analysis and the change in  $R^2$  on the addition of the new set of variables to the model. Unlike the SLR analysis where the  $R^2$  and  $\bar{R}^2$  values were very low for independent variable Groups 3, 4 and 5, the HMLR results reported that the  $R^2$  and  $\bar{R}^2$  values increased with the addition of independent variable groups to the model. Statistically, the value of  $\bar{R}^2$  should always be less than or equal to  $R^2$  in a good regression model. The difference between the size of  $R^2$  and  $\bar{R}^2$  was not too large indicating that the variation in DA was caused by the independent variables and not influenced by the number of the independent variables in the model. The effect of each group of independent variables in a hierarchical order on the variance of debt accessibility (DA) is reported in the Table 6.12.

### **Model 1:**

In the first step, firm's repayment capacity related variables, internal finance ( $\ln_{INTFIN}$ ) and collateral (COLL), were entered as Group 1 independent variables. The Model 1 was statistically significant with  $F(4, 171) = 11.74$ ;  $p$  (Prob>F) = 0.000 and explained 21.6% variance in DA. The  $\ln_{INTFIN}$  was statistically significant with  $p = 0.000$  and  $t$ -test = 5.09 indicating that an increase in internal finance of the firm increased its access to bank loans. Its coefficient reported that for every unit increase in the log value of internal finance, the access to bank loans was increased by 6.2%. Likewise, COLL also had a significant contribution to DA at a confidence level of 95%. Firms that provided collateral value equal to the loan amount ( $p=0.030$ ;  $t = 2.19$ ) were found to have a 10.9% higher bank loan accessibility. Likewise firms providing collateral double the size of loan amount ( $p=0.002$ ;  $t = 3.08$ ) and more than double the loan amount ( $p = 0.003$ ;  $t = 3.045$ ) had 12.6% and 17% higher accessibility to bank loans than firms providing collateral value of half loan amount.

### **Model 2:**

In the second step for Model 2, the financial information variable (INTFIN) was entered which made a significant contribution to the model with a 37.4% variance in DA. Introduction of FININFO in Model 2 accounted for 15.8% additional variance in FL

after controlling group 1 variables (ln\_INTFIN and COLL). The  $R^2$  change = 0.158 is significant as indicated by  $F(df)$  change (7, 167) = 10.546 and  $p$  = 0.000. The statistical results indicate that addition of internal finance is important to predict a firm's access to bank loans. In reference to control category 'Very Low' FININFO, all other FININFO dummy variables, 'Very High' FININFO ( $p=0.000$ ;  $t = 5.48$ ), 'High' FININFO ( $p=0.000$ ;  $t = 4.37$ ), 'Medium' FININFO ( $p=0.002$ ;  $t = 3.11$ ) and 'Low' FININFO ( $p=0.043$ ;  $t = 2.04$ ) were found to be statistically significant. Their respective  $\beta$  coefficients showed that the firms with "Very High" and "High" financial information have 29.8% and 16.2% more accessibility to bank loans in comparison to the firms with Very Low financial information. Firms with 'Medium' and 'Low' financial information also had 7.9% and 5.5% more access to the bank loans.

### **Model 3:**

In the third step for Model 3, the variables INT and TERM related to the characteristics of the bank loan were entered in the model. The addition of these variables resulted in a significant contribution to the model with 44.9% variance in DA. The addition of a third group of variables accounted for additional 7.6% variance in DA. Hence the  $R^2$  change value of 0.076 indicated a significant relationship between loan characteristics and accessibility to bank loans. The variable INT with  $p$  value of 0.003 and  $t$  value of 3.05 made a significant contribution to variance in DA. A firm paying higher interest rates increased its chances of securing bank loan by 4.1%, as reflected by its coefficient of 0.041. In reference to loan terms of 1-2 years, only firms seeking loan for 3-5 years ( $p=0.009$ ;  $t = 2.65$ ) exhibited 8.35% higher bank loan accessibility. On the other hand, firms seeking long term loan of more than 5 years did not have any statistical significance on DA as compared to firms seeking loan term of 1-2 years.

### **Model 4:**

In the fourth step corresponding to Model 4, the variables related to firm characteristics (AGEF, SIZEF and SECF) were introduced to the model. Model 4 showed overall variance of 51.1% in DA as indicated by  $R^2 = 0.511$ . The addition of a fourth group of variables increased the variance in DA by 6.2% based on the  $R^2$  change value of 0.062 indicating the significant contribution of firm characteristics in determining a firm's access to bank loans. The variable ln\_AGEF was statistically significant ( $p = 0.020$ ;  $t = 2.36$ ) and established that an increase in firm age increased its accessibility to bank

loans by 4.1%. Similarly, the variable SIZEF also had a significant positive relationship between firm size and DA. The small sized firm had  $p = 0.023$  and  $t = 2.30$  while medium sized firms had  $p = 0.000$  and  $t = 4.08$ . In comparison to the reference category micro-firms, the access to bank loans for small sized firms was higher by 7.3% while it was higher by 19.6% for medium sized firms. However, the sectoral classification of the firms was statistically not significant in establishing their relationship to DA. Hence, the accessibility to bank loans was not influenced by the sector of the firms.

### **Model 5:**

In the final and fifth step, the last group of variables related to firm owner's characteristics (AGEO, GENO and EDUO) was entered in the model. Model 5 is the main regression model of the study without the robustness testing. Model 5's overall variance was increased to 55.2% indicating that the addition of owner characteristics increased the model variance by 4.1% from Model 4. The addition of age of the firm owner (AGEO) was significant only of the age category of 36-45 years ( $p = 0.079$ ;  $t = 1.90$ ) at a confidence level of 90%. The firm owners in the age category of 36-45 years had 6% higher access to bank loans in comparison to the reference category of 18-25 years old owners. The remaining age categories of 26-35 years, 46-55 years and over 55 years did not show any significant difference from the control age category.

The gender of the owner had significant influence on accessibility to bank loans at a 90% confidence level as indicated by its p-value of 0.089 and t statistics of 1.85. The male owners had a 3.3% higher accessibility to bank loans in comparison to the female owners. The education level of SME owners also showed significant influence on their access to bank loans. In reference to the control category of no formal education, the educational level of High School ( $p=0.090$ ;  $t=1.67$ ), Vocational Education ( $p=0.033$ ;  $t=2.15$ ) and Bachelor Degree ( $p=0.052$ ;  $t=1.96$ ), were statistically significant in establishing their relationship to DA. SME owners with High School degree had 6.2%; Vocational Education had 9.2% and with Bachelor Degree had 9.5% higher accessibility in comparison to owners without formal education. Hence, the educational level of SME owners was directly correlated to their accessibility to the external financing.

### **6.7.3 Discussion on Supplementary Regression Analyses:**

The additional regression analyses provided stronger statistical evidence to support the findings of the research model of the study. The loan repayment measures variables ln\_INTFIN and COLL and a firm's financial information (FININFO) were the two variable groups that generated significant variance in DA on their own. The additional analysis also reported that independent variable Groups 3, 4 and 5 were not significant on their own in establishing their relationship to DA but only significant in combination with independent variable Group 1, the firm's loan repayment capacity. These variable groups did not determine SMEs debt accessibility in absence of variables related to loan repayment capacity (COLL and ln\_INTFIN). The results evidenced that the repayment capacity of the firm measured in terms of internal finance and collateral had the highest effect on the firm's accessibility to bank loans. This finding is economically significant since it provides statistical evidence emphasising the critical role of collateral and internal finance in determining SMEs' access to external financing. The change in  $R^2$  and adjusted  $R^2$  on adding of new group of variables in the model shows that there is a consistent increase in the variance level of DA from 0.216 to 0.552.

$R^2$  is not always reliable when comparing different models since the addition of variables is bound to increase its value. Hence, the adjusted  $R^2$  ( $\bar{R}^2$ ) was used to compare different models in HMLR analysis, to nullify the effect of the number of predictor variables in a model. As per Table 6.10, the value of  $\bar{R}^2$  increased with the addition of variable groups in the model indicating the effect of these variables. The small difference between the values of  $R^2$  and  $\bar{R}^2$  in all the five models shows the increase in variation in DA is not caused by the number of predictor variables, but by the actual effect of variable groups on DA. Hence, the overall measure of strength of association of the independent variables and the dependent variable is not influenced by the number of the variables. The descriptive power of the regression Model 5 was the highest as evidenced by its values of  $R^2$  (55.2%) and adjusted  $R^2$  (47.45). The change in  $R^2$  on addition of variable FININFO was the highest at 0.158 indicating its importance relative to other variables related to firm and owner characteristics (0.062 and 0.041 respectively). The supplementary analyses provided reliable statistical evidence to support the key findings of the study that the size of owner's equity and collateral had the strongest prediction power of a firm's accessibility to the bank loans.

**Table 6.11: Single Linear Regression Output**

FL	Group 1			Group 2			Group 3			Group 4			Group 5		
	Coef.	t	P> t	Coef.	t	P> t	Coef.	t	P> t	Coef.	t	P> t	Coef.	t	P> t
<b>ln_INTFIN</b>	0.062***	5.09	0.000												
<b>COLL:</b> Equal	0.109**	2.19	0.030												
Double	0.126***	3.08	0.002												
More than Double	0.170***	3.04	0.003												
<b>FININFO:</b> Low				0.048	1.56	0.121									
Medium				-0.009	-0.30	0.767									
High				0.050	1.26	0.210									
Very High				0.158**	2.57	0.011									
<b>INT</b>							0.009	0.54	0.593						
<b>TERM:</b> 3-5 years							0.005	0.15	0.883						
Over 5 years							-0.042	-1.44	0.153						
<b>ln_AGEF</b>										-0.014	-0.71	0.479			
<b>SIZEF:</b> Small										0.034	0.84	0.399			
Medium										0.066	1.17	0.243			
<b>SECF:</b> Manufacturing										-0.017	-0.45	0.651			
Service										-0.055**	-2.10	0.037			
<b>AGEO:</b> 26-35 years													0.010	0.23	0.821
36-45 years													0.086*	1.80	0.074
46-55 years													-0.002	-0.04	0.970
over 55 years													0.103	1.42	0.156
<b>GENO:</b> Male													0.026	1.01	0.313
<b>EDUO:</b> Primary School													-0.022	-0.35	0.728
High School													0.029	0.62	0.534
Vocational Education													0.045	0.89	0.375
Bachelor Degree													0.039	0.74	0.460
Postgraduate Degree													-0.006	-0.05	0.957

**Table 6.12: Hierarchical Multiple Linear Regression Output**

FL	Model 1			Model 2			Model 3			Model 4			Model 5		
	Coef.	t	P> t	Coef.	t	P> t	Coef.	t	P> t	Coef.	t	P> t	Coef.	t	P> t
<b>ln_INTFIN</b>	0.062***	5.09	0.000	0.097***	7.65	0.000	0.114***	8.86	0.000	0.131***	9.72	0.000	0.136***	9.79	0.000
<b>COLL:</b> Equal	0.109**	2.19	0.030	0.083*	1.81	0.072	0.092**	2.12	0.036	0.097**	2.30	0.023	0.089**	2.09	0.038
Double	0.126***	3.08	0.002	0.106***	2.81	0.006	0.111***	3.13	0.002	0.122***	3.56	0.000	0.108***	3.10	0.002
More than Double	0.170***	3.04	0.003	0.117**	2.25	0.026	0.092*	1.85	0.066	0.110**	2.30	0.023	0.086*	1.72	0.088
<b>FININFO:</b> Low				0.055**	2.04	0.043	0.061**	2.35	0.020	0.041	1.48	0.140	0.023	0.80	0.424
Medium				0.079***	3.11	0.002	0.073***	3.01	0.003	0.066***	2.76	0.006	0.052**	2.06	0.041
High				0.162***	4.37	0.000	0.155***	4.30	0.000	0.138***	3.75	0.000	0.101**	2.47	0.015
Very High				0.298***	5.48	0.000	0.329***	6.26	0.000	0.303***	5.46	0.000	0.250***	4.02	0.000
<b>INT</b>							0.041***	3.05	0.003	0.036***	2.74	0.007	0.039***	2.98	0.003
<b>TERM:</b> 3-5 years							0.083***	2.65	0.009	0.084***	2.8	0.006	0.093***	3.05	0.003
Over 5 years							0.0004	0.02	0.986	0.004	0.17	0.864	0.007	0.34	0.738
<b>ln_AGEF</b>										0.037**	2.36	0.020	0.039**	2.27	0.025
<b>SIZEF:</b> Small										0.073**	2.3	0.023	0.083**	2.52	0.013
Medium										0.196***	4.08	0.000	0.224***	4.56	0.000
<b>SECF:</b> Manufacturing										-0.028	-0.98	0.326	-0.031	-0.89	0.372
Service										-0.030	-1.51	0.132	-0.026	-1.27	0.206
<b>AGEO:</b> 26-35 years													0.002	0.06	0.952
36-45 years													0.060	1.90	0.079
46-55 years													0.012	0.29	0.776
over 55 years													0.095	1.64	0.104
<b>GENO:</b> Male													0.033	1.85	0.089
<b>EDUO:</b> Primary School													0.013	0.28	0.782
High School													0.062*	1.67	0.096
Vocational Education													0.092**	2.15	0.033
Bachelor Degree													0.095*	1.96	0.052
Postgraduate Degree													0.037	0.37	0.713

## **6.8 Summary**

This chapter presented the details of the research Phase I quantitative analysis of SME survey data through OLS regression analysis. The regression model consisting of factors associated with SME and owner's characteristics, financial information, loan characteristics and collateral was investigated in relation to SMEs' debt accessibility from the banks. The standard model validation criteria such as  $R^2$ , t-test and corresponding p-values were calculated to determine the validation of the model. The  $\beta$  coefficients of the independent variables were used to measure the strength of their relationship with the dependent variable.

As part of an initial examination of data, missing data were imputed with mean of the respective variables. Dummy variables were created for qualitative categorical variables through binary coding, so as to include them in the model for OLS estimation purpose. Relevant diagnostic tests pertaining to normality, model misspecification, multicollinearity and heteroscedasticity were carried out to determine an appropriate multiple regression model. The regression model was found to be a good fit based on by the value of  $R^2$  indicating that a 55.17% of variation in dependent variable DA was accounted for by the independent variables. The hypothesis testing based on the multiple regression analysis validated that debt accessibility is correlated to repayment capacity of the firm, financial information, loan characteristics and firm and owner characteristics.

The estimation of the regression equation provided evidence of a positive association between a firm's access to bank loans and the variables: collateral and owner's equity; financial information; loan interest rate and term; firm age and size; and owner's education as predicted by the existing literature. There was moderate evidence to establish relationship between owner's age and gender and debt accessibility. However, the variable loan term was negatively co-related to loan accessibility while firm sector did not have statistically significant effect on SME's accessibility to bank loans. Additional analysis in the form of hierarchical regression was carried out to investigate the effect of individual variable groups on the DA. The results evidenced that the repayment capacity variables (INTFIN and COLL) and financial information (FININFO) were the most effective in determining firm's access to debt financing in comparison to firm and owner characteristics.

## **CHAPTER 7**

### **DATA ANALYSIS: PHASE II: QUALITATIVE METHOD**

#### **7.1 Introduction**

This chapter examines the finance providers' (banks) component of the SME financing gap by exploring the factors used by the banks to determine the outcome of SME loan application. The Phase II qualitative data forms a minor component of the sequential explanatory research methodology adopted by the study. It was conducted after completion of the research Phase I analysis. It is exploratory and interpretive in nature consisting of in depth telephonic interviews with credit officers of financial institutions in Bhutan. The qualitative data was analysed through thematic analysis to generate in depth information on bank's lending behaviour towards SMEs.

#### **7.2 Thematic Analysis of Qualitative Interview Data**

The qualitative research generates a comprehensive in depth description of collected data by establishing relationships among different categories within the data (Marshall & Rossman 2011). The qualitative software QSR NVivo 10 was used for sorting, storing and retrieval of the transcribed interview data of all the credit officers interviewed. Thematic analysis, one of the principal techniques used by qualitative researchers (Creswell 2013; Marshall & Rossman 2011) was chosen because it enables interview data to be analysed in terms of pre-identified principal themes from Phase I.

According to Braun and Clarke (2006, 2013) thematic analysis is appropriate as a data analysis approach where underlying themes within the qualitative data have been already identified and provided with description of these themes. The principle of thematic analysis lies in identifying patterns (themes) in the data and then analysing and reporting the findings (Braun & Clarke 2006; Creswell 2009). Since one of the final outcomes of this study is to generate policy recommendations, thematic analysis is appropriate as it produces analyses suited for policy development, as stated by Braun and Clarke (2006, 2013).

### **7.3 Steps involved in Qualitative Analysis**

It is essential that researchers keep track of interview data through proper data transcription and organisation to aid the development and outline of the analytic process (Miles & Huberman 1994; Ritchie & Spencer 2002). Each telephonic interview was given a numerical code with details of the date and time of the interview, to maintain the anonymity and confidentiality of the respondents. The following steps of thematic analysis were followed:

#### **1. Transcription of Data**

The telephonic interviews of the credit officers were recorded and transcribed word for word in Microsoft Word before importing to NVivo. As suggested by Braun and Clarke (2006, 2013), transcription of the interview was carried out carefully to attain a high level of accuracy and details. Each interview lasted for 30 minutes on average. During the transcription of audio recording, notes were also taken to highlight interesting and striking observations to get better insight into the interview data.

#### **2. Organising the Data**

The first crucial step is to get familiarised with and develop a better understanding of the interview data prior to data analysis. The familiarisation with the data consisted of thorough listening to the interview audiotapes and reading of the interview transcriptions several times. Since the researcher did the transcription, the familiarisation started during the transcription process. The interview transcriptions were then imported into NVivo for storing all the data in a proper format to aid in theme generation and analysis. Organising of data also helps in easy retrieval and identification during the analysis process.

#### **3. Generating Themes and Codes**

This step involves identifying common and recurring patterns in the dataset and grouping similar information under common concepts or themes of the research issue in discussion (Creswell 2013; Marshall & Rossman 2011). The transcribed data was then coded into meaningful segments of information, which were further grouped under similar themes or categories. Several authors (Bazeley 2009; Bazeley & Jackson 2013) highlighted the importance of coding in qualitative data analysis, which transforms huge amount of data into categories or themes and further sub-themes. Four or five themes

are recommended by most of the authors which is a manageable number for a good report analysis (Bazeley & Jackson 2013). The identified themes are coded systematically and stored in NVivo, which permits storage of large amounts of coded data and multiple coding. The findings from the codes and themes are reproduced in matrix displays and diagrams depicting the details of associations and differences of the responses of the interviewees (Bazeley 2009; Creswell 2009).

As suggested by Welsh (2002), this study used a combination of manual and software assisted methods in analysing the qualitative data of interview transcripts. The interview transcriptions were arranged manually under similar interview questions as an initiation to theme development. Since the qualitative interview was based on already identified themes from Phase I regression analysis, the themes were already pre-defined, providing structure to the data. Hence, the five main themes were: SMEs' loan repayment capacity; financial information; loan characteristics; firms' characteristics and SME owner's characteristics. The identified themes were used as codes for further analysis of the interview data. NVivo auto coding (Bazeley & Jackson 2013) was used to categorise interview data under similar themes and codes. The amount of interview data collected from six respondents was small and therefore appropriate to be handled by auto coding. Responses from all interviewees for similar question were grouped together under one code in one document, simplified and accessible for interpretation of the results.

#### **4. Analysis: Testing Emergent Understandings**

The data is analysed to generate a critical review of the themes rather than mere description of the data (Braun & Clarke 2013). The identification of themes increases the understanding of the underlying meaning and sense of the data in the context of established or new theories. The objective of the data analysis was to achieve critical analysis of data and answer the research questions. The generated themes were explained in the context of the identified theories of Information Asymmetry, Agency theory and POT. SMEs' accessibility to bank loans is explored and tested using the qualitative interview data from the perspective of the banks, complementing the Phase I empirical investigation from the perspective of SMEs.

## **5. Writing the report**

According to Creswell (2009, 2013) writing of qualitative data analysis should reflect the analyst's interpretation of the data and should not impose but rather interpret the meanings of the participants. The illustrative tables, maps and charts helps to project results that are easy to read as each theme is matched across to all respondents (Ritchie & Spencer 2002). The results of the qualitative data analysis of the study have been supported by descriptive statistics and illustrative quotes from the interview respondents. The respondents' quotes have been reported in their original form as spoken by the respondents.

### **7.4 Profile of the Interview Respondents (Credit Officers)**

The sample for interview consisted of all five banks and one of two insurance companies in Bhutan, with the consent of the organisation to participate in the interview process. To provide more description and depth to the banks' lending behaviour towards SMEs, the people dealing directly with SMEs, that is, credit officers were interviewed. All six respondents were from the credit departments of their parent organisation, directly dealing with credit appraisals. Their affiliation with the organisation ranged from a minimum of 3 years to a maximum of 17 years (Table 7.1) representing enough work experience to generate the required information for data analysis.

**Table 7.1: Work Experience of Interview Respondents**

<b>Interview Respondent</b>	<b>Work Experience</b>
R1	3 years
R2	7 years
R3	10 years
R4	18 years
R5	5 years
R6	5 years

### **SME Credit Unit**

Since the research is focused on SMEs' accessibility to bank loans, the interview respondents were asked about the credit unit in their respective organisation. When the credit officers were asked if their bank had designated credit unit catering to the SME sector, five out of six respondents (83.33%) had a negative response. These respondents replied that their banks did not have separate units specifically dealing with SME loans

but their credit department covered both the SME sector and large corporation loan products. One of the respondents said:

*'We don't have specific loan products as such targeting only SME sector. Our loan products relevant to SME sector are covered under retail loans products'. (R6)*

SME loan applications are treated no differently from larger firms creating more competition for the SME sector in securing bank loans. In fact, all the banks agreed on levying stringent verification processes of SME loan application prior to disbursing loans due to high risk and uncertainty of investment recovery. According to one respondent,

*'...there are stringent verification processes that the applicant must go through prior to getting bank loan so as to avoid bad loans and closing of businesses after loan disbursement'. (R3)*

Only one respondent (16.67%) stated that in accordance with the mandate of being a development bank, they catered for the SME sector. Their loan products were also developed to suit SME needs in particular farming population in rural region. The respondent said,

*'...since our bank is a development bank, there is rural and retail lending division under the credit department targeting the farmers and small businesses in agricultural sector to help them make money'. (R1)*

Therefore, except for one bank, the remaining banks did not have unit designated specifically to cater to the needs of the SME sector. This is different from the World Bank findings, which reported the existence of separate departments catering to the SME sector (Beck, Demirgüç-Kunt & Pería 2008). The absence of special credit units for SME finance reflects a gap between the financing needs of SMEs and the loan products available in the financial market. Hence, that the banks in Bhutan did not have separate unit focused on the SME sector, highlights the severe financing difficulties faced by SMEs in Bhutan.

Though the study did not quantify the extent of SMEs lending undertaken by the banks, the interview with credit officers revealed that the size of SME loans in the bank's loan portfolio was comparatively smaller to that of larger firms. The percentage of SME

loans in all banks' credit portfolio was a maximum of 30% of the total lending. This finding was consistent with the World Bank study conducted by Beck, Demirguc-Kunt and Pería (2008), which reported that banks provided a smaller share of investment to the SME sector at a higher interest rates and higher fees in comparison to larger firms.

## **7.5 Evaluation of SME Loan Applications by the Banks**

The qualitative Phase II of the study explored the factors in terms of credit and eligibility criteria set by the banks to evaluate SMEs loan applications. These factors were inclusive of firm and owner characteristics and loan characteristics. An effort to understand the bank's predicament in funding SMEs, and factors influencing the loan approval decision, will be beneficial in developing remedial action to influence a positive outcome of SME loan applications. While it is accepted that SMEs face greater difficulty in gaining access to bank loans, recognising and understanding the criteria used by the banks to evaluate the loan application could resolve this difficulty. The banks look into a number of factors while processing SME loan applications that are strongly associated with the 5 Cs of Credit Criteria. The five Cs (character, capital, capacity, condition and collateral) of credit underlines the key factors that are considered by the banks to evaluate loan applications and assess the ability of SMEs to repay the loan (Altman 1980; Altman, Sabato & Wilson 2008; Canales & Nanda 2012). Similarly, Harif, Hoe and Zali (2011) identified 12 success factors from the literature and bank practitioners that banks consider while evaluating SME loan applications. These factors are primarily used to evaluate the risk caused by SMEs' imperfect information by weighing with their credit worthiness.

For this study, five main themes emerged from the interviews with credit officers of the financial institutions and are discussed in detail in this section, reflecting the banks' stand on the issue of SMEs' inaccessibility to bank loans. Using NVivo auto coding, the respondents' comments were cross-examined and interpreted using cross-case analysis to achieve in depth analysis of each response. The cross-case analysis enabled comparison of each respondent's view against the pre-defined factors. The validity of Phase II results is emphasised by the number of respondents even though it forms the minor part of the sequential explanatory mixed method. The consistency of the respondents' answers and interpretations of the themes confirms the accuracy and applicability of the data to the population.

### **7.5.1 Loan Repayment Capacity**

As reported in previous chapters, the loan repayment capacity of SMEs is measured in terms of the size of owner's equity in the business and the size of the collateral mortgaged (St-Pierre & Bahri 2011; Steijvers, Voordeckers & Vanhoof 2010). Therefore, the credit officers were asked questions pertaining to the roles of these two factors in determining SMEs' accessibility to loans. Banks reported that equity and collateral based lending induced positive moral hazard behaviour in SMEs and reduce loan repayment failure.

#### **Internal Finance**

The interview revealed that internal finance or owner's equity was a mandatory requirement levied by the banks on SMEs to avail loans. SMEs were also required to inject a certain percentage of the total project cost into the business so as to be eligible to access a loan from the banks. All the respondents confirmed that, without any input from the owner's side, the banks decline to finance the project. The first respondent made the following statement on the role of owner's equity during their loan appraisal process:

*'...as for equity contribution of the owner, whatever project they are trying to start, they have to by any means make some sort of equity contribution because we do not finance total project cost'. (R1).*

Based on the mandates of each individual bank, the required percentage of owner's equity ranged from 25% to 50% as depicted by the following statements made by the credit officers:

*'...the size of the owner's equity differs...we prefer 50:50 ratio between owner's equity and loan amount approved by bank'. (R6).*

*'...for all our loans, we finance 60% of the total cost and we ask for receipt showing equity (owner's investment) being deposited. We do ask for documentations showing owner's share of investment'. (R2)*

*'...minimum of 25% of total project cost must come from the owners, and rest 75% is sponsored by the bank'. (R1).*

One of the key reasons cited by respondents in making a financial contribution from the owner's side mandatory was to inspire the owner to perform better and to use the loan amount strictly for the purpose of the business projects. The role of owner's equity in the business functions as a motivation to mitigate the problems of moral hazard (Bester 1985, 1987; Ono & Uesugi 2009) which was observed to be high in Bhutanese SMEs, as reported by credit officers. The intention of banks is reflected in the statement made by one of the respondents:

*'...we want the person who is promoting the business to be serious enough to realize that at least some portion of his equity has also been ploughed in and if his business performs badly then he is also going to lose on his equity share'. (R4)*

It was deduced that the size of owner's equity in business enhances its chances of securing a loan from the banks, because it is associated with the owner's seriousness operate the business. The size of personal investment in the project induced positive moral hazard in SMEs and the motivation to earn better returns to cover their financial stake in the business. Therefore, it suggests a positive relationship between size of internal finance and access to bank loans in line with the literature and Phase I results.

### **Collateral**

All the respondents presented strong arguments on the importance of collateral to successfully gain access to bank loans. The interviewees affirmed the vital role of collateral in recovering their investment in the event of any unforeseen situations, such as defaulting on loan repayments and bankruptcy. One of the interview respondents stated:

*'...collateral will cover our losses in case a borrower fails to repay the loan...that's why collateral keeps banks on safer side'. (R6)*

In a situation where SMEs are not able to provide enough information on their business' financial status, the banks resorted to collateral use to overcome the risks associated with SMEs. It serves as a safety net to failure loan amount recovery from SMEs. Underlining the importance of collateral, one respondent said:

*'...collateral is necessary for any kind of loan. In a case where the project is viable but does not have enough collateral, we have to reject the proposal if it is not backed by the collateral security'. (R5)*

Another respondent also remarked on a similar line:

*'...if you go for business loan or mortgage loan, the collateral has to be there. That is because just to be on a secure side as a bank investing in SMEs'. (R6)*

Likewise, comment from yet another respondent reiterated the mandatory and crucial requirement of collateral:

*'...collateral is a must and loans are based on collateral only. We also look into their repayment capacity and their credit history'. (R2)*

The first step undertaken by a bank during a loan application evaluation is to assess the value of the collateral mortgaged by the loan applicant, as indicated by this statement from one respondent:

*'...the main process was, when the client approaches the bank; firstly, we calculate the mortgage value. According to our calculation, we then interview our clients about their project and projected profit'. (R1)*

It was also established that the loan accessibility was influenced by the value of the property mortgaged by the loan applicant as stated by one of the respondents:

*'...loan accessibility depends on the collateral size'. (R5)*

Further, the interviews revealed the different types of collateral used and the value of collateral required by the banks in proportion to the loan amount disbursed. The interview also revealed that collateral was mostly personal properties of the business owners and their family members, in comparison to business assets serving as a mortgage. All the banks preferred fixed assets in the form of land and buildings over business assets like machinery and equipment. According to one respondent:

*'...banks prefer tangible assets like land and building...business assets like machinery are also accepted'. (R6)*

The credit officers argued that business assets are not preferred as collaterals due to the lower value of business assets owing to the size of the business, so they might not be enough to recover its investment. Citing their preference for personal fixed assets over business assets, respondents stated:

*'...we don't accept mortgage in intangible forms. The most common and preferred tangible mortgage is land. It is mostly personal assets of the owner. However, out of 100%, only about 20% avail loans by mortgaging business tangible assets'. (R1)*

*'...land, building and vehicle are the most common collateral used and we usually prefer these collaterals, which are all personal assets...we don't finance against business assets like machinery and equipment'. (R2)*

The interviews also revealed that the value of collateral required was at least 1.5 times more than the loan amount while the maximum value charged was 3 times the size of the loan amount. However, the average value of collateral was estimated to be double the loan amount. The higher value of collateral provided bank with indemnity to offset the loan default risk of SME lending. This is indicated in the following comments from credit officers:

*'...we give loan of 50% of collateral value. So that means, from the viewpoint of borrower, the size of collateral value is twice the size of loan amount'. (R6)*

*'...The value of collateral should be at least two times or sometimes three times the loan amount'. (R5)*

Most of the financial institutions participated in government initiated entrepreneurship development programs to promote entrepreneurship. Given the assurance of the government's role as a guarantor, the banks were willing to invest in the participating SMEs at more favourable terms and conditions, like a lower collateral rate. One respondent revealed how they functioned under EDP loans:

*'...yes, collateral is a prerequisite for availing bank loans like in other parts of the world. In case of people routing through the government tied programs, we have collateral requirement of only between 15-30% while the regular clients are charged 100% collateral'. (R4)*

The interview also revealed that the banks' lack of confidence in the ability of SMEs was based on their past experiences of SMEs misusing loan amounts for different purposes or in some cases just disappearing. In such cases, the banks are faced with the additional problem of locating such individuals at the cost of their time and resources to recover their investments. All the above statements from credit officers reinforced and validated the requirement and significance of collateral in determining a firm's accessibility to a bank loan. Similarly studies on the banks in Pakistan also revealed that the banks are reluctant to lend to SMEs due to lack of valuable assets that can be used

as collateral and also low managerial expertise specially related to financial management (Hamid & Abaidullah 2006). 95% of banks in Eastern Africa stated the mandatory requirement of collateral from SME borrowers to offset the high SME credit risk related to SME information that is more difficult to evaluate (Calice, Chando & Sekioua 2012).

It has been predominantly proven that the banks use collateral as a risk management tool and that no bank will finance without a guarantee being provided. This finding is as predicted by the literature (Chen, Y 2006; Cowling 1999; Ono & Uesugi 2009; Steijvers, Voordeckers & Vanhoof 2010) and the findings from research Phase I. The interviews also revealed that the higher the value of collateral pledged by the SMEs, the easier it was to secure loans from the banks, establishing a positive relationship between the size of collateral and access to bank loans.

**Table 7.2: Influence of SMEs' Repayment Capacity on Loan Accessibility**

Interview Respondent	Theme: Influence of SMEs' Loan Repayment Capacity on Debt Accessibility	
	Collateral	Internal Finance
R1	Collateral is very important. All loans have to be backed by collateral 1.5 times the loan amount.	At least 25% of owner's equity is required to get bank loan.
R2	Collateral is very important. All loans have to be backed by collateral twice the loan amount.	At least 40% of owner's equity is required to get bank loan.
R3	Collateral is very important. All loans have to be backed by collateral twice the loan amount.	A certain percentage of owner's equity is required to get loan.
R4	Collateral is very important. All loans have to be backed by collateral half the loan amount.	A certain percentage of owner's equity is required to get loan.
R5	Collateral is very important. All loans have to be backed by collateral twice the loan amount.	A certain percentage of owner's equity is a requirement to get loan.
R6	Collateral is very important. All loans have to be backed by collateral twice the loan amount.	At least 50% of owner's equity is required to get bank loan.

### **7.5.2 Financial Information**

The interview results supported that the inadequacy of financial information hindered SMEs' chances of accessing debt from the banks, consistent with the Information Asymmetry theory (Allee & Yohn 2009; Drever, Stanton & McGowan 2007). It indicated that firms with a higher quality and quantity of information had better chances of accessing bank loans in comparison to ones without any information to share with the banks. All credit officers (100%) agreed that firm maintaining their financials and communicating with the banks, had better accessibility to bank loans. When the loan applicants shared accurate financial information, the banks were confident and willing to provide loans. As reported by Allee and Yohn (2009) and McMahon (2001), the sharing of financial information reduces the information asymmetry between SMEs and the banks thereby reducing uncertainty risk.

Affirming the importance of the availability of financial information to make SME loan decision, some of the statements from credit officers are:

*'...firms should maintain good financial records and come up with good project report with sound financial projections. When the business project is profitable, the banks will definitely finance it'. (R2)*

*'...if they have been performing well over the years with proof of financial statements showing good profits, the banks can consider such cases'. (R5)*

*'...since we can directly foresee the cash flow for the old firms which have direct impact on approving the loans'. (R3)*

People seeking SME loans are required to come up with a proper business plan or project proposal documenting their business financial information and projections. However, the interview revealed that most of the financial predictions in SME business proposals were unreliable and not based on a proper market study. The majority of SME clients prepared their business plans simply to meet the requirements of a loan application and not based on the true nature of the project. Thus, the banks ended up preparing and writing SME business plans, particularly financial projections by themselves undertaking additional research on loan applicants, market and site visits.

Casting doubt on the reliability of business proposals prepared by SME loan applicants, one credit officer said:

*'...it is mandatory for borrowers to come up with business plan reflecting its financial cost and future projects. However, it is rare that SMEs come up with true financial projections'. (R3)*

Similarly, these statements from credit officers also reflect the poor quality of business plans that SMEs prepare while applying for bank loans:

*'...they say, I want this much money to do my business and he has no idea what kind of business he is trying to do. Most of the people don't come with planning of the business and relevant documents'. (R6)*

*'...business plans with details of the business, reflecting financial projections is mandatory. However, not all applications come with business plans. Even the ones with a business plan fail to meet our criteria in terms of information on businesses. (R5)*

It was also established that Bhutanese SMEs lacked standard financial reporting and were characterised by poor financial management, such as books of accounts, financial statements and forecasting. Credit officers had negative perceptions of SMEs' financial information management, as reflected in the following statements:

*'...SME clients do not maintain any kind of financial information. It is just during the time when SME clients come to bank to apply for loans, they go and prepare somehow and bring but they don't maintain any financial information'. (R2)*

*'...small businesses like beauty parlours, restaurants, retail shops do not maintain any book of accounts and just do the business without any financial management'. (R5)*

This finding is consistent with literature (Ang 1991, 1992; Caneghem & Campenhout 2012; Healy & Palepu 2001) that SMEs in general, with inadequate financial management are not ready for formal debt financing. A low level of information is interpreted as lower financial credibility and high risk, not a suitable or favourable investment for the banks. SMEs' lack of financial information posed a high risk to the banks in terms of investment recovery. Hence in the absence of financial information, the banks resorted to the use of different mechanisms to assess the financial credibility of SMEs, as predicted by prior studies (Caneghem & Campenhout 2012; Steijvers & Voordeckers 2009).

The banks investigated the income source of not only the loan applicants but also their family members. The value assessment of the loan applicant and their family members were conducted to serve as security for the loan amount. It also became apparent that all the banks sought some kind of collateral or guarantee from a third party to offset any possible issues related to defaults on loan repayments in the future. All the banks followed this precautionary measure, since it was a safety net to recover their investment in the case of financial loss. In the case of established businesses, they also looked into their prior financial history with other banks. According to one respondent:

*'...firstly, we try to investigate fixed income of the applicant. We investigate all income sources even from their children and family. Through business plans and interaction or interview with the clients, we try to gather information especially financial information'. (R1)*

The banks conducted site visits prior to and after loan disbursement to monitor the performance of SMEs. During the follow-up field visits they also provided financial guidance to SMEs to manage their finances daily book keeping in particular benefiting both SMEs and the banks. All credit officers mentioned that they made extra efforts to educate SMEs on financial management, in particular daily book keeping during the monitoring process. Some of the comments with regard to the field visits were:

*'...we have a policy of making visit to their premises about once every month or once every quarter depending on the business size. During that time, we also teach them how to prepare the books of account'. (R4)*

*'...we always try to guide them...check if they have maintained books of accounts so that it is easier for both. Actually most small business doesn't even maintain daily bills'. (R6)*

The interview results with regard to financial information are in line with the Phase I findings and the literature stating that firms with proper financial information and practices were more likely to secure bank loans than those without any financial information. The prediction of the theory of asymmetric information (Myers & Majluf, 1984) was found in the banks' lending behaviour towards SMEs due to its low level of financial information. 88% of banks in eastern African countries cited lack of quality information as the biggest obstacle of SME lending (Calice, Chando & Sekioua 2012). Availability of information assists the banks to make better-informed decisions on loan

applications to overcome the loan default risk posed by SMEs. Therefore, a firm's accessibility to bank loans was influenced by the financial information maintained and shared by the firm.

**Table 7.3: Influence of SMEs' Financial Information on Loan Accessibility**

Interview Respondent	Theme: Influence of SME financial Information on Debt Accessibility	
	Financial Information	SMEs' Financial Management
R1	Providing more information helps the bank to make loan approval decisions.	Financial information management in SME is very poor.
R2	Providing more information helps the bank to make loan approval decisions.	Financial information management in SME is very poor.
R3	Providing more information helps the bank to make loan approval decisions.	Financial information management in SME is very poor.
R4	Providing more information helps the bank to make loan approval decisions.	Financial information management in SME is very poor.
R5	Providing more information helps the bank to make loan approval decisions.	Financial information management in SME is very poor.
R6	Providing more information helps the bank to make loan approval decisions.	Financial information management in SME is very poor.

### 7.5.3 Loan Characteristics

Three main loan characteristics: loan amount, loan interest rate and loan term were identified as factors that determined the loan accessibility of SMEs (Beck, Demirgüç-Kunt & Pería 2008; Daniel & Nicolae 2011; Uchida 2011). As reported in Chapter 6, a loan amount was not included in the regression model in the Phase I of the study to avoid high multicollinearity issues with the dependent variable. Similarly, interviews with the credit officers revealed that the size of the loan amount was based on the type of business project and therefore did not influence the loan approval process. According to credit officers, the minimum loan amount disbursed to the SME sector was Nu. 20,000-Nu.50,000 and the maximum range Nu.1 million-2.5 million. The respondents also mentioned that the size of the loan amount was dependent on the business type, the size of collateral and the owner's equity in the business.

#### **Loan Interest**

Differing from the findings of the literature (Coleman 2000; Hall, Hutchinson & Michaelas 2000; Uchida 2011) and research Phase I, all respondents (100%) strongly stated that loan approval for an SME loan application was not influenced by the loan interest rate. The banks function in accordance with the regulations set by the Royal

Monetary Authority (RMA), the central bank of Bhutan, banks could not manipulate interest rates on loan. The base interest rate was set by the RMA, upon which the banks built interest rates for different loan products. Thus, there was no way of charging different interest rates for one loan product to different borrowers. Hence for a product like a SME loan, the banks could not charge higher interest rate even if the borrower was willing to pay higher interest rate and generate bigger profits for the banks.

The following statements from credit officers emphasise the RMA's role in determining the loan interest, rather than the banks: '*...interest rate is uniform and we do not charge different rates to different clients. We have to follow terms and conditions circulated by RMA regarding setting interest rates*'. (R2)

*'...there are different schemes like construction schemes, transportation schemes, business schemes, vehicle loan schemes. Each scheme has flat rate of interest like for construction scheme the interest rate is 13%. So we cannot charge 16% interest rate even if the applicants are willing'*. (R5)

Another respondent indicated that each bank has their own policies for charging interest rates for different loan products upon the base rate determined by the central bank. Hence, the interest rates on similar loan products may vary between the banks. The interest rates are then generated by the individual bank's system, which might be different from bank to bank.

*'...based on RMA base interest rate, each bank charges interest rate according to their own policies. However, there might be little difference of about 1 to 1.5 % on same loan products between different banks'*. (R1)

Interview with credit officers revealed that the interest rate of the loan was pre-determined by the central bank and hence the banks can only play within the determined base rate. Unlike previous studies (Beck, Demirgüç-Kunt & Pería 2008; Berger & Black 2011) and the results from Phase I, the Bhutanese banks could not charge different interest rates for different loan applicants seeking the same loan products even if they desired to do so to generate more profit. So the interest rate was dependent on the kind of loan products and not the individual seeking a loan. The interest rate is uniform for each loan product, which is not changed by the banks to suit individual clients. Therefore, according to the banks, SMEs' accessibility to bank loan is not determined by the interest rate charged on the loan amount.

### **Loan Term**

The result for loan term was similar to that of loan interest rate, where all the respondents (100%) confirmed that the outcome of the loan application was not determined by the loan term. The borrowers were given autonomy on how they wanted to repay the loan and within what duration, based on the business proposal and source of loan repayment. Further, the loan term for each loan products was predetermined and fixed for different loan schemes.

One respondent highlighted irrelevance of loan term on loan accessibility by stating:

*'...we just do some appraisal of the project; we are not concerned with loan term. Therefore, we never stop or discourage them to take short term or long-term loans. It all depends on the clients'. (R1)*

The respondent further added:

*'...If they have enough source of income after availing loan, they can even clear loans with all interest earlier than term period like in 1 or 2 months'. (R1)*

This result was in complete contradiction to evidence from the literature (Brent & Addo 2012; Harif, Hoe & Zali 2011; Mudd 2013; St-Pierre & Bahri 2011), favouring loan applicants seeking short-term over long-term loans. However, some respondents hinted that as a profit seeking organisation, they would prefer short-term loans to long-term loans, taking into consideration the duration of the bank's liquidity gap. Citing a preference for short-term loan, one respondent stated:

*'...we prefer short-term to long-term loans but there is no hard and fast restriction levied by our loan committee and management'. (R2)*

Short-term loans provided the banks with the advantage of recovering their money in a shorter time without causing a liquidity gap. The banks do not prefer to give long-term loans to SMEs, due to the problem of mismatching maturities of a low number of long-term deposits and credit products. One of the respondents provided justification on their preference of short-term loans:

*'...going by the financial norms, for any bank, of course shorter term loans are always preferable because we have to manage our financials. We have to match our loans with fluctuations that happen with our deposit...whatever loans we give out are based on our deposit portfolio. Larger amount of money is usually deposited with banks for shorter*

*term. So, if we have to take our loans to deposits then shorter-term loans are preferred by all the banks to offset our asset and liability gap'. (R4)*

In contradiction to Phase I results, the interviews with credit officers found that, like the loan interest rate, the loan term was also pre-determined by the central bank and therefore did not have any relationship to loan accessibility. However, the credit officers (50%) hinted their preference for short-term loans as outlined by previous studies. It is interesting to note that this finding is the opposite of the Phase I findings, which supported long-term loans having a positive correlation to bank loan accessibility.

The interviewees also reported that the average loan duration, especially for SMEs is 3-5 years, in contrast to other larger firm's loan term of 20-25 years. Therefore, in the case of SMEs, the banks considered a 1-3 years loan term as a short-term loan and loan duration from 5-7 years as long term loan. All banks provided short-term working capital loans also known as overdrafts, for a period of one year, which was renewable annually. To override the risk associated with SMEs' information asymmetry, the banks shortened the duration of borrowing as predicted by the literature (Beck, Demirgüç-Kunt & Pería 2008; Berger & Udell 2006; Chittenden, Hall & Hutchinson 1996; Liu, Margaritis & Tourani-Rad 2011).

**Table 7.4: Influence of Loan Characteristics on Loan Accessibility**

Interview Respondent	Theme: Influence of Loan Characteristics on Debt Accessibility	
	Loan Interest Rate	Loan Term
R1	Interest rate not important since we apply one interest rate for one loan product.	Loan term not important factor for financing decision.
R2	Interest rate not important since we apply one interest rate for one loan product.	We prefer short-term loan because of quick loan recovery.
R3	Interest rate not important since we apply one interest rate for one loan product.	We prefer short-term loan because of quick loan recovery.
R4	Interest rate not important since we apply one interest rate for one loan product.	We prefer short-term loan because of quick loan recovery.
R5	Interest rate not important since we apply one interest rate for one loan product.	Loan term not important factor for financing decision.
R6	Interest rate not important since we apply one interest rate for one loan product.	Loan term not important factor for financing decision.

#### **7.5.4 Firm Characteristics**

According to the literature (Hall, Hutchinson & Michaelas 2004; Holmes et al. 2003), external debt proportion in the capital structure of SME is determined by firm characteristics, where larger and older firms have a better accessibility to debt. The cost of SME financing is higher than the cost of financing larger firms for the banks. In addition, the profit margin of SMEs is lower than that of larger firms, which operate in more competitive markets (Beck, Demirguc-Kunt & Singer 2013; Holmes & Kent 1991). Interviews with credit officers revealed that endogenous factors of the firms (age, size and sector) were taken into consideration during the loan appraisal process, influencing the final outcome of the loan application. These characteristics are seen as proxy to firm stability and insolvency, increasing the firm's financial credibility.

#### **Firm Age**

When questioned if the firm age determined loan accessibility, the majority of respondents (83.33%) said that they financed both young and established firms. However, all respondents indicated a strong preference for older firms, as reflected in the following statement from one of the respondents:

*'...we lend to both new start-up businesses and established businesses....obviously, all the banks would prefer already established businesses that are doing well'. (R4)*

This preference was attributed by the banks to their bad experience in the loan repayment conduct of SMEs in the past. Older firms with more experience in the market boosted the confidence of the bank to invest. One respondent said:

*'...definitely banks will go for older firms with good business record. Since we can directly see the cash flow for older firms, which have direct impact on approving the loans'. (R3)*

Reinforcing the importance of firm age, one respondent said that the requirement for firm age was 3 years in order to receive a loan from the bank. The credit officer said:

*'...the requirement for firm age is 3 years...we don't finance new businesses and we only cater to already established businesses'. (R2)*

The respondent asserted that they did not finance business start-ups due to the higher risk caused by no past financial records with banks. Furthermore, new firms are also associated with inadequate or no collateral to mortgage against the loan. Therefore, the

bank did not finance any new businesses due to the high risk and unpredictable performance of younger SMEs and catered only to established businesses.

During the interaction with respondents that financed new firms, it was revealed that the bank financing came at the cost of the SMEs. The new and younger firms were asked to provide a guarantee for the loan in terms of collateral to offset the risk associated with SME lending. The collateral could be in the form of tangible assets or a third party credible guarantor, where the guarantor's financial assets were evaluated to offset the risk of loan default.

The following statements explain the basis for lending to new and younger firms:

*'...firm age is important to get business loan from the banks. Yes, we do finance new firms but they have to provide the bank with collateral security by any means. That is the first criteria'. (R3)*

*'...they also have option of providing with a good guarantor, who has taken loan from our banks and with good repayment. The credibility of the guarantor should be good. The banks will check if the guarantor has enough collateral and security'. (R5)*

Only one of the respondents (16.6%) claimed that age was not a factor for loan appraisal and that the mandate of their bank was to support SME development. According to this respondent, as long as the loan applicants met the basic requirement of a good business plan, thorough market study and feasibility, they treated loan applications from new firms and established firms the same.

*'...as we being a development bank, we normally used to look at project proposal first and then finance. We don't have preference to new or established businesses and support both'. (R1)*

However, it was also revealed that those loans had to be backed up by enough collateral to provide the bank with the security for their investment in the firm.

The interview revealed that 5 out of 6 respondents (83.33%) agreed that the age of the firm was a factor in determining SME's accessibility to bank loans. Though most of the respondents did not make an obvious statement, it was implied that older firms had easier accessibility to bank loans in comparison to new firms. The result projects a strong association between firm age and accessibility to bank loans as observed in

earlier studies (Binks, Ennew & Reed 1992; Caneghem & Campenhout 2012; Frank & Goyal 2003) stating the younger firms face more difficulty in accessing external finance caused by their information opacity.

### **Firm Size**

Initially, the majority of the respondents (66.67%) stated that all the firms in the SME category were considered the same during the loan appraisal. The respondents reported that banks extended loans to all the firms without any discrimination, as long as the business project was viable and backed up by sufficient collateral. Though these respondents said that the firm size was not a determining factor for financing SMEs, their conversation subtly indicated a preference for bigger firms within the SME sector during the course of the interview. One of the respondents said,

*'...depending on the viability of the businesses, we take up all, small, micro, medium irrespective of the size'. (R4).*

The remaining respondents at the same time showed an inclination towards larger firm size within the SME spectrum, given the profit-oriented mandate of the banking sector. The bigger firms were associated with better deals in terms of the return on their investment. According to one respondent:

*'...actually we do prefer bigger firms because they are less risky. Also bigger firm take bigger loan and is more beneficial to the banks'. (R6)*

Two respondents openly mentioned that the size of the firm played a critical role in the determination of the outcome of SME loan applications. The small and medium sized firms had a better accessibility to bank loans than micro firms within the SME sector. At the same time, banks were also open to financing micro-firms, if the project was viable and backed by the required collateral. Their main concern in investing in smaller firms was their ability to recover their investments. One respondent asserted:

*'...the banks prefer larger firms because banking is also a business. If we finance big projects the returns will be higher for the banks to cover and meet the operational expenses while the amount of work, time and cost is the same. So it is cost effective for banks to give loan to one big firm than to 10 smaller firms and generate more income'. (R5)*

From the total six respondents, only one respondent (16.6%) strongly stated that the outcome of an SME loan application was not determined by the size of the firm in any way, for the very reason that all firms under the SME sector are placed under the same category by their bank. Hence, based on the above analysis, we conclude that five out of six respondents (83.33 %) demonstrated a positive inclination towards the positive effect of size on loan accessibility, no matter how subtle their statements on the relationship between firm size and loan approval. In line with the literature (Beck, Demirguc-Kunt & Singer 2013; Kira & He 2012) and Phase I results, the interview also highlighted that larger firms had better accessibility to bank loans than smaller firms. The banks' preferential behaviour is associated with high risk and the high cost transaction costs associated with smaller firms, as described by authors like Beck, Demirguc-Kunt and Singer (2013). Hence, the size of the firm is positively related to the debt accessibility of the firm.

### **Firm Sector**

66.6% of respondents reported that their SME loan approval decision was influenced by the sector of the firm. In addition to a good and financially feasible project proposal, firm sector was another criterion used by the banks during the loan appraisal process. It was also revealed that the banks' prefer manufacturing sector to the retail and service sectors, after studying project proposals and weighing the risks involved in investment. This preference of financing seems to be motivated by the size of investment and cost of the business. Since the size of investment for the manufacturing sector is higher than the others, with the probability of generating bigger returns, the accessibility to bank loans is easier for this sector. One respondent said:

*'...we prefer manufacturing first, second is service and then retail sector. Because, in the case of manufacturing, they have already invested huge amount, they will try their best to perform well and generate more profit'. (R5)*

The retail sector was least favoured by the banks because the Bhutanese market is saturated with retail units, leading to high competition and lower returns for the banks. Since profit generation is the key motive, the banks are cautious about lending to the retail sector. One respondent said:

*'...since the return from retail sector is not high, thus less preference. The cost of processing for loan is the same but small profit'. (R5).*

Another respondent added: '*...we do not like to lend to retail businesses because a retail firm would be competing with already established business houses and will face more problems than making profit*'. (R4)

The remaining two respondents (33.3%) distinctly stated that their bank did not base the outcome of loan applications on the sector of the firm. For these two banks, all firms had equal opportunity of getting loan irrespective of their sector. Justifying their stand, the respondents said:

*'...we give loan to every sector. We do look into the performance of the sectors but we don't really differentiate between sectors'. (R6)*

*'...as long as the project proposal is good; we finance all sectors. It also has to be backed by some collateral like land or building to prove its creditworthiness'. (R1)*

The conclusion drawn from the analysis was that the banks did provide loans to firms from all sectors but were inclined towards the manufacturing sector. Though this finding is different from the Phase I findings, that SMEs' accessibility to bank loan was not determined by its sector, but is consistent with the literature. The firm's sector or industry, in which it is operating, might indirectly translate into its business risk based on the market status, and thus influence debt accessibility (Degryse, de Goeij & Kappert 2012; Hall, Hutchinson & Michaelas 2000; Kira & He 2012). The interview revealed that SMEs' loan accessibility is in some way influenced by its sector owing to sector risk and bank's motivation to earn higher returns.

**Table 7.5: Influence of SME Characteristics on Loan Accessibility**

Interview Respondent	Theme: Influence of Firm Characteristics on Debt Accessibility		
	Firm Age	Firm Size	Firm Sector
R1	We finance all ages of business firms.	We finance all sizes of business firms.	We finance firms under all the sectors.
R2	We finance only older firms. No new start-ups.	We finance all firm sizes but prefer bigger firm.	We finance only retail sector.
R3	We prefer older firms to younger ones.	We prefer bigger firms to younger ones.	We finance all sectors but prefer manufacturing sector.
R4	We prefer older firms to younger ones.	We prefer bigger firms to younger ones.	We finance all sectors but prefer manufacturing sector.
R5	Firm age is very important. Older firms are preferred.	Firm size is important. Bigger firms are preferred.	We finance all sectors but prefer manufacturing sector.
R6	Firm age is very important. Older firms are preferred.	Firm size is important. Bigger firms are preferred.	We finance firms under all the sectors.

### **7.5.5 Owner Characteristics**

The respondents unanimously agreed that the owner's characteristics were one of the determinants of the outcome of SME loan applications. The owner, who is also the manager of the SMEs, is the single person responsible for all business operations and thus plays a dominant role in determining the firm's path of growth, including its financing (Hamilton & Fox 1998; Holmes et al. 2003). The evaluation of an owner's characteristics established the credibility of loan applicants, especially pertaining to their past record with financial institutions. It also builds insights into their motivation for venturing into business, and future business and financial goals.

In addition to hard information, that is use of a statistical scoring method, banks need to incorporate soft information aspect to the evaluation process to manage the credit risk (Altman, Sabato & Wilson 2008; Baas & Schrooten 2006; Uchida 2011). These qualitative measures in terms of owners' age, gender and educational qualification added value to the firm compensating for the absence of financial information. Therefore, this section explores the extent of the effect of owner's characteristics in its accessibility to bank loans.

#### **Owner's Age**

Five respondents (83.33%) stated their strong preference for older loan applicants because of their association with maturity and responsibility towards loan repayment commitment. The banks had more confidence in older borrowers making timely loan repayments, which is essential for banks to recover their investment. One respondent said:

*'...yes, the age of the borrower is important while processing their loan application. We make sure that the borrower is old and wise enough to be able to understand the loan transaction and confident enough for loan repayment. Therefore, we do prefer older borrowers over younger ones'. (R5)*

Another respondent, also expressing the importance of the owner's age said:

*'...the bank prefers to finance older applicants with good track record. They are more responsible and they have tendency to pay off the loans as fast as they can'. (R3)*

One lone respondent (16.6%) claimed that the evaluation of loan applications was solely based on the feasibility of the business project and its financial projections. Hence, age is considered as a secondary factor in the outcome of loan application:

*'...we just investigate their project, how is their cash flow, income flow and financial information...for example, if a person who is 19 comes with a promising project, we don't hesitate giving loan for the business'. (R1)*

The interviews also disclosed that there was an age bracket that was preferred by all the banks. The age bracket 25-50 years was found to be the most favoured by the banks with a minimum age limit of 18 years and a maximum of 65 years. The analysis results therefore supported that the loan accessibility was positively influenced by the age of the firm owner. In line with the literature (Kira & He 2012; Levenson & Willard 2000; Paul, Whittam & Wyper 2007) and Phase I results, older applicant's maturity increased the bank's confidence in investing in SMEs. Higher age and maturity levels of SMEs added higher values to firm's financial credibility easing its accessibility to bank loans. Therefore, the interviews revealed that the age of the owner is directly proportional to loan accessibility from the banks.

### **Owner's Gender**

It was interesting to note that the response on the effect of an SME owner's gender on bank loan accessibility was unanimous: all respondents agreed that they did not differentiate between male and female borrowers. Both male and female borrowers had the same probability of acquiring loans from any of the banks at a given time. Stressing the irrelevance of gender during loan appraisal, one respondent stated:

*'...no, we don't differentiate between man and women. We look equally at both the genders, as long as they come up with a very good proposal and have good past record pertaining to loan repayment. So for us, business profitability is the only thing that matters'. (R6)*

Most of the respondents attributed their response to Bhutan's cultural context, stating that Bhutanese society in general considers men and women equal in every field. Explaining their take on owner's gender, one respondent even vouched for other financial institutions stating that:

*'...there is no gender differentiation between male and female borrowers, which might be same for any other financial institutions. This could be because of our overall perception that anything a man can do; a woman can do that as well'. (R2)*

The assertion of gender equality in Bhutanese society was also reflected in several respondents' statements, like:

*'...the loan appraisal process does not take into account gender. This could be because of our social background...we as a society think that man and woman are equal in every field'. (R1)*

The respondents stated that the banks prefer female borrowers to their male counterparts based on their business performance and loan repayment history. In contrast to the universal observation of women entrepreneurs being more credit constrained than their male counterparts, the interview results confirmed that the situation in Bhutan was different:

*'...we have in fact realised that in many cases woman are better in doing business but during loan appraisal we don't look at that'. (R4)*

*'...in Bhutan women are performing well. They are smart, confident, forward looking. It is because of our culture and social structure'. (R5)*

Different to conventional perceptions, the interview analysis indicated that there was no relationship between the gender of the borrower and loan accessibility. The respondents were in consensus that the gender of the loan applicant was not considered during the loan appraisal process. The findings, in line with Phase I results, were in total contradiction to past studies where gender was identified as one of the key factors that determined the SME's accessibility to external financing (Coleman 2000; McKechnie, Ennew & Read 1998; Storey 2004). Prior studies reported that female owners were more credit constrained than male counterparts (Birley 1989; Carter et al. 2007). The findings from this study were different and found that there was no gender disparity in SMEs' accessibility to bank financing in Bhutan.

### **Owner's Educational Qualification**

Interviews with credit officers revealed that 4 out of 6 respondents (66.67%) stressed the importance of educational qualification in the loan appraisal process. The justification for basing a loan approval decision on educational qualifications was that, higher qualifications meant better knowledge and a better capacity of owners to manage the business operations (Neeley & Auker 2009; Rao 2003). Higher educational qualifications are associated with more knowledge and the capacity to understand the loan repayment terms and conditions, thereby increasing the probability of successfully availing bank loans. Some of the statements recorded in favour of the relevance of an owner's educational qualifications were:

*'...in our loan application form, there is a criterion for loan applicant's educational qualification'. (R5)*

*'...yes of course we look at educational qualification because we want the entrepreneurs to be at least able to maintain their own books of account'. (R4)*

The interviews also highlighted that the minimum educational qualification preferred by these banks was at least Grade 8 and above. The majority of SME loans applicants were higher secondary school graduates, followed by vocational graduates and bachelor degree holders. All respondents revealed that there was a minuscule percentage of people with higher educational qualifications like master degrees in the SME sector. The following responses verified this:

*'...we have a minimum criterion for educational qualification, at least they should be class 8 passed and above. Majority would be Class 10 and 12 qualified'. (R4)*

*'Most of the loan applicants are grade 10 and 12 passed outs and some graduates. Not many with master degree and higher qualification'. (R5)*

On the other hand, two respondents (33.33%) said that the educational qualification was not a factor considered in loan evaluation since most of the people in the SME sector seeking bank loans are not highly qualified. One respondent stated that, in accordance with the mandate of their bank, educational qualifications did not act as a limitation for getting business loans:

*'...being a development bank focused on rural development we don't differentiate between people based on their educational qualification. Almost 70-80% of our clients are rural population and uneducated'. (R1)*

However, this irrelevance of education came at SMEs' cost of higher collateral requirement or guarantee from third party. Statements made by respondents reflected that the lack of educational qualifications of SME loan applicants had to be compensated for by collateral assurance. It is clearly reflected in the following statement made by one of the credit officers:

*'...the main criteria would be their repayment source, credit history and security collateral. So even if they are uneducated, if their repayment source is good, collateral is enough and credit history is clean, then they are eligible'. (R2)*

Hence, the higher the educational qualification of a borrower, the higher was their ability to gain access to bank loans. Consistent with the literature (Bruder, Neuberger & Räthke-Döppner 2011; Han, Fraser & Storey 2009; Watson, R & Wilson 2002) and Phase I findings, the results of qualitative analysis also established that the educational level of SME owners adds value and credibility to the firm. Likewise, several authors (Carter et al. 2007; Hanlon & Saunders 2007; Neeley & Auken 2009) reported that a lack of educational qualifications had a negative effect on a firm's potential to achieve bank loans. Therefore, the interviews with credit officers strongly supported a positive relationship between SME owner's educational qualification and their accessibility to bank loans.

**Table 7.6: Influence of SME Owner Characteristics on Loan Accessibility**

Interview Respondent	Theme: Influence of Owner Characteristics on Debt Accessibility		
	Owner's Age	Owner's Gender	Owner's Education
R1	It is not important as long as they fulfil loan criteria.	Gender of loan applicant is not important.	Qualification is not important factor.
R2	We prefer average aged loan applicants.	Gender of loan applicant is not important.	Qualification is not important factor.
R3	We prefer older applicants with good track record.	Gender of loan applicant is not important.	Qualification is very important factor.
R4	We prefer older applicants with good track record.	Gender of loan applicant is not important.	Qualification is very important factor.
R5	We prefer older applicants with good track record.	Gender of loan applicant is not important.	Qualification is very important factor.
R6	It is not important as long as they fulfil loan criteria.	Gender of loan applicant is not important.	Qualification is very important factor.

## **7.6 Summary**

The Phase II qualitative analysis was carried out by using thematic analysis to explore factors used by the banks to determine the outcome of SME loan application. The qualitative method of exploration and inductive reasoning and inferring provided validation to the Phase I quantitative statistical inference. It generated a holistic overview of the SME financing gap by integrating thematic analysis results from perspective of the banks.

The interview respondents consisted of six credit officers from seven financial institutions in Bhutan, working directly with credit facilities of their organisations. They had prior knowledge and experience in the loan appraisal process, which was required to generate right information for the study. All the steps of a successful qualitative method were followed starting from development of interview questions, transcription of interview audio records, coding of data into themes and analysis of these themes by comparing the statements of the respondents.

The thematic analysis revealed the strong influence of the size of SMEs' collateral and owner's equity in successfully securing bank loan. Likewise, a firm's financial information had a positive influence in banks' approving the loan applications of SMEs, supporting the findings of research Phase I. The loan interest rate and loan term did not determine the outcome of SMEs loan applications since they were predetermined by the central bank. However, the respondents indicated a preference for short-term loans over long-term loans.

The interview results revealed that firm age and size had a positive correlation with their accessibility to bank loans, in agreement with the findings of the regression results of research Phase I. SMEs' accessibility to bank loans was also influenced by the firm's sector or industry, in contradiction to Phase I's finding of no relation. The interview results indicated that an owner's age and educational qualification had a positive effect on loan accessibility while there was no correlation between gender of the owner and debt accessibility.

## **CHAPTER 8**

### **DISCUSSION, RECOMMENDATIONS AND CONCLUSION**

#### **8.1 Introduction**

The results of the Phase I quantitative and Phase II qualitative data analysis covered in Chapters 6 and 7 are summarised in Tables 8.1 and 8.2. The final chapter of the thesis is an in depth discussion of the overall findings from both the quantitative and qualitative analyses, providing a holistic and comprehensive analysis of the SME financing gap from the perspectives of two key players, SMEs and the banks. In doing so, the findings are linked to economic theoretical contexts and objectives to answer the research questions. The contribution of the study is explored in terms of theoretical and practical implications for all the stakeholders. It also covers the limitations and scope of further research in the area.

#### **8.2 Discussion of Research Findings**

The integration process known as triangulation incorporates evidence from different sources or methods to substantiate and validate the final results of the study (Creswell & Plano-Clark 2007; Ivankova, Creswell & Stick 2006; Teddlie & Tashakkori 2003). The quantitative data analysis revealed the factors that determined SMEs' accessibility to bank loans from the SMEs' perspective, while the qualitative data analysis revealed the actual factors used by the banks to evaluate and determine the outcome of SME loan applications. Inclusion of the qualitative analysis of interviews with credit officers enhanced the validity of the quantitative analysis and the final analytic results of the study.

#### **Phase I Quantitative Analysis Results**

The effect of independent variables ranging from loan repayment capacity, financial information to firm and owner characteristics, were tested on the dependent variable (debt accessibility) through OLS technique. The econometric results of independent variables on the dependent variable, SMEs' debt accessibility are summarised and tabulated in Table 8.1. The strongest predictor variables of DA were identified as FININFO (Very High) with  $\beta = 0.250$ ; SIZEF (Medium-sized) with  $\beta = 0.224$ ; ln\_INTFIN (internal finance) with  $\beta = 0.136$  and COLL (double the loan amount) with  $\beta = 0.108$ .

**Table 8.1: Summary of Phase I Quantitative Analysis (SME Survey)**

Sl.	Hypothesis Statements	Results
1.	<b>H1A:</b> <i>The accessibility to bank loan (DA) is correlated to the size of internal finance (INTFIN)</i>	HS
	<b>H1B:</b> <i>The accessibility to bank loan (DA) is correlated to size of the collateral (COLL)</i>	HS
2.	<b>H2:</b> <i>The accessibility to bank loan (DA) is correlated to the quality of financial information (FININFO)</i>	HS
3.	<b>H3A:</b> <i>The accessibility to bank loan (DA) is correlated to the rate of interest on loan (INT)</i>	HS
	<b>H3B:</b> <i>The accessibility to bank loan (DA) is correlated to the duration of the loan (TERM)</i>	MS
4.	<b>H4A:</b> <i>The accessibility to bank loan (DA) is correlated to the firm's age (AGEF)</i>	HS
	<b>H4B:</b> <i>The accessibility to bank loan (DA) is correlated to the firm's physical size (SIZEF)</i>	HS
	<b>H4C:</b> <i>The accessibility to bank loan (DA) is correlated to the firm's sector (SECF)</i>	NS
5.	<b>H5A:</b> <i>The accessibility to bank loan (DA) is correlated to the owner's age (AGEO)</i>	HS
	<b>H5B:</b> <i>The accessibility to bank loan (DA) is correlated to the firm owner's gender (GENO)</i>	MS
	<b>H5C:</b> <i>The accessibility to bank loan (DA) is correlated to the owner's educational qualification (EDUO)</i>	HS

HS= Highly Significant (at 95% confidence level); MS= Moderately Significant (at 90% confidence level); NS= Not significant

## **Phase II Qualitative Analysis Results**

The qualitative analysis of interviews with credit officers, reported in Table 8.2, explored the factors used to evaluate SME loan applications.

**Table 8.2: Summary of Phase II Qualitative Analysis (Credit Officers Interview)**

Factors (Themes)	Effect of Factors on SME Loan Applications					
	R 1	R 2	R 3	R 4	R 5	R 6
Internal Finance	Yes	Yes	Yes	Yes	Yes	Yes
Collateral	Yes	Yes	Yes	Yes	Yes	Yes
Financial Information	Yes	Yes	Yes	Yes	Yes	Yes
Loan Interest	No	No	No	No	No	No
Loan Term	No	Yes	Yes	Yes	No	No
Firm Size	No	Yes	Yes	Yes	Yes	Yes
Firm Age	No	Yes	Yes	Yes	Yes	Yes
Firm Sector	No	Yes	Yes	Yes	Yes	No
Owner Age	No	Yes	Yes	Yes	Yes	No
Owner Gender	No	No	No	No	No	No
Owner Education	No	No	Yes	Yes	Yes	Yes

### **8.2.1 Loan Repayment Capacity**

The study findings indicated that SMEs were required to prove their financial credibility in terms of loan repayment capacity when availing loans from the banks. In line with prior studies (Bhaird & Lucey 2010; Takagi 2002; Zambaldi et al. 2011), in light of SMEs' informational opacity and the resulting credit risk, the banks adopted stringent lending terms, particularly a high collateral requirement. Therefore, the independent variables internal finance ( $\ln_{INTFIN}$ ), representing the size of owner's equity, and collateral (COLL), representing asset tangibility, were used to determine the relationship between a firm's financial capacity and its debt accessibility. The supplementary HMLR analyses results also provided strong evidence that these variables were key components of the research model. In the absence of these variables, the other factors did not have a significant relationship with bank loan accessibility.

#### **8.2.1.1 Internal Finance**

The regression result was statistically significant, proving that the size of internal finance ( $\ln_{INTFIN}$ ) determines the firm's accessibility to bank loans. For every one-unit increase in internal finance contributed by the owner, the firm's accessibility to bank loan was increased by 13.6%. Its  $\beta$  value (0.136) has rendered it the second strongest predictor variable in the model. The empirical results established that the size of fund injected into the business by the owner is directly proportional to the loan accessibility. About 87% of SMEs reported investing their personal funds into their business reinforcing the importance of owner's equity to successfully avail bank loans.

As per the pecking order (Myers 1984), the firms used internal finance (retained earnings and personal funds) before availing external financing, which is exhibited by the results. The positive correlation between internal finance and bank loan from the perspective of SMEs was also substantiated by the findings of the interview with credit officers. All the credit officers agreed on the mandatory requirement of internal finance in securing loans from the banks. None of the banks financed the total cost of the business and therefore mandated SMEs to inject a certain percentage of funds into the business. The interview also revealed that the minimum requirement of owner's equity in the business was at least 25% of the total business cost.

The findings are consistent with prior studies that have reported a positive correlation between owner's investment and access to external finance (Behr, Norden & Noth 2013; Berger & Udell 2006; Holmes et al. 2003). The role of owner's equity in relation to debt accessibility is similar to that of collateral to mitigate SMEs' loan default risk. The size of owner's equity was equated to SME owners' commitment and motivation towards business performance and positive moral hazard behavior as reported by Bester (1985, 1987). SMEs' financial stake in the business increased the confidence level of banks in financing SMEs. A higher value of internal finance translated into a higher probability of securing loans from the banks.

### **8.2.1.2 Collateral Size**

The positive correlation between SMEs' accessibility to bank loan (DA) and collateral (COLL) measured in terms of proportion to loan amount, was statistically supported by the regression result. In comparison to firms that provided collateral valued at half of the loan amount, the accessibility to bank loan was 8.9% higher for firms providing collateral equal to the loan amount; 10.8% higher for firms providing collateral double the loan amount and 8.6% higher for firms providing collateral more than double the loan amount. 70.45% of SMEs pledged collateral worth two times the loan amount, followed by 13.64% of firms pledging collateral equal to the loan amount and 6.82% with more than double the size of the loan amount. The qualitative analysis findings validated the importance of collateral in SMEs' accessibility to bank loans.

The World Bank (Beck, Demirgüç-Kunt & Pería 2008) study ranked financial credit history as the key determining factor followed by owner's characteristics and collateral. However, in Bhutan, the banks have placed the highest importance on the collateral due to the lower level of information in SMEs. The credit officers stated that, in the absence of the required collateral, the banks did not lend to SMEs, to the extent of rejecting a viable project. Through collateralised loans, the banks minimised the exposure to credit risk caused by information asymmetry issues, in particular moral hazard, which is prominent in SMEs. Asset based lending lowers the risk exposure for the banks, providing them with an alternative to recover their investment even though it does not increase the repayment ability of the borrower (Daniel & Nicolae 2011; Uchida 2011).

Table 5.15 reports that 91.48% of respondents used their personal assets in particular land as collateral to secure bank loans, while 67.05% of respondents used their business assets as collateral. The findings reinforce the high prevalence of personal collateral based lending in developing countries like Bhutan. The use of tangible fixed assets, like land and real estate are preferred forms of collateral due to their high value in the market (Beck, Demirgüç-Kunt & Pería 2008; Bhaird & Lucey 2010). A World Bank report (Beck, Demirgüç-Kunt & Pería 2008) also cited that cash and other liquid assets were the second most commonly used collateral, which was not the case in Bhutanese banks. According to credit officers, banks preferred fixed assets, mainly land, as collateral and the collateral value needed to be at least twice the loan amount. The collateral consisted mostly personal assets because business assets of SMEs did not have high value according to the banks. SMEs with fewer assets are faced with more difficulties in securing loans from the banks.

The findings from both Phases I and II established a positive relationship between collateral and debt accessibility as predicted by the literature (Chakraborty & Hu 2006; Menkhoff, Neuberger & Suwanaporn 2006). The supplementary SLR and HMLR analyses also reported that in the absence of collateral, the remaining independent variables did not have any statistically significant effect on SMEs' debt access to bank loans. COLL in combination with ln\_INTFIN as Group 1 variables generated a variability of 21.6% which is the highest in comparison to the variability generated by the addition of other variables in the model. The  $\beta = 0.108$  of COLL (double the loan amount) was one of the stronger predictor variables of the study model. The rationale that firms mortgaging more tangible assets have easier access to external debt is applicable to Bhutanese SMEs. Therefore, a firm with high proportion of collateral has easier debt accessibility than a firm with lower proportion of collateral. A high proportion of collateral reduces the lender's risk associated with agency cost of debt including moral hazard cost.

Due to the small size of the resources of SMEs, many SMEs are not able to meet the lending criteria set up the banks, in particular the collateral value in proportion to the loan amount widening the SME financing gap (Menkhoff, Neuberger & Suwanaporn 2006; Steijvers, Voordeckers & Vanhoof 2010). About 85.71% of Bhutanese SMEs cited lack of collateral as the main cause of failure to secure bank loan, validating the

importance of collateral in SME bank financing. Similarly, collateral based lending was identified as one of the main factors contributing toward limited accessibility to financing in Bangladesh (Quader & Abdullah 2009). Likewise, insufficient or undervalued collateral was one of the reasons that Sri Lankan banks did not lend to the SME sector (Gamage, 2015; World Bank 2010). The overall results of the study points towards more pronounced existence of issues related to information asymmetric and agency problem in developing countries. It reinforces the central role of collateral in SMEs' accessibility to financing as suggested by the agency theory (Steijvers & Voordeckers 2009; Uchida 2011). This has placed SME at relative disadvantage as they lack assets that can be used as collateral for borrowing.

### **8.2.2 Financial Information**

The relationship between financial information and debt accessibility was statistically supported by regression results. This result evidenced that the firms with 'Very High', 'High' and 'Medium' level of information had 25%, 10.1% and 5.2% more accessibility to bank loans than firms with 'Very Low' information. With the increase in the level of financial information, a firm's accessibility to bank loan was also increased, as indicated by the literature (Allee & Yohn 2009; Caneghem & Campenhout 2012; Leary & Roberts 2010). The  $\beta$  value of 0.250 of 'Very High' FININFO made it the strongest predictor variable in the model. Furthermore, the supplementary SLR and MLRM analyses results also showed that the addition of the variable FININFO in the model contributed to the highest R2 change (0.158), that is, variation in the DA. It was also the only variable that generated a statistically significant effect on DA on its own, in the absence of the loan repayment variable Group 1 as evidenced by Table 6.11.

In the absence of statistical evidence, firms with 'Low' and 'Very Low' levels of financial information had the same level of accessibility to bank loans. This observation can be supported by the fact that the majority of SMEs in Bhutan are characterised by weak financial management and hence, the banks consider the firms with low and very low level of financial information as the same. Drever, Stanton & McGowan (2007) noted that even when SMEs maintains financial reports, they are mainly produced for the use of owners or for business purposes and not to be shared in the financial market. In developing countries like Sri Lanka, the SMEs do not have to comply with financial reporting requirements of the regulators (Gamage 2015; World Bank 2010).

The interviews with credit officers also revealed that the level of financial information from a firm had a positive influence in securing loans from the banks. SMEs in developing countries had weaker accounting standards resulting in inadequate financial information management systems (World Bank 2010). The findings provided enough evidence to show that the availability and quality of financial information is a strong determining factor of SMEs' accessibility of bank loans. Financial institutions take into account the high risk associated with SMEs poor accounting system and financial opaqueness (Ang 1991; Binks, Ennew & Reed 1992; Bruns & Fletcher 2008). Lower the information available; higher is the credit risk associated with the firm, thereby suggesting limited accessibility to financing. The SME survey also revealed that only 19.29% of firms used professional accountants to maintain their business financials, while owners, mostly without any accounting knowledge, maintained the rest.

The inability of SMEs to provide the banks with information affected their chance of getting loans from the banks because lack of information increases the credit risk for the banks. The credit officers unanimously agreed that the Bhutanese SME sector is characterised by a low level of credit accountability due to poor financial knowledge and financial management. The lack of reliable financial information and credit history in the market are key issues faced by the banks in lending to SME sector (Beck 2013; Beck, Demirgüç-Kunt, & Pería 2008). Presence of high level of information asymmetry in SMEs is undeniable, making it difficult for banks to assess SMEs' credit worthiness. Allee & Yohn (2009) reported that firms with audited financial statements had greater access to external credit at a lower cost. When the information is reliable and tangible, the banks are able to determine the credit worthiness of the firm and its capacity to repay the loan amount.

### **8.2.3 Loan Characteristics**

Based on the literature, loan characteristics in terms of interest rate and loan term were identified in relation to SMEs' accessibility to external finance.

#### **8.2.3.1 Loan Interest**

The effect of the loan interest rate (INT) on SMEs' accessibility to debt financing was found to be statistically significant. The regression results indicated that the firms willing to pay higher interest rates had their accessibility to bank loan increased by

3.9%. The regression finding is in line with previous studies stating that financial institutions levy higher interest rates on loan amounts to minimise the SME credit risk (Berger & Udell 1998, 2006; Frame & Woosley 2004; Ma et al. 2013). Contrary to the regression results, the interviews with credit officers revealed that accessibility to bank loans was not influenced by the interest rate on the loan. The financial institutions in Bhutan are governed by the central bank, the Royal Monetary Authority and the base rate for loan interest is regulated by the central bank. The interest rate was uniform for each type of loan product generated by each bank's system within the base interest rate determined by the central bank. The banks cannot charge different interest rates on one loan product even if the loan applicants were willing to pay a higher interest rate. Hence, the banks did not base SME financing on the loan interest rate.

It is interesting to note the two different views on the relationship between loan interest rates and debt accessibility from the two stakeholders of SME financing. It may be attributed to data inconsistency in interest rates charged, as revealed by the SME survey data. Some of the SME respondents did not know the interest rate charged by the banks on their loans, indicating the SMEs' limited knowledge and interest regarding business financial information. The descriptive statistics revealed that the interest rates charged on different SME loans were comparatively high ranging, from 12 to 16% increasing SMEs' financial distress. Prior studies have empirically proven that high interest rate has been used by the banks as a tool to mitigate SMEs' information opacity and agency related issues (Bhaird & Lucey 2010; Hyttinen & Väänänen 2006). The average interest charged by Sri Lankan banks on SMEs for term loan was between 12-16% while working capital was 13-19% (World Bank, 2010). High interest rate increased the cost of borrowing for SMEs.

Beck, Demirgüç-Kunt and Pería (2008) reported that due to the high prevalence of non-performing loans in the SME sector in comparison to larger firms, the banks charged SMEs higher fees and interest rates to mitigate the risk of SME lending. Given the limited size of retained earnings (internal finance) compounded by high interest rate, it is costlier and difficult for SMEs in Bangladesh to grow and transform into larger firms (Chowdhury, Azam & Islam 2015; Quader & Abdullah 2009). 80% of SMEs in smaller towns in India felt that high interest rates were obstacle supplemented by 60% of respondents in bigger cities (FGKG 2014). Likewise, the study's SME survey also

revealed that 81.04% of respondents cited high interest rate as a reason for not availing loans from the banks. Some of the credit officers indicated that it would be beneficial for the banks to charge higher interest rates to riskier businesses if it was permissible.

#### **8.2.3.2 Loan Term**

The relationship between the loan accessibility and the duration of the loan (TERM) was found to be statistically significant. Firms seeking loan term of 3-5 years had 9.3% higher debt accessibility than firms seeking loans for 1-2 years. Since the relationship is positive, the result is in contradiction to the existing literature, which supports the view that banks prefer short-term to long-term loans (Berger & Black 2011; St-Pierre & Bahri 2011). This result suggests that an increase in loan term increases access to bank loans. However, the firms seeking loans for more than 5 years did not have a significant influence on debt accessibility in comparison to firms with loan duration of 1-2 years, indicating that their bank loan accessibility level was the same. Based on the empirical results, we deduce that the debt accessibility increases to an optimal loan term of 3-5 years and starts decreasing after that with an increase in loan duration. The relationship between loan term and debt accessibility, as portrayed by regression analysis is in congruence to the existing literature (Chittenden, Hall & Hutchinson 1996).

The credit officers reported that the loan term was based on the regulations set by the central bank and therefore, the loan appraisal decision was not determined by the loan term. The loan duration was actually based on the business type, and thus was different for different loan products. Nonetheless, 50% of respondents expressed their preference for short-term loans, purely from a profit making perspective to avoid a liquidity gap. According to the credit officers, the average loan term for SMEs was 3-7 years. The banks defined 1-3 years as short term loan while 10-20 years as long term, which was generally provided to larger firms. Short term loans were cost-effective for the banks, since they were able to recover their investment quicker from short term loans avoiding liquidity gap (Berger & Udell 2006; Chittenden, Hall & Hutchinson 1996).

Similar situation of loan term was also reported by Gamage (2015) in Sri Lanka caused by the mismatch of short term deposits in the financial sector and long term lending on the large scale. Both Phase I and II results provided moderate evidences of a relationship between loan term and SMEs' accessibility to bank loans. The evidence

indicates that SMEs' debt accessibility is inversely related to the loan term. The study finding is also supported by the descriptive statistics of the SME survey that showed that the average loan duration was 3-5 years. About 20% of SMEs received long-term loans of over 5 years, while the remaining 80% received short-term loans of 1-5 years. Hence, the relationship between loan term and debt accessibility was deduced to be negative where SMEs' bank loan accessibility is associated with shorter loan term.

#### **8.2.4 Firm Characteristics**

A firm's accessibility to external financing is influenced by the endogenous factors of firm age, firm size and firm sector. The banks have used these SME characteristics as proxy for firm credibility.

##### **8.2.4.1 Firm Age**

The regression results established that the firm age ( $\ln_{AGEF}$ ) was positively related to accessibility to bank loans. For an increase in the log function of firm age by one year, there was an increase in the accessibility to bank loan by 3.9% on average. It indicates that number of years in the business determines a firm's accessibility to bank loans. The role of firm age in bank loan accessibility was also validated by the thematic analysis of credit officers' interviews. Although the banks financed both new and established firms, the credit officers' responses hinted at a preference for older firms over new and younger firms. The banks' willingness to finance new and younger firms was based on the provision of mandatory collateral against the loan. The positive effect of firm age on bank loan accessibility was endorsed by Phase I and phase II findings.

The finding is consistent with prior studies that established a positive relationship between firm size and SMEs' accessibility to external financing (Berger & Udell 2006; Binks & Ennew 1996; Brent & Addo 2012). The firm age is directly associated with its established financial track record and reputation, in particular their ability to meet the bank loan repayment obligations. It serves as a proxy for firm reputation and risk, where younger firms are associated with a high level of information opacity and risk (Caneghem & Campenhout 2012; Michaelas, Chittenden & Poutziouris 1999). The results can also be explained using Berger and Udell (1998)'s SME financial growth cycle model that highlights varying SMEs' optimal capital structures at different growth stages.

The positive relationship between the age of the firm and loan accessibility indicates that older firms are characterised by a higher proportion of debt in their capital structure, in comparison with younger or new firms (Cassar 2004; Degryse, de Goeij & Kappert 2012). Banks lend more to older firm over new entrants since lower information asymmetry is associated with older firms. The firm growth is described as a function of firm age and therefore, older firms are associated with reputation in the market and security (Ezeoha 2008; Okura 2008; Kira & He 2012). The firm age is therefore directly proportional to debt accessibility, where with the passage of time, the firm grows and gains a reputation in the credit market, mitigating the issues of information asymmetry, moral hazard and credit rationing.

#### **8.2.4.2 Firm Size**

The firm size (SIZEF) was positively related to its accessibility to bank loan as evidenced by the regression analysis results. The small sized firms had 8.3% and medium sized firms had 22.4% higher accessibility to bank loans than the micro firms. A big difference was observed between the loan accessibility of micro firms and medium sized firms reinforcing that it is easier for bigger firms to access bank loans than smaller firms. The small and medium sized firms were in a better position than micro firms in accessing bank loans. The findings are in line with the literature that states that larger firms are linked with a lower information asymmetry (Brent & Addo 2012; Cassar 2004; Dennis & Sharpe 2005). The additional HMLR analysis results also provided strong validation with  $\beta$ -coefficient (0.224) of medium sized firms, which was the second largest  $\beta$ -coefficient of the model.

The interviews with credit officers also established that the firm size was instrumental in determining bank loan accessibility. 83.33% of respondents indicated their preference for medium sized firms within the SME spectrum. Since larger firms are associated with more assets and hence increased loan repayment capacity, the banks prefer to lend to bigger firms (Cassar 2004; Dennis & Sharpe 2005). The expected larger returns from investment in bigger firms than from smaller firms, makes it cost effective for the banks to invest in bigger firms. At the same time, interestingly, respondents were willing to invest in smaller firms, if provided with higher collateral. Hence, the importance of the firm size in debt accessibility is surpassed by the importance of the collateral. This reaffirms the central role of collateral in SMEs' accessibility to bank loans.

The overall results from Phase I and II are in line with prior studies that found that smaller firms faced more difficulty in obtaining debt and therefore are more dependent on internally generated funds (Cassar & Holmes 2003; Michaelas, Chittenden & Poutziouris 1998, 1999). The findings are consistent with POT, dictating a positive relationship between firm size and size of the leverage represented by bank loan. Heyman, Deloof and Ooghe (2008) reported that smaller firms are credit constrained in the absence of internally available funds and therefore are in more need of external financing. The study findings also established that smaller firms who are in need of external financing faced more difficulty in securing bank loans in comparison to larger firms. The size of the firm is directly proportional to the information asymmetries (Dennis & Sharpe 2005; Brent & Addo 2012). The smaller the size of the firm, the greater is the risk associated with it and thus the greater restrictions on credit lending by the banks (Kirschenmann & Norden 2012; Altman, Sabato & Wilson 2008). In conclusion, there is evidence that there is a positive and significant relationship between the firm size and their accessibility to bank loans.

#### **8.2.4.3 Firm Sector**

The regression results revealed that a firm's access to bank loans was not influenced by its sector or industry, in contradiction to the literature. Prior studies identified firm sector as one of the determinants of debt accessibility where the accessibility to finance was based on the degree of competition and profitability of the industry (Degryse, de Goeij & Kappert 2012; Lopez-Gracia & Aybar-Arias 2000; Michaelas, Chittenden & Poutziouris 1999). In contradiction to Phase I results, interviews with credit officers revealed that loan accessibility was determined by the sector of the firm, as indicated by 66.6% respondents. Although the banks provided credit facilities to firms from all sectors they showed more inclination towards the manufacturing sector over retail and service sectors. Firms belonging to capital intensive industrial sectors with higher tangible assets had higher debt levels than sectors with intangible or risky assets due to the advantage of high value collateral (Hall, Hutchinson & Michaelas 2000; Johnsen & McMahon 2005; Neeley & Auken 1996).

The banks in Bhutan preferred manufacturing sector due to its bigger investment size, which fetches higher returns to the banks. The low number of manufacturing industries in the market provided an opportunity for these firms to grow. On the other hand, the

market was saturated with retail and service firms, increasing competition and risk of loan default. Although empirical results showed no influence of the industrial sector in SMEs' accessibility to bank loans, the banks showed a strong preference for the manufacturing and service industry over the retail sector. Industrial sector of a firm is a factor evaluated by the banks while making SME financing decisions as predicted by prior studies. The rationale for the mixed results of the relationship between firm sector and debt accessibility may be caused by the fact that the collateral used against the SME loans is mostly personal assets and not business assets. Therefore, the size of business asset and business sector is irrelevant in SMEs' borrowing from banks. The final deduction was that the firm sector moderately influenced SMEs' access to bank loans.

### **8.2.5 Owner Characteristics**

The physical traits of SMEs owner (age, gender and educational qualification) have been used by the banks to assess the financial credibility of borrowers in the absence of hard information (Berger & Udell 1995; Petersen & Rajan 1994, 2002).

#### **8.2.5.1 Owner's Age**

The age category of 36-45 years was the only owner's age category that was statistically significant at 90% confidence level, in determining the accessibility to bank loans in comparison to the reference age category of 18-25 years. Owners in the age category 36-45 years had a 6% higher bank loan accessibility compared to the reference category. Although the age group 26-35 years was not statistically significant, it was deduced that an increase in owners' age from 18 to 45 years positively influenced SMEs' debt accessibility. The relationship between firm age and debt accessibility was a curve with a positive ascending relationship to the optimal age of 45 years, followed by a descending slope. The descriptive statistics of the SME survey also revealed that the average age of SME owners was 36 years. More than 70% of SME owners were in the 26-45 years age category, reinforcing the empirical findings of this study that owner's age positive effect on bank loan accessibility up to the optimal age of 45 years.

The credit officers articulated their strong preference for older loan applicants over younger ones. The banks' most preferred age range of borrowers was 25-50 years old. About 83.33% of respondents reasoned that older loan applicants' maturity level and experience in the market instilled confidence in the banks to lend to them. The age of

the owner was found to positively influence SMEs' debt accessibility until owners reaches the optimum age identified by the banks, consistent with the prior studies (Gebru 2009). Owners' age is directly associated with an established track record and reputation, in particular an ability to meet their financial obligations (Ang 1992; Bruder, Neuberger & Räthke-Döppner 2011). The banks are reluctant to lend to younger owners who are associated with low skills and a lower loan recovery rate.

The age is also correlated to risk aversion behaviour and moral hazard risk, which is desired positively by the lenders. The overall findings established that the relationship between age categories and debt accessibility was consistent with the predictions of the literature (Binks, Ennew & Reed 1992; Chittenden, Hall & Hutchinson 1996; Neeley & Auken 2009). Age of the owner, up to an optimal age arrange, is directly associated with track record and reputation in particular with an ability to meet financial obligations. The owner's age is negatively associated with information asymmetries, where increase in owner's age is associated with lower information asymmetries resulting in easier access to debt (Neeley & Auken 2009; Gebru 2009). The value created by the age of the owner decreases after the optimal age and is associated with higher risk.

#### **8.2.5.2 Owner's Gender**

The relationship between owner's gender and debt accessibility was statistically insignificant at 95% confidence level but significant at 90% confidence level. The existence of a moderate relationship between the gender of SME owner and bank loan accessibility is in line with prior studies. These studies reported that the female SME owners were more credit constrained than male counterparts (Birley 1989; Carter et al. 2007; Muravyev, Talavera & Schäfer 2009). Supporting this statement, the regression results at 90% confidence level, revealed that male owners had 3.3% more access to bank loans than female owners. The study's empirical finding supports a moderate level of relationship between gender of the owner and external finance accessibility.

Therefore, in accordance with the literature, female owners are more likely to rely on internal finance including funds from family and friends. Also, the SME sample was comprised of 63.07% males and 36.93% females, indicating that male owned firms utilised more bank loans than female owners, further validating the advantage of male

owners over female owners. However, the results of interviews with credit officers revealed that the gender of the loan applicant played no role in determining the outcome of a loan application. A borrower with a good business proposal and healthy financial income projections had a good chance of accessing loans irrespective of their gender.

Taking into consideration the results of both Phase I and II, gender discrimination by banks towards SME lending in developing countries (McKechnie, Ennew & Read 1998; Pitt, Khandker & Cartwright 2006; Storey 2004) was not completely applicable to the situation in Bhutan. The results fell short in providing substantial evidence to confirm that there was gender discrimination in SMEs' accessibility to bank financing in Bhutan. The final deduction of the relationship between gender and debt accessibility from this study is attributed to the country's cultural and historical context as reported by earlier studies (Bellucci, Borisov & Zazzaro 2010; Martinelli 1997; Scalera & Zazzaro 2001). Bhutanese society is predominantly matriarchal in nature and the finding is socio-economically important since it reveals the position of women in accessing bank loans in comparison to men. Female owners in Bhutan did not face severe discrimination from the banks in accessing bank loans.

#### **8.2.5.3 Owner's Educational Qualification**

The regression results established a positive linear relationship between SME owners' educational qualifications and access to debt financing. Owners with 'High School', 'Vocational Education' and 'Bachelor Degree' had higher accessibility to bank loans compared to the reference category 'No Formal Education'. The empirical result indicated that higher educational qualification added value to SMEs and guaranteed more accessibility to external financing as predicted by the literature (Cassar 2004; Chittenden, Hall & Hutchinson 1996; Holmes et al. 2003). SME owners with 'High School' degree had 6.2% higher; 'Vocational Education' had 9.2% higher and 'Bachelor Degree' had 9.5% higher loan accessibility compared to the reference category.

The credit officers also acknowledged that the educational qualification of the loan applicant influenced the loan appraisal positively. A higher level of educational qualification was associated with a better knowledge of business financial transactions and with a basic knowledge of books of accounts and financial management (Ang 1991;

López-Gracia & Sogorb-Mira 2008). It added value to the firm and positively influenced the outcome of SME loan applications. The overall analysis established positive relationship between the educational qualification of SME owners and their accessibility to bank loans, as predicted by the existing literature (Altman, Sabato & Wilson 2008, 2010; Neuberger & Rähke 2009). The owners' education serves as proxy for human capital and therefore is a factor considered by the banks while financing SMEs. Higher educational qualification of the owner was associated with higher credibility, increasing the chances of obtaining loans from the banks. The owner's education level is correlated with management professionalization culminating in better access to financing sources (Holmes et al. 2003; Gamage 2015). Therefore, the level of education of the SME owner played an important role in determining the access to finance from the banks.

Nonetheless, the econometric results also revealed that there was no difference in loan accessibility between owners with 'No Formal Education', 'Primary School' and 'Postgraduate Degree'. These three categories had an equal chance of securing bank loans. Since a primary level education is the lowest level of formal education, we can conclude that the banks are not confident enough to invest in owners with this level of education and therefore treat it no differently from owners with no formal education. Interestingly, the results for owners with postgraduate degree, the highest level of education was unexpected and different from the predictions of the literature. This insignificant result for owners with postgraduate degree is attributed to the very small number of highly qualified people in the SME sector in comparison to the majority of SME owners with high school degree. Only 1.14% of SMEs had postgraduate degree, indicating that it is mostly less highly qualified people who venture into the SME sector, a finding that was also confirmed by the credit officers.

### **8.3 Key Research Findings and Conclusion**

The study applied a mixed Sequential Explanatory Method characterised by dominant quantitative Phase I followed by the minor Qualitative Phase II to achieve a comprehensive understanding of the phenomenon of the SME financing gap in Bhutan. Phase I data analysis began with descriptive statistics of SME survey data followed by the regression analysis and the hypotheses testing. The influence of factors identified in the literature review, on SMEs' debt accessibility from the banks was quantified using

the MLR model. The Phase II qualitative data analysis of telephonic interviews of credit officers of banks in Bhutan provided information from the bank's perspective on SME financing. The research literature gap and research questions have been revisited to highlight the key research findings. The study confirmed that the SME financing gap was caused by impediments originating from both SMEs and the banks. It established that SMEs' difficulty in accessing bank loans was determined by the owner's equity, collateral and financial information of the firm. Bank loan accessibility was also influenced by the firm and owner characteristics.

Universally, the SME sector has been recognised as a poverty alleviation tool through employment and income generation (Holmes et al. 2003; Rao 2003; Shinozaki 2014). Similarly, the RGOB has identified SMEs, which make up the majority of the private sector, as the key driver of socio-economic growth of the country (NSB 2013). However, SMEs are financially constrained, hampering their growth and development particularly in developing countries (Berger & Udell 2006; World Bank 2006). SMEs suffer from inadequate financing, limiting their participation in the economic growth of the country. Hence, the two key research questions of the study were:

1. How do the issues of information asymmetry and agency theory play a role in SME financing gap in Bhutan?
2. What are the factors that cause SME financing constraints from the perspectives of SMEs and the banks in Bhutan?

### **8.3.1 Research question 1**

Addressing the first research question, SME survey and credit officers' interviews analyses established that SMEs' debt accessibility in Bhutan was a function of the firm, owner and loan characteristics. The factors are: owner's equity; collateral; financial information; firm age and size; and owner's educational qualification. The effect of these factors on SMEs' accessibility to bank loans was investigated from the perspective of both SME owners and credit officers of the banks. The study identified that SME financing constraints are caused by factors arising from both SMEs and the banks. The key finding of the study was that a firm's loan repayment capacity, measured in terms of size of owner's equity, and collateral was the critical factor determining its accessibility to bank loans. The findings have significant policy implications to resolve the SME financing gap in developing countries such as Bhutan.

The study provided strong empirical evidence and support for a positive relationship between a firm's financial capacity and bank loan accessibility. The collateral and owner's equity were among the biggest predictor variables in the regression model of the study. Likewise, the credit officers strongly voiced the key factors that determined the outcome of a SME loan application. In view of SMEs' high information opacity and risk, banks' levy collateral on SMEs and also internal finance in line with prior studies (Menkhoff, Neuberger & Suwanaporn 2006; Uchida 2011). The collateral and owner's equity requirement served as a mechanism to mitigate exposure to bad loans, which is prominent in SME lending. The size of the owner's investment in the business was associated with the commitment of the SME owner to the success of the business. Hence, the size of internal finance is directly proportional to the accessibility to bank loans, as evidenced by this study. A firm's credit worthiness was measured in terms of the size of collateral pledged against the loan and the size of the owner's equity. The study provided strong evidence of a positive relationship between the size of collateral and internal finance and debt accessibility from the banks in the case of Bhutanese SMEs. Though the collateral and equity boosted the banks' confidence in lending to SMEs, it negatively affected the financial condition of SMEs by increasing the cost of borrowing (Behr, Norden & Noth 2013; Chakraborty & Hu 2006).

The financial information of a firm was found to be an equally important factor having a positive effect on SMEs' accessibility to bank loans. The study findings evidenced a positive correlation between SMEs' information level and its accessibility to banks loans, consistent with the literature (Moro, Fink & Kautonen 2014; Palliam 2005). The credit officers reported that SMEs lacked the reliable financial information that was required for an evaluation of the businesses' financial prospects. The Bhutanese SMEs' financial management practices were of poor standard, hampering the quality and quantity of financial information. In addition, non-requirement of disclosure of information for SMEs rendered them as a high risk investment, aggravating the issue of inaccessibility to bank loans (Moro, Fink & Kautonen 2014; Sarapaivanich & Kotey 2006). The study findings reinforced that there was severe information opacity in SMEs and inadequate accounting practices, widening the information gap with the banks. Due to SMEs' information asymmetry, the banks are not able to assess SMEs' financial records and firm value or the adequacy of cash flow and profit to make loan repayments. The low level of financial management within the SME sector raises the

question of its readiness to participate in a formal financial market. The availability and quality of information of a firm determined its accessibility to bank loans defining the financial structure of the firm.

World Bank study (Beck, Demirgüç-Kunt & Pería 2008) reported that the key factors that determined the outcome of a SME loan application in developing countries, in order of importance were firm's financial credit history (69%); followed by owner characteristics (9%) and collateral (8%). Though the collateral requirement was one of the factors, it was not the most important factor and was applied in the same manner across borrowers, irrespective of the firm size. However, in the case of Bhutan, the banks placed the highest importance on the collateral and owner's equity. Due to SMEs' inadequate information and underdeveloped financial market, collateral based lending was used instead of credit-scoring method, which is used in developed countries. The study established that the principle of collateral and internal finance requirement is vital in determining SME's accessibility to bank loans in Bhutan. The requirement of high owner's equity and collateral is associated with the limitation on the bank component and lack of financial information to the SME component of the SME financing gap. The study also established that the variables firm age and size; and owner's age and educational qualification determined the firm's accessibility to bank loan. The remaining variables interest rate, loan term, firm sector and owner's gender were found to have only a moderate effect on debt accessibility.

The study found that the bank held the upper hand over SMEs in dictating the terms and conditions of SME loan borrowing. Although the loan lending terms are dictated by the regulations laid down by the central bank of Bhutan, the study revealed interesting findings in respect to loan terms and loan interest rates. The study provided evidence that the loan term was inversely correlated to loan accessibility as predicted by the existing literature (Berger & Black 2011; Chittenden, Hall & Hutchinson 1996; Ezeoha 2008; Rao 2003). The banks preferred to finance SMEs seeking loans for a shorter duration, as short term loans are cost effective and pose a lower risk in recovery of the investment than the long term loans do. The regression results indicated a positive relationship between the loan interest rate and loan accessibility in line with prior studies (Beck, Demirgüç-Kunt & Pería 2008, 2011; Canales & Nanda 2012). However, the thematic analysis of credit officers' interviews found that the interest rate did not

influence the banks' loan appraisal decisions. Therefore, the result between the loan interest rate and loan accessibility is inconclusive. However, the SME survey revealed that the interest rates on the loan may be on the higher side. The 211 SMEs that did not avail the bank loans cited high interest rate as one of the main reasons for not seeking bank loans.

In regards to the relationship between firm characteristics and loan accessibility, within the SME spectrum, the larger and older firms were in better position in comparison to smaller and younger ones, in accessing bank loans. The issue of information opacity was higher in smaller and younger firms, creating severe credit inaccessibility in younger firms. A firm's inability to provide required information to the banks negatively affected their chance of getting loans from the banks (Brent & Addo 2012; Chittenden, Hall & Hutchinson 1996; Irwin & Scott 2010). The firm age and size serve as proxies for firm risk and financial capacity of SMEs to make repayment on the loan extended. Hence, the smaller and younger firms were associated with higher risk and faced more difficulties in gaining bank loans, in comparison to their larger and older counterparts. Though the relationship between firm sector and accessibility to bank loan was not empirically supported, firm sector was also identified as a factor determining SMEs' loan accessibility based on the interviews with credit officers. This result was also supported by the existing literature (Hall, Hutchinson & Michaelas 2000; Johnsen & McMahon 2005). The banks in Bhutan indicated a strong preference for manufacturing and service industries over the retail sector based on the investment cost, competition and riskiness of the sector.

The credibility of borrowers in terms of their age, gender and educational qualification was found to be important for the banks' SME financing decision (Cassar & Holmes 2003; Coleman 2000; Neeley & Auken 2009). The older SME owners with higher educational qualification were found to have easier access to bank loans in comparison to younger and less educated owners. The higher level of education and age of the owner were associated with higher credibility, increasing their chances of obtaining debts from the banks. The study established a positive correlation between a firm owner's age and educational qualification with the firm's debt accessibility. Contrary to the literature (Carter et al. 2007; McKechnie, Ennew & Read 1998; Storey 2004), the study did not have substantial evidence on the relationship between the gender of the

owner and debt accessibility. The effect of the SME owner's gender on its bank loan accessibility was moderate and hence gender disparity in SME financing in Bhutan was deduced to be very low. Owing to the low level of gender disparity, the female owners in Bhutan were not too credit constrained in comparison to their male counterparts. The banks ranked SME owner's age and education higher over gender during the loan appraisal process.

### **8.3.2 Research question 2**

The second research question explored the SME financing gap in Bhutan based on the Information Asymmetry Theory, Agency Theory and POT. These economic theories were used as guiding principles to develop the framework of the study. Most of the prior studies are from the perspective of SMEs and associated the existence of the SME financing gap with factors arising from finance providers (Gregory et al. 2005; Hamilton & Fox 1998; Vera & Onji 2010). However, contrary to the general perception, the study established that SME financing gap is caused not only by factors originating from the lenders' side but also by factors originating from the borrower's side. The theoretical predictions of information asymmetry and POT were applicable to the case of Bhutanese SMEs and the banks. The SME financing gap was found to be caused by an information failure and credit risk on the part of SMEs and the imposition of high collateral and owner's equity by the banks. SMEs' severe information opacity and inadequate financial management were identified as serious problems for the finance providers.

The study provided empirical evidence that information opacity in Bhutanese SMEs was very high in terms of quality and quantity of financial statements, caused by SMEs' financial management incompetency. In the presence of information asymmetry and principal-agent conflict, the financial credibility of SMEs is lowered while increasing credit risk (Hyttinen & Väänänen 2006; Martinelli 1997; Mira 2005). SMEs' high information opacity and credit risk induced adverse selection and credit rationing on the part of finance providers. Therefore, finance providers are exposed to high credit risk while lending to the SME sector since it is difficult for them to evaluate SMEs' financial prospects and repayment capacity (Rand 2007; St-Pierre & Bahri 2011). To minimise the risk exposure of bad loans, the banks adopted strict lending mechanisms to overcome the high risk through high interest rates, shorter loan terms and the

requirement of high collateral and internal finance. Meanwhile, there was moral hazard issue caused by SMEs' behaviour after the initiation of a loan transaction, affecting the finance providers. Moral hazard arises when the leveraged borrowers venture into risky projects to overcompensate for the cost involved in securing bank loans due to increased interest rate and collateral (Brent & Addo 2012; Hytinne & Väänänen 2006).

The risk averse lending terms adopted by the banks for SME lending to overcome the issues of information opacity and agency problems are reasonable from the bank's stand, as they are commercial entities concerned with profit generation. However, it caused financing obstacles and inadequate provision of finance to SMEs, increasing SMEs' financial distress. Borrowing from the banks therefore came at the additional cost of high collateral and high interest rate for SMEs. The non-borrower SMEs from the SME survey did not avail loans due to stringent lending conditions levied by the banks particularly the high collateral requirement. These firms therefore resorted to using internal finance, which was less costly compared to bank loans. The internal finance consisting of personal funds and finance from family and friends were preferred over bank loans, which were difficult to access. Hence, the capital structure of Bhutanese SMEs was consistent with that of POT, which in turn was determined by SMEs' accessibility to the bank loans.

#### **8.4 Theoretical and Practical Implications of the study**

The academic contribution and practical implications of the study and its generalizability are discussed below. The recommendations relevant to the stakeholders are also discussed.

##### **8.4.1 Theoretical Contribution**

Most of the studies on SME financing constraints are limited to developed economies such as the US, UK and Europe and with limited applicability to developing countries like Bhutan characterised by low economic and financial market development. The Bhutanese economy is small, dominated by SMEs and supported by a small financial sector. There are fewer academic works available in reference to developing economies like Bhutan creating a gap of knowledge. To the researcher's knowledge, this is the first academic study of Bhutanese SMEs investigating SMEs' accessibility to bank loans in a formal financial market. The information available on the Bhutanese SME sector is

limited to reports prepared by the RGoB and international development organisations, which are focused on the general constraints of the SME sector and not specifically on SME financing constraints. Therefore, this is first investigative academic study built on the economic theories of Information Asymmetry, Agency Theory and Pecking Order Theory providing theoretical insights to Bhutanese SMEs' accessibility to bank loans. The study expands on the existing literature of SME financing constraints in developed economies and applies it to the context Bhutan, an economically developing country with a substantially different economy and social context.

Prior studies on SME financing constraints have been either from the perspective of SMEs' borrowing difficulties or from the perspective of the banks. The integration of these two methods is lacking in the SME financing literature. Therefore, the study adopted a holistic approach to investigate the SME financing gap by integrating both SMEs and banks' perspectives through a sequential explanatory mixed methodology. It provided weightage to the research findings, overcoming any bias and deficiencies that may be associated with incorporating only one of the key components of SME financing gap. The integration process generates comprehensive findings incorporating both the perspectives of SMEs and the banks. The academic contribution is extended to the type of data used to investigate SME financing constraints. The primary data was collected through a firm level survey of SMEs for Phase I and telephonic interviews of credit officers for Phase II of the research. The primary data provided a real picture of a firm's perceived level of financing constraints instead of inferring from the secondary financial data, a method used in most prior studies. The nature of the primary data enabled usage of both financial and non-financial factors to investigate SME financing gap, while prior studies used either financial or non-financial factors.

In addition, existing researches are focused on the higher end of the SME spectrum, overlooking the lower end consisting of microenterprises. The micro firms deserve equal attention as they form a major part of the SME population, especially in developing countries such as Bhutan. Therefore, by including micro firms in the sample population, the study made a significant contribution in terms of the literature pertaining to the lower end of the SME spectrum.

#### **8.4.2 Practical Implications**

This study has policy implications that could foster SME growth and development. SME financing constraint is a key challenge faced by developing countries and a study like this one, investigating the issue of SMEs' inaccessibility to bank loans bears a huge socio-economic significance. The study provides insights and a better understanding of SME financing constraints for all the stakeholders, SMEs, banks, and government and non-government agencies involved in SME development particularly at the policy level. The practical implications of the study have the potential to promote the growth and development of SMEs, if appropriately reviewed and utilised. For SMEs operating in small and young financial markets like Bhutan's, the role of the government is undeniable and vital. The findings of this study have major implications for policy makers in government organisations and relevant agencies involved in the promotion of SMEs to create an enabling financing environment for both SMEs and financial institutions. The practical implications of the study and corresponding recommendations are based on the research findings. The conclusions drawn from Bhutan's case study may be applicable to other developing countries with small and weak economies.

### **8.5 Recommendation**

The recommendations for three main stakeholders, SMEs, banks and government are listed below:

#### **8.5.1 Recommendation for SMEs**

##### Financial Information Management

The study provided strong empirical evidence of a positive relationship between the level of financial information available and access to bank loans. While the credit officers highlighted the importance of financial information in SME lending, the Bhutanese SME sector is characterised by poor accounting and financial management practices. The key limitation of SMEs causing inaccessibility to finance was their severe information asymmetry. SMEs are recommended to follow standard accounting practices to enhance their financial credibility in the eyes of the financial institutions. To improve access to finance, there is a strong incentive for SMEs to improve the quality of information that they have available, and provide it to the banks.

It is equally important for SMEs to prepare project plans in a comprehensive and professional manner, including all business information and accurate financial projections. Good practice in information management will not only mitigate the issue of information asymmetry and risk for the banks but also enable SMEs to make informed decisions regarding their business operations. Information transparency and proper financial management assist SMEs to assess and understand the strength, weaknesses and risks of the business. The time and cost involved in proper financial management is outweighed by its benefits.

#### **Relationship Building with Finance Providers:**

It will be of advantage to SMEs to build a strong working relationship with the banks through timely information sharing to enhance their reputation and credibility in the financial market. Success stories of the use of relationship lending as an alternative to collateral based lending to alleviate SMEs' financial distress have been cited. A closer relationship between lenders and borrowers will decrease information asymmetry, easing loan accessibility. The relationship serves as an alternate guarantee to the lenders to assess the financial prospects of SMEs. Timely information sharing is expected to assist the banks to cater to SMEs' financial needs through appropriate financial products and services.

#### **8.5.2 Recommendation for Banks**

The role of the banks is undeniable in SME financing, but they fall short in providing finance to SMEs. The interview with credit officers revealed that none of the banks had credit units targeting SMEs in total contradiction to the reports from international organisations such as World Bank. The banks did not provide SME specific financial products that were directly tailored or suited to the needs of the SME sector. Hence, it would be beneficial for both SMEs and the banks to establish specific credit units focused on the SME sector and expand into innovative SME financial products to take advantage of the large SME market.

The key finding of the study was the critical role of collateral provided by SMEs in determining their accessibility to bank loans. For the banks in Bhutan, the emphasis on owner's equity and a high level of collateral as the primary condition of lending seems to be out of line with international practice, which also places weight on the financial

assessment of the business and on a firm's credit history. The average size of collateral levied on SMEs was two times the size of the loan amount, with a preference for personal fixed assets (land and buildings). Not only does this emphasis limit the flow of credit to SMEs in Bhutan, but it may also penalise the banks, as lending to small business is regarded as a profitable area of activity internationally. The Bhutanese private sector is dominated by a high number of SMEs.

Hence, it is recommended that the banks explore alternatives to collateral based lending. Relationship lending built on information gathered through direct interaction with SME owners over a period of time allows banks to evaluate SMEs' financial credibility. Studies have indicated that smaller banks are more efficient in building relationships with SMEs to gain access to soft information. Considering the size, age and organisational structure of the Bhutanese banks, adoption of relationship lending is realistic. The other lending mechanisms adopted by the banks in other countries, such as cash flow and profitability based lending may not be fully applicable to the Bhutanese SMEs with their low level of financial information.

### **8.5.3 Recommendations for Policy Makers**

On a macro-economic level, SMEs representing the private sector is recognised as a primary driver of the economy but is faced with serious financing constraints. International development organisations reported that the lending environment is more important than firm size and bank type in shaping bank financing to SMEs. Therefore, the role of the government is vital in creating a sound financing environment for the SME sector through the development of favourable policies.

#### **Establish an Independent Inquiry**

The study's key finding established that collateral and owner's equity were the biggest predictor variables of SMEs' accessibility to bank loans. There was a strong positive relationship between SMEs' collateral and owner's equity and bank loan accessibility. The study highlighted that the level of owner's equity and collateral levied on SMEs by the banks was higher relative to other countries, limiting the flow of credit to SMEs in Bhutan. It is recommended that the government establish an independent inquiry to review the banks' lending practices to SMEs, relative to best practices in other developing countries, with a view to introducing policies to change these practices if

necessary. The focus needs to be on whether the percentage of the collateral, internal finance and interest rate levied on SME loans is acceptable or not. It is equally important to consider the risk exposure and cost of lending incurred by banks. Therefore, revisiting of existing regulations in particular the collateral and owner's equity requirement is suggested.

#### Incentives of the Banks

Further, the government can influence banks' involvement in SMEs through regulations benefitting the financial sector. The government has to initiate a strong partnership with the banks, the biggest source of SME financing, to create an enabling credit environment. The alignment of policy intervention in accordance with the needs of key players of SME financing that is, the banks and SMEs, is crucial to achieving a sustainable financing environment. There is a need to facilitate interaction between the banks and SMEs to reduce information asymmetry, risks and costs of loan transactions. Government policy action should include regulations to motivate banks to take tolerable risks while lending to SMEs. Interventions targeting the banking sector like some taxation benefits and incentives would encourage the banks to finance SMEs.

#### Alternatives to Bank Loans

Microfinance institutions (MFIs) are recognised as financial tool for resolving SMEs' financial constraints. The outreach of the current form of micro-finance in Bhutan provided by BDBL is limited largely to the farming sector. Considering the small Bhutanese market and the small number of SMEs, the establishment of a microfinance institution in Bhutan may not be cost effective. However, a banking body with a mandate similar to that of MFIs may be appropriate to a broader and larger coverage of SMEs. The secondary market of venture capitalist and business angel network is absent in Bhutan, due to the low level of financial market development. In this context, with appropriate legal and regulatory support from the government, alternative financing for SMEs may be explored.

#### Obligatory SME financial Reporting

SMEs' information opacity due to poor accounting practices was identified as one of the key factors causing SMEs' inaccessibility to bank loans in Bhutan. It is important for the banks to have access to credit history information of the borrower to assess the

financial prospects of the borrowers. Therefore, there may be a case for the government to support SMEs to undertake better information management. A regulation obligating SMEs to maintain proper financial statements is required to enhance SME's level of information transparency. The information disclosure will benefit both SMEs and the banks. However, the standardisation and simplification of accounting methods for SMEs is important. Therefore, an obligatory financial reporting initiative will be beneficial if supplemented with basic trainings on financial management skills for SME owners.

#### Direct Interventions for SMEs

Complementing policy interventions at the macro-economic level, it is recommended that existing direct interventions in the form of credit guarantee schemes and tax exemptions to stimulate SME sector are continued, on a larger scale by incorporating micro firms. However, a lower success rate of government interventions, mainly due to short term objectives and mismatch with the financial need of SMEs, has been reported by international organizations (Beck, Demirguc-Kunt & Pería 2008). The challenge for the government is to align their interventions with the interests of SMEs, banks and the mandate of the government. Therefore, formulation of an integrated approach and action plans through restructuring and reforming current interventions is necessary. Based on the study findings, establishment of priority sector lending for SMEs is recommended, based on the sector's different growth potential and profitability in collaboration with financial institutions.

#### Institutional Linkage and Central Database

It became evident during the data collection Phase I of the study that there was no official database on the SME sector, in particular financial information. There is an absence of a central agency collecting and integrating information from all the agencies involved in SME development. The government has a key role in initiating a healthy partnership and collaboration among these stakeholders to overcome the issue of SME financing constraints. Through greater coordination and information sharing amongst all the agencies, a central information database will be feasible. This creation of an institutional infrastructure of information sharing benefitting all the stakeholders will be analytically instrumental for SME policy design, regulations and programs with respect to SME financing.

## **8.6 Limitations of the study**

Despite the study's theoretical and practical significance on the SME financing gap, it is also subject to limitations like any other research study. Academically, these are caused by unforeseen issues arising during the course of the research, mainly related to the research methodology. Logistically, limitations were caused by resource constraints, mainly time and finance. The limitations may have affected the outcome and interpretation of the study findings.

The first constraint faced by the study was data unavailability in view of the absence of an official central database on SMEs in Bhutan. In the absence of the required data for the study, the primary data was collected through a firm level questionnaire survey in Bhutan. The SME survey questionnaire was based on the extensive literature review with the aim of collecting all the relevant information required to understand the nature and causes of financing constraints from the perspective of SMEs. The ability to extract the right information from the participants may have been compromised since the survey questions were not directly adopted from any prior survey. Therefore, inadequate quality of data collection procedure might have caused inconsistency in the data used for analysis. The limitation may have also extended to the SME sample's representation of the entire population.

Given time and resource constraints, cross-sectional data was collected at a single point in time in 2013 from SME owners. The cross-sectional data might be limited in achieving more detailed and informative empirical findings. Instead, a longitudinal or panel data methodology could have generated better results to understand the nature and dynamics of SME financing constraints over a period of time. The sample of the study was limited to urban areas (Thimphu and Phuntsholing), due to time constraints. Therefore, non-inclusion of rural SMEs in the sample is a limitation of this study, which might introduce a potential bias in generalisation of the findings to the entire SME population of the country. The small sample size of SMEs could also be a limiting factor. The sample size, which was estimated at 400 SMEs during the field survey, was reduced to 176 SMEs for data analysis based on the content of the returned survey forms. Similarly, due to limited resources and time, only six credit officers from the banks were interviewed in the qualitative research method.

## **8.7 Future Research**

The research limitations of the study pave the way for future research opportunities. To substantiate the findings of a single year cross-sectional data based study reflecting the situation of the SME financing gap, a longitudinal time series or panel data based research design study may be undertaken to examine the impact of factors on debt accessibility. Hence, the future research promises to achieve dynamic and time based results of the nature and cause of SME financing constraints change over time. This methodology is expected to achieve a more sophisticated econometric analysis and findings.

The future research needs to incorporate a larger sample size for both the survey of SME owners and interviews of credit officers of the banks to generate the substantial data required and for better generalisation of accessibility to debt financing to the whole SME population. Future study may also study SMEs both quantitatively and qualitatively to generate comprehensive results through the full strength of mixed methodology on one stakeholder.

It is also recommended that both rural and urban-based SMEs be included, to overcome the regional imbalance of the present study. Hence, a comparative study between SMEs in urban and rural regions in Bhutan would be another interesting area to be explored. The larger and diverse composition of sample size is expected to achieve more in depth information about the SME financing gap and results applicable to the whole SME population of the country.

Another extension of the study could be a gender based investigation study to provide additional evidence and insight into the role of gender in SMEs' accessibility to external financing. As the survey data revealed that most of the factors identified were qualitative in nature, it would be interesting to design the study as a qualitative research. The interview with SME owners can generate in depth information regarding their difficulties in accessing financing.

## **8.8 Summary**

The final chapter re-visited the primary research objective and questions by linking them with research findings. The aim of the thesis was to determine the financing gap between SMEs and the banks by identifying the key factors causing the SME financing constraints. The discussion provided insights into the SME financing gap from the perspective of both the borrowers (SMEs) and the lenders (banks). The theoretical prediction of POT, Information Asymmetry, and Agency Theory that smaller and younger firms are associated with higher information opacity and risk was applicable to the Bhutanese SMEs.

The results established that SMEs' difficulty in accessing bank loans was influenced by the characteristics of the firm, its owner and its financial information and that is within the control of stakeholders to address these issues. The factors of internal finance and collateral were the biggest predictors of SMEs' accessibility to bank loans which aggravated the financial distress of SMEs. The main cause of SMEs' inaccessibility to bank loans was found to be information asymmetry between SMEs and the banks, leading to other financing constraints. SMEs with little or no reputation in the market and an absence of standard accounting practices are seen as a risky investment by banks. In the absence of the required information, the banks adopted strict lending mechanisms to overcome the high risk involved in SME lending, such as increasing loan interest rates, collateral size and owner's equity in the business.

SME owners need to work on their financial information provision to increase their credibility to participate in a formal financial market. Meanwhile, the banks as the main finance providers need to realign their mandate and address the needs of the SME sector while exploring alternatives to collateral based loans. The role of the government is undeniable in developing SME friendly policy measures to create an enabling financing environment for SMEs and also the banks. The study's final findings concluded that the variables: internal finance, collateral, financial information, interest rate, firm age and size; and owner educational qualification had positive significance on accessibility to bank loans. The factors: loan term, firm sector and owner's gender had moderate effect on SMEs' debt accessibility.

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## **APPENDICES**

### **Appendix 1: Information to Participants involved in the SME Survey**

### **INFORMATION TO PARTICIPANTS INVOLVED IN THE RESEARCH**

#### **You are invited to participate**

You are invited to participate in a research project entitled ‘Small and Medium Enterprise (SME) Financing Constraints in Developing Countries: A Case Study of Bhutan’.

This project is being conducted by a student researcher Ms Chokey Wangmo as part of a Professional Doctorate in Business Administration at Victoria University under the supervision of Professor Peter Sheehan as Co-supervisor from the Victoria Institute of Strategic Economic Studies, Victoria University.

#### **Project explanation**

Small and Medium Enterprise (SMEs) in developing countries face severe difficulties in accessing finance especially debt finance from financial institutions. Prior studies are conducted in developed economies and focused on larger firms, disregarding the micro firms and thus, bear little usefulness to the developing countries. Bhutan is taken as a case study because the Bhutanese private sector consisting mainly of SMEs is underdeveloped owing to financial constraints faced by SME sector. Even though prior studies on inaccessibility to credit have been conducted, a similar study has not been carried out on the Bhutanese SME sector.

Therefore, the main objective of the study is to analyse the nature and causes (demand and supply side factors) of SME financing constraints in developing countries by applying economic theories (Agency Theory, Asymmetric Information and Pecking Order of Hierarchy).

#### **What will I be asked to do?**

This research requires voluntary information from you as owners and managers of small businesses. You are invited to provide answers to the questions in the survey form, which is aimed to identify issues affecting small firms’ inaccessibility to financing from external sources in particular from the banks, for business start-up, and business growth and expansion.

#### **What will I gain from participating?**

Since SME owners are the main target group of the study on financing constraints faced by SMEs, your participation is of immense importance towards success of the study. SME financing constraint is a key challenge faced by SMEs and study resolving this constraint bears huge benefit to SME sector and to the country’s socio-economic growth at a national level. Thus, your valuable inputs will go on to make significant contribution in identifying and understanding the issues of SME financing constraints and in addressing the financing gap between SMEs and financial institutions, thus improving SME credit accessibility. The findings of the study will provide meaningful insights for policy makers in the government to understand the causes behind SME financing constraints to formulate appropriate development policies to promote and create conducive financing environment for SME sector.

### **How will the information I give be used?**

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The information collected from the questionnaire survey will be used to study the phenomena of small business financing constraints in Bhutan. The information will be analysed using Stata program in the form of descriptive statistics and econometric regression to investigate the nature and cause of SMEs' inaccessibility to external finance (banks).

### **What are the potential risks of participating in this project?**

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There are no potential risk to the SME owners participating in the survey, since the questions are general questions seeking information on financing constraints faced by SMEs and does not delve into the individual business secrets and confidential information. Further, the information provided by you will be treated with total confidentiality and anonymity and stored under secure conditions at Victoria University, Melbourne. It will be accessible only to the research supervisors and the student.

### **How will this project be conducted?**

The SMEs will be randomly selected from Thimphu and Phuntsholing to take part in the field survey. The SME owners will be approached personally at their business place and given Information to Participants Form and Consent Form to provide a general overview of the research project and their voluntary participation in this study. They will also been given the consent letter from the Department of Cottage and Small Industries to certify that prior approval from the concerned office has been obtained to carry out the survey. The participants will be asked to answer the questions of the survey and collected immediately or at an agreed time depending on the participants' convenience. The return of the form to the investigator will be taken as the participants' informed consent to participate in the survey.

### **Who is conducting the study?**

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Prof. Peter Sheehan	Chokey Wangmo
Victoria Institute of Strategic Economic Studies Studies	Victoria Institute of Strategic Economic
Victoria University Melbourne, Vic 8001	Victoria University Melbourne, Vic 8001
Tel - +61 3 9919 1341	Tel – +61 405 583 204 (Australia)
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Any queries about your participation in this project may be directed to the Chief Investigator listed above. If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001 or phone (03) 9919 4781.

## **Appendix 2: Consent Form for Participants involved in the SME Survey**

### **CONSENT FORM FOR PARTICIPANTS INVOLVED IN RESEARCH**

#### **INFORMATION TO PARTICIPANTS:**

We would like to invite you to be a part of a study titled 'Small and Medium Enterprise (SME) Financing Constraints in Developing Countries: A Case Study of Bhutan'. This main aim of the study is to identify the nature and causes of the inaccessibility to debt financing by SMEs in the developing countries. Therefore, this survey questionnaire is targeted towards small business owners with intention of collecting information on the external financing constraints faced by the SME sector. A brief description of the project is provided in the Participation Information Form.

Kindly be informed that your participation is purely voluntary and can withdraw at any point. Please be assured that the information collected will be used purely for research purpose and that your information will be treated with strict confidentiality and anonymity.

#### **CERTIFICATION BY SUBJECT**

I, ..... of ..... certify that I am at least 18 years old\* and that I am voluntarily giving my consent to participate in the study: "Small and Medium Enterprise (SME) Financing Constraints in Developing Countries: A Case Study of Bhutan" being conducted at Victoria University by: Prof. Peter Sheehan and Chokey Wangmo.

I certify that the objectives of the study, together with any risks and safeguards associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me by Ms. Chokey Wangmo, Victoria University and that I freely consent to participation involving the below mentioned procedures:

- Questionnaire Survey

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed:

Date:

Any queries about your participation in this project may be directed to the researchers:

Prof. Peter Sheehan

Chokey Wangmo

Tel - +61 3 9919 1341

Tel - +61 405 583 204 / +975 17612759

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 3000 or phone (03) 9919 4781.

## **Appendix 3: Questionnaire for SME Survey in Bhutan (Phase I)**



### **VICTORIA UNIVERSITY VICTORIA INSTITUTE FOR STRATEGIC ECONOMIC STUDIES SURVEY ON SMALL BUSINESS ACCESSIBILITY TO FINANCE IN BHUTAN, 2013**

#### **A. GENERAL CHARACTERISTICS OF THE FIRM (DEMOGRAPHIC)**

##### **1. Information about SME Owner/Manager (Choose ONE box only)**

- i. Gender:      Male       Female
- ii. Age:  18-25 yrs     26-35 yrs     36-45 yrs     46-55 yrs     over 55 yrs
- iii. Qualification:  High School     Vocational Edu     Bachelor Degree  
 Others (Specify) \_\_\_\_\_

2. Name of your Firm: \_\_\_\_\_

Location of Business: \_\_\_\_\_ Year of establishment: \_\_\_\_\_

Telephone: \_\_\_\_\_ email: \_\_\_\_\_

##### **3. Answer the following (Choose ONE box only)**

- a) What best describes the ownership of your firm?  
 Sole ownership     Partnership     Cooperative     Others (Specify) \_\_\_\_\_
- b) What best describes your core business sector?  
 Retail     Manufacturing     Service     Others (specify) \_\_\_\_\_
- c) Which category does your firm fall under?  
 Micro     Small     Medium     Large
- d) In terms of development, at which stage would you say your business is:  
 Early start-up (Less than 1 yr)     Young (1-5 yrs)     Established (more than 5 yrs)
- e) How many people does your firm employ?  
 Full time employee \_\_\_\_\_

#### **B. FINANCIAL INFORMATION OF THE FIRM**

##### **4. Answer the following regarding your firm's current financial status. (Choose ONE box only)**

- a) What was the estimated value of your firm's fixed assets (building, machinery, equipment, furniture etc.) in the year 2012?

Less than Nu.500,000     Nu.500,000 - Nu.750,000     Nu.750,000 - Nu.1,000,000  
 Nu.1,000,000- Nu.1,500,000     More than Nu.1,500,000.

- b) What was the estimated value of the firm's current assets (cash, accounts receivables, deposit accounts, inventory value etc.) in the year 2012?

Less than Nu.500,000     Nu.500,000 - Nu.750,000     Nu.750,000 - Nu. 1,000,000  
 Nu.1,000,000 - Nu.1,500,000     More than Nu.1,500,000.

- c) What was the estimated value of your annual sales for the year 2012?
- Less than Nu.500,000     Nu.500,000 - Nu. 750,000     Nu.750,000 - Nu.1,000,000  
 Nu.1,000,000 - Nu.1,500,000     More than Nu.1,500,000.
- d) What was the estimated value of the firm's net income for the year 2012?
- Less than Nu.500,000     Nu.500,000 - Nu.750,000     Nu.750,000 - Nu. 1,000,000  
 Nu.1,000,000 - Nu.1,500,000     More than Nu.1,500,000.

**5. Information on Accounts Management of the firm (*Choose relevant options*):**

- a) What kinds of financial statements are maintained by your firm?
- Profit & Loss Statement     Balance Sheet     Cash Flow     Bank statements  
 Financial Forecasting     Others (specify) \_\_\_\_\_
- b) The financial statements of your firms are compiled by:
- Professional Accountant     Self     Others (Specify) \_\_\_\_\_
- c) The above person has necessary knowledge on financial accounting and book keeping:
- Yes     No

**Note – Financing Sources:** The financing sources can be broadly classified into two main sources:

- 1) Internal Funds (Personal funds; funds from family and friends without any cost involved)  
 2) External Financing (Bank; Private moneylenders; Government/NGO schemes etc.)

- 6.** What was the estimated amount of internal funds (personal) used to start your business?  
 Nu. \_\_\_\_\_  None
- 7.** What were the sources of internal funds? (*Choose relevant options*)  
 Personal     Family & Friends     Other (Specify) \_\_\_\_\_
- 8.** Did you try to obtain external finance for your business?  
 Yes     No
- 9.** If “NO”, what was the main reason for not seeking external financing? (*Choose relevant options*)  
 Sufficient Internal Funds     Difficult Loan Procedure     High Interest rate  
 Lack of collateral     Others (Specify) \_\_\_\_\_
- 10.** If “YES”, what were the sources of external funds used for your business? (*Choose relevant options*)  
 Bank Loans     Govt./NGO Grants/Schemes     Private Moneylender  
 Others (Specify) \_\_\_\_\_
- 11.** a) If you applied for Bank loan, what information did the banks ask for? (*Choose relevant options*)  
 Business plan     Financial statements     Business total assets     Owner's Equity  
 Security (collateral)     Others (Specify) \_\_\_\_\_

b) What information did you provide to the banks while applying for loan? (*Choose relevant options*)

Business plan     Financial statements     Business total assets     Owner's Equity  
 Security (collateral)     Others (Specify) \_\_\_\_\_

12. What was the main purpose of the external finance sought for? (*Choose relevant options*)

Working Capital     Fixed Cost (machineries/equipment)     Debt consolidation  
 Business Expansion     Others (Specify) \_\_\_\_\_

13. What was the outcome of your bank loan application?

Loan Approved     Loan Rejected

14. Answer the following, if your bank loan was **REJECTED** (*Choose ONE only*):

a) What reasons were given as to why the loan was rejected?

No reason given     Insufficient collateral     No credit history     Too risky  
 Others (Specify) \_\_\_\_\_

b) What was the impact of loan rejection on your business?

Serious financial difficulties     Put plans on hold     Project was terminated  
 No impact     Others (Specify) \_\_\_\_\_

15. Answer the following, if your loan was **APPROVED** (*Choose ONE only*):

a) What was the total amount of bank loan applied for?  
Nu. \_\_\_\_\_

b) What was the total amount of bank loan approved by the bank?  
Nu. \_\_\_\_\_  None

c) What was the loan amount taken from private moneylenders to start your business?  
Nu. \_\_\_\_\_  None

d) From the total bank loan applied, how much did you manage to obtain?  
 Less than 25%     25% - 50%     50% - 75%     75% - 100%     100%

e) What was the interest rate charged on the loan?  
 \_\_\_\_\_  Don't Know

f) What was the duration of the bank loan (loan term)?  
 Less than 1 year     1-2 years     3-5 years     More than 5 years

g) What was the size (monetary value) of collateral required by the bank in proportion to the loan amount applied for?  
 None     Half     Equal     Double     More than two times

h) What collateral were you asked to provide to obtain the bank loan? (*Choose relevant options*)  
 None     Business assets (Land & machineries)     Personal assets  
 Others (Specify) \_\_\_\_\_

## C. INFORMATION ON EXTERNAL FINANCING SITUATION

**16. Please indicate your degree of agreement or disagreement on the following Bank borrowing related statements (*Choose ONE box for each sentence*):**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The procedure for obtaining Bank Loan is simple.					
Banks are responsive to SME financing needs.					
Banks' general commercial lending policies are favourable to SMEs.					
Collateral is pre-requisite for getting bank loans.					
Banks charge SMEs higher interest than bigger firms.					
It is not difficult for good project to get Loans.					
Firms with strong financial statements get loans easily.					
It is easier to get short-term loan than long term					
SMEs face unfair competition from large enterprises in competing for bank loans.					
The banks charge drastically higher interest rates on the loan taken.					

**17. Please indicate your degree of agreement or disagreement on the causes of inaccessibility to bank loans (*Choose ONE box for each sentence*):**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
SME's lack of required collateral.					
SMEs cannot provide reliable financial information to prove the credit worthiness of the firm.					
SMEs are usually too young to have enough information.					
Loan application procedure is complex & time consuming.					
SME loan request is too small to be worth considering.					
Accounting systems used by SMEs is under standard.					
High Interest rates charged on SME borrowings.					
Small size of owner's equity (personal seed money).					

**18. Please indicate your degree of agreement or disagreement on the following Business Support related statements (*Choose ONE box for each sentence*):**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
There are clear policies and strategies to promote SME.					
In general, policies are in favour of larger firms.					
Business associations (such as BCCI) are helpful in getting loans from the banks.					
Guarantee Schemes for SME borrowings are available.					
Technical support for SMEs in accessing to bank credit is available.					
There are special financial institutions to promote SMEs.					
There are policies that encourage commercial banks to lend to SMEs.					
There are subsidies in place for interest payment.					
Business services available are aimed at larger firms.					
I would like further support in accessing finance.					

**D. FUTURE GROWTH AND OBSTACLES TO GROWTH**

**19. Over the next two years, what is the expected business growth graph? (*Choose ONE only*)**

- Substantial Growth       Moderate Growth       No change  
 Reduction of Business       Close down the business

**20. If planning to grow your business, how do you expect to finance it? (*Choose ONE only*)**

- Internal Funds only       External Finance only       Both Internal and External  
 Others, (Specify) \_\_\_\_\_

**21. What do you see as the most important limiting factor to get external financing for the future growth of the business? (*Choose relevant options*)**

- No Obstacles       Insufficient Collateral       High Interest Rate  
 Lack of information       Others (Specify) \_\_\_\_\_

---

**THIS IS THE END OF THE QUESTIONNAIRE. THANK YOU FOR YOUR TIME.**

## **Appendix 4: Guideline for Interview of Credit Officers (Phase II)**

### **Overview**

You are invited to participate in a research project entitled ‘Small and Medium Enterprise (SME) Financing Constraints in Developing Countries: A Case Study of Bhutan’. This project is being conducted by Ms Chokey Wangmo as part of a Professional Doctorate in Business Administration at Victoria University under the supervision of Professor Peter Sheehan, Victoria Institute for Strategic Economic Studies, Victoria University.

This study aims to investigate both the demand (SMEs) and supply (banks) perspectives of the SME financing gap. A field survey of SME owners was successfully conducted to collect information on the external financing constraints faced from the perspective of the SME sector. The interview of credit officers is critical to get the perspective of the financial institutions in order to achieve a holistic picture of SME financing gap. SME financing constraint is a key challenge faced by SMEs and study resolving this constraint bears huge benefit to SME sector and to the country’s socio-economic growth at a national level. Your valuable inputs will go on to make significant contribution in understanding the SME financing gap to improve SME credit accessibility.

### **Interview session**

The interview sample frame consists of credit/loan officers representing financial institutions in Bhutan. The interview session should take about 15-20 minutes to complete.

### **Confidentiality**

All information obtained here will be held in the strictest confidentiality and anonymity in accordance to Victoria University Human Research Ethics standards. Neither your name nor the name of your organization will be used in any documents.

### **Participant Consent Certification**

I,....., of ..... certify that I am at least 18 years old and that I am voluntarily giving my consent to participate in the study. The objectives of the study, together with any risks and safeguards associated with the interview procedures have been fully explained to me. I have been informed that the information I provide will be kept confidential.

Signed:

Date:

<b>Interview Background</b>	
Interviewer Name: .....	Interview date: .....
	Time: .....
Interviewee name: .....	
Position: .....	
Name of organization: .....	
Contact address: .....	

### **Guided Interview Questions**

#### **Part 1. General Question and Information on Banking Operations**

1. When did you start working for the bank?
2. Does the bank have designated division or sub-division targeting SME financing?
3. Describe briefly SME loan process and what documents are required for loan application?

#### **Part 2. Bank's Credit and Eligibility Criteria for SME Loan**

4. Does the bank finance new SMEs or established businesses or both? Does the bank prefer to finance older firms over younger firms?
5. Does the bank prefer to finance larger firms over SMEs and why? Out of micro, small and medium firms, which one is mostly like to get bank loans?
6. Which sector (retail, manufacturing and retail) does the bank prefer to finance?
7. Does bank prefer to finance older applicants over younger ones?
8. Does gender of the loan applicant determine the loan application outcome?
9. Does the bank prefer to loan to more qualified people over less qualified ones?
10. How important is financial information (audited financial statements, forecasting etc.) for the approval of loans?
11. How do you assess the risk associated with the SME and what financial tools are used?
12. Would you prefer to give larger amount loans to smaller amount loans and why?
13. How is the loan interest rate determined and does the bank prefer businesses willing to pay higher interest rate?
14. How is the loan term determined? Do you prefer short term loan to long term loan?
15. What do you think of the principle of collateral requirement?
16. What is the value of collateral in proportion to the loan amount required as mortgage to obtain the loan and how is this decided?
17. Does the size of the internal finance i.e. owner's investment in the business influence the loan approval?

#### **Part 3. Concluding Questions**

18. Why do you think that SMEs complain about difficulties in accessing bank loans?
19. What is the main factor that results in rejection of the loan application?
20. What suggestion would you give to SMEs to successfully get bank loan?