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A Quantitative Study of Multilayered Market Systems and Small and Medium-Sized Enterprises

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Abstract

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by

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MA, Harvard University, 2010

M.Sc., University of Calabar, 2004

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Small and medium-sized enterprises (SMEs) account for approximately 50% of the world's gross domestic product. However, these economic agents suffer from inadequate access to liquid funds to finance their operations. The liquidity gap has led to early bankruptcy and liquidation, stagnant growth and development, and fewer employment opportunities. The problem under study was the effect of funding limitations on SMEs' business operations and growth. The purpose was to examine the impact of multilayered capital systems as alternative funding for SME growth. This study was informed by Gilbrat's law and the theory of financial exclusion. The research questions addressed the use of a multilayered capital market as a substitute for the conventional methods of funding for SMEs. A survey instrument was used to collect data using a stratified random sample of 54 small-scale business owners and finance professionals. These participants were identified from U.S. Census Bureau data between 2009 and 2014 across the information technology, service, and manufacturing sectors. Multiple regressions and correlation analyses were used to analyze the data. The results showed that age, credit score, average turnover, and total assets have significant impacts on obtaining funding, especially total assets. Moreover, results showed that growth rates correlated with funding from multilayered capital systems. This study contributes positively to social change by highlighting alternative means of funding SMEs, leading to reduced dependency on government, less crime through gainful employment, and improved corporate social responsibility due to better interactions among community members.

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Dedication

This dissertation is dedicated to my wife, Mariam Adetoun, and our children, Suleiman, Jummai, Farooq El Amin Babangida, and Ameer for their tremendous support, encouragement, and understanding regarding the completion of my doctoral study.

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Chapter 1: Introduction to the Study

Small and medium-sized enterprises (SMEs) account for a significant portion of the world's GDP. In fact, they account for approximately 60% of the manufacturing outputs in the world (Beck, Demirgüç-Kunt, & Peria, 2008). However, as a result of financial exclusion, these economic agents suffer greatly from inadequate access to liquid funds to support their business growth. Consequently, this lack of access leads to unrealized potential, declined growth, lower employment, and discouragement of new ideas. Empirically, the interplay of the size and age of the SMEs affects how financial institutions respond to requests for funding (Anastasov & Mathew, 2010).

The distributions of the workforce into either small or larger enterprises are country specific and depend on the country's level of development. In poorer economies, more than two thirds of the workers are employed in SMEs (micro and small enterprises) and the rest in larger enterprises. However, when compared to richer and advanced economies, the reverse is the case, as more than two thirds work in large enterprises and the remainder work for SMEs (Rosenthal, Lamoreaux, Davis, & Cull, 2005). In the United States, according to the Small Business Administration (U.S. SBA, 2011), SME owners created more than 65% of new jobs from 1990 to 2010, paid approximately 51% of U.S. payroll, and made up to 97.5% of total U.S. exports. Yallapragada and Bhuiyan (2011) posited that SMEs accounted for 99.7% of the 28 million businesses in the United States in 2011. This perspective reveals that small businesses have served a number of crucial roles in the U.S. economy, including (a) providing income for unemployed and underemployed; (b) employing 66% of minorities; (c) employing 70% of older

individuals; (d) employing workers with disabilities; (e) employing rural workers; (f) filling underserved niches; (g) providing products and services in which large corporations cannot benefit from economies of scale; (h) serving as the primary source of new creative and innovative concepts, products, and services; (i) providing support services for larger corporations; and (j) providing 16.5 times as many patents per employee as large companies do (Yallapragada & Bhuiyan, 2011). Given these achievements itemized by Yallapragada and Bhuiyan, researchers have attempted to frame these success stories by attributing the contributions to either young or small SMEs. Researchers have wanted to differentiate between the age (young) and size (small) of a firm as critical success factors in the realization of SME contributions. This paradigm shift is believed to define SMEs better based on their economic contributions and growth. Banerjee (2014) posited that age is a characteristic that is common to young or small firms. Therefore, there is little or no distinction because a young firm tends to be small as well. This view has generated a misconception that young rather than small firms are the drivers of growth (Banerjee, 2014). However, a young firm could also be small but a small firm would not necessarily be young. Researchers now believe the small rather than young firms are the main contributors to employment growth (Banerjee, 2014; Criscuolo 2014; Dixon & Rollin, 2012; Lawless, 2013). Despite the contributions from SMEs mentioned above, on average and across all industries 75% of small businesses have failed within the first 5 years of operation (U.S. SBA, 2011). Plehn-Dujowich (2010) believed if the rate of failure experienced by SMEs continues without adequate mitigation, the benefit derived from employment generation and stabilization of

the local economies will be eroded. The recurring challenges are inherent risks associated with lending to SMEs that originate from asymmetric information. With asymmetric information, SMEs are excluded from financial access leading to their inability to meet both short- and long-term financial obligations. Furthermore, Beck, Demirgüç-Kunt, and Peria (2010) suggested that inadequate supply of funds to SMEs limits innovative ideas and job creation. Eventually, this increases unemployment gaps, distorts entrepreneurial spirit, and leads to a decline in growth.

Conceptually, the definition of *SME* takes different dimensions depending on the location or country. In the United States, there is no standard definition that is shared across sectors. The U.S. Small Business Administration used a 46-page document to provide definitions for small businesses. Banerjee (2014) supported the view proposed in the literature using U.S. data. Accordingly, U.S. SBA (2011) defined a *firm* as an *SME* if it has fewer than 500 employees (Table 1); also, the issue of definition is even more complicated within a single country. In another perspective, the European Union (EU) adopts a different combination of variables to define SME that is based on three constructs: (a) employment, (b) turnover, and (c) balance sheet size as critical factors in defining a *"true" SME*.

Table 1

Definition of Small and Medium-Sized Enterprises

company category	European Union			United States
	Employment	Turnover	Balance Sheet	
Medium-sized	<250 ≤ 50	≤ £50 < £10m	≤ £43 < £10m	<500 ≤ 20
Small	<50 ≤ 10	≤ £10 < £2m	≤ £10 < £2m	<20
Micro	<10	< £2m	< £2m	…

Note. Adapted from Bank of International Settlement (BIS) Working Papers No 475, SMEs, financial constraints, and growth

Furthermore, Banerjee (2014) argued that the size of the initial loan to an SME is sometimes used as the basis of the definition in some countries. However, this may not appropriately reflect the best way to calibrate the SME definition because the size of the loan could represent only the immediate need and not the capacity. This inconsistency speaks to the fact that there is no universally acceptable definition of SME across the globe. Accordingly, there is only sparse data at the firm level combining balance sheet information, information on financing obstacles, and measures of firm economic activity. Overall, the number of employees and turnover tend to be acceptable dimensions in most economies. However, the variations can remain in the number of employees or volume of turnover.

Despite the controversies surrounding the definition of SME, SMEs remain the highest employer of labor; however, because of information asymmetry that affects the growth propensity, it is important to review alternatives that may support the strategic role played by SMEs for their economic contributions to be sustained. Therefore, studying multilayered capital markets as alternative sources of business survival strategy became imperative in view of the funding challenges faced by SMEs across the globe. The major themes of findings are presented and analyzed in Chapter 5 to determine possible implications for SME survival.

Background of the Study

Funding adequacy is needed to assist SMEs to achieve the fundamental objective of growth and sustainable development. Adequate funding facilitates the effective and

efficient organization setup process, enables operation expansion, promotes new product development, and supports the acquisition of capable staff for production facilities. Conversely, lack of adequate funding tends to lead to earlier than expected business failure (Plehn-Dujowich, 2010). Historically, small businesses start with the conceptualization of ideas that later metamorphose into larger projects as more time is committed, energy is dedicated, and money is invested in appropriate dimensions. As the idea progresses and the need for cash flow arises, the entrepreneur may use personal savings or seek financial support from immediate family and friends at no cost or at a cost in exchange for shared participation in the business. By the time the conceptualized idea matures and stabilizes after the initial implementation, the need to innovate and standardize becomes imminent because more funds and financial support are required to expand beyond the initial conceptual thinking. At this juncture, the prospects of the business idea as a recognizable force in the market begin to improve as more potential consumers begin to show product loyalty and patronage. At this point, it now means the level of product acceptance is higher than expected, the future looks brighter, and the market environment is friendly. Furthermore, entrepreneurs begin to think differently and want to consolidate the initial gains through product realignment and advanced market penetration. However, with limited funding, the business sustainability increasingly becomes a challenge as family and friends' financial support is no longer adequate to provide the economic base of stabilization. As a result, the entrepreneur realigns, and the decision to seek external support from banks and other financial institutions becomes imperative when friends' and family funds are no longer available. The term *finance* for

SMEs can be viewed from two perspectives: (a) reason and (b) sources of finance. With respect to reason, SMEs need financing for two primary reasons: (a) financing the production cycle-the day-to-day operations, or working capital- and (b) financing capital expenditure (CAPEX) for business expansion, asset maintenance, or creating new assets (World Bank, 2014). Financing for these elements can be from internal or external sources depending on the strategic objective and cost of capital. Seeking finances to meet working capital requirements or asset acquisition requires different scenarios in term of the amount, repayment period, and nature of the specific risk involved (World Bank, 2014). Typically, the bank evaluates the request based on the six Cs of lending: character, capacity, capital, condition, collateral, and credit or cash flow. Conventionally, irrespective of size, companies will finance working capital through short-term credit from suppliers, factoring, or internally generated funds. In the case of CAPEX, which frequently require larger amounts than working capital, companies will seek financial support from banks and other financial institutions. This decision sometimes involves fresh capital injection from shareholders or sometimes going to capital markets to raise debt depending on the financial objective. The way an SME elects to finance its needs depends on whether it is a start-up or an existing established business. Start-ups are rarely inclined toward external funding because of possible denials from banks and financial institutions because they do not have records of accomplishment to justify their business and management expertise. Aside from this, the interplay of size, age, history, and lack of credit exposure makes it difficult for SMEs to gain adequate financial assistance from

banks and other financial institutions, especially when compared to larger or established firms or businesses.

There are other players in the industry who tend to augment the financial challenges of SMEs beyond that of the bank limitations such as trade creditor and customer. Firstly, in this context, the key financiers for SMEs are business suppliers who provide revolving trade credit (i.e., the suppliers supply goods and services in advance) prior to any form of associated payment from SMEs. Trade credit is a form of secured open line of credit to SMEs, with different repayment periods based on the size, type, and industry of the firms involved. In most cases, the longevity of the credit does not extend beyond 4 months—a situation that is lower when compared to that of larger businesses. In practice, trade credit is one of the primary sources of short-term funding for most companies. Secondly, customers serve as another sources of external financing by paying for goods and services prior to delivery (World Bank, 2014). Customers make deposits for service that will be delivered at a later date. However, these financing opportunities are only available to businesses that have prior trusted and tested relationships with the contracting business parties (lender and borrower). It is also important to mention that these forms of credit are cheaper compared to bank lending in the area of interest cost, documentation cost, monitoring cost, and default cost. Furthermore, there are other financial institutions that provide "near" credit facilities to SMEs because of their strategic input in the final credit assessment framework, such as credit rating agencies and credit reporting service providers (CRSPs) as shown in Table 2. Although these organizations do not provide direct funding to SMEs, their services (e.g., information and

guarantees) are used as significant inputs from those parties that provide financing support (World Bank, 2014). On a country level, government agencies and development banks, as enacted by the Constitution, provide supporting, auxiliary services or direct complimenting financing support to SMEs. The coverage, effectiveness, and the amount are all predetermined by the government.

Table 2

Entities Involved in SME Financing and Main Features of Their Product Offering

	Direct Providers of Financing Facilities to SMEs		Other institutions providing services that support financing to SMEs
	Financial institutions	Non-financial institutions	Credit insurers, credit rating agencies, banks and some governments acting as guarantors, CRSPs
Main players, main products	Bank, leasing companies Outright loans, cash advance-type products, leasing, credit cards for small expense financing	Business suppliers, some governments Tredit Credit in the case of business suppliers. Outright loans in the case of governments.	Credit insurance, credit ratings, credit guarantees, credit reports
Typical length of financing	Short-term, except for some loans or leases for capital expenditures	Short-term (usually less than 90 days) for trade credit. Variable in the case of government loans	Not applicable

As shown in Table 2, the interplay of the key players in the credit market and their respective limiting factors determines the types of products and length of financing to offer to prospective customers. Although both financial and nonfinancial institutions tend to have different product lines that should bridge the SME funding gap (Table 2), the issues of credit history, age, size, capacity, collateral, character, etc. are barriers that SMEs struggle with in a short period of time. Arguably, the combination of these

variables creates a finance gap within the SME sector that cannot be solved with injectable family cash or owners' free funds. Therefore, the alternative is to seek external funding support from banks and financial institutions. The situation worsens when SMEs need to request credit from the banks because banks see SMEs as potential risky partners, and evaluate the potential threat accordingly (Mazzu & Angilella, 2014). To evaluate the potential threat, banks adopt four different lending approaches based on the "best 2-match" framework: (a) a financial statement or quantitative lending based on income statement, cash flow, and balance sheet data; (b) asset-based lending based on relevant and valuable collateral; (c) credit scoring models based on hard information; and (d) relationship lending based on a past, valuable relationship with a bank officer (Moro & Fink, 2013). The financing problem is faced most often by innovative SMEs—the ones that want to go beyond the conceptual stage to become a force in the market. Even with the show of willingness, capability, determination, and a history of success, the entrepreneur is still counted as new to the market with nothing but a newcomer's characteristics. The entrepreneur may be seeking financing for product improvement, replacement, or a new type of product or service as complimentary to a prior success factor. SMEs may have negative cash flows and untested business models, which represent higher risks to banks, and these cannot be assessed in the same manner as large firms. Credit constraints can stop SMEs from growing into larger firms. SMEs are generally more vulnerable in times of crisis than larger organizations because banks and financial institutions adopt credit rationing as a major strategy for many reasons:

1. difficulty downsizing due to size—SMEs are already small,

2. less diversification in economic activities because of individuality syndrome,
3. weaker financial structure (i.e., lower capitalization),
4. lower or no credit rating,
5. heavy dependency on credit,
6. fewer financing options.

Aside from this, SMEs face greater operational risk due to short longevity. Due to business failure, SMEs tend to exit the market environment at an estimated rate of 23.7% and 52.7% in two and four years respectively (Yang, Han, & Duan, 2009).

Despite these overwhelming challenges, SMEs are still the channel of empowerment for young and dynamic business owners who cultivate breakthrough ideas, nurture dreams and aspirations, and engage in interactive and productive outcomes. Ayyagari, Beck, and Demirgüç-Kunt (2007) concluded that SMEs play a vital role in economic stabilization by providing an engaging opportunity for the free flow of ideas. Therefore, in developing countries, SMEs are catalysts that create new, emerging private-sector-led growth. SMEs achieve this because of their strategic economic depth and formation. Also, SMEs account for over 60% of manufacturing jobs in developing economies (Demirguc-Kunt & Beck, 2006; Hallberg, 2001). Anastasov and Mathew (2010) posited that the larger part of new jobs created in Organization for Economic Co-operation and Development (OECD) came from SMEs, which accounted for over 95% of enterprises and 60-70% of employment. Furthermore, in the European Union, SMEs accounted for over 99% of all businesses and 91% of these promising enterprises are micro-firms with fewer than 10 workers (OECD, 2009). According to the U.S. Census

Bureau (2011), small businesses employed 59% of the U.S. workforce or 131 million people in 2010. Shinozaki (2012) concluded from his research findings that SMEs are key drivers of socioeconomic stability. Thus, SMEs as agent of socioeconomic stability creates more jobs and fosters a competitive business landscape- a precept that further buttresses the reason for the localization of SMEs in every facet of human endeavor. In addition, the decision to localize SMEs to form clusters complements each player production process, stimulates competition, increases external economic agents, and enhances efficiency and quality of output (Sandee, 1999; Shinozaki, 2012). Over the 20 years, SMEs have developed several innovative products that compete favorably in both local and international markets (Sandee, 1999). SMEs compete on the simplicity of the product, early-to-market status, and enhanced product functionalities. Thus, the outcome prompts valuable competition against the established larger enterprises, triggers means to survival reaction from the larger enterprises, and leads to a rapid growth in the market economies in the developed and developing nations. However, in the absence of funding adequacy, the roles as mentioned above become a mirage that SMEs struggle to attain.

In recent times, policymakers have been moving toward market-oriented policies that will further enhance SMEs' spread in support of the positive trends. However, the existing literature only speaks about funding from financial institutions, equity capital, and venture capitalists when, in essence, most of the SMEs cannot meet the basic requirements set by banks and venture capitalists due to financial exclusion. Given the strategic position and importance in every economy, SME growth is necessary for

economic recovery and development; therefore, the need to study alternative means to finance business activity becomes apparent, especially from the capital market.

Problem Statement

In this study, I examine the effects of funding limitations on SME business operations and growth. SMEs have been faced with limited access to credit, limited financing opportunities, higher interest rates, and unwillingness by banks and other financial institutions to finance their operations. Consequently, financial exclusions affect SMEs' ability to bridge the needs gap and meet socioeconomic objectives. Berk, Demirgüç-Kunt, and Peria (2010) argued that financial exclusion is caused by size, unstructured accounting systems, limited banking history, untested promoters, and little personal capital, forcing SMEs to rely on self-raised capital. In the theory of financial exclusion, information asymmetry creates disequilibrium between the forces of demand and supply (Mugaloglu, 2012). Ultimately, financial exclusion leads borrowers to suffer greatly from adverse selection, moral hazard, and financial denials because of the inherent risk associated with SME lending. Funding (liquidity) is a prerequisite for any surviving firm; therefore, without appropriate access to funding, the firm will fail earlier than expected (OCED, 2012). Beck (2007) posited that the highest ranked constraints to SME survival are access to and cost of finance. The funding limitations adversely affect SME potential growth, development opportunities, employment generation, and contributions to the national economic income (GDP). Furthermore, Anastavov and Mateev (2011) suggested that a firm's growth rate is a function of its size, age, profitability, product innovation, and other firm-specific factors. A number of researchers

(Anastavov & Mateev, 2011; Demirguc-Kunt & Beck, 2010; Newman & Borgia, 2012; Hermelo & Vassolo, 2007; Kuntchev, Ramalho, Rodríguez-Meza, & Yang, 2013) explored the main determinants of growth and business survival in SMEs and concluded that there was a direct relationship between funding and growth rate. Although extensive literature is available on SME and growth determinants, little research is available on alternative funding practices from the capital market that could demystify the current form of financial constrictions faced by SMEs. In view of the established economic importance of SMEs, it is imperative to investigate other means of funding that could alleviate the unlimited access to SMEs. Mugaloglu (2012) proposed looking at the alternative capital market as a means to finance business growth because of SMEs' ex-ante and ex-post asymmetric information. Therefore, if the asymmetric information challenges is not addressed, the access gap between the SMEs and larger corporations widens to leads to adverse selection and moral hazard.

Purpose of the Study

The purpose of this study was to use a correlational research design to investigate the benefits of a multilayered capital market system as an alternative funding strategy for SMEs. The multilayered capital market represents multilevel markets connected to the community values where borrowers can access funds based on different borrowing (listing) requirements. The market allows prospective borrowers to file an application backed by community support to an alternative capital market (a multilayered capital system) that is simple and easy to access, with high coverage and lower listing requirements. In addition, the multilayered capital is backed by government policy,

structure, and community-based interest. To achieve the study's objective, I limited participants to employees with financial roles and responsibilities in SMEs such as CFOs, finance VPs, finance directors, controllers, finance managers, financial analysts, and account managers. Additionally, the research participants were anyone who lives in any part of the United States as long as the person met the participation requirements. In this study, the independent variables were approved funding and funding from a multicapital system. Credit score, age, growth rate, size, turnover, and total assets (TA) were the dependent variables. I compared the gaps in the literature and practice between the traditional methods of financing and multilayered capital market financing. I underscored the impact of underfunding from various traditional methods, including their limitations, the negative correlation of their methods with the business survival of SMEs, and their aftermath impact as a multiplier effect on any economy.

Research Questions and Hypotheses

To produce a scholarly investigation, I provided platforms to analyze and review the problem statement. I generated four primary research questions:

Research Question 1

1. To what extent do credit score (credit rating, credit histories, and credit-worthiness), age, revenue, and size of firm limit SME access to funds from financial institutions?

H_0: There is no significant relationship between credit score, age, revenue, size, and amount of loan approval from financial institutions.

H_1: There is a significant relationship between credit score, age, revenue, size, and amount of loan approval from financial institutions.

I tested Hypothesis 1 through regression equation 1

$$y_i = \beta_o + \beta_1 x_{1i} + \beta_2 x_{2i} + \beta_3 x_{3i} + \beta_4 x_{4i} + \varepsilon_i \quad (1)$$

where

y_i represents the amount of approved loan from financial institutions,

x_{1i} represents SME credit score (weighted average of payment history [35%], amounts owed [30%], length of credit history [15%], types of credit in use [10%], and new credit [10%]; (myfico.com, 2015, & West Virginia Treasurer, 2014):

x_{2i} represents SME age (years of operation),

x_{3i} represents SME size (average turnover),

x_{4i} represents SME size (total assets),

e represents the error term,

B_0, β_1, β_2, β_3, and β_4 represent the slope.

I used the 2012 U.S. Small Business Administration (SBA) lending report and the survey outcomes for this study. A multiple regression analysis was used to predict the relationship between funding approval due to the SME's credit score (CS), age (years), average turnover (AT), and size (ToA). Approved funding request is the dependent variable, while credit score (CS), age (years), average turnover (AT), and size (ToA) are the independent variables.

Research Question 2

2. To what extent does funding constraint limit the growth of SMEs?

H_0: Funding constraint does not limit SME growth.

H_1: Funding constraint limits SME growth.

I tested Hypothesis 2 through correlation coefficient equation 2

$$Yi = \frac{\sum X_i Y_i}{\sum Xi \sum Yi} \quad (2)$$

where

Yi represents a denied funding request or partial approval from banks/financial institutions,

Xi represents the rate of growth from the turnover of SMEs in the year of funding denial,

Σ_{XiYi} represents the covariance denied funding and growth from the turnover of SMEs in the year of funding denial,

$\Sigma_{Xi}\Sigma_{Yi}$ represents the product of standard deviation of denied funding and growth from the turnover of SMEs in the year of funding denial.

The lower the turnover in the year of the funding request, the higher the impact of funding denials. I used the correlation coefficient analysis from the survey outcomes to measure the direction and strength of the relationship between funding constraint and SME rate of growth. The growth rate was the dependent variable while funding availability was the independent variable.

Research Question 3

3. What is the relationship between funding from a multilayered capital market and SME growth?

H_0: Funding from a multilayered capital market does not lead to SME growth.

H_1: Funding from a multilayered capital market leads to SME growth.

I tested Hypothesis 3 through correlation coefficient equation 3

$$\varepsilon Yi = \frac{\sum \varepsilon X_i \varepsilon Y_i}{\sum \varepsilon Xi \sum \varepsilon Yi} \quad (3)$$

where

$\Sigma\varepsilon Yi$ represents funding from a multilayered capital market (a capital market with fewer listing requirements) to SMEs,

$\Sigma\varepsilon Xi$ represents growth rate due to the available funding,

$\Sigma\varepsilon XiYi$ represents the covariance of a multilayered capital market and growth rate due to the available funding,

$\Sigma\varepsilon Xi\Sigma\varepsilon Yi$ represents the standard deviation of a multilayered capital market and growth rate due to the available funding,

I used the survey outcomes for this study, and the correlation coefficient analysis to measure the degree of impact of access to a multilayered capital market on SME growth. Growth from turnover and total assets (TAs) was the dependent variable, and funding from a multilayered capital market was the independent variable.

Theoretical Framework

Financial markets and other institutions exist to bridge the funding gaps required by the sector in need. The market alleviates friction between unequal information asymmetries and transaction costs (Beck & Demirgiic-Kunt, 2008). However, this approach has led to financial exclusion as practiced by the financial market operators and institutions based on the selective framework adopted to approve funds. The theory of *financial exclusion* depicts a process in which some relevant decision units excluded in the overall scheme of financial/resources distributions. According to the European Commission (2008),

> Financial exclusion refers to a process whereby people encounter difficulties accessing and/or using financial services and products in the mainstream market that are appropriate to their needs and enable them to lead a normal social life in the society in which they belong. (p. 5)

The World Bank (1995) argued financial exclusion was the denial of transaction banking, savings, credit, or insurance services. The underlying factor is unrestricted access to the bank and bank-related services in which denial leaves a potential borrower with a financial gap. Financial exclusion and its consequences affect the potential developmental apparatus of an SME, undermining its capacity as a bridge to employment creation.

The theory of *financial exclusion* represents a process in which some relevant decision units are excluded in the overall scheme of financial/resources distributions (Mugaloglu, 2012). As depicted in Figure 1, the interrelationship of the key determinants of financial exclusion relies on the product, features, and the channel of funding. Accusing fingers have been pointed at commercial banks, equity funds, other financial institutions, or market imperfection as the major barriers to SME financial exclusion due to asymmetric information

PRODUCTS	FEATURES	CHANNELS
.Payments (ATM/Debit cards, government payments, remittances, e-payments) **.Savings** (savings account, checking account, pensions, youth savings , program savings) **.insurance** (life, health, property, micro insurance, agriculture) **.credit** (personal, consumer, credit card, education, mortgage, home improvement, microenterprise)	**.affordability** (costs, minimum requirements, fees) **.availability and convenience** (days to complete transactions, documents required, physical proximity) **.quality** (consumer protection including price transparency, fair disclosure, responsible finance practice, risk management and assessment with inclusive credit information systems)	**.access point**s: banking beyond branches **.financial infrastructure:** payment and settlement systems, credit reporting, collateral registries **.institutions**: banks/nonbanks, insurance companies, pension funds, credit cooperatives, MFIs. **clients:** everyone who has the demand for the services, including the executed and underserved poor

Figure 1. The key dimension of financial exclusion. Adapted from World Bank Group Team Analysis

In reality, the demand sides also share in the misplacement of critical information. SMEs make vital decisions that are detrimental to the financing prospect of an organization in the form of unprotected attitudes that have an important bearing on financing decisions process (Zavata, 2008). Some constraints also appear on the demand side of the financing marketplace. These constraints perpetuate and widen the SME financing gap:

1. the poor quality of projects seeking funding,
2. the inability of SMEs to make the best possible use of available resources of funding,
3. the negative attitude displayed by SMEs toward equity financing,

4. marked informational asymmetries between small businesses and lenders or outside investors,
5. intrinsic higher risk associated with small-scale activities,
6. sizeable transaction costs in handling SME financing,
7. lack of collateral associated with SMEs.

Information asymmetry creates an unbalanced approach toward lending and leads to disequilibrium in the lender's willingness to lean toward the established corporation (bigger companies) at the detriment of the less privileged microenterprises and SMEs. Consequently, the disequilibrium creates financial exclusion for the less privileged entities and SMEs that do not have the structures, experiences, and frameworks in place to meet the axiom of a true lending process. Conversely, asymmetric information breeds adverse selection and adverse incentives toward SMEs, which leads SMEs to suffer from credit rationing. Hence, the higher cost associated with asymmetric information excludes SMEs from mainstream banking. In addition, it forces SMEs to concentrate funding efforts around microfinance and the informal sector as a means to survive.

In addition, financial exclusion frameworks lead to income disparity, financial inequality, and poverty traps as experienced by SMEs (Beck & Demirgiic-Kunt, 2008). Financial exclusion of SMEs as a critical sector results in derailment of economic development. According to Mugaloglu (2012), financial exclusion denied the poorer segments access to funds, inhibited human and physical capital accumulation, stagnated investment growth, and increased income inequality. Because of the size and year of experience, SMEs experience financial and operational imperfections to meet the basic

demands of financial institutions such as collateral securities, credit histories, financial statements, prior banking experiences, and vendor relationships; these all affect the access to unlimited formal sector funds. The interplay of lower credit score and credit history supported by market imperfection leads to financial exclusion as a hurdle extended to SMEs. Because of this hurdle, it is difficult if not impossible for SMEs to gain financial support at a reasonable price and under reasonable conditions. The hurdle is a credit embargo set in place as a limiting factor to financial independence. Consequently, the ultimate losers are entrepreneurs and SMEs that eventually turn to informal finance such as pawn brokerage when personal capital and retained capital are no longer adequate to meet their expansionary goals.

Credit Score and Management

Traditionally, advancing credit to SMEs takes a different perspective because credit to SMEs is very subjective analysis based on the unsystematic opinion of the likelihood of default (GBRW Consulting, 2012). Therefore, because of the unscientific approach to the SME's request—due to the absence of historical credit data and size of the SME's business—the credit analyst makes decisions based on the probability of events that are not backed by data. A credit score is an important component of lending; it plays a critical role in the overall decision-making process of banks and financial institutions. Thus, it is a risk management framework adopted to make an informed judgment on credit requests. According to Harun, Sosa-Fey, and Calafiore (2014), the fundamental of credit scores is to gauge the possibility of default by the potential borrower; a lower score indicates potential higher credit risk. A credit score is time

specific, changes over time, and provides a snapshot of an individual's risk-related activities in the form of credit risk. In addition, a credit score is a tool that empowers a lender to a decision about approval based on a borrower's capacity, history, and character.

Indeed, the primary objective of the credit reporting system (CRS) is to address information asymmetries, an important element in determining repayment capacity and willingness. Thus, to the lenders, the use of a credit report enhances fact-based credit assessments that help to shape the discussions on the extent of inherent risk associated with SME credit requests. Ultimately, the credit report is an integral part of the final decision-making tool to financing gaps. However, while credit data and other relevant information on large corporations are available by credit reporting service providers (CRSPs) in a country, this information is difficult to find for SMEs. Thus, lenders use the credit score to assess the likelihood of risk that a prospect, participant, applicant, customer, or potential borrower carries relative to the borrower's request for credit. The higher the score, the less risk borrowers pose to creditors (www.myfico.com). Conversely, if this same judgment is extended to SMEs on the transactional lending framework, a decision based on a qualitative criterion, the SME will fail. Thus, there will be nothing to assess the entrepreneur's capacity against, because the data on prior borrowing histories are not available or not adequate to meet the bank's criteria for judgment.

Credit information is a derivative of the Fair, Isaac and Company (FICO) scores (FICO) that officially represent the credit scores. The score ranges from 300-850;

approximately 700 is perceived as a good standing. Therefore, having a higher score makes it easy to obtain a loan, rent an apartment, or lower insurance rates. A credit report contains information about where a person works and lives, how a person pays bills, and whether the person has been sued, arrested, or filed for bankruptcy, notably, the use of FICO scores to explain the combination of individual dynamics that account for the overall credit rating. Among all, payment history and amount owed account for 65% while others equate to 35%.

Payment History

According to World Bank (2014), lenders based their credit decision on two criteria: (a) the ability to repay and (b) the willingness to pay. The interplay of "the ability" and "the willingness" the defines borrower's historical character and predicts future responsibility. To achieve a near zero risk, 35% of the weighted average of the overall risk is assigned to payment history as a mitigant against unforeseen risk (credit and default risk) associated with the borrower. In essence, lenders use historical payment information to understand the borrower's character to previous financial obligations and payments to interest-free trade creditors. Thus, in the formation of the payment history weight, lenders consider the following:

1. payment information on many types of accounts,
2. public record and collection items,
3. details of late or missed payments, and
4. how many account show no late payments.

Amount Owed

To manage additional credit, borrowers have to demonstrate effective capacity management for existing loans or facilities. Capacity management assumes the second highest weight-30%- in the lending framework. The amount of the loan determines the extent of the borrower's leverage. A borrower with higher debt could signify higher risk; thus, making the lender to accept the risk, minimize the potential exposure, or exit the risk. Lender uses financial statements or financial indicators to predict the level of risk associated with a prospective lending Thus, to assess borrower's capacity, lenders consider the following:

1. What is the amount owed on all accounts and on different type of accounts?
2. How many accounts have balances?
3. How much of the credit line is being used on credit cards and other revolving credit accounts?
4. How much of the installment loan account is still owed compared with the original amounts?

Length of Credit History

There is a direct relationship between payment history and length of credit history. The payment history defines the borrower's character and the length of credit history speaks to the borrower's stability and longevity. [The importance of the length of credit experience reflects in 15% - the third highest weight -it assumes in the credit rating framework]. The length of credit experience helps lender to understand the impact of

micro and macroeconomics factors on the borrower's business cycles and personal stability. To understand these factors, lender will ask the following questions:

1. how long credit accounts have been established in general,
2. how long specific credit accounts have been established, and
3. how long it has been since you used a certain account.

New Credit and Credit Mix

New credit and credit mix account for 10% each in the overall weighted average of the credit risk. New request and type of request (credit mix) empower lender to further understand borrower's financial position and extent of risk associated with credit request. To perspective borrower's request, lenders ask for explanations on the following areas:

1. how many new accounts you have,
2. how long it has been since you opened a new account,
3. how many recent requests for credit you have made, as indicated by inquiries to the credit reporting agencies,
4. length of time since credit report inquiries were made by lenders, and
5. whether you have a good recent credit history following the last payment.
6. what kind of credit accounts you have and
7. how many of each (www.fico.com).

Inappropriate credit management or lack of adequate credit history account for the challenges faced by SMEs in accessing funding. As part of a risk-management strategy, financial institutions leverage an individual credit score to make informed lending

decisions. In the absence of SMEs meeting the benchmark, banks and other financial institutions will make an unfavorable decision toward the credit request.

Nature of the Study

I used a quantitative approach to investigate a multilayered capital system as an alternative business survival strategy for small and medium-sized enterprises. Multi-layered capital system, a means to provide funds through a step-wise capital market that is institutionalized and supported by the community, state, and federal systems. The independent variables were approved funding and funding from a multi-layered capital market system. The dependent variables were credit score (weighted average of payment history [35%], amounts owed [30%], length of credit history [15%], types of credit in use [10%], and new credit [10%]), age, growth rate, size, turnover, and total assets (TA). I targeted a population of 300 participants from information technology, service, and manufacturing business sectors. I obtained data from primary and secondary sources to determine the relationship between the multilayered capital system and SME growth due to alternative funding. For the primary source, I identified the main participants from the U.S. Census Bureau data between 2008 and 2014; and the secondary data from the 2008-2013 World Bank enterprise survey.

I used the survey instrument to collect data for the correlational research design because the quality of data gathered by this method was likely to be higher based on the dispersion of the potential participants. I used descriptive analysis with the aid of the Statistical Package for the Social Science (SPSS) and Excel to perform the analytics. I presented relevant statistical outcomes from the collected data in the form of tables,

charts, and histograms. Specifically, I used a multivariate analysis of multiple linear regression statistics to investigate the potential effects of multilayered capital on SME business survival.

Significance of the Study

The role played by SMEs in the economic development of a nation cannot be overemphasized. SMEs contribute significantly to the employment rate, growth, and development of a nation; Gerber (2010) attributed over 90% of world employment to SMEs. In the U.S., 65% of the jobs created come from small businesses. According to U.S. SBA (2011), SMEs represented approximately 85% of business start-ups, employed approximately 50% of the U.S. workforce, and accounted for over 99% of all business firms in 2009. SMEs are present in every part of human endeavors leading to employment generation, creating a social impact on society, and promoting constructive and innovative breakthroughs. One can argue that small firms create platforms of benefits that contribute to the long-term growth of the economy; however, most of the SMEs fail earlier than expected because of funding limitations. According to Fazzari (1988), because financial variables significantly determine firms' investment decisions, the financial constraint also affects the firm size and growth. In addition, firms with high liquidity constraints face difficulties financing their long-term investments and therefore suffer from lower than expected growth rates. In the quest to determine an alternative source of sustenance to SMEs, I investigated other areas where funding could be available to SMEs to continue their social impact. I researched alternative funding opportunities and showed how policymakers can support the new horizon by supporting

SMEs that have suffered greatly from the liquidity trap set by financial institutions due to the crowding out effect by big corporations and policy manipulation by corporate lobbyists. Social change would arise from making funding easy and accessible to SMEs. Funding from alternative sources would involve creating more employment opportunities, reducing social dependency on government, reducing crime through gainful employment, and creating bonds among community members through local exchanges.

Definitions

Asymmetric information: A situation in which one party to the transaction has undue information advantage compared to the other party. This arises from uneven distribution of information in a transaction among the contracting parties. Borrowers have a different probability of repayment, but banks cannot identify "good" borrowers from "bad." Hence, prices act as a screening device.

Basel accord: A set of agreements set by the Basel Committee on Bank Supervision (BCBS), which provides recommendations on banking regulations concerning capital adequacy, risk weighting of assets, capital risk, market risk, and operational risk. The purpose of the accords is to ensure that financial institutions have enough capital on account to meet obligations and absorb unexpected losses. (Balin, 2008, & BIS, 2013)

Business survival: Business survival is a business that is currently, or was previously, approaching failure but continues to exist and does not meet the definition of a failed business or a successful business (Tundui & Tundui, 2012).

Credit rationing: The process in which individuals in a population are denied equal access to loans even if the group is willing to pay a higher interest rate.

Credit score: A generic representation of the creditworthiness of a person. It measures the extent of default risk associated with a person.

Efficient market theory: Efficient market theory (EMT) of financial economics states that the price of an asset reflects all relevant information that is available about the intrinsic value of the asset.

Financial dualism: Financial dualism refers to the coexistence of the formal and informal financial sector serving similar roles.

Financial exclusion: Financial exclusion refers to the inability to gain access to funding from the formal sector. Financial exclusion is primarily experienced by a potential borrower who lacks necessary collateral and reliable information about the project.

Financial institution: An establishment that primarily focuses on financial transactions such as deposits, loans, and investments. Traditionally, financial institutions include banks, credit unions, mortgage homes, savings and loans, investment dealers, trusts, and insurance companies.

Financial meltdown: The global financial crisis of 2008 that resulted in the bursting of the United States housing bubble, caused the values of securities tied to U.S. real estate pricing to plummet, and damaged financial institutions globally.

Gross domestic product: An aggregate measure of production equal to the sum of the overall output of goods and services of all resident institutional units engaged in

production excluding net income from abroad, plus any taxes and minus any subsidies on products not included in the value of their outputs (OECD, 2012).

Relationship lending: Relationship lending is based on the relationship between the loan officer and the borrower. The loan officer mitigates the potential risk by acquiring proprietary information about the borrower.

Small business: A privately held, independent business that can vary in annual revenue or number of employees. Depending upon the industry, small businesses can range from 0 to 1,500 employees with annual revenue up to $21.5 million. In the manufacturing industry, organizations with fewer than 500 employees are small businesses, whereas in the service industry small businesses have less than $5 million in receipts (U.S. SBA, 2014)

Small and medium business enterprises (SMEs): Businesses with 500 or fewer employees, depending upon the industry. Small and medium business enterprises often meet the SBA definition of small businesses and include large organizations that do not meet the definition of a large corporation (Barth, Lin, & Yost, 2011).

Transactional lending: "Hard" lending associated with the financial statement, small business credit score, asset-based, factoring, and trade credit lending. Funds are not provided to the borrower without a tie to the completeness and validity of these instruments.

Assumptions

First, I assumed, in agreement with the SBA definition, that SMEs are businesses with 30 or fewer employees and less than or equal to $40M in turnover (Barth, Lin, &

Yost, 2011). Second, I assumed SMEs are the engine of economic growth, and that market imperfections with institutional weakness impede SME growth. Third, I assumed the leadership of prospective SMEs has exposure and knowledge of capital market operations and its multiplier benefits. Fourth, I assumed participants would be rational in their choice of financing sources, would provide truthful and comprehensive responses to the survey questions, and would not introduce bias.

Scope and Delimitations

The scope of this study was limited to small businesses (SMEs) as defined by the U.S. Small Business Administration (SBA). Participants included any company or business with the potentials or characteristics of a Silicon Valley located in any part of the United States. Participants were limited to three industries with specialization in information technology, service, or manufacturing. In addition, the age of the prospective business was not more than 18 years in active operation. Detailed explanations regarding the selection and utilization of a sample from this population appear in Chapter 3.

Limitations

This study may not be generalizable to SME firms beyond the targeted sectors of the United States. There are other limitations from the specificity of the target sectors- capital structure, age, timing etc.- that affect the characteristics of design or methodology that may affect the application or interpretation of the study. Further, this could be constraints on generalizability (University of Southern California [USC], 2011). In addition, the findings from this study demonstrated the relationship between the variables under study, and no causal conclusion should be made on the studied population because

correlation does not mean causation. An experimental design would be required to determine cause-and-effect relationships, and the design of this study was not experimental.

Summary

In Chapter 1, I described the importance of SMEs as an engine that drives social-economic growth in developing and developed nations. According to Gerber (2010) and SBA (2011), SMEs provided over 90% of the world employment, generated 65% of U.S. jobs, represented approximately 85% of business start-ups, employed approximately 50% of the U.S. workforce, and accounted for over 99% of all business firms. However, despite the crucial role played by SMEs, they still face limited access to funding that eventually inhibits their business operation and growth. I attributed the financing limitations to the financial exclusion practiced by banks and other financial institutions. Mugaloglu (2012) described financial exclusion from the context of information asymmetry, a situation of uneven distribution of the information between the lender and borrower. Consequently, the borrower suffers from adverse selection, moral hazard, higher interest rate, or financial denial. The purpose of the study was to use a correlational research design to uncover the benefits of a multilayered capital market as an alternative funding strategy for SMEs. To achieve the research objective, I developed four research questions. Regression analysis and correlation coefficient models provided the statistics to measure relationships between independent variables. The dependent variables included credit score, age, turnover, size, and growth rate with the assumption that SMEs are businesses with 30 or fewer employees (Barth, Lin, & Yost, 2011). In

addition, I described the overarching role played by credit score and credit management toward bridging SMEs' financial gaps. Creditors and banks use the credit score information as a tool to gauge the potential risk associated with the borrower. However, where the information is not adequate or available, the tendency for outright rejection or underfunding is imminent.

In Chapter 1, I provided the overview of SMEs and their importance to the global economy. I discussed background information, the purpose of the study, the significance of the study, the problem of the study, and the theoretical framework. I use Chapter 2 to review the pertinent literature. Further, I assess the theoretical implications of financial exclusion on SMEs, the role played by information asymmetry, the position of credit score toward banks' credit frameworks, the cross-country impact of demand and supply, and the theoretical expositions of the general capital market operations. I focus on the multilayered capital market system to back the ailing SMEs. In addition, I use Chapter 3 to present the research methodology, structure, design, and procedure for data collection. In Chapter 4, I present the results of the data collected. I analyze each hypothesis tested and set the descriptive statistics of the hypothesized variables for the three research questions. Finally, in Chapter 5, I interpret the research findings based on the data analyzed to provide answers to the research questions. In view of the research findings, I make recommendations to the relevant stakeholders for action and further research and highlight the importance of the study to social change.

Chapter 2: Theoretical Perspective and Literature Review

The present financial market structure and operations do not support the realization of SME potential to grow; consequently, this has led to earlier than expected business failure. The problem under study is to examine, synthesize, and analyze the effects of limited access to funds for SME business operations and growth. Banking institutions, venture capitalists, and other credit institutions are expected to provide external financing to SMEs to support business operations. To achieve this objective, the banks and other financial institutions (BOFI) bridge the funding gaps by taking from the surplus sector to provide to the deficit sector that SMEs represent. However, due to the inherent risk associated with SMEs, in the form of information asymmetry, banks shy away from underwriting SMEs' identified risk. The banks also rely on the quality of transactional and relational lending metrics to determine the credit worthiness of an SME's request. BOFI place heavy reliance on financial statements and the relationship between key quantitative indices (ratio analysis) to make credit decisions about financial statement lending. Unfortunately, due to the deficiencies in the operating structures of SMEs (e.g., incomplete books of account and lack of financial statements), the fundamental requirements for business evaluations and credit assessments are not met. Therefore, BOFI default to other means of credit evaluations that result in credit denials—mostly based on SMEs' limited financial management experiences and inadequate recordkeeping.

Literature Review Strategy

On the premise of the financial access challenges faced by SMEs, the organizing frameworks for review of the literature are the following: I used the first part of the literature review to examine the implications of financial exclusion to the general economic health of SMEs. I also highlighted the impact of financial exclusion due to information asymmetry and consequential effects on SMEs such as adverse selection and moral hazard. Second, I examined the contractual relationship between lender and borrower in a given external finance framework. I focused on the critical factors considered by financial institutions toward credit approval, taking into account the ex-ante and post-ante information asymmetry viewpoints. Furthermore, I used the analysis to expand on the conflicting interest displayed between the demand and supply agent toward the equilibrium position. Third, I examined the interplay between financial exclusion and SME growth; notably, I analyzed the correlation between the size of a firm and the long-run growth rate (Mulaga, 2013). Furthermore, I addressed the differences between growth and growth rate in the context of SMEs' short- and long-run operations. I used the fourth section to examine the theoretical expositions on the general capital market operations with a focus on the multilayered capital market system. In this section, I also examined the construction of several layers of capital markets within the general framework of the highest financial market. The market will support businesses of different forms and sizes with the intention to bridge the funding gaps that have existed between SMEs and LEs. Finally, I highlighted the existing disparities in the literature and suggested areas of future research interest.

In developing the theoretical framework for this study, I used literature that was relevant to SMEs, especially as it related to access constraints to external financing. For control purposes, the literature search was restricted to peer-reviewed journals, dissertations, World Bank publications, and seminar papers presented within the previous 5 years. However, where historical information and support were required to provide trends for findings, I used data 5 years and older to provide additional support for identified constructs. For wider coverage, I used the World Bank and Asian Development Bank (ADB) database publications on SMEs, EBSCO (Academic Search Complete and Business Source Complete), Emerald Management, SAGE Premier, The World Bank Open Knowledge Repository (OKR), National Bureau of Economic Research, ProQuest Dissertations and Theses-Full Text databases, and the Google Scholar search engine to research relevant literature on the subject. The key terms used for the search were *funding*, *financing*, *SMEs*, *credit*, *financial exclusion*, *information symmetry*, *small and medium-sized enterprises*, *small-scale industry*, *financial institutions*, *credit institutions*, *financing SMEs*, *capital markets*, *market regulations*, *SMEs boards*, and *national stock exchanges*.

Literature Review

The term *financial exclusion* was first used in 1993 by a geographer who experienced limited physical access to banking services because of bank branch closures (European Commission, 2008; Leyshon & Thrift, 1993). McKay and Collard (2006) defined the term *access problem* as the inability to get external financing to bridge the funding inadequacy of internally generated funds on an investment or project proposal.

This is due to the variance between the expected internal rate of return on the project and the investor expected rate of return on that particular project. Although in 1990 there were issues of limited access to some sections of the societies to bank service, savings, insurance, and consumer credit, it was in 1993 that the term financial exclusion was first applied broadly to people who have constrained access to mainstream financial services (Kempson & Whyley, 1999). According to the European Commission (2008),

> Financial exclusion refers to a process whereby people encounter difficulties accessing and/or using financial services and products in the mainstream market that are appropriate to their needs and enable them to lead a normal social life in the society in which they belong. (p. 5)

The World Bank (1995) defined *financial exclusion* as the denial of transaction banking, savings, and credit or insurance services. The underlying factor is restricted access to the bank and bank-related services in which denial leaves the potential borrower with financial gaps. Financial exclusion affects the potential developmental apparatus of SMEs and undermines their existence as a bridge job creation. With the loss of employment creation tendencies, the effects widen the social gaps and lead to further reliance on government support for survival. From another perspective, the theory of financial exclusion represents a process in which some relevant decision units are excluded in the overall scheme of financial/resources distributions (Mugaloglu, 2012).

Information asymmetry creates an unbalanced approach to lending. It leads to disequilibrium in the lenders' willingness to gravitate toward the established corporation (bigger companies) to the detriment of less privileged microenterprises and SMEs.

Consequently, the disequilibrium creates the financial exclusion of the less privileged entities and SMEs that do not have the structures, experiences, and frameworks in place to meet the axiom of the true lending process. Conversely, the higher cost associated with asymmetry information excludes SMEs from mainstream banking. In addition, it breeds adverse selection as a negative incentive toward SMEs, thus leading SMEs to suffer from credit rationing. Disequilibrium forces SMEs to concentrate funding efforts around microfinance and the informal sector as a means to survive. In the long run, the excesses of the financial exclusion framework lead to income disparity, economic inequality, and poverty traps as experienced by SMEs (Beck & Demirgiic-Kunt, 2008). Financial exclusion impedes economic development because it denies the poorer segment's access to funds, hinders human asset and physical capital accumulation, and impedes investment growth (Mugaloglu, 2012). The impact of financial exclusion diminishes the development apparatus of most nations because economic activities privilege larger companies. Alternatively, the distribution of financial resources among the competing forces without exclusion of any sector will bring about a greater impact on a nation's growth and national income. Therefore, all economic agents (SMEs and large corporations) in an economy should have equal access to funds and develop at their own pace without any form of restriction. Beck and Demirgiic-Kunt (2008) posited that financial exclusions break down the potentiality of economic development, leading to impeded growth, income inequality, and unrealized definite investment projects. Financial exclusion retards growth rate, which is a function of resource availability and size. Gilbrat's law stipulates that in a stochastic fashion at any particular time, the

interplay of the random growth rates and histories of a firm equal its size. The higher the gap between what SMEs need to support growth opportunities and the funds available, the greater the tendency for the SME to misapply the internally generated funds. This leads to an error of *tenor matching* (i.e., using short-term funds to chase long-term investments). Furthermore, the extent of SMEs' financial exclusion depends on the level of the financial market stage of development (Beck & Demirgiic-Kunt, 2008). In this light, financial exclusion as an impediment does not operate in isolation; it derives its form and power from the level of the financial institution's maturity. Udell and Berger (2004) argued that the present financial system frameworks do not accommodate and sustain SME growth and development. Therefore, other means are required because the current financial structures affect SME credit availability. Turnbull and Edwards (1994) and Bink (1990) argued that advancing credit to borrowers should be based on the industry maturity, risk, prospect, substantial financial and managerial strength, and project viability. The reality of this assertion is that it will be difficult if not impossible to advance credit to SMEs due to little or no substantial financial strength, especially in terms of their historical financial transactions, relationships with banks, and other lending criteria listed by banks.

The default rate and size of a firm move in opposite directions. Wagenvoort (2003) argued that the correlation between the default rate and the size of a firm influence the exclusion principle practiced by banks. When the bank perceives a potential borrower as weak relative to meeting financial obligations, the borrower is excluded in the overall credit scheme. In addition, as standard commercial practice bank credit models the

general business cycle. During economic downturns, because of the fear of repayment risk BOFI advance a lower volume of approved credit to the needy sector. The art of relaxing and tightening business credit takes a cyclical approach as opposed to bank structural deficiency (Wagenvoort, 2003). In line with this assertion, the present lending structures, rules, and conditions to access funding are not operationally friendly to SMEs. The effect leads SMEs to move toward the informal sector as the preferred alternative. Mugaloglu (2012) noted that although there have been efforts by different governments to intervene through various vehicles of financial subsidies; the informal sector has continually played a strategic role in the survival of SMEs because of other barriers created in the policy implementation framework. As the last resort, informal finance tends to bridge the credit gap created by asymmetric information and creates platforms in which every willing buyer can obtain readily available funds at higher conditions of service (e.g., a higher interest rate and stringent terms of repayment). However, for informal finance to play significant roles in closing the credit gaps, the maturity of the country's financial market is important.

At a cross-country level, the impact of financial exclusion is related to the extent of financial market development. According to the World Bank Investment Climate Surveys (ICS) 2002-2003 as shown in Table 3, larger corporations have better access to bank credit in the local and international markets than small-scale firms do, pushing the latter to fall back slowly on internally generated funds or retained earnings to support their growth propensity.

Table 3

Sources of Funds for Small Firms by Country

country	n	Internal Funds, Retained Earnings	Family, Friends, Informal Sources	Banks	Equity, Sale of Stock	Leasing, Trade Credit, Credit Card, Development funds	Total	Share of Firms with No External Finance	Share of Firms with External Finance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Albania	70	77.4	9.1	5.3	0	3.6	95.4	62.9	37.1
Armenia	59	87.5	5.9	1.9	0	2.7	98	72.9	27.1
Azerbaijan	59	81.8	5.3	1.5	0	7.1	95.7	71.2	28.8
Bangladesh	175	67.4	7.8	20.2	0.3	3.5	99.2	40.6	59.4
Belarus	51	76.8	7.8	6.3	0	5.7	96.6	56.9	43.1
Bosnia	24	69.2	4.2	6.6	0	4.2	84.2	50	50
Brazil	686	59	3.2	14.1	3.4	18.1	97.8	44.3	55.7
Bulgaria	56	68.9	10.4	6.4	2.2	4.9	92.8	58.9	41.1
Croatia	26	46.3	2.9	18.2	7.6	8.4	83.4	19.2	80.8
Czech Rep	62	46.6	6.6	12.3	6.7	14.8	87	32.3	67.7
Ecuador	131	45.7	7.8	24.1	3.5	16.6	97.7	34.4	65.6
Estonia	37	53.5	0	12.6	2.7	26.3	95.1	29.7	70.3
Ethiopia	43	67.7	5.45	21.1	1	2.5	97.75	51.2	48.8
Macedonia	12	75	4.2	10.8	0	0	90	50	50
Georgia	29	71.6	3.3	9	0	2.8	86.7	58.6	41.4
Honduras	132	54	10	23	1.8	10.1	98.9	43.2	56.8
Hungary	73	51.1	2.1	7.6	17.1	9.5	87.4	34.3	65.7
Kazakhstan	44	70.9	8.3	3.4	4.2	5.3	92.1	56.3	43.7
Kenya	63	48.6	2.5	37.7	0.4	6.7	95.9	38.1	61.9
Kyrgyzstan	44	69.1	9.1	4.8	0	6	89	54.6	45.4
Latvia	23	41.4	6.1	5.1	10	15.8	78.4	21.7	78.3
Lithuania	57	80.1	3.3	4.3	0	7.7	95.4	66.7	33.3
Moldova	45	64.4	12.9	15.7	0	7	100	31.1	68.9
Nicaragua	130	68.2	6	13.2	0	10.2	97.6	59.2	40.8
Nigeria	34	47.8	4.4	13.1	6.1	1.2	72.6	44.1	55.9
Philippines	69	58.3	14.1	8.3	5.3	7.7	93.7	43.4	56.6
Poland	95	58.5	0.2	11.9	0.5	13.1	84.2	43.2	56.8
Romania	69	72	5	9.2	1.7	8.5	96.4	59.4	40.6
Russia	126	75.7	4.4	5.2	0.6	8.9	94.8	56.4	43.6
Slovakia	42	59.6	2.6	4.1	12.4	15.8	94.5	31	69
Slovenia	54	70.3	0	4.3	0	10.1	84.7	24.1	75.9
Tajikistan	46	81.6	9.9	0	1.1	4.1	96.7	60.9	39.1
Tanzania	68	76.5	4.7	12.6	3.7	1	98.5	66.2	33.8
Turkey	99	80.5	4.7	6.6	0.8	1.4	94	62.6	37.4
Uganda	84	59.8	1.9	13.3	0	13.1	88.1	66.7	33.3
Ukraine	111	80.9	9.8	2.1	0.05	4.7	97.55	68.5	31.5
Uzbekistan	47	81.9	2.6	3	0.5	5.5	93.5	72.3	27.7
Yugoslavia	57	81	4.6	5.9	4.9	3.2	99.6	64.9	35.1

Across the globe, there is evidence that the bulk of SME financing comes from internally generated funds and less than 20% of the required funds from banks (Kuntchev etal., 2013). However, when internally generated funds are no longer adequate to support

business growth, and banks are not willing to provide the extra credit for financial support, entrepreneurs resort to informal funding. Kaplan and Zingles (2000) argued that the difference in firms' financial constraints depends on the capacity to generate internal funds and intrinsic characteristics of the firm. The combinations of these variables determine how costly it will be to raise external funds. A firm with relative ease generating funds internally will have fewer restrictions on external funds.

Furthermore, the survey postulated that the countries with a well-developed financial system are ones where SMEs have better access to funds through structured, coordinated, and viable external financing systems. This is evident in the structure and modes of operation of SMEs in the developed countries, because some of the financial intermediaries tailored their policies implementations to support the country's financial system maturity. Arguably, there is a causal relationship between the levels of a country's financial development and SME access to fund. Newman and Borgia (2012) examined the capital structure of SMEs in China with respect to funding and concluded that firms with better access to funding generally grow faster, larger, and endure longer-a firm with an adequate supply of funds grows stronger against most odds. Newman believed "restricted access to capital is the main reason for the failure of SMEs." SMEs would thrive better in a situation with less financial exclusion and better access to capital.

Supply-Demand Gap in SME Finance

There are two sides to a funding contract: (a) the borrower (the users of funds) and (b) the lender (supplier of funds). At equilibrium, excess demand triggers a supplier response until all the demands are satisfied. In a perfect situation, the lending apparatus

meet the funding demands of SMEs with little or no precondition. However, in reality, SMEs face credit rationing hurdles because banks are reluctant to meet their excess demand, even if SMEs are willing to pay the higher interest rates (Wagenvoort, 2003). The hurdles now create overbearing conditions and traits of financial exclusion that impede SME growth potential. The impact of the financing gap is greater in developing nations when compared to developed ones. In 2010, the estimated SMEs' formal credit gap was at $700 billion to $850 billion or 21%-26% of the total developing world credit outstanding. Notably, with the inclusion of micro enterprises in the overall analysis, the gap exceeds $2 trillion (International Finance Corporation & McKinsey, 2010). Because of these credit gaps and financial shortages, the start-ups among SMEs experienced lower survival probability when compared to larger ones. The cumulative effect resulted in a pattern of higher than expected rate of entry and exit for SMEs that created the failure chain.

On a global level with the use of firm-level survey data from 76 developed and developing countries, Ayyagari et al. (2007) concluded that SMEs' cost of funding and access to credit constrains growth more than that of larger firms. SMEs feel the negative impact of financial exclusion from the excessive higher cost of funding and denial to "cheaper" funds like their contemporary larger corporations; these effects are the overarching barrier to operational success and landmark. With this view, Beck, Demirguc-kunt, and Peria (2008) argued that the demand side of the contract- represented by SME- has been advanced in literature and understanding, whereas, the supply side- represented by the bank - gained little attention in the literature; thus, leading to the unfair

conclusions noted in some of the literature. Financial institutions as the primary sources of external financing (for-profit organizations) are set up to create wealth and maximize valuable returns to their shareholders. To sustain the wealth creation framework, financial institutions choose the best fit from the pool in their approach to credit selection and only approve requests with minimum risk profiles that conform to the overall risk management framework. With this approach, SMEs are excluded from the scheme of credit approval because of the transparency problem associated with their information profile (information asymmetry). To the supply side, the sniff test represents lack of adequate information that is synonymous with risk. The uneven distribution of the information widens the equilibrium between the supply-demand gaps when it comes to SME funding. Due to the attributed higher costs of processing transactions and information collection, the associated business risk cannot be established nor quantified. Consequently, the higher cost causes the financial institutions to hesitate funding SMEs because business risks and financial soundness are not readily available to scientific assessments. The relationship between transaction costs and information asymmetries creates the stepwise variation in firms' access to finance based on size (Beck, 2007). SMEs are the losers because the banks cannot afford to incur higher transaction costs for activities that barely break even. Shinozaki (2012) argued that there is a correlation between transaction cost and economies of scale; the more loans financial institutions process on a small-scale level (SMEs), the costlier it is to their profitability. With this, banks will be reluctant to advance credit facilities to SMEs because of the cumulative effect of time and profitability loss. The relationships between SMEs and financial institutions are

contractual representations between the present and future conditions with the element of unforeseen risk. It takes an average of 5-10 years for SMEs to stabilize, but BOFI do not have the luxury to play the "waiting game" until SMEs conditions improve because there are other lucrative financing opportunities with the larger enterprises (LEs). Hence, lack of this creates the hesitation to finance SMEs in the short-term (Shinozaki, 2012).

Furthermore, Mugaloglu (2012) dimensioned the impact of financial exclusion between the supply and demand into ex-ante and ex-post information asymmetry. The ex-ante information asymmetry is a borrower's or lender's error emanating from lack of trust. The consequence of the lack of trust creates *blind lemons* between the prospective borrowers and lenders. Mugaloglu (2012) explained *lemons* in the financial setting as lenders' inability to differentiate the good borrowers from the bad borrowers. The lender uses the experience learned from the bad borrowers to generalize perceptions of others even if they are good borrowers. Consequently, the lender's actions alienate good borrowers, reduce the propensity to lend, and lead to a decrease in the average borrower quality. SMEs suffer from this synopsis because even the good ones among them faced with adverse selection, selective judgments, and higher interest rate hurdles; approach lenders adopted to compensate for their generalizations. The higher interest rates offered by the banks incentivized the bad borrowers to borrow with a higher probability not to deliver on their promise. With the blanket approach to lending, the tendency for adverse selection increases due to information asymmetry; adverse selection is the misjudgment of approving the lemon borrowers over the good borrowers (Mugaloglu, 2012). In the long run, Mugaloglu argued that the challenges from lemon borrowers could be

overcome with qualitative information gathering to filter out the bad from the good. However, the cost associated with information gathering creates a burden that lenders are not willing to absorb as an element of operations cost. Lenders prefer clear-cut definitive investment prospects that reduced transaction costs over ones with the higher burden of transaction costs and lower margin. Mugaloglu referred to moral hazard as ex-post information asymmetry. *Moral hazard* occurs when one party knows the other party will bear the cost and intentionally engage in a risky adventure. *Moral hazard* arises in insurance or other protective contracts; mostly when both the parties have incomplete information about each other.

On a global frontier, the interplay between the supply and demand takes a different horizon as many contracting factors determine the state of financial maturity. Hermelo and Vassolo (2007) concluded from their research findings that the growth of the needy industrial sector (SMEs) is a function of the level of the country's financial market development. The higher the level of a country's financial market maturity, the better access to funds and growth potential by SMEs (e.g., SMEs tend to have better access to funding and growth in the U.S. than SMEs in China). There is a direct relationship between SME growth and market maturity vis-à-vis information availability. The level of asymmetry information between the borrower and the lender is higher in an underdeveloped market institution. The consequence of asymmetry information creates a psychological impact on the borrower to be more averse to risk and external control (Newman & Borgia, 2012; Young, 2008).

Financial Exclusion, Funding, and SME Growth

According to Gilbrat's law, the size of a firm is the summation of a series of the random growth rates over a given period. Firm growth is unlimited both in the short and in the long run because firms can continue to grow in size, but the rate of growth is time specific in the short run. However, Carlton and Silberman (1977) argued that the rate of growth of a firm at equilibrium would be the same for sales, dividend, assets, and earnings taking the finance theory position. The impact of growth is realized in sales, dividend, assets, and earnings simultaneously and not in one of the variables. The relationship between funding and SME growth cannot be overemphasized in the light of financial exclusion. The earlier theorist postulated that the growth of small firms is constrained by the quantity of internally generated funds (Butler & Lintner, 1945). Firms with the capability to generate sustainable internal funds will grow in accordance with their strategic objective while the ones without funds will experience setbacks and financial starvation. Thus, firm's growth is constrained by the available resource, size, and other industry-specific needs. Pal, Kohler-Ulbrich, and Ferrando (2007) argued that over a period, the size of a firm is an endogenous factor, and the impact of the size accumulates to form the financial constraint or barrier to growth. Therefore, the smaller the size of a firm, the higher the tendency for such a firm to be more financially constrained than the larger sized firm. However, in countries with better financing resources, firms can achieve their potential growth target easily because the size of a firm depends on the available resources (Pal, Kohler-Ulbrich, & Ferrando, 2007). Carpenter and Petersen (2002) argued based on the sample of the United States firms that the

growth-cash flow sensitivity- of a firm dependents on the type of finance adopted. The sensitivity is lower in equity finance and higher in non-equity finance. Equity finance provides the structural framework upon which SMEs could achieve their growth projections easily. In the absence of external finance to support the SMEs' opportunities for growth, the internal finance theory of growth becomes a close substitute. Internal finance theory put more emphasis on self-generated cash flow from internal operations than seeking external redress. *Financial exclusion* diminishes *SME* potential to grow when internally generated fund is not adequate. The application of this theory is more inclined and favorable to large-scale enterprises than small-scale ones. *SME* approach to funding follows the conventional *pecking order theory* where first preference is given to internally generated funds. Due to the total control SMEs have over internally generated funds, the source becomes the means to an end, an important force to finance growth because it is excluded from asymmetry information and far less expensive than debt or equity (Figure 2).

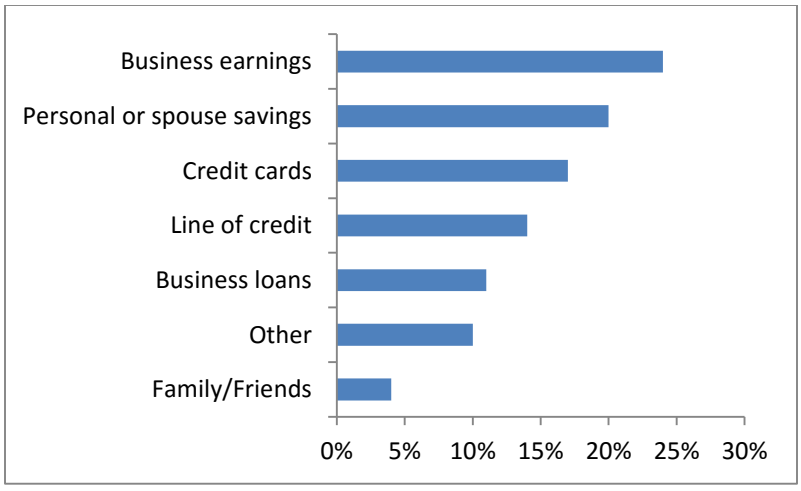

Figure 2. Bar graph showing primary funding sources for U.S. SMEs, 2013.

In the United States, and based on Nextrade Group findings as depicted in Figure 1, over 55% of SME finances come from retained earnings and personal capital. The findings speak to the challenges faced by SMEs irrespective of the location, country, or level of development.

Furthermore, when the first order (internally generated funds) is exhausted, as shown above, the next means of survival lies in either debt or equity (Newman & Borgia, 2012). In the next course of action, debt is issued to support the drive to grow and succeed but this comes with a higher price and exclusion due to information asymmetry. In the long run, SME suffers setbacks in the aspiration to grow due to the inability to have the same level of access to funds as the large-scale enterprises. With the accumulation of these scenarios over time, the law of growth, as explained by Gilbrat's law, would not manifest in the lifetime of an *SME*. Peterson and Carpenter (2001) expanded on the theory by testing the three sources of funds (i.e., retained earnings, debt, and equity) on SMEs with the financial constraint. Peterson and Carpenter concluded that retained earnings return a dollar for a dollar while access to debt finance with the leverage effect returns more than a dollar. External equity finance returns higher than that of internal finance and debt to the asset growth, an assertion that correlates with Gilbrat's organization growth theory. Arguably, the higher return relationship between debts, external equity finance, and asset growth demonstrates the characteristics of a perfect market, a market where all required and available information reflects the goal of the transactions, lower finance costs associated with symmetric information. However, SMEs will not benefit from the prognosis of external debt and equity finance in view of

asymmetrical information, thus, negating the propensity for growth in the immediate form and in the long run.

Furthermore, the dearth of information makes the lender rely on the individual components of the borrower's balance sheet to advance credit. Turnbull and Edwards (1994), and Binks etal. (1992) concluded that the relationship between borrower and lender is contractual, and when available information is not exchanged correctly, the lender evaluates the loan by considering the capital gearing of the borrower. Indeed, the lender relies on the asset-based security approach (because that is what the lender can see, touch, and feel) and excludes the company's earning potential from the overall decision-making process. Adopting this approach will have several impacts on the SME's potential for growth (Turnbull & Edward, 1994). Demirguc-Kunt and Beck (2006) analyzed World Bank data and concluded from the response of the SMEs that size, age, and ownership are the key predictors of the financing obstacle. Over time, SMEs realize that financial institutions reject or limit their access to funds because of their size, age, and ownership structure. Hence, SMEs have resorted to financing a smaller portion of their investments with external funds (Demirguc-Kunt & Beck, 2006). On average, when compared to larger firms, SME investment finance is 13% less, and this funding gap exposes the available working capital to higher expectations with no result to show for growth as reflected in Figure 3.

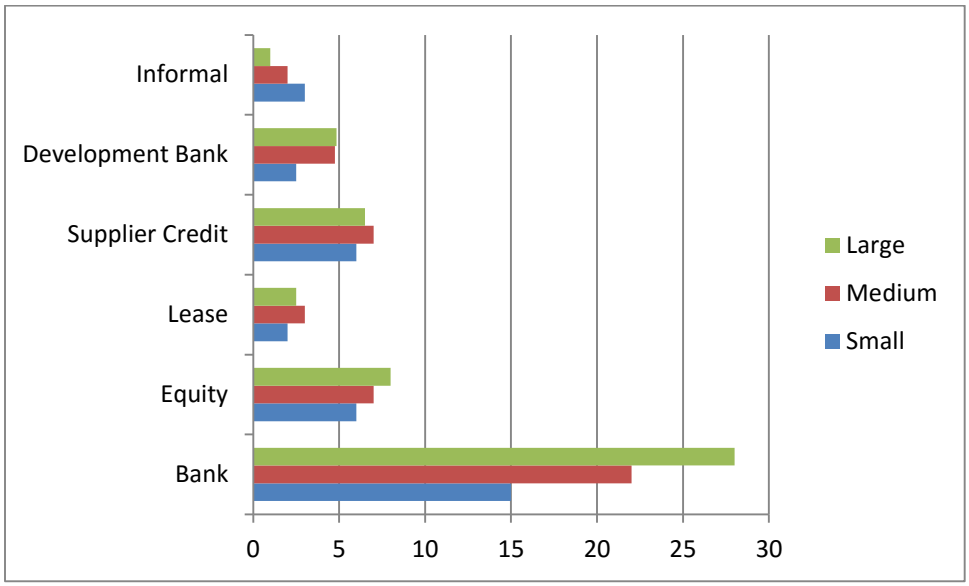

Figure 3. Bar graph showing financing patterns across firms of different size.

In the absence of the key determinant to support SME growth, especially from the formal external source of financing, SME reverts to the informal source (e.g., pawn, moneylenders, family, and friends) as the available alternative. Although the family and friend cost of money may be free or cheaper, that of money lenders and pawn is excessively higher than money market rates. Thus, the activity exerts overbearing pressure on the working capital while expecting it to produce the same result as that of a formal external source of financing.

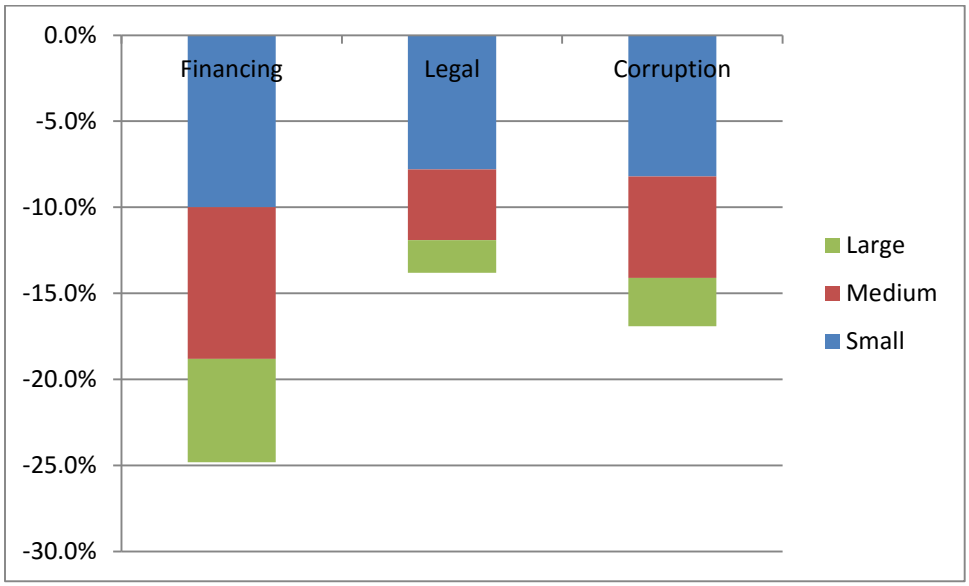

Figure 4. Bar graph showing the effects of financing obstacles on firms of different sizes.

Comparatively, the ratio of growth constraint as a result of finance limitation between small firms and large firms is 2:1 (Figure 4). Smaller firms will live with financial obstacle to growth if nothing tangible is done to ameliorate the situation now or in the near future. This factor arguably accounts for 75% of the business failure rate recorded by this sector within five years of operations (U.S. SBA, 2011). Thus, the inclusion of smaller firms in the overall financial access is inevitable to the realization of SME potential, and the continual bridging of the gap of employment generation. Across the spectrum, the percentage of annual growth of total assets of LSEs is twice that of SMEs.

On the premise of innovation, SMEs are key contributors to innovative ideas through effective research and development (R&D) like the larger companies. Although larger companies spend a great deal of money on R&D, most of the fundamental breakthroughs tend to come from SMEs (Zimmerman & Muller, 2006). Even with the

R&D success stories, SMEs still suffer financial exclusion because banks tagged those initial projects unsafe and uneasy to evaluate. Because R&D investments are costly but drive innovative ideas that the SMEs represent, another source of funds becomes imperative to serve as the buffer platform in the absence of bank credit. According to Zimmerman and Muller (2006), external equity capital is the source that can provide the alternative in order to avoid groundbreaking innovative ideas to be constrained and jettisoned. Evidently, on a cross-regional basis, financial exclusion impact is felt across the globe (Table 3).

The propensity to grow from internal and external sources of finances depends on the maturity of the financial market. Thus, financial development is prima facie evidence that enables macroeconomic growth. De la Torre, Gozzi, and Schmukler (2006), and Rajan and Zingales (2003) argued that financial development stimulates growth because its chain of actions leads to *creative destruction*. Thus, creative destruction creates a platform that efficiently allocates resources to efficient entrepreneurs or potential borrowers with promising ideas. Importantly, unrestricted access is the propelling factor to financial development. It is through broader access to finance that talented entrepreneurs are empowered and freed from financial exclusion that occurs due to information asymmetry. Through financial development, economic activities are expanded to the needy sector to becomes visible and accessible to funds and other financial services.

Table 4

Funding Mix by Region

Economy	Percent of firms using banks to finance investments	Proportion of investments financed internally (%)	Proportion of investments financed by banks (%)	Proportion of investments financed by supplier credit (%)	Proportion of investments financed by equity or stock sales (%)
All Countries	25.3	71.7	14.9	4.6	4.4
East Asia & Pacific	20.9	74.7	12.8	2.5	4.6
Eastern Europe & Central Asia	24.2	73	13.7	3.8	6
High income nonOECD	28.1	70	16.5	5	3.9
High income: OECD	36.6	65.6	21.4	4.7	2.4
Latin America & Caribbean	32.7	62.9	19.9	7.9	4.7
Middle East & North Africa	23.4	76.1	13.4	4.8	2.5
South Asia	29.3	66.5	20.4	1.3	6.9
Sub-Saharan Africa	18.4	78.3	10.1	3.7	3.8

Economy	Percent of firms with a checking or savings account	Percent of firms with a bank loan/line of credit	Proportion of loans requiring collateral (%)	Value of collateral needed for a loan (% of the loan amount)	Percent of firms not needing a loan
All Countries	88.1	35.4	77.3	193.4	44.2
East Asia & Pacific	82.2	35.0	79.8	201.2	47.9
Eastern Europe & Central Asia	88.3	36.5	82.8	205.6	51.2
High income nonOECD	97.1	42.1	76.0	180.4	50.7
High income: OECD	97.7	52.8	65.5	157.5	57.2
Latin America & Caribbean	91.5	45.8	72.1	204.1	41.9
Middle East & North Africa	71.7	19.8	74.6	188.9	48.2
South Asia	79.6	34.6	84.3	278.1	39.5
Sub-Saharan Africa	87.3	23.6	79.3	173.8	34.5

Economy	Percent of firms whose recent loan application was rejected	Percent of firms using banks to finance working capital	Proportion of working capital financed by banks (%)	Proportion of working capital financed by supplier credit (%)	Percent of firms identifying access to finance as a major constraint
All Countries	11.6	30.9	12.2	10.4	28.7
East Asia & Pacific	7.8	25.8	12.1	4.1	16.7
Eastern Europe & Central Asia	8.6	31.1	11.9	8.6	17.1
High income nonOECD	30.2	35.2	12.6	15.5	26.1
High income: OECD	5.9	38.2	14.4	11.6	12.8
Latin America & Caribbean	...	42.2	15.5	18.4	31.1
Middle East & North Africa	11.3	18.7	7.3	8.2	40.2
South Asia	16.5	29.5	14.6	5	34.2
Sub-Saharan Africa	13.5	23.5	9.9	7.4	41.6

Note. Adapted from World Bank enterprise surveys 2005-2013

On a global possibility frontier, the proportion of firms' investments financed by internally generated funds to bank finances is 3:1 (Table 4). SMEs are in the dilemma of concentrating on the sources of funding that are only generated internally, and when this is no longer realizable, there is little support that can be realized from the bank. On average, the bank only provides one-fourth of the required funds due to asymmetric information and less than 5% of funding support is realized through the equity market (Figure 3 & Table 4). Consequently, the combination of lower bank and equity or stock market makes it difficult for SMEs to realize possible growth potential.

Credit Score and Management

According to Harun, Sosa-Fey, and Calafiore (2014), the fundamental use of a credit score is to gauge the possibility of default by the potential borrower; a lower score indicates potentially higher credit risk. It is also a means to predict risk for lenders (West Virginia State Treasurer, 2014). A credit score is an important component of lending; it

plays a critical role in the overall decision-making process of banks and financial institutions. Credit score is also a risk management framework that banks adopt to make an informed judgment on a credit request. The score is based on an algorithm that summarizes credit exposure associated with people. To create a credit score, analysts use existing credit report information (if any), cross-reference the report to account histories, and synthesize the outcomes to a predetermined framework in order to generate the final credit score. The goal is to accurately identify patterns of compliance to prior contractual obligations, assess how financial obligations are met in a timely manner, and determine how delinquent accounts are paid off. The results of all this computing and analyzing is a number that is called a credit score (West Virginia State Treasurer, 2014). Overall, credit information is a derivative of the Fair, and Isaac and Company (FICO) score that officially represents the credit scores. Courchane, Gailey, and Zorn (2008) summarized credit scores according to the weight and exposure to these categories:

1. 300-580 Very bad
2. 581-620 Bad
3. 621-680 Average
4. 681-720 Good
5. 721-850 Very good

Therefore, having approximately 700 is perceived as a good standing while lower than 600 is considered a poor standing. A higher score makes it easy to obtain a loan, rent an apartment, obtain car lease, and/or lower an insurance rate. Key personal information is reflected in the report such as where a person works and lives, how a person pays bills,

and whether a person has been sued, arrested, or filed for bankruptcy. This value-added service is possible because of a third party agent, consumer reporting agencies (CRAs), that gather this information and sell it to creditors, employers, insurers, and others. The most common type of CRA is the credit bureau (e.g., Equifax, Experian, TransUnion).

Operationally, a credit score is time specific (changes over time), and provides a portrait of an individual's risk-related activities in the form of credit risk. A credit score is a lending tool that empowers lenders to make a decision on borrowers' capacity, history, and character relative to approval. The ratio of debt to available credit is a significant determinant in credit scoring, with available credit frequently being linked to a person's income (Arya, Eckel, & Wichman, 2011). For a complete and accurate determination, the ratio is later adjusted for other key variables that have influence on the result such as payment history, previous bankruptcy, or foreclosure, types of credit, and recent credit applications. Thus, lenders use a credit score to assess the likelihood of risk that a prospect (e.g., participant, applicant, customer, or potential borrower) carries relative to the borrower's request for credit. The higher a borrower's score, the less risk a borrower poses to creditors. Conversely, inappropriate credit management or lack of adequate credit history account for the challenges faced by SMEs in accessing funding. Technically, as part of risk management strategy, financial institutions leverage individual credit scores to make an informed lending decision. In the absence of SMEs meeting the benchmark, the tendency for the financial institution to make an unfavorable credit decision is high.

Figure 5. Main challenges faced by creditors in connection with SME lending.

To this end, credit assessment for SMEs and commercial customers presents a decision challenge for banks because information asymmetry. Often, the application of the intensive and standardized credit analysis framework that is used for larger and global customers is time-consuming and not a cost-effective approach. Even with past experiences, banks adhere to impervious and purely statistical methods to assess SMEs and commercial customers to credit scoring, as it is often applied to small loans for retail customers. Thus, the best approach is known as an *expert judgment* credit rating model (GBRW Consulting, 2013). This new model should reduce costs, speed decision-making, and improve the predictability and consistency of lending decisions.

Creditors Challenges toward SME Finance

Stein, Goland, and Schiff (2010) concluded that in today's market analysis the total credit not met for SMEs ranges between U.S. $1.3-$1.6 trillion or U.S. $700-$850 billion excluding SMEs in high-income Organization for Economic Co-operation and Development (OECD) countries. Thus, the challenges faced by SMEs are more severe than those of larger companies, especially as it relates to business growth. The constraints are in the form of limited access to finance, higher cost of credit, or outright rejection. The outright rejections are primarily due to information asymmetry and financial information misrepresentation. Accordingly, Stein et al. estimated the unserved or underserved financial need of formal SMEs in emerging markets to be between 55% and 68%. A significant number of SMEs missed the opportunity landmark due to little or no financial backing from the creditor. Beck et al. (2006) concluded that, as a result of these constraints, SMEs finance a smaller share of their investment with formal sources of external finance than do large firms and, instead, rely more heavily on informal sources of funding, such as borrowing from family and friends or from unregulated money lenders.

The nature, size, and management structure of SME businesses contributed to one of the challenges listed by creditors. Thus, the critical smaller economic size and informal management structure of SMEs influences the creditor's level of acceptance (Figure 5). With this, lenders cannot see the correlation between the volume of the loan requested by SMEs and the cost of credit in the absence of more standardized and comprehensive credit data. Further, an inappropriate business enabler such as poor legal protection for

the creditor, weaker property rights, and inadequate contracts contributes to the arm's length challenges.

On a macro level, the restructure of banks after the financial meltdown of 2008, the stricter capital adequacy requirement (solvency) of Basel II, and more recently the Basel III Capital Accords increase credit rationing toward SMEs. The result of massive financial loss suffered by creditors post-financial-crisis due to faulty credit decisions, led to a more structured credit framework implemented to take away the personal judgment of the decision process. Consequently, the structure has reduced credit considerations and approval to SMEs. Aside from this, the effects of capital adequacy requirements led banks to withdrew lending to SMEs, reduced overdraft facility, and increased portfolio concentrations in assets such as government bonds and mortgages. Thus, concentrating funds on one side of the sector and lending only to institutions with an external credit rating of A+ or above. The consequence drives SMEs to seek financing alternatives such as receivables factoring, securitized receivables, leasing, and trade credit.

External Capital Market and Multilayered System

Conventionally, bank credit is supposed to provide the external capital required to SMEs to sustain operations and finance long-term investment. However, this objective has not been realized due to the inherent risk associated with SMEs. The recent financial meltdown around the world further testified that bank loans alone cannot support the growth aspirations of SMEs during periods of systemic stress (Shinozaki, 2014). The implementation of Basel III capital adequacy requirements is expected to limit the flow of credit to requestors like SMEs because banks now need to hold more cash in reserve

(Souminen & Grover, 2014). In the United States, the fortunes of venture capital have dwindled after the dot-com crash of 2000. At its peak, venture capital funding averaged $105 billion across 8,000 deals, and after the crash, firms only managed to raise it to $19 billion in 2003, and a 13% growth rate until 2007. However, this growth trajectory was never sustained because of the financial meltdown of 2009 (Souminen & Grover, 2014). In addition, crowdfunding as a new frontier for financing ideas online is at an early stage with little data to support its efficacy. Against this backdrop, Shinozaki (2014) argued for the expansion and diversification of SME financial accessibility beyond the conventional bank and toward the capital market as an alternative channel for growth capital. In this context, an *external capital market* is a financial market, physically or electronically, where the long-term debt or equity-backed securities are traded between the buyer and seller at arm's length. The market arbitrates between the savers and the borrowers to put the excesses into productive long-term use, such as companies or governments making long-term investments. To buttress this point, Rajan and Zingales (2003) opined that a competitive and healthy financial market that is free from all forms of financial exclusion brings about poverty reduction and additional groundbreaking opportunities. Arguably, the combination of a sound capital market and money market will provide a healthy financial platform to potential borrowers. Where internal capital is inadequate to finance long- or short-term business prospects, *external capital markets* provide the means to an end for corporations and government institutions. Over time, this has been the practice of large-scale enterprises (LGSEs) or government institutions to source for financial support from the capital market (equity and debt). In retrospect, SMEs have not fully benefitted

from this platform because of prerequisites and other listing requirements that are not within the immediate reach of SMEs. In other words, information asymmetry continues to be a barrier and stock market floatation becomes an unreachable target. Aside from this, the lack of availability of information from SMEs means the firms are beyond the reach of private equity investors who also demand hard and reliable data. Thus, both public and private equity finance for SMEs becomes an impossible task to achieve. Given these challenges, and the inconsistencies of banks toward SMEs' need for credit as identified above, Mogaluglu (2012) saw a need to bridge the funding gap and proposed a *multilayered capital market system*. A *multilayered capital system* is a variant of the stock market where SMEs can trade on both equity and debt. These variant markets are expected to bridge the financial gap between SMEs' quest for funding and availability in a seamless fashion. The International Council of Securities Associations (ICSA, 2013) aligned their recommendations with Mogaluglu's proposition on the need for robust capital markets that specifically target the needs of SMEs in the area of equity markets, over-the-counter (OTC), debt markets, and securitization. Mogaluglu (2012) proposed a solution that is a stepwise bridge between the informal (local stock exchange [LSE]) and the formal sector (standardized stock exchange). In Mogaluglu's submission, government would need to create these variants of multilayered local stock exchanges (LSE 1st, 2nd, 3rd, and 4th level) to promote a friendly lending environment between willing buyers and willing sellers at arm's length. It is an indication that the supply side needs an overhaul through policy implementation in the form of multilayered markets. To achieve the desired overhaul, the implementation should be supported by law to facilitate unhindered

access to financial markets with effective and sound legal frameworks. In this regard, the *multilayered capital market* structure will overcome the information asymmetry challenges. The local presence will give the multilayered stock market better cooperation among the people. The first tier market allows SMEs in need of funds to prepare their financials and register to gain access to equity and finance provided to the local investor. There are higher trusts and bonds between the provider and the receiver due to the local nature of the funds and the geographical proximity of the business location. Mogaluglu (2012) explained that adverse selection and moral hazard generally exercised by the formal sector would be eliminated by multilayered financial markets because local people will have more information about their local firm than the non-local third parties. With the implementation of a *multilayered capital market system*, Shinozaki (2014) argued for total compliance with the basic tenet of risk and returned trade-off for it to be generally acceptable. At any point in time, the efficiency of the multilayered capital market should never be in question. The difference should only be in terms of who does what and how access to the market is achieved.

Risk and return do not work in isolation; of course, their potential is realized under an efficient capital market. The design of a capital market as an avenue to source funds correlates to the fundamental of risk for return. The ideal market provides an accurate price signal for resource allocation, a market where firms make production investment decisions and investors choose among alternative securities that represent ownership of firms under the assumption that at any given time the security prices "'fully reflect' all available information. A market in which prices always "fully reflects"

available information is called 'efficient'" (Fama, 1970, p. 383). According to Fama (1970), an *efficient market* is one that reflects all available information about the security prices. Markets thrive on information, and the rate at which markets receive, process, and reflect the new information on the security prices determines the extent of efficiency in such a market. In other words, an efficient market moves in the same direction as the quality of the information. As the information trickles into the market randomly, the share prices fluctuate unpredictably as a response to the information. However, Fama (1991) clarified that the price that is reflected in a security is at equilibrium when marginal benefit (profit) is equal to the transaction cost. Thus, Fama implied that financial security prices shall adjust rapidly to reflect the new information in the market. Fama and French (1991) settled on three forms of market efficiency: (a) the weak form, (b) semi-strong form, and (c) strong form. Fama postulated that the weak-form market only reflects the share price historical information while the semi-strong form reflects both historical and publicly available information. The strong form of efficiency reflects all information whether it is publicly available or private information (insider information). The structure of the market is a key determinant to how the market performs. On the contrary, Malkiel (2005) argued to prove that the general efficient market hypothesis (EMH) is not a confirmation of the reality at least ex-post because the available information is not reflected in the price of the stock; thus, it makes it more of an academic exercise. Malkiel examined the performance of actively managed mutual funds relative to index funds at both domestic and international markets taking into consideration the management expenses. Cragg and Baxter (1970) argued against the

Modigliani and Miller (MM theory) expression of what constitutes optimal financial mix by proposing that the choice between equity or debt to finance the long-term investment is contingent on many variables: (a) the existing securities mix outstanding and their returns, (b) the market valuation of the expected return and variance, (c) the probability distribution of the returns to the security holders, (d) the size of the firm, and (e) the amount to be raised in the capital market. Largely, the combinations of the variables and the findings show:

1. If the price-earnings ratio is low, bonds are issued.
2. If the size of the firm is large, bonds are issued.
3. If the debt to total assets is high, common stocks are issued.

In this regard, the optimal financial structure is contingent on some variables and the role risk and reward play in optimal financial mix cannot be over-emphasized. Of importance is how SMEs will adapt to the framework of the multilayered capital system with respect to external financing.

Overall, for the variant markets to be effective and achieve the set objectives, the multilayered capital market systems operations will need to conform to the basic tenets of the global market. Although the implementation policy support framework will come from the regulatory authorities, the handling must be transparent to avoid being tagged another form of socialism. Accordingly, the interplay of risk and return in an efficient multilayered capital system is the needed alternative to the *SME* funding gap.

Gaps in Literature

Several research papers have been written extensively on *SME* financial constraints and the impact on their growth. In addition, reviews have been concentrated on understanding reasons for declining growth, factors affecting access to finance, the application of *pecking order theory*, *trade-off theory*, need for increased government participation through policy initiation and implementation, merger and acquisition, and other core characteristic challenges. In addition, and due to the nature of the subject matter, The World Bank and ADB also researched extensively to discover the key factors contributing to the failure rates among SMEs. However, less has been said about how devolution of the capital market to multilayered systems could serve as another source of funding to SMEs.

Leading World Bank researchers, Demirguc-Kunt and Beck (2006, 2007, 2008, 2010, 2012) concluded through their investigations that SMEs would need to have unlimited access to funds to continue to serve as agents of economic development. In addition, Yang, Rodrigues-Meza, Remalho, and Kuntchev (2013), Newman and Borgia (2012), Anastavov and Mateev (2011), and Hermelo and Vassolo (2007) explored the main determinants of growth in SMEs and concluded that there is a direct relationship between funding and growth rate. In the absence of adequate funding from the banks, Shinozaki (2012, 2014) proposed a direct financing avenue in the form of a capital market to support SME growth. Shinozaki is of the opinion that a capital market will help to strengthen the financing stamina of SMEs if properly implemented. However, Shinozaki's proposition did not explain the composition and structure of such a market.

In addition, Mogaluglu (2012) suggested variants of capital markets as an avenue to meet the funding needs of SMEs. However, Mogaluglu did not address how the new market systems will solve the financial exclusion and information asymmetry, the major determinants to SME financing from banks.

Summary

In Chapter 2, I discussed the literature review in chronological order with consideration to the breakthrough in the history of funding theories and financial markets. There are two sides to a financing contract; the borrower (demand) and the lender (supply). At equilibrium, the lending apparatus is expected to meet the funding demand of SMEs with few or no preconditions. Over the years, the implications of financial exclusion have limited SMEs from achieving their operational and growth potentials. Arguably, these funds are prerequisites to financing several layers of their development lifecycle—from seed capital during start-up and earlier stages, through to growth investment in their development stage. SMEs provided over 90% of the world's employment, created 65% of U.S. jobs, and approximately provided 50% of global gross value-added (GVA)(Ayyagari etal, 2009). However, these contributions threatened the economic growth because of limited access to finance and the consequence of financial exclusion (Beck & Kunt, 2006; Mulaga, 2013). In addition, I explained the implications of Gilbrat's law on SME growth rate. According to Gilbrat's law, growth is a function of the relationship between size and growth rate. Thus, growth becomes unattainable in the absence of funds to support capacity expansion. As proposed by Butler and Lintner (1945), I explained *pecking order theory* (PoT) as applicable to small business owners.

Pecking order Theory (PoT) represents a situation where SMEs give first preference to internally generated funds and only fall back into external debt when retained earnings are no longer adequate to finance the internal growth. In the context of an alternative source of financing, I explored the benefit of the capital market of the multilayered framework as a support for a diversified strategy for SME survival.

Conclusively, I used Chapter 2 to synthesize and explain the propositions of prior literature in support of the alternative sources of finance mostly in the field of a lower level market (multilayered capital market system). In view of several challenges faced by SMEs from the banks and BOFI, and the funding complications experienced in the conventional market, I supported my assertions with literature to buttress the importance of multilayered capital market systems. I used Chapter 3 to present the research design, research structure, and the procedure for data collection, and Chapter 4 to present the data collection and analysis.

Chapter 3: Research Method

I used this study to examine the impact of limited access to funds in relation to SME business operations and growth with the intention to describe the role of the multilayered capital system as an alternative source of finance. Although small and medium-sized enterprises (SMEs) account for a significant portion of the world's GDP, their financial fortunes are not good indicators of their roles. According to Beck, Demirgüç-Kunt, and Peria (2008), SMEs account for approximately 60% of the manufacturing outputs in the world. Despite this, SMEs face more difficulty when it comes to obtaining the funds to support their growth and development initiatives. Financial exclusion leads to a systemic reduction in the survival rate of SMEs across the globe. Because of financial exclusion, SMEs suffer unrealized potential, declined growth, lower employment, and loss of innovation. Financial institutions adopt the interplay of the size, age, and credit history of SMEs to determine funding approval (Anastasov & Mathew, 2010). Unfortunately, this decision framework sets parameters that are beyond the reach of SMEs due to the nature of their business operations.

The choice of the research topic and research method was influenced by the positive roles played by SMEs in society, especially addressing the problem of unemployment. In addition, SMEs serve as economic agents that revitalize and improve the economic value of human asset developments and the passion for instituting social change (Babbie, 2001). To achieve the study's objective, I chose a quantitative research method and correlational design to address the impact of limited access to funds for SMEs. I designed the study to evaluate the effects of the multilayered capital market

system as an alternative funding strategy. Independent variables included credit score, age, average turnover, size, and multilayered capital system; the dependent variable was funding and/or amount of loan approval from financial institutions. Chapter 3 includes a description of the population and sampling procedure, research methodology, research design, sampling design, data collection and instrumentation, research questions and hypotheses, data analysis, validity and reliability, underlying variables, ethical considerations, and participant rights.

Operational Definition and Measurement of Hypothesized Variables

Table 5 presents the variables for each of the three hypotheses and provides explanations for each of the constructs in line with the objectives of this study.

Table 5

Operational Definition of Independent Variables

Hypotheses	Independent Variable	Operational definition	Measurement
Hypothesis 1	Credit score	A generic representation of the creditworthiness of a person. It measures the extent of default, repayment or credit risk associated with a person	CS
	Age	The age of a firm is the number of years of operations	Years
	Average turnover	The average annual sales volume over 5 or more years	AT
	Total assets	The size of a firm measured in total assets as reflected in the balance sheet year over year	ToA
Hypothesis 2	Approved Funding Request	The amount as loan or credit request approved by banks or other financial institutions	AFR
Hypothesis 3	Expected Approved Funding Request	The expected amount as loan or credit request approved by banks or other financial institutions	ε AFR

Population and Sample Procedure

Nachmias and Nachmias (2008) defined *population* as an aggregate of cases with common characteristics. When characteristics or features join items or events into a meaningful group, such groups are referred to as populations. The *population* of this research project was any unquoted corporation, company, or organization on any of the stock exchanges (not a publicly traded company). The target companies, businesses, and corporations were held privately and run with the defined characteristics of SMEs. The target population for this study was any SME with the characteristics of Silicon Valley in the United States that operates within the information technology, service, or manufacturing sector. The population target met SME characteristics as defined by SBA (2011) in terms of employee numbers, turnover, location, and years of operation. In this context, SMEs were defined in line with the U.S. Small Business Administration, as it includes any enterprise with fewer than 500 employees and less than $100M in turnover. For this study, I elected to use a minimum of 30 employees because 89.3% of the SMEs in the United States employed fewer than 20 employees (United States International Trade Commission, 2010). Any SME that met the criteria of 30 employees and less than or equal to $40M in turnover was considered for this study. In addition, the characteristics of the sample population were the following:

1. has 18 or fewer years of operations,
2. prepares financial statements or some form of financials (audited or nonaudited),
3. maintains bank account(s),
4. has or has attempted a credit line in the previous 5 years,

5. has a strategic management plan to grow.

The combination of these parameters reduced the population target to a meaningful and manageable number. It was my conviction that the 7-year longevity was enough to capture companies with a tendency to break through, thus reflecting the size (turnover) and the growth potential.

In agreement with the SBA (2011) definition of SME, the sampled populations for this study had uneven characteristics reflected in their annual turnover of each business unit, years of operation in the upstream sector, and number of employees. As a result, it became necessary to adopt a stratified random sampling technique. I used the U.S. Census Bureau data from 2008 to 2014 as one of the sources of information for the project. I collated information about any SME with Silicon Valley tendencies across three business sectors (information technology, service, and manufacturing) provided the business met the predefined criteria. The sampling frame consisted of 54 randomly sampled firms with the ability to continue business operations for another 5 years (firms with no signs of bankruptcy or threatened going concern). The ability to continue business operations reflects the quality of the selected firms' cash flow and working capital. Furthermore, the sampled firms were the ones with traceable events, and the firms had experienced sourcing for external capital from banks to support business operations. Also, the sampled firm leadership had exposure and knowledge about capital market operations and their multiplier benefits. Leaderships at one point in time had access to banks, venture capitalists, private equity firms, or credit unions for funding support. Looking at the present framework and operating structure, the *capital market*

structure system opens only to institutions that are willing to borrow at arm's length after satisfying borrowing requirements. With this in mind, SMEs do not have the processes and structures to meet the borrowing requirements. Therefore, the present market configurations would not accept SMEs as players. Despite this, the differentiating factor for the selected firms was their determination to access capital for their current financial needs. The drawback exposed potential borrowers to a possible scaled down community-backed capital market designed to bridge SME funding needs.

Statistical Power and Sample Size Analyses

In this study, the sample size was limited to the sampling units drawn from the sample population after taking into consideration the nonresponse factor. According to Pourhoseingholi, Vehdi, and Rahimzadeh (2013), the fundamental purpose of sample size is to establish an adequate number of units that will reflect the unknown parameters after data gathering. In this regard, I selected enough SMEs that were representative of the characteristics as they relate to a multilayered capital market as an alternative business survival strategy.

I finalized the sample size estimate with the G*Power 3.1.7 statistical analysis tool. G*Power 3.1.7 is a standalone tool used to compute effect sizes to eliminate the use of an under- or oversized sample that may affect the research objective. Thus, the G*Power 3.1.7 power of the statistical test is the probability of rejecting its null hypothesis given that it is, in fact, false (Lang, Buchner, Erdfelder, & Faul, 2009, p. 1149).

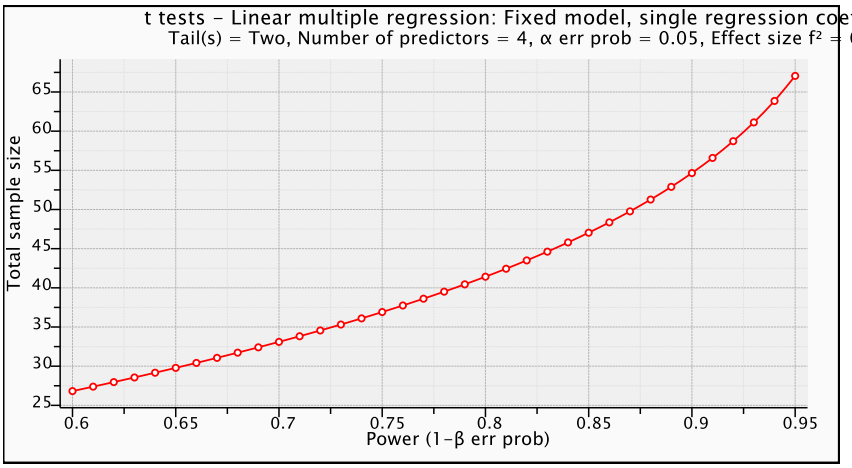

Figure 6. Sample size analysis for using G*Power 3.1.7.

Statistically, the power of analysis was recommended and set at 0.90. Based on Figure 6 with the G*Power 3.1.7 statistical analysis tool and keeping the effective size at 0.20, the alpha level at 0.05, and the number of predictors at 4, the sample size was 55. Further, at a response rate of 60%, the expected required size was 90. Therefore, I surveyed 90 participants in the three sectors identified for the research, on an average of 30 surveys per sector with expected nonresponse to be approximately 20%. I used the sample results to make an inference about the characteristics of the SME population. The interplay of the standard deviation of the variable under study, the expected standard error, and the population provided reasonable assurance of an estimate that guaranteed accurate testing results.

Research Method

A quantitative analytical and descriptive study based on the outcome of the sampled participants was used to measure the impact of the multilayered capital system

as an alternative means to SME funding needs. According to the University of Southern California (n.d.), quantitative researchers adopt polls, questionnaires, or surveys as instruments to gather data and objectively perform measurements and numerical analyses. Statistical data are collected to explain a given phenomenon, and the method also focuses on collecting numerical data and generalizing it across groups of people (Singleton & Straight, 2005). Furthermore, quantitative researchers employ deductive reasoning to test theories, assumptions, and methods while controlling rival explanations. Typically, the result of quantitative research is protected against bias and can be generalized to related populations. The objective of all quantitative research is to develop models, theories, and hypotheses that can be analyzed by using statistical procedures for the natural phenomenon (Singleton & Straight, 2005; Strauss & Trochim, 2007). According to Singleton and Straight (2005), quantitative researchers use measurable variables because measurable variables and instrumentation provide connections between empirical data and statistical procedures. A quantitative method of inquiry was used to measure the impact of limited access to funding by SMEs and the implication of a multilayered capital market as alternative funding to support business growth. The quantitative design fit perfectly into the overall framework of the research problem, and I used the correlation and covariance between SMEs, economy, sources of funding, and quality of funding as variables of the analysis.

Research Design: Correlation Analysis

To measure the impact of the multilayered capital system as an alternative means to SME funding, I opted for a research design that could be used to measure the

relationship between two or more variables, especially as they relate to SME funding. Correlation design was based on my ability to decipher the cofactors that can influence the choice of multilayered capital as an alternative funding strategy. According to Zechmesiter, Zechmesiter, and Shaughnessy (2014), correlational research is used to assess the co-variation among naturally occurring variables. The primary objective of the correlational research was to identify predictive relationships by using correlations or more sophisticated statistical techniques. Correlation research addresses the relationship between two variables with the goal of determining the connectivity between variables. Correlation analysis involves the measurement of two or more factors to determine the extent to which the values for the factors are related or changed in identifiable patterns. I measured the correlation of credit score, age, average turnover, size, the amount of loan approval or funding, and the coefficient of correlation between SME growth rate and multilayered capital market. A correlation coefficient is a statistical tool used to measure the strength and direction of the linear relationship or correlation between two factors where the value of r ranges from −1.0 to +1.0. Conversely, Zechmesiter, Zechmesiter, and Shaughnessy (2014) asserted that interpretation of the causal relationship between variables tends to be the greatest problem associated with correlational research. To guard against this problem, I assumed nondirectionality in the outcomes (as the variable would not suggest any directional impact) and the possible impact of the third variable that was not considered in the design.

Sampling Design

To make an appropriate decision, sampling is another area in the research project that requires thoughtful thinking and analysis. In sampling, the researcher faced the decision to pick the sample unit from a defined population with the interest to make generalized statements based on the outcomes of the study. However, the success of the process is a function of the effectiveness of the design. Thus, a researcher must begin with the end in mind in making informed decisions about the sampling procedure and design type. Thus, *sampling* is a procedure whereby a specified number of elements are drawn from a sampling frame that represents an actual list of the possible elements in the population. The ability to generalize from the sample to the population depends critically on the representativeness of the sample and the extent to which the sample has the same characteristics as the population. Therefore, to achieve representativeness, the use of probability sampling rather than non-probability sampling is more appropriate. In this regard, I employed the stratified random sampling technique to give equal opportunity to every sampling unit that was represented in the overall sample size. Nachmias and Nachmias (2008) argued that probability sampling gives the selected population the same chance of being represented in the sample. The Center for Social Research Methods (n.d.) explained *probability sampling* as a method that is highly dependent on some form of random selection to arrive at the sample size. Stratified random sampling is primarily used to "ensure that different groups of the population are represented in the sample to increase the level of accuracy when estimating parameters" (Frankfort-Nachmias & Nachmias, 2008, p. 171). Thus, I decided to use the stratified random sampling technique

for this study to support the creation of a homogeneous sample of firms across the different industry sectors that identified with elements of the funding gaps index and to have more accurate estimating parameters. I used the stratified random sampling technique to assess the benefit of the multilayered capital market as an alternative to a funding survival strategy of SMEs in each sector. Inclusively, I used the sampling technique to provide an additional and unique understanding of any other differentiating factors or preferences from these business sectors. Although funding was the primary factor facing the growth of SMEs; however, funding preferences could add additional layers of risk because of the specificity of the shapes and places in different sectors. According to Nachmias and Nachmias (2008), stratified random sampling is primarily used to give a voice to every group in a population. The method ensures adequate and equal representation from all the groups present in a population to increase the level of accuracy when estimating parameters. To institutionalize the benefit of random sampling in the research frame, the research participants were divided along the three primary sectors of the research focus (i.e., IT, service, and manufacturing). Primarily, the participants met the basic definition of SMEs, upheld the characteristics of SME, and operated with Silicon Valley tendencies or related concentration of startup firms in any part of the country. In addition, equal representation was given to the influential characteristics and traits such as the age, size (turnover), credit score, location, and growth potential for the participant. This was achieved through the tiered system that set up ranges, and any participant that falls within the predefined ranges was said to have the

assumed characteristics. Hence, every trait and characteristic of the participant was captured by the sampling technique.

Data Collection and Instrumentation

I collected the research data from both primary and secondary data sources. Primary data were collected through survey instrument, while the secondary data were collected from World Bank Enterprise Survey data and U.S. Census Bureau data on SMEs from 2008-2014.

Primary Data

Robert (1999) asserted that survey methods provide a means in social sciences to investigate sociological and psychological relationships. According to Singleton and Straits (2005), survey methods have three commonly known characteristics:

1. a large number of respondents are chosen through probability (random) sampling procedures to represent the population of interest.
2. Systematic questionnaire or interview procedures are used to probe for responses, and answers are recorded.
3. Respondent answers are coded and analyzed numerically.

As a primary source, a survey instrument was used to access and collect direct information from participants (firms) after obtaining approval from Walden University's Institutional Review Board (IRB). Thus, I used the survey instrument to collect data directly from the entrepreneurs and people who worked in SMEs with the intent to understand the impediments to funding. The survey asked questions with respect to preferred sources of finance, alternatives prognosis, and other actions that may be

endemic to SME funding. The potential participants had the option to access the survey (sogo survey) electronically or by mail, depending on the location, preference, and technical expertise of the participant. The format and framework of the questionnaire were simple, concise, and easy to understand to facilitate ease of collection and prevention of zero response rates. With the committee's approval, the number of questions was 40, constructed with simple English without any form of ambiguity. The survey questions were tailored directly to the research questions and hypotheses with the critical business or technical words explained in business language. Furthermore, the electronic design of the survey instrument had an inbuilt reminder notification function that prompted potential participants every three days. For those who elected to receive the survey by mail, I set up email reminders at least once per week and phone reminders once every fortnight (provided I had a telephone contact) after the first contact and questionnaire mailing. A replacement trigger mechanism was built for those participants who did not respond after two weeks of initial mailing. With the permission of the committee, telephone option was available to prospective participant to complete the questionnaire. However, none of the participants used this option.

On participant's ethics and protections, in the introduction to survey email, I provided a full explanation of the risk of participating in the study (if any) to the prospective participant. Participants' anonymity was assured and identity was adequately protected from disclosure in the research report. In addition, and to comply with the provisions of research ethics advocated by Singleton and Straights (2010), the

participants were provided informed consent forms and were at liberty to withdraw from the study at any time, as participation was voluntary.

Archival Data

Conceptually, archival research involves finding, reviewing, systematic interpretation, and analysis of information found in archives. Thus, the archived materials may be consulted and analyzed for purposes other than those for which they were originally designed and collected (Corti, 2014). A researcher can interrogate source data, make inferences over time, draw comparisons between geographical landmarks and time, verify or challenge existing findings, or draw conclusions based on disparate sources to provide evidence for the research objective. According to Singleton and Straits (2005) and University of Kansas (2014), archive data research offers the following benefits:

1. It is easier and less time-consuming than collecting all the data oneself.
2. It costs less when compared to other data collection methods.
3. It requires less effort because archival data may have already been processed by people with more statistical expertise.
4. Archival data could be richer in depth and coverage than researcher expectation, thus, reflecting patterns or relationships the researcher has never considered.
5. There is no direct connection between the users of research information, the initial research participants, and the data collector.
6. Archival data enables small organizations with limited resources to conduct thorough evaluation studies.

On secondary data source, the World Bank group Enterprise Surveys data on different countries and the U.S. Census Bureau data from 2008-2013 on SMEs formed the basis for collecting and analyzing the hypotheses. According to the World Bank (2013):

> Enterprise Surveys provide firm-level data from over 135,000 establishments in 135 countries. Enterprise Surveys data is used to create over 100 indicators that benchmark the quality of the business environment across the globe. Each country is surveyed every three to four years.

Thus, the surveys by the World Bank are a collection of firm-level data that represent sampled firms in the non-agricultural formal private sector of the economy. The surveys were designed to collect information on the firm's characteristics (e.g., firm size, ownership, the age of the firm, industry, or sector), structure, and sources of finance. The source of finance also includes internal and external forms of finance such as banks, non-banks, trade credit and others. These financing sources used by firms were provided in proportional scale to serves as the economic barometer that measures trends, progress, barriers, challenges, and opportunities in countries all over the world. Because the survey is designed to scale country operations three to four years annually, I accessed the most recent five-year data catalog that lists the World Bank datasets and survey outcomes to support the research objective. I downloaded the data into Microsoft Access and Excel for stratification, cleaning, grouping, and analysis. I grouped the data according to the continent of alignment and geographical relevance. Importantly, the enterprise survey

data are publicly available to everyone; hence, gaining access does not require any form of permission.

Conclusively, and based on the historical trends, the choice of the survey as a collection instrument and the use of the World Bank enterprise survey data rests on the premise of cost, time, accessibility and higher expected response factor.

Research Questions and Hypotheses

As I have already established, the purpose of this study was to use a correlational research design to investigate the fundamental benefits of the multilayered capital market as an alternative funding strategy to SMEs. Thus, the following research questions guided this proposal:

Research Question 1

1. To what extent does credit score (credit rating, credit histories, and creditworthiness), age, turnover, and size of firm limit SME access to funds from financial institutions?

In Research question 1, I provided substance to the purpose of the study and uncovered the explanatory variables that influence financial institution decisions on funding. In addition, leveraging on the financial exclusion theory, I also used the question to explore the key information decision factor that financial institutions depend upon approving or rejecting a credit request. To answer this question, I ran statistical task 1 of multiple regression models with all identified explanatory variables and tested the significance of those variables relative to the dependent variable.

Research Question 2

2. To what extent does funding constraint limit the growth of SMEs?

In research question 2, I explored further the implications of credit request denials on SME growth. I used the research to validate the aftermath effects of financial exclusion theory because of information asymmetry on organization development prospects. Thus, I ran a statistical pack 2 of covariance analysis to provide answers to the question.

Research Question 3

3. What is the relationship between funding from the multilayered capital market and SME growth?

In research question 3, I provided answers to one of the key elements of the problem of the study. In essence, I used the question to validate the willingness of prospective borrowers toward the paradigm of multilayered capital as an alternative funding platform. In addition, using the research question, I substantiated the effects of the explanatory variable on general acceptance of the platform in the wake of information asymmetry. Thus, I utilized a statistical pack 3 of covariance analysis to provide answers to the question.

Furthermore, I used the above research questions to explore several interrelated hypotheses designed to capture the fundamentals of the multilayered capital system as an alternative funding strategy and relevant independent variables. I examined the statistical relationship between the dependent variable and the independent variables and established statistical significance through regression and correlation coefficient analysis. Hence, I used the first two hypotheses to examine the impact of each independent

variable on the dependent variables while the third hypothesis was my proposed contribution to the field of study. Further, the hypothesis critically examined and revealed the potential effects of the multilayered capital system as an alternative funding platform where SMEs' long-term funding needs could be resolved.

Hypothesis 1

Overall, I used this hypothesis to establish the possible significant relationship between the dependent variable (loan approval) and credit score, the age of the firm and prior history of turnover. The outcomes showed that the independent variables are key considerations to loan approval, and then, non-existence of these variables would have a significant effect on an SME's ability to fund its operations. In this study, I tested the proposition with the following null and alternative hypotheses:

H_0: There is no significant relationship between credit score, age, average turnover, size, and amount of loan approval from financial institutions.

H_1: There is a significant relationship between credit score, age, average turnover, size, and amount of loan approval from financial institutions.

Hypothesis 1, will be tested through regression equation 4

$$AFR_i = \beta_o + \beta_1 YEARS_i + \beta_2 CS_i + \beta_3 AT_i + \beta_4 ToA_i + \varepsilon_i \quad (4)$$

where:

AFR_i represents the amount of the approved loan from financial institutions,

$Years_i$ represents SME age (years of operations)

CS_i represents SME credit score (weighted average of payment history [35%], amounts owed [30%], length of credit history [15%], types of credit in use [10%], and new credit [10%] (myfico.com & West Virginia Treasurer, 2014)

AT_i represents turnover (average turnover)

ToA_i represents SME size (total assets)

β represents the slope of the explanatory variables

ε represents the error term.

The 2012 U.S. Small Business Administration (SBA) lending report and the survey outcomes were used for this study. Further, I used multiple regression to predict the relationship between funding approval due to SME credit score, age, average turnover, and size. The approved funding request was the dependent variable, while credit score, age, average turnover, and size were the independent variables.

Hypothesis 2

This hypothesis underscored the correlation between the dependent variable (growth) and independent variable (funding). The outcomes reflect a relationship between funding denial and SME growth; therefore, denial of funding would have a significant effect on an SME's ability to achieve its growth potentials. With this study, I tested this proposition with the following null and alternative hypotheses:

H_0: Funding constraints will not limit SME growth.

H_1: Funding constraints will limit SME growth.

$$Rxy = \frac{Sxy}{SxSy} \quad (5)$$

where:

AFR_i represents a denied funding request or partial approval from banks/financial institutions

GR_i represents the rate of growth from turnover of SMEs in the year of funding denial

$\sum AFR_i GR_i$ represent the covariance of the sum of funding denial and the growth rate of turnover.

$\sum AFR_i \sum GR_i$ represent the product of the standard deviation of funding denial and the growth rate of turnover.

Thus, the lower the turnover in the year of the funding request, the higher the impact of funding denials. I used correlation coefficient analysis on the survey outcomes to measure the direction and strength of the relationship between funding constraint and SME rate of growth. The growth rate is the response variable while funding availability is the explanatory variable.

Hypothesis 3

I designed the hypothesis to expose the possible correlation between dependent variable (SME growth) and the multilayered capital market system as another avenue where entrepreneurs would bridge their funding gaps. Consequently, if the outcomes show that the independent variables could improve the funding status of SMEs, then, non-existence of a multilayered capital system would return SMEs to prior funding stagnation. With this hypothesis, I tested this proposition with the following null and alternative hypotheses:

H_0: Funding from the multilayered capital market will not lead to SME growth.

H_1: Funding from the multilayered capital market will lead to SME growth.

$$\varepsilon GRi = \frac{\sum \varepsilon AFR_i \varepsilon GR_i}{\sum \varepsilon AFRi \sum \varepsilon GRi} \quad (6)$$

where:

εAFR_i represents expected funding from a multilayered capital market (a capital market with less listing requirements) to SMEs

εGR_i represents expected growth rate due to the available funding.

$\sum \varepsilon AFR_i \varepsilon GR_i$ represent the covariance of funding from multilayered capital and SME growth rate

$\sum \varepsilon AFR_i \sum \varepsilon GR_i$ represent the product of the standard deviation of the multilayered capital market and SME growth rate.

For the survey outcomes, I used the correlation coefficient analysis to measure the degree of impact of access to the multilayered capital market to SME growth. Growth from average turnover (TA) and total assets (ToA) are the response variables while funding from the multilayered capital market is the explanatory variables.

Justification for the Use of Survey Instrument, and Enterprise Survey Data

In line with the nature of the research, a survey method as a tool is the preferred measurement instrument that enabled me to achieve the research objective. The survey instrument assisted me to reach larger audiences across every spectrum of the economy because I had the opportunity to send out as many surveys as possible to a larger population size to improve the nonresponse ratio.

On the premise of an effective survey instrument, each participant interface occurred through email linking to the survey website, which contained 40 close-ended interview questions. I designed the questions to extract information about the factors that

influence the choice of funding, the barriers to growth, and operational development. In addition, I solicited to understand the potential impact of the multilayered capital system as an alternative source of funding. Further, I elected to use closed-ended interview questions for the respondents for three main reasons. First, closed-ended questions are easy to aggregate and analyze because of the possibility to assign numbers or value to every answer for each question. This close factor facilitates thematic or statistical assessment and interpretation of the responses. Second, the closed-ended questions are more likely to communicate similar meanings than open-ended questions because of their specificity. The difficulties of comparing the meanings of the responses of open-ended questions (in which the respondents use their words) were avoided during data analysis. Three, closed-ended questions are less time-consuming—they take less time to understand and interpret.

Furthermore, the application of a survey instrument for data collection is less expensive than other forms and requires less time. It eliminates postage, paper, and mail-out packages. Aside from this, the electronic survey takes less time and effort for data collection (i.e., an average of weeks compared to face-to-face interviews that may take several months to gather all the responses). This approach helped me to reduce the cost of increasing the sample size required for the study. I sought the survey as the instrument that can reach every area of the country with less effort because potential participants were widely distributed across the country. Aside from this, I elected to reach the participants electronically (Internet survey) because the cost of interviewing each additional respondent decreases when an electronic questionnaire has been developed

(Singleton & Straits, 2010). My choice of the electronic survey was to leverage the mobile technology boom (office everywhere you go) that is aligned with today's corporations and younger generations of the workforce. Thus, the technology platforms facilitated easy access to the survey and improved respondent willingness to complete the survey with little effort. However, questionnaires eliminated the possibility of face-to-face interactions between the researcher and the respondents and follow-up questions from the respondents, especially if there was a need for clarity. To mitigate this challenge, I adopted a mixed questionnaire system that encouraged both open and closed questions. The open questions gave the respondents the opportunity to express themselves without any form of limitations while the closed questions guided the respondents to provide precise and concise answers.

For the secondary data, the choice of enterprise survey data emanated from the integrity of the source (The World Bank) and the level of acceptability that prior literature afforded based on the level of detail and the rigor of data collection. More so, my research topic speaks to the funding challenges faced by SMEs around the world. Thus, the World Bank data across different geographical regions, locations, continents, and countries fit with the research objective.

Hypothesis 1

In this hypothesis, I tested the relationship between funding approval and independent variables; credit score, size, and age. I collected the external independent variable data from the survey outcomes based on the structured questions. Questions were designed to ask SMEs about form, type, nature, and longevity of credit requests and

approval history within the last five years. Also, I integrated with the design questions about reasons for a loan application rejection if any. To make meaningful statistical findings, the credit score and longevity variables were synthesized with the five-year turnover as a way to establish the relationship. I verified the findings with the World Bank Enterprise data on a country-by-country basis to provide other relationship support among the variables as seen outside the United States of America. Overall, I analyzed l data outcomes with SPSS.

Hypothesis 2

In hypothesis 2, data collection assessed the impact of funding availability to SME growth. I collected on the outcomes of survey questions asked about funding approval and growth within one to three years after funding was made available. The assumption was made on the premise that funding availability was the only key factor that influenced business growth. Questions were asked about total asset growth, turnover growth, asset turnover over the period, and the impact of cash flow availability. These variables were synthesized and analyzed statistically using Excel and SPSS.

Hypothesis 3

With respect to this hypothesis, I tested the correlation between funding and a *multilayered capital system*. Because the *multilayered capital system* is a topical area with little or no history, it was imperative to collate information directly from the financial player in the market on their perceptions of a community support capital system. Prospective borrowers were asked in the survey question about the ease to access equity capital, their preference for debt and equity capital, level of preparedness to use a scaled

and multilayered capital market for equity capital, and expectation of cost of capital. Also, and to verify the findings, the World Bank Enterprise country by country data were used to provide other relationship support among the variables as seen outside the United States. The overall data outcomes were statistically analyzed using SPSS.

Data Analysis

Data analysis involves the systematical application of different statistical techniques to make informed decisions from the characteristics available in a set of data. Accordingly, Shamoo, and Resnik (2003) asserted that the various analytical procedures provide platforms to draw conclusions based on the convincing signal (the phenomenon of interest) that separate it from the noise (statistical fluctuations) as shown in the data. Indeed, the role of a researcher is to observe and analyze for patterns displayed from the collected data before making informed decisions (Savenye & Robinson, 2004). The data analysis involved the testing of the three hypotheses in examining the presence, type, and nature of relationships among variables to validate the statistical significance of the regression and the correlation coefficients. The design and testing of the hypothesis were in line with the quantitative research method and correlation designs adopted for this study.

Furthermore, I used SPSS and Microsoft Excel to perform the analytics. The relevant statistical outcomes from the collected data were presented in the form of tables, charts, and histograms.

Hypothesis 1

With SPSS, a multiple linear regression analysis of multivariate statistics was conducted on the outcome of the data collection phase. In essence, I assessed the extent to which the independent variables (i.e., credit score, age, and size) explained variance in credit approval. I ran a two-tailed test of significance at 95% confidence to determine the extent of the impact of the various independent variables on credit approval, the level of homoscedasticity, and multicollinearity. I also ran Levene's test to confirm the homogeneity of variance. Thus, if the *p*-value is < 0.05, Ho will be rejected.

Hypothesis 2

In hypothesis 2, I established the relationship between funding and growth rate, and I used SPSS to assess the correlation coefficient of the variables (i.e., funding and growth rate).

In addition, I used the bivariate correlation with both Pearson, and Spearman functionalities checked to conduct an analysis of the outcome of the data collection phase. In essence, I assessed the coefficient of determination (R^2) to measure the proportion of variability in the data set. In addition, I ran a two-tailed test of significance, at 95% confidence to determine the extent of correlation between approved funding and SME growth. Thus, if the *p*-value is < 0.05, H_o will be rejected.

Hypothesis 3

Hypothesis 3 followed the same methodology as that of hypothesis 2. Using SPSS, bivariate statistics of the correlation coefficient were conducted on the outcome of the data collection phase. In essence, I also assessed the coefficient of determination (R^2)

to measure the proportion of variability in the data set. I ran a two-tailed test of significance, at 95% confidence, the degree of freedom (n - 2) and p-value ≤ 0.05 to find the extent of correlation between funding and SMEs growth. Thus, if the p-value is < 0.05, H_o will be rejected.

Conclusively, the detailed statistical findings formed the basis of my presentations in Chapter 4 in the form of tables and chart that include correlation and regression coefficients, applicable test statistics, and the significant levels (p-value) for each variable.

Validity and Reliability

The preferred instruments for this study are a survey instrument, the World Bank Enterprise survey data, and U.S. Census Bureau data from 2008-2014. As the first level of validation for consistency and relevance, the survey instrument examined reliability and validity by peer review, committee chair review, and IRB. Also, I subjected Enterprise survey data to year over year updates.

Validity

Nebbergall, Newman, and Teglasi (2012) explained that the validity of a construct is a function of how the construct effectively and accurately measures the real life scenario. Thus, validity demonstrates the accuracy of the measuring instrument over the intent of the study. According to Frankfort-Nachmias and Nachmias (2008), validity is a control mechanism to ascertain the extent of compliance, accuracy, and closeness measure of the measuring instrument given the researcher's objective. Hence, validity encompasses two main groups: (a) *construct validity*, denoting if the inquiries precisely signify the measuring concept or the ability to measure a theoretical concept and (b)

predictive validity, designating the capability of a tool to deliver a significant pattern and outcome. With this, I used the following constructs: credit history, growth rate, age, size, funding, and financial institutions to measure the reaction of SMEs toward another source of funds that transcend the traditional method. Did these constructs accurately predict the behavior of SMEs? The answer is yes because these constructs are the basic tenet of funding that form a nomological network and have been used to measure investment opportunity in prior tests (Verhulst, Conlee, & Colliver; 2012). In addition, I used Cronbach's alpha to test for internal consistency. Due to the nature of the research, the consistency of measuring outcomes is unequivocally critical to the validity of the research. The research participants were not concentrated in a single place; in fact, they were scattered across the country; hence, there was a need for me to choose a set of questions that were unambiguous requiring with little cognitive effort from the participants.

Reliability

Frankfort-Nachmias and Nachmias, (2008) termed reliability as the level of inconsistency or variable errors that are present in the output of a measuring instrument. It denotes the extent to which measuring instruments return different results for the same observation at a different point in time. Reliability asserts consistency, trustworthiness, and regularity of a similar outcome of precedent events on specific dimensions (Martin, 2007). Furthermore, Fischer, and Etchergary (2010) postulated that measurement reliability focuses primarily on the consistency of response to a survey item. Thus, consistency is one of the hallmarks of the research findings. I adopted a parallel-forms

technique to ensure internal consistency of the feedback from the respondent. For each item, I developed two parallel versions of the measuring instrument that contain two statements for every item or sub-item that I evaluated. From that point forward, the measuring instruments were administered to the same set of people or group and the correlation between the two parallel forms represents the estimate of reliability. This method cost less and saved time.

Limitations

Ironically, there are certain limitations that are inherent in the choice of research design and the measurement instrument. Correlation does not predict causation and cannot differentiate cause and effect from ordinary association when two or more variables are involved in the analysis. The variables for this research are in multitudes; therefore, I used multivariate analysis of variance (MANOVA), a statistical method to establish the fundamentals of the truth. I also recognized the defect in the distribution of the population sample because they are located in many sectors, in many states—and the possibility of getting the respondent to answer two questionnaires at different times. I packaged the two forms of the questionnaires into one survey at the same time to each respondent in other to ascertain the validity and consistency of the participant. The only difference in the questionnaire was the way the information was solicited—the same question in a different form.

Ethics and Protection

To address any possible ethical concerns in this study, I sought committee chair and IRB approval for the design and implementation of the survey instrument. The

content of the survey instrument was subjected to committee (internal) and peer review to avoid any form of ambiguity. In line with IRB expectations, I took adequate steps to protect and ensure the dignity and welfare of not only the research participants but also of all of the individuals who may be affected, in one way or the other, by the results of the study (Singleton & Straits, 2010). At the point of data collection, I assured potential participants the security and non-disclosure of their identities and provided the option to decline to respond to the survey if they were not comfortable. Participants also have the opportunity to receive a copy of the findings before the study is published. To this end, all questionnaires received were included in the analysis; the sample size followed the standardized process without giving any particular preference for any outcomes. All statistical assumptions underlying the choice of test type were followed. The questionnaire reiterated the purpose of the study and the fact that the participants' personal information was protected. The questionnaires were kept in accordance with standard regulations.

Further, I collected the secondary source data from the publicly available domains that are maintained by the World Bank and U.S. Bureau of Census. In retrospect, there has not been any historical concern about the data validity and authenticity. Walden University IRB's approval number for this study was **06-11-15-0283844**.

Summary

I used Chapter 3 to explain in detail the research methodology and other steps adopted for this research. The choice of the research method the quantitative method was a function of the research objective and prior scholarly contribution made in the field of

study. Thus, the justification was to establish a statistical relationship between variables and develop the model and hypotheses from the natural phenomenon (Singleton & Straight, 2005; Strauss & Trochim, 2007). Accordingly, the research population was restricted to any SMEs with Silicon Valley tendencies that met the ≤ 18 years of operations, ≤ $40M turnover, and ≤ v30 employees in the IT, service, or manufacturing sector. In addition, I provided the rationale for the choice of correlation analysis as the preferred research design. Correlation analysis helped me to focus on assessing the co-variation among naturally occurring variables, especially between the multilayered capital system and SME growth (Zechmesiter, Zechmesiter, & Shaughnessy, 2014). I assessed the relationship between other variables such as credit score, age, average turnover, size, and loan approval. In addition, and on sampling design, technique, and procedure, it was my conviction that probability sampling and stratified random sampling techniques were the appropriate vehicles to support my choice of a quantitative research method and correlational research design. Thus, I chose a stratified random sampling technique to support my intention to create a homogenous sample of firms across the industries with the same trait of the funding gap index, and other identified constructs.

Of importance, I also discussed the research questions, respective hypotheses, collection strategy, instrumentation, and interconnections among these constructs in the overall scheme of the project. Thus, the interconnections displayed by the hypotheses variables tended to have multiplier effects on one another, and that of collection strategy and instrumentation provide sustainable frameworks to achieve the research questions

and objectives. Accordingly, there are correlations between the questions, hypotheses, and the choice of data collection strategy.

Furthermore, I explained the decision to use SPSS as the primary statistical tool for data analysis. SPSS is a robust analytical tool that also supports social science data manipulations. Thus, because the research project centered on a topical business construct with social change implications, I believed the tool supported the actualization of the research objective.

Conclusively, I used Chapter 3 to synthesize and explain ethics and protections that were assigned to participants' identities; participants were protected without any form of compromise. In addition, I ensured adequate participation of the IRB from policy formulation, process design, data collection, to report presentation. In addition, I explained data validity and reliability that supported the multilayered capital system as alternative sources of finance to SMEs because of several hurdles used by banks and other financial institutions for loan approval. I presented the analysis and findings from the data gathered from this research in Chapter 4.

Chapter 4: Results

In this study, I examined the effects of funding limitations on SME business operations and growth. In addition, I examined the multiplier effects of restricted access to finance as limitations to the business survival given the role played by SMEs as a key contributor to economic development through employment generation. The purpose of the study was to investigate a multilayered capital system as an alternative source of funding for SMEs.

To achieve this purpose, I posed three research questions as the main components of the study:

1. To what extent does credit score (credit rating, credit histories, and creditworthiness), age, and size of firm limit SME access to funds from financial institutions?
2. To what extent does funding constraint limit the growth of SMEs?
3. What is the relationship between funding from the multilayered capital market and SME growth?

I presented three hypotheses tied to the research questions and subjected each hypothesis to statistical testing. In Hypothesis 1, I claimed that there was a significant relationship between the loan approved by financial institutions and the requestor's credit score, age, average turnover, and the size of the SME. In Hypothesis 2, I claimed that funding constraint or the denial of a funding request by financial institutions would limit the SMEs' potential to grow. In Hypothesis 3, I claimed that funding from the multilayered capital market, as an alternative to conventional financial institutions, would

lead to SME growth. I tested Hypothesis 1 using multiple regression and Hypotheses 2 and 3 using correlation coefficients. The results of these statistical tests are the main focus of Chapter 4.

I organized Chapter 4 to have a seamless and logical flow of pertinent information that explained the purpose of the study. In addition, I explained the justification for changes from the original plan described in Chapter 3, including data collection and cleansing procedure, sample selection criteria, and descriptive statistics of the hypotheses. I performed quantitative data analyses—hypotheses testing using the approved statistical tools, and provided a summary of the key results.

Data Collection

As discussed in Chapter 3, the data collected for this study were from both primary and secondary sources. The primary data were sourced within an 8-week timeframe from participants who worked in SMEs with finance or accounting responsibilities. The data in this category were collected primarily from CFOs, finance VPs, controllers, finance managers, financial planners, and financial analysts. The secondary data were held primarily in the World Bank Group Enterprise survey database and U.S. Census Bureau database from 2008 to 2014. For the purpose of data inclusion in the secondary data category, country-specific information on SMEs was given higher consideration. Conversely, for primary data, the following criteria were considered in the selection process:

1. operates within the information technology, service, or manufacturing sector,
2. employs 5-30 employees,

3. has ≤ $40M turnover,
4. has ≤ 18 years of operations,
5. prepares financial statements or some form of financials (audited or nonaudited),
6. maintains bank account(s),
7. has attempted a credit line or bank loan in the previous 5 years,
8. has a strategic management plan to grow.

During the study, 45 personalized emails were sent directly to identified potential participants that met the criteria, and nine different specialized SME groups on LinkedIn were approached for data collection (Table 6). 92 (14.1% contacted via email and 85.9% via LinkedIn) participants responded to the survey from the specialized SMEs groups of on LinkedIn (Table 6).

Table 6

Table of SMEs Group on LinkedIn

Group	Members
Small business network	84,498
Senior executives	44,270
SME manufacturing	28,603
The strategic CFO	22,516
Small biz forum	8,832
Doctoral students and practitioners	4,078
Startups	3,758
Connecticut small businesses	3,570
Small business CFOs	3,375

Sample Selection Criteria

The inclusion and exclusion criteria were based on the respondent industrial sectors and the professional positions occupied by the company as shown in Figure 7.

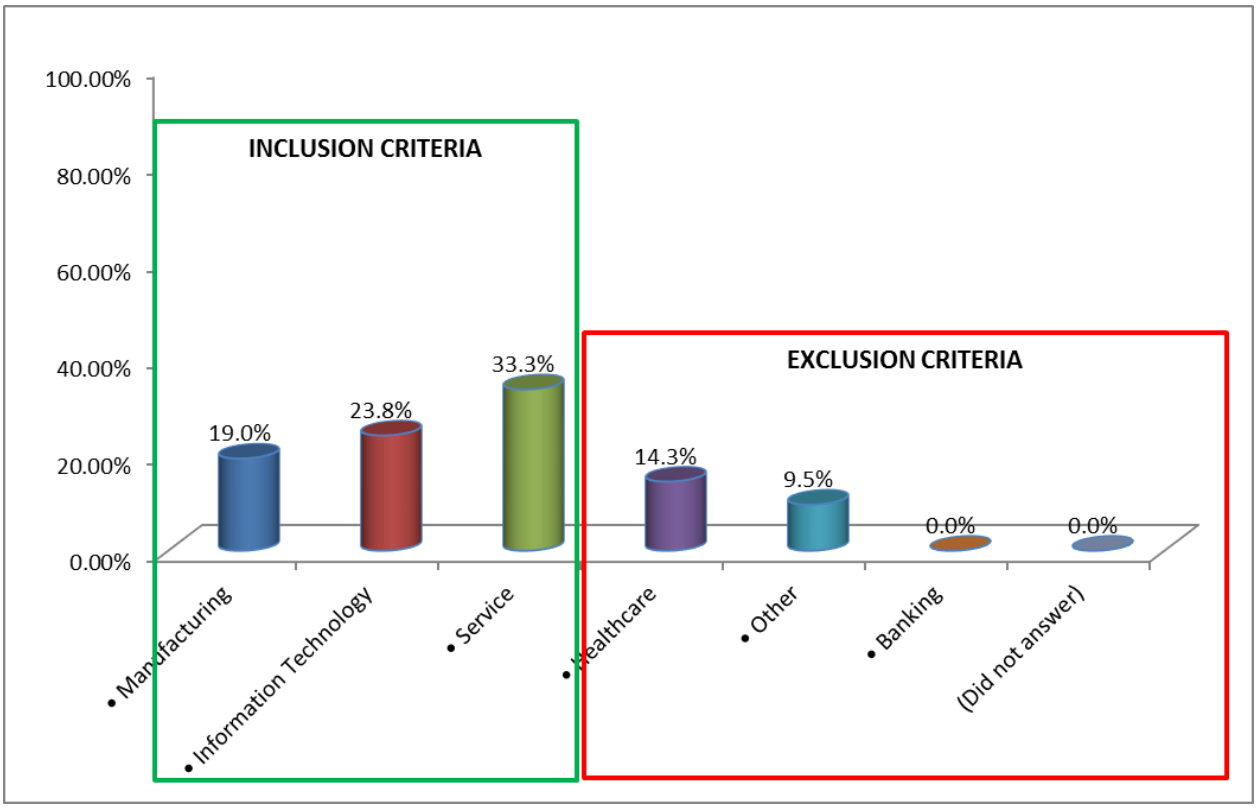

Figure 7. Bar graph showing inclusion criteria by industrial sector

Based on data collected, the inclusion of the expected industrial sectors accounted for 76.1% of the respondents, and 23.9% were excluded in the data analysis. As shown in Figure 8, 66.7% of respondents' professions aligned with the research inclusion benchmarks (CEO 27.78%, finance professions 38.89%), and 33.3% were excluded.

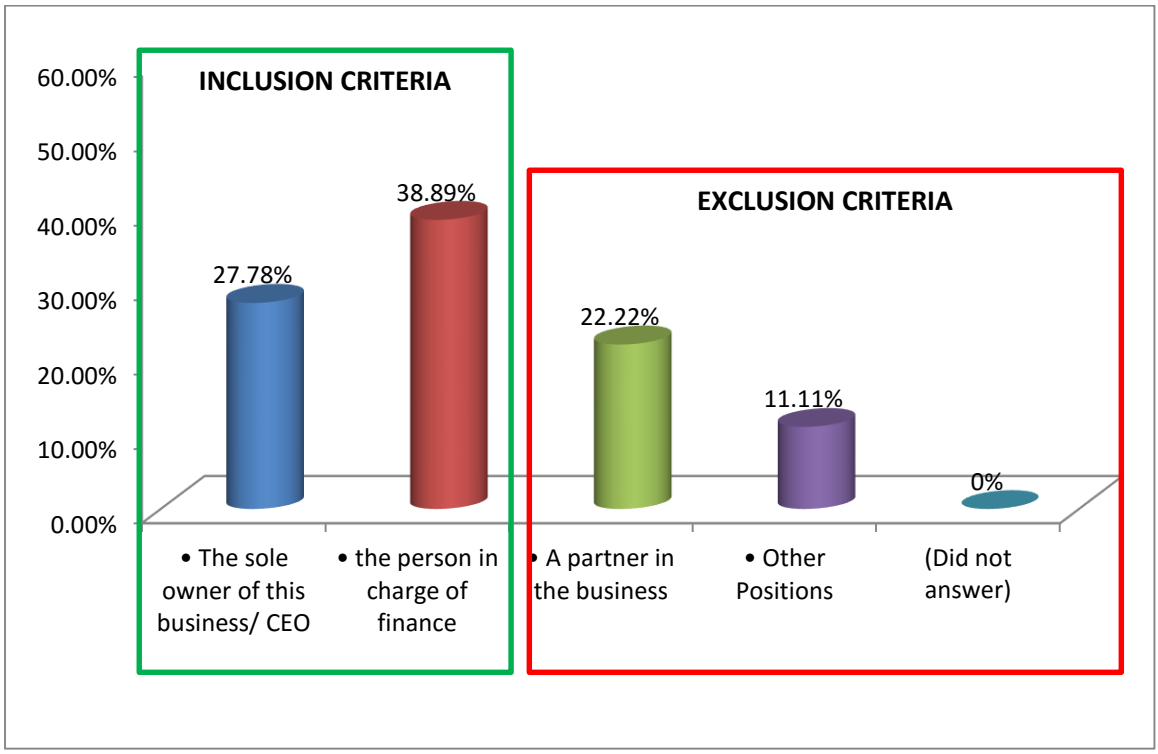

Figure 8. Bar graph showing inclusion criteria by profession

Data Analysis: Descriptive Statistics

Descriptive Statistics of the Variables in Hypothesis 1

Dependent variable. I used Table 7 to provide the descriptive statistics of approved funding requested (AFR) as the only dependent variable. AFR was expected to be affected by the interplay among age (YEARS), credit score (CS), average turnover (AT), and total assets (ToA).

Independent variable. In Table 7, I listed the descriptive statistics of age (YEARS), credit score (CS), average turnover (AT), and total assets (ToA) as key drivers to the dependent variable, approved funding request (AFR).

Table 7

Descriptive Statistics: Age (years), Credit Score, Average Turnover ($), Total Assets ($) and Approved Funding Request ($) in Hypothesis 1

Variables	n	Min	Max	Mean	Median	s.d.
age (years)	51	5	16	10.76	10	3.004
Credit score	51	680	850	770.39	720	68.087
Approved funding request ($)	51	$290,000	$4,000,000	$3,571,471	$1,000,000	$7,024,493
Average turnover ($)	51	$200,000	$31,250,000	$3,518,873	$700,000	$6,563,574
Total assets ($)	50	$125,000	$10,000,000	$2,037,080	$976,000	$2,359,604
Valid N (listwise)	50					

		Percentile		
Variables	N	25	50	75
age (years)	51	10	10	14
Credit score	51	720	720	850
Approved funding request ($)	51	$550,000	$1,000,000	$3,300,000
Average turnover ($)	51	$500,000	$7,000,000	$3,500,000
Total assets ($)	50	$480,000	$976,000	$3,031,250
Valid N (listwise)	50			

I collected the data relating to the age, credit score, average total revenue, total assets, and approved funding requests from participants' responses as designed in the survey. As noted in Chapter 3, I measured the age (YEARS) of the SMEs as the number of years the firm had been in existence (median = 10.00 years). In addition, I measured the credit score as proxies to determine the level of SME riskiness to the entrepreneurship. The average score as 770.39 (median = 720.00 and *SD* = 68.1). I also measured the average total revenue (AT) from turnover to be $3.5 million (median = $0.7 million and *SD* = $6.6 million). Further, the total assets (ToA) were used as proxies for measuring the size of the SMEs. The outcomes showed that the average size (ToA) of the SMEs was $2 million (median = $0.98 million and *SD* = $2.4 million). On a 25 percentile

basis, the age, credit score, approved funding request, average turnover, and total assets were 10 years, 720, $0.55 million, $0.50 million, and $0.48 million respectively.

Descriptive Statistics of the Variables in Hypothesis 2

Dependent variable. Table 8 shows the descriptive statistics of growth rate (GR) that represents the aftermath effect of the approved fund on business operations. To achieve the accurate impact, applications that were rejected by banks and other financial institutions for funds were filtered out from the sample size.

Independent variable. Table 8 shows the descriptive statistics of approved funding request (AFR) as a trigger for business expansion and growth. Graphically, I displayed the relationship between the value and percentage of the variables (Figure 9). Here, I considered AFR capable of explaining the direction of business growth.

Table 8

Descriptive Statistics: Growth Rate (%) and Approved Funding Request ($) in Hypothesis 2

	n	Min	Max	Mean	Median	s.d.	Skewness		Kurtosis	
Variables	Stats	Stats	Stats	Stats	Stats	Stats	Stats	Std. Error	Stats	Std. Error
Approved Funding Request ($)	51	$290,000	$4,000,000	$3,571,471	$1,000,000	$7,024,493	3.677	0.333	15.189	0.656
Growth Rate (%)	51	2.00	25.00	6.99	6.00	4.59	1.816	0.333	4.402	0.656
Valid N (listwise)	50									

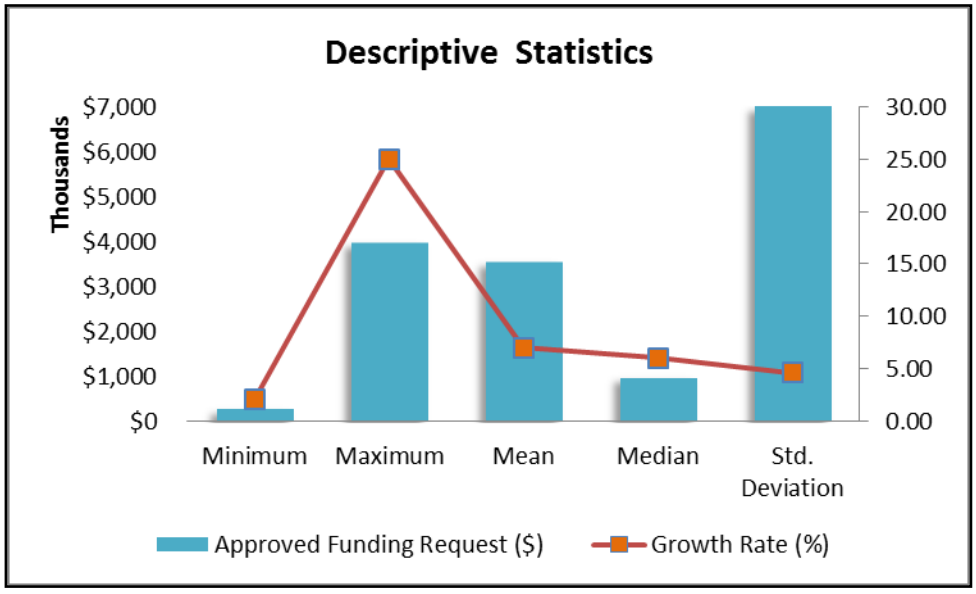

Figure 9. Graphical representation of the descriptive statistics of approved funding request ($) and corresponding growth rate (%)

For Hypothesis 2 and as noted under Hypothesis 1, I collected SMEs' approved funding request from banks and other financial institutions (BOFI) and filtered for those that were fully or partially approved to fund SME expansion or business operations. I found the average approved funding request (AFR) to be $3.5 million (median = $1 million and *SD* = $7 million). To complete the variables, I also measured the growth rate (GR) by either the year over year (YoY) changes on annual turnover ($) or by the growth rate (GR) explicitly stated by SMEs in the survey responses. This resulted in an average of 6.99% year over year growth (YoY) for SMEs (median = 6.0 and *SD* = 4.59). Furthermore, on a percentile basis as shown in Table 8, the 25th and 75th percentile, approved funding request (AFR) and growth rate (GR) stayed at $0.55 million, 4.0%; and $3.3 million, 9% respectively. As noted in Figure 10, the trends and fluctuations between

growth rate (GR) and approved funding request (AFR) are relational and firm specific. Graphically, the result shows a positive relationship.

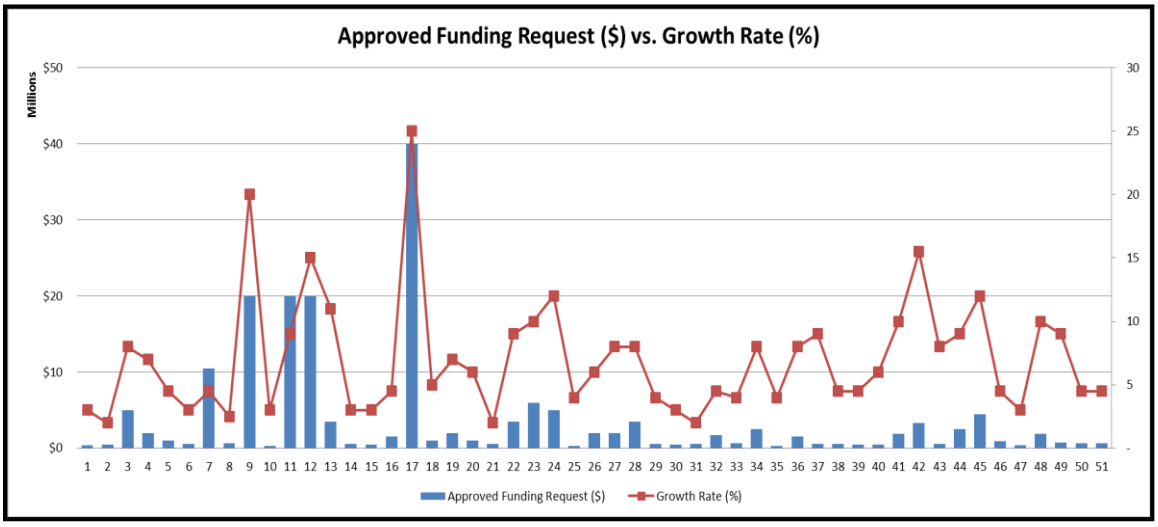

Figure 10. Graphical representation of the interplay between funding request ($), and corresponding growth rate (%)

Descriptive Statistics of the Variables in Hypothesis 3

Dependent variable. Table 9 shows the descriptive statistics of expected growth rate (εGR) that represents the main effect of easy access to funds from the multilayered capital market on business operations and expansions.

Independent variable. Table 9 also shows the descriptive statistics of expected funding from capital market (εAFR) to represent the trigger for business expansion and growth. I considered (εAFR) capable of explaining any changes recorded as business growth.

Table 9

Descriptive Statistics: Growth Rate due to Funding (%) and Expected Approved Funding Request ($) in Hypothesis 3

	n	Min	Max	Mean	Median	s.d.	Skewness		Kurtosis	
Variables	Stats	Stats	Stats	Stats	Stats	Stats	Stats	S.E	Stats	S.E
Expected Approved Funding Request ($)	45	$250,000	$100,000,000	$7,435,556	$2,500,000	$16,590,220	4.547	0.354	23.219	0.695
Expected Growth Rate (%)	45	2.00	25.00	8.36	8.00	4.66	1.417	0.354	2.938	0.695
Valid N (listwise)	45									

		Percentile		
Variables	n	25	50	75
Expected approved funding request ($)	45	$100,000	$2,500,000	$5,500,000
Expected growth rate (%)	45	5.00	8.00	10.00
Valid N (listwise)	45			

As noted in Chapter 3, I collected the expected approved funding for SMEs from a multilayered capital market only for respondents who believed in the modalities of non-New York Stock Exchange (a capital market) to fully fund their business operations. Thus, I found the expected multilayered approved funding request (εAFR) to be $7.4 million (median = $2.5 million and *SD* = $16.6 million); that was majorly influenced by industry and firm specific prospect. Thus, to complete the variables, I also measured the expected growth rate (εGR) as stated by SMEs in the survey responses. This resulted in an average of 8.36% (median = 8.0 and *SD* = 4.66) Furthermore, on a percentile basis as shown in Table 9, the 25th and 75th percentile, expected approved funding request (εAFR) and expected growth rate (εGR) remained at $.1 million; 5.0%, and $5.5 million; 10% respectively.

Graphically, as noted in Figure 11, the maximum approved multilayered expected capital market funding request has the highest growth rate (25%) while the minimum expected approved funding request has the lowest growth rate (2%).

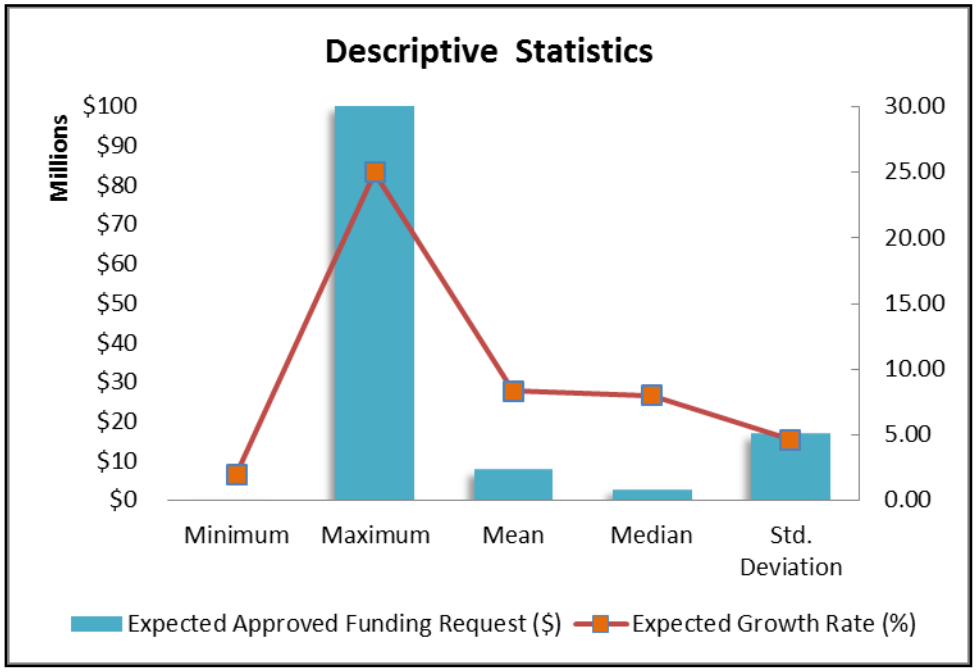

Figure 11. Graphical representation of the descriptive statistics of expected approved funding request from capital market ($), and corresponding expected growth rate (%)

Data Analysis: Hypothesis Testing

Hypothesis 1

As highlighted and discussed in both Chapter 1 and Chapter 3, the hypotheses tested were:

H_0: There is no significant relationship between credit score, age, average turnover, size, and amount of loan approval from financial institutions.

H_1: There is a significant relationship between credit score, age, average turnover, size, and amount of loan approval from financial institutions.

Further, Hypothesis 1 was tested through a multiple regression model

$$AFR_i = \beta_o + \beta_1 YEARS_i + \beta_2 CS_i + \beta_3 AT_i + \beta_4 ToA_i + \varepsilon_i \quad (7)$$

To institutionalize the modality of this model, each of the four variables was assessed based on its characteristics and categorizations. To this end, age (YEARS) and credit score (CS) data were converted from ordinal to interval scale to make them meaningful for the analysis. I entered all of the four independent variables relating to the approved funding request (AFR) into SPSS to calculate a regression model using force and stepwise methods. According to Field (2009), the force method served as the default method when using predictors that have been tested in prior research. In another perspective, I also used a stepwise method to validate the individual prowess of the variables considered in the hypothesis. Accordingly, this method (stepwise) of entry, allows SPSS the control to manipulate inclusion or exclusion of any of the independent variables to the model based on the *t*-statistics of their estimated coefficients, taking into consideration the ability of that variable to improve or influence the predictability of the model. Thus, the stepwise method empowers the researcher more than the forced method of ordinary multiple regression methods due to its ability to filter through large numbers of potential independent variables and/or refine the model to reflect individual variation.

Hypothesis 1: Multiple Regression Model (stepwise method). Provided in Table 10 is the summary of the outcomes of the multiple regression models using a stepwise method for hypothesis 1. As reflected in Table 10, the multiple regression analysis indicates 64.5% of the dependent variable, approved funding request (AFR), is explained by the independent variable, total assets (ToA), based on the weight assigned to the variable. Further, the adjusted R^2 shows 63.7% of the variance can be explained by total assets (ToA) when adjusted for other independent variables and sample size. Thus,

the level of the model's prediction is significant at $F(1, 48) = 87.126$, and $p < .05$ because the total R^2 is statistically significant at $p < 0.05$ level. This means that the effect of total assets (ToA) on approved funding request (AFR) is 99.5% and not based on chance.

Table 10

Hypothesis 1 Multiple Regression Model (MRM stepwise method): Overall Model Summary

Model Summary[a]

Model	R	R Square	Adjusted R Square	of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.803[a]	.645	.637	4272965	.645	87.126	1	48	.000	2.115

a. Predictor: (Constant), Total Assets ($)

b. Dependent Variable: Approved Funding Request ($)

To arrive at the overall level of statistical significance, SPSS excluded other independent variables (i.e., age, credit score, and average turnover) from the model based on the method elected (stepwise); therefore, illustrating that the addition of any of those variables did not in any way significantly improve the overall predictability of the model. Hence, the level of significance and the predictive relationship observed in the overall model related only to total assets (ToA).

Hypothesis 1: Multiple Regression Model (force method). I have also provided another perspective of the outcome of the multiple regression model based on the *force method* in Table 11. As reflected in the table, 66.0% or 1.5% higher than the *stepwise method* of the dependent variable, funding request (AFR) is explained by independent variables, total assets (ToA), age (YEARS), credit score (CS), and average turnover (TA). Further, the adjusted R^2 shows 62.9% of the variance can be explained by the combination of the independent variables when adjusted for sample size. Thus, the level of the models prediction is significant at $F(4, 45) = 21.805$, and $p < .05$

Furthermore, as reflected in Table 11, the level of the combination of the independent variables to predict the dependent variable is significant. This means the combination of all the independent variables (i.e., age, credit score, and average turnover) had a significant predictive ability in explaining the variability of SMEs' approved funding requests (AFR).

Table 11

Hypothesis 1 Multiple Regression Model (MRM force method): Overall Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.812[a]	.660	.629	4276275	.660	21.805	4	45	.000	2.185

a. Predictors: (Constant), Total Asset ($), Age (years), Average Turnover ($), Credit Score

b. Dependent Variable: Approved Funding Request ($)

However, and in spite of the overall level of significance, I considered it pertinent to examine the individual capability of the variables to ascertain their degree of influence or predictability on the dependent variables, hence; I deferred to the use of coefficient of correlation to explain the individual latent reasons.

As depicted in Table 12, and evidently due to the method used in the regression analysis, only total assets (ToA) has significant predictability proficiency that explains the variability in approved funding request (AFR), as other independent variables (age, credit score, average turnover) were eliminated from the model due to their lack of significance.

Table 12

Hypothesis 1 Multiple Regression Model (MRM stepwise method): Table of Coefficients

Coefficients[a]												
		Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
1	(Constants)	-13460873.35	801798.233		-1.679	.100					
	Total Assets ($)	2.415	.259	.803	9.334	.000	.803	.803	.803	1.000	1.000

a. Dependent Variable: Approved Funding Request ($)

In Table 13 under the force method, where every other independent variable was not eliminated but allowed to stay in the regression equation to assess their predictability powers, only total assets (ToA) has a significant predictive ability in explaining the variability of SMEs' approved funding requests (AFR). Arguably, this was because all of the other independent variables had a *p*-value that was greater than .05. The total assets (ToA) variable is significant because it has a *p*-value that was less than 0.05 and positively correlated to the AFR with coefficient/beta of 2.185.

Table 13

Hypothesis 1 Multiple Regression Model (MRM force method): Table of Coefficients

Coefficients[a]													
		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constants)	-8916432.509	7934487.014		-1.124	.267	-24897309.69	7064444.676					
	Age (years)	101197.565	227109.162	.043	.446	.658	-356223.768	558618.897	.273	.066	.039	.802	1.247
	Credit Score	8763.381	11427.393	.085	.767	.447	-14252.569	31779.332	.446	.114	.067	.616	1.622
	Average Turnover ($)	.056	.109	.052	.515	.609	-.163	.275	.396	.076	.045	.731	1.368
	Total Assets ($)	2.185	.299	.734	7.298	.000	1.582	2.788	.803	.736	.635	.748	1.337

a. Dependent Variable: Approved Funding Request ($)

The positivity presupposed that the higher the total assets (ToA) of SMEs, the higher for the banks and financial institutions to approve funding requests. In view of these findings, the overall and individual levels of significance of the model, one can conclude that the approved funding request (AFR) is totally dependent on age (YEARS), credit score (CS), average turnover (AT), and total assets (ToA). Hence, the null

hypothesis can be rejected in favor of the alternate hypothesis. In this view, the resulting significant regression model could be summarized from the coefficients in Table 13 as follows:

$$AFR_i = \beta_o + \beta_1 YEARS_i + \beta_2 CS_i + \beta_3 AT_i + \beta_4 ToA_i + \varepsilon_i \quad (8)$$

$$\mathrm{AFR_i} = \text{-}8916432 + 101197(\mathrm{YEARS_i}) + 8763(\mathrm{CS_i}) + 0.056(\mathrm{AT_i}) + 2.185(\mathrm{ToA_i}) + \varepsilon_\mathrm{i} \quad (9)$$

Conversely, for the model to be generalizable, it must pass and fulfill assumptions of multicollinearity, homoscedasticity, autocorrelation, and normality like any other multiple regression model.

Test of Multicollinearity

As required under multicollinearity assumption, the regression model violates the assumption when two or more predictors correlate. Thus, it obstructs the understanding of which of the independent variables explained the variance in the dependent variable. Therefore, the increase in collinearity leads to increased standard errors associated with β coefficients, reduces the noticeability of the individual predictor, and affects the size of R (Field, 2009). To this end, SPPS uses collinearity diagnostics of variance inflation factor (VIF) and its inverse called the tolerance statistic to overcome these challenges. The general rule is tolerance should be > 0.1 (or VIF < 10) for all variables. However, if these conditions are not met, then the regression model will be biased (Field, 2009). To put into perspective of the regression model under review, it would be noted from Table 12 that the VIFs for all four of the independent variables were less than 10 and tolerance

statistics were far above 0.02 for all of the variables. Conclusively, there is no collinearity among the predictor variables.

Test of Homoscedasticity and Normality

Further, I checked for homoscedasticity and normality of residuals with the plot of z*pred and z*presid. The general assumption is the level of the dispersion of points on the scatter plot. According to Field (2009), "at each level of the predictor variables, the variance of the residuals should be constant" (p. 220) and where not, it is said to be heteroscedastic.

For the scatter plot shown in Figure 12, the plot indicates that in our multiple linear regression analysis there is no tendency in the error terms. Obviously, the scatter plot shows some level of randomness and did not funnel out on the scatter plot. Hence, the pattern as indicated by the variance of the residuals exhibit homoscedasticity.

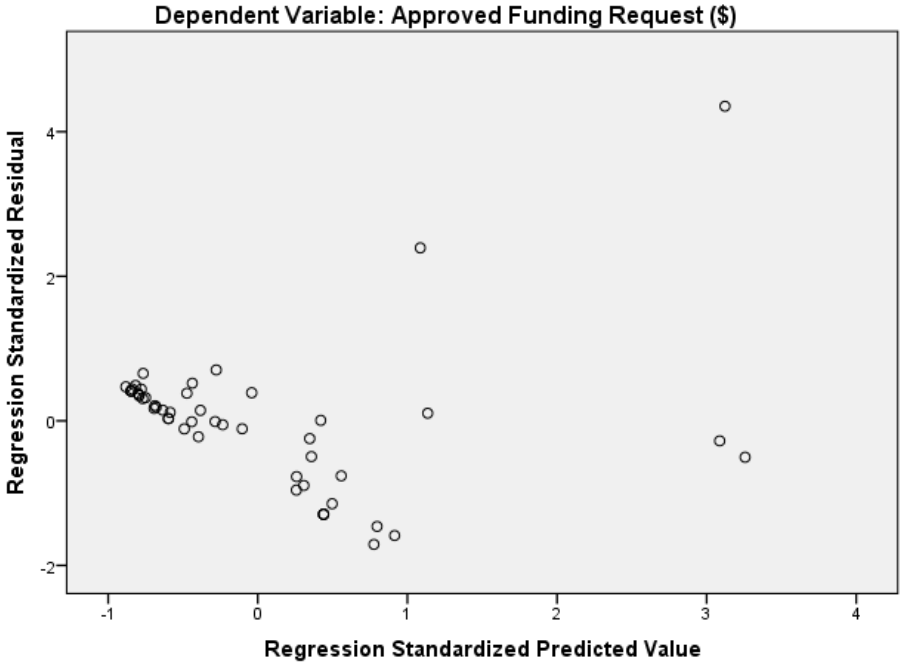

Figure 12. Hypothesis 1 scatter plot of *ZRESID against *ZPRED for the AFRs OLS regression model.

In relation to the normality assumption, Figure 13 testified that the data under consideration for hypothesis 1 is normally distributed

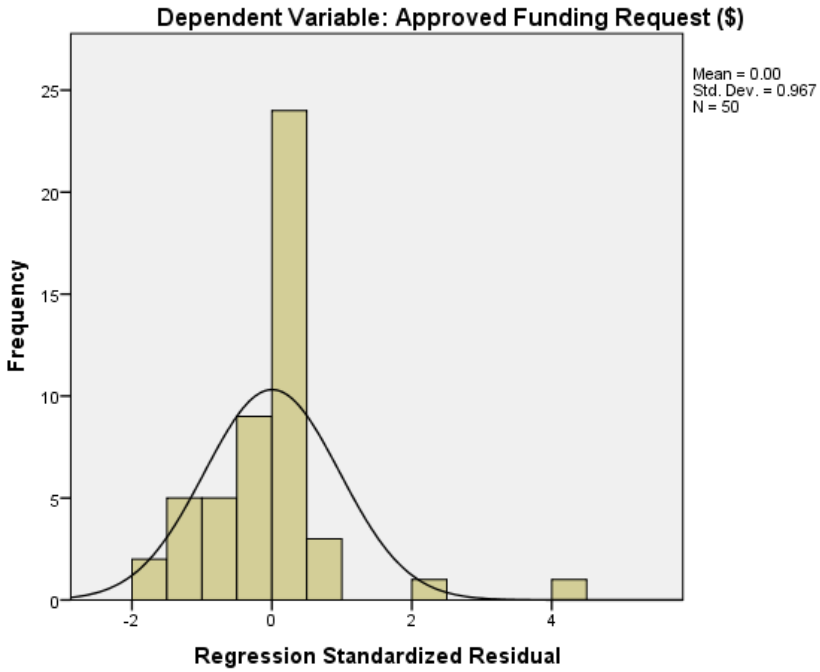

Figure 13. Hypothesis 1 histogram of normally distributed residuals for the AFR's OLS model.

Test of Autocorrelation

For the autocorrelation, the assumption is to test for degree of correlation between the residual terms. SPSS uses the Durbin-Watson test statistic to validate the presence of autocorrelation or lack of independence of errors. The rule is between two and four; a value greater than 2 implies a negative correlation and less indicates a positive correlation (Field, 2009). For hypothesis 1 data under review, the Durbin-Watson statistic was 2.185 depicting that the residuals were not auto/serially correlated.

Conclusively, and in view of the overall findings of the individual tests of assumptions of multiple regressions, and that of overall significance of the model, I claim that the variability of AFR was dependent upon the four independent variables; hence, the null hypothesis was rejected in favor of the alternate hypothesis.

Hypothesis 2: Funding Constraint to SME Growth

As discussed in detail in Chapter 1 and Chapter 3, the hypothesis tested was:

H_0: Funding constraint will not limit SME growth.

H_1: Funding constraint will limit SME growth.

$$GRi = \frac{\sum AFR_i GR_i}{\sum AFRi \sum GRi} \quad (10)$$

Expectedly, the hypothesis was to provide answers to the research question on the relationship between funding that is available to SMEs and the corresponding growth trajectory.

Hypothesis 2: Correlation coefficient. I have provided a summary of the outcomes of the coefficient of correlation between approved funding request and SME growth rate in Table 15. As a rule, correlation coefficient *r* is between +1 and −1. This means that the closer *r* is to +1, the stronger the positive correlation and the closer *r* is to −1, the stronger the negative correlation (Table 14). Likewise, the degree of correlation is further categorized as weak, moderate, or strong as reported in Table 13.

Table 14

Table of Coefficients Rules

Type	range
weak correlation	0 < |r| < .3
moderate correlation	.3 < |r| < .7
strong correlation	r| > 0.7

The outcomes of hypothesis 2 analysis as reflected in Table 15, the correlation coefficient r = +0.775. Hence, there is a strong relationship between growth rate and level of approved funding request for SMEs with r closer to one. In addition, the positivity indicates a directional correlation; as approved funding request increases, the growth rate value increases in the same direction. Similarly, as one variable decreases in value, the second variable also decreases in value.

Table 15

Hypothesis 2 Correlation Coefficient: Correlations Summary

Correlations			
Variables		Approved Funding Request ($)	Growth Rate (%)
Approved Funding Request ($)	Pearson Correlation	1	.775**
	Sig. (2-tailed)		.000
	Sum of squares and Cross-products	2.47E+15	1250914485
	Covariance	4.93E+13	25018289.7
	n	51	51
Growth Rate (%)	Perason Correlation	.775**	1
	Sig. (2-tailed)	.000	
	Sum of squares and Cross-products	1250914485	1054.745
	Covariance	25018289.71	21.095
	n	51	51

**. Correlation is significant at 0.01 level (2-tailed)

Furthermore, using the coefficient of determination (CoD), r = 0.775 then r^2 = 0.6006 or 60.1%. The CoD measures the degree of the variance of one variable as explained by the other. Thus, it means 60.1% of the variability in growth rate is explained by approved funding request.

With another perspective, and based on Table 16, 60.1% of the dependent variable, growth rate (GR), is explained by the independent variable, approved funding

request (AFR). Further, the adjusted R^2 shows 59.37% of the variance of the growth rate can be explained by the approved funding request (AFR) when adjusted for sample size.

Table 16

Hypothesis 2 Correlation Coefficient: Overall Model Summary

Model Summary[a]

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.775[a]	.601	.593	2.929	.601	73.906	1	49	.000

a. Predictor: (Constant), Approved Funding Request ($)
b. Dependent Variable: Growth Rate (%)

Thus, the level of the model's prediction is significant at F(1, 49) = 73.906, and $p < .05$ because the total R^2 is statistically significant at $p < 0.05$ level. This means the approved funding request (AFR) on growth rate (GR) is 99.5% certain. The correlation coefficient is also significant (Table 17).

Table 17

Hypothesis 2 Correlation Coefficient: Coefficients Table

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations		
Model		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constants)	5.179	.461		11.232	.000	4.253	6.106			
	Approved Funding Request ($)	5.07E-07	.000	.775	8.597	.000	.000	.000	.775	.775	.775

a. Dependent Variable: Growth rate (%)

In this view, the resulting significant correlation coefficient could be summarized from the coefficients in Table 17 as follows:

$$GRi = \frac{\sum AFR_i GR_i}{\sum AFRi \sum GRi} \quad (11)$$

Conversely, for the model to pass the test of generalization, it must pass and fulfill assumptions of internal or ratio level, linear relationship, homoscedasticity, no significant outliers, and be normally distributed.

Test of Interval, Linearity, Homoscedasticity, Outliers, and Normality

By data interval or ratio assumption, data must be continuously measured and not be in ordinal form. In the data under consideration, the two variables were measured at the interval and the outcome passed the test of the assumption. Furthermore, for linearity and homoscedasticity between the variables, SPSS utilizes a scatter plot to ascertain the level of dispersion of the points and equality of scattering. Homoscedasticity of data represents equality of data representation irrespective of where the slice occurs through the scatterplot. In addition, if the points assemble to follow a specific line pattern, the pattern is said to be linear. Otherwise, the data would fail the assumption of linearity. Thus, for the scatter plot for the hypothesis under review as stated in Figure 14, the plot indicated that in the coefficient of correlation analysis there is no tendency in the error terms. Obviously, the scatter plot shows some level of togetherness by establishing a roughly football-shaped pattern; however, the points do not lie on a straight line but are scattered more-or-less evenly around one.

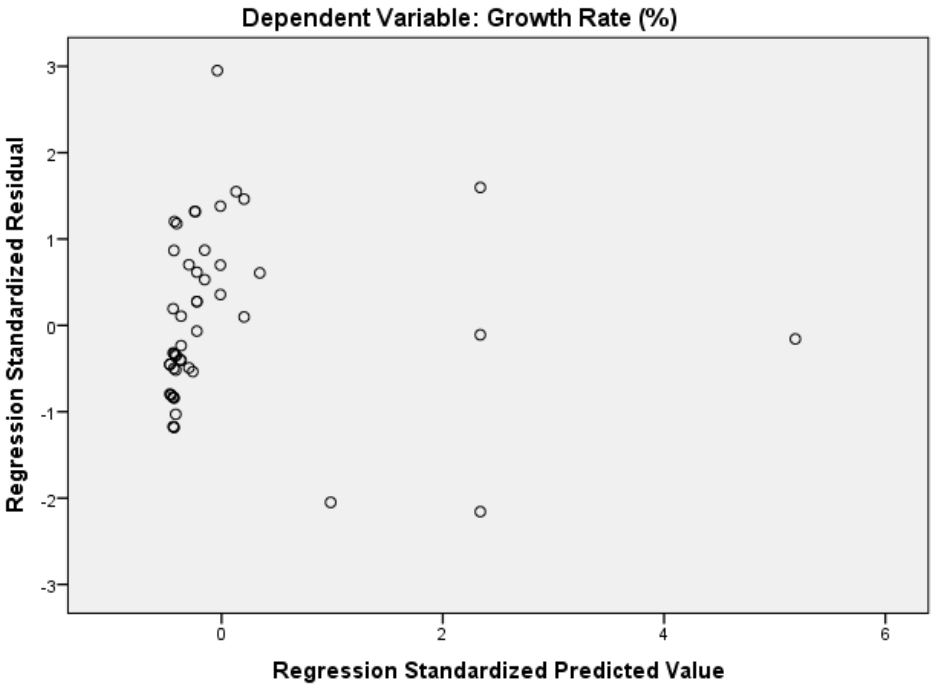

Figure 14. Hypothesis 2 scatter plot of *ZRESID against *ZPRED for the coefficient of correlation model.

Hence, the pattern as indicated in the scatter plot (Figure 14) exhibits linearity and homoscedasticity. In addition, for normal distribution assumption, the correlation coefficient *r* assumed the two variables under study must form a bivariate normal distribution population; otherwise, the variables are not fit under the correlation coefficient.

About the normality assumption, as noted in Figure 15, the data under consideration for hypothesis 2 are bivariate normally distributed. With these findings about the characteristics of the variables used in hypothesis 2 and having satisfied all the conditions and assumptions of correlation coefficient, I concluded that the relationship between the variables is statistically significant, and that the variability of growth rate

(GR) is related to the approved funding request (AFR). Hence, the null hypothesis was rejected in favor of the alternate hypothesis

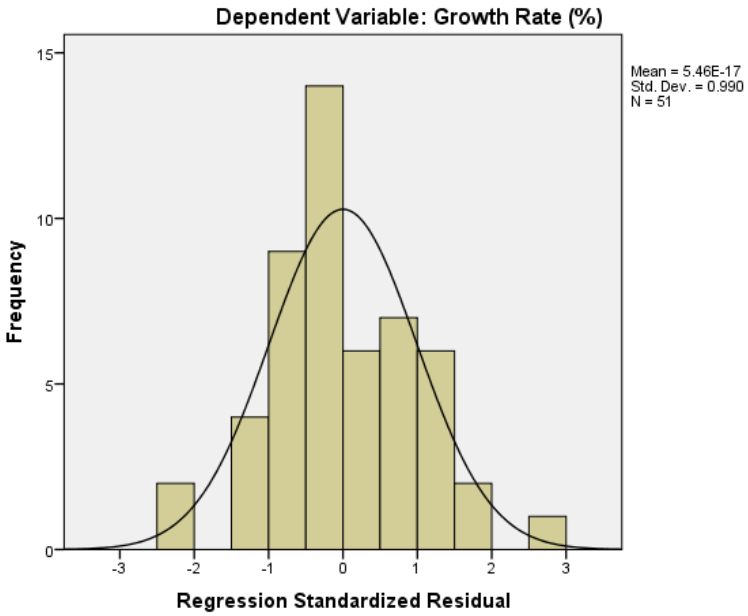

Figure 15. Hypothesis 2 histogram of normally distributed residuals for the correlation coefficient model

Hypothesis 3: Multilayered capital Market to SME Growth

As highlighted and discussed in both Chapter 1 and Chapter 3, the hypothesis tested was:

H_0: Funding from the multilayered capital market will not lead to SME growth.

H_1: Funding from the multilayered capital market will lead to SME growth.

$$\varepsilon GRi = \frac{\sum \varepsilon AFR_i \varepsilon GR_i}{\sum \varepsilon AFRi \sum \varepsilon GRi} \quad (12)$$

I used this hypothesis to provide answers to the research question on the relationship between expected funding from the capital market (multilayered; $\boldsymbol{\varepsilon}$AFR), and SMEs' expected corresponding growth rate ($\boldsymbol{\varepsilon}$GR).

Hypothesis 3: Correlation coefficient. I provided a summary of the outcomes of the coefficient of correlation between the expected funding request from the capital market and SME growth rate in Table 18. As discussed under hypothesis 2, the rule of correlation coefficient *r* between +1 and −1 is also applicable.

Table 18

Hypothesis 3 Correlation Coefficient: Correlations Summary

Correlations

Variables		Expected Approved Funding Request ($)	Expected Growth Rate (%)
Expected Approved Funding Request ($)	Pearson Correlation	1	.753**
	Sig. (2-tailed)		.000
	Sum of squares and Cross-products	1.21E+16	2561181111
	Covariance	2.75E+14	58208661.6
	n	45	45
Expected Growth Rate (%)	Perason Correlation	.753**	1
	Sig. (2-tailed)	.000	
	Sum of squares and Cross-products	2561181111	954.311
	Covariance	58208661.62	21.689
	n	45	45

**. Correlation is significant at 0.01 level (2-tailed)

As shown in Table 18, the correlation coefficient $r = +0.753$. Therefore, it means there is a strong relationship between growth rate and level of expected funding from the capital market (multilayered) for SMEs with *r* closer to 1. In addition, the positivity indicates a directional correlation. As the approved funding request increases in value, the growth rate increases in percentages. Similarly, as one variable decrease in value, the second variable also decreases in value.

With the coefficient of determination, $r = 0.753$ then $r^2 = 0.568$ or 56.8%. It means 56.8% of the variability in expected growth rate is explained by expected funding from the multilayered capital market.

Using the F-test as shown in Table 19, R^2 equals 56.8% of the dependent variable, expected growth rate (εGR), is explained by the independent variable, expected approved funding request (εAFR) from capital market. Further, the adjusted R^2 shows 55.8% of the variance of the growth rate can be explained by expected approved funding request (εAFR) when adjusted for sample size.

Table 19

Hypothesis 3 Correlation Coefficient: Overall Model Summary

Model Summary[a]									
					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.753[a]	.568	.558	3.098	.568	56.442	1	43	.000

a. Predictor: (Constant), Expected Approved Funding Request ($)
b. Dependent Variable: Expected Growth Rate (%)

Thus, the level of the model's prediction is significant at $F(1, 43) = 56.442$, and $p < .05$ because the total R^2 is statistically significant at $p < 0.05$ level (Table 19). This means the expected growth rate (εGR) on expected approved funding request (εAFR) is 99.5% certain. The correlation coefficient is also significant (Table 20).

Table 20

Hypothesis 3 Correlation Coefficient: Coefficients Table

Coefficients[a]											
		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Correlations		
Model		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Zero-order	Partial	Part
1	(Constants)	6.783	.507		13.378	.000	5.761	7.806			
	Expected Approved Funding Request ($)	2.115E-07	.000	.753	7.513	.000	.000	.000	.753	.753	.753

a. Dependent Variable: Expected Growth rate (%)

In this regard, the resulting significant correlation coefficient could be summarized from the coefficients in Table 20 as follows:

$$\varepsilon GRi = \frac{\sum \varepsilon AFR_i \varepsilon GR_i}{\sum \varepsilon AFRi \sum \varepsilon GRi} \quad (13)$$

Conversely, for the outcomes of the model to be considered fit for generalization, it must fulfill the following assumptions: internal or ratio level, linear relationship, homoscedasticity, no significant outliers, and normally distributed.

Test of Interval, Linearity, Homoscedasticity, Outlier, and Normality

For the scatter plot for the hypothesis under review as stated in Figure 16, the plot indicated that in the coefficient of correlation analysis there was no tendency in the error terms. In fact, the scatter plot displayed coherence in the pattern of the points. Although the plots recorded one outlier, the effect of the outlier was not enough to invalidate the pattern of the points on the scatter plot.

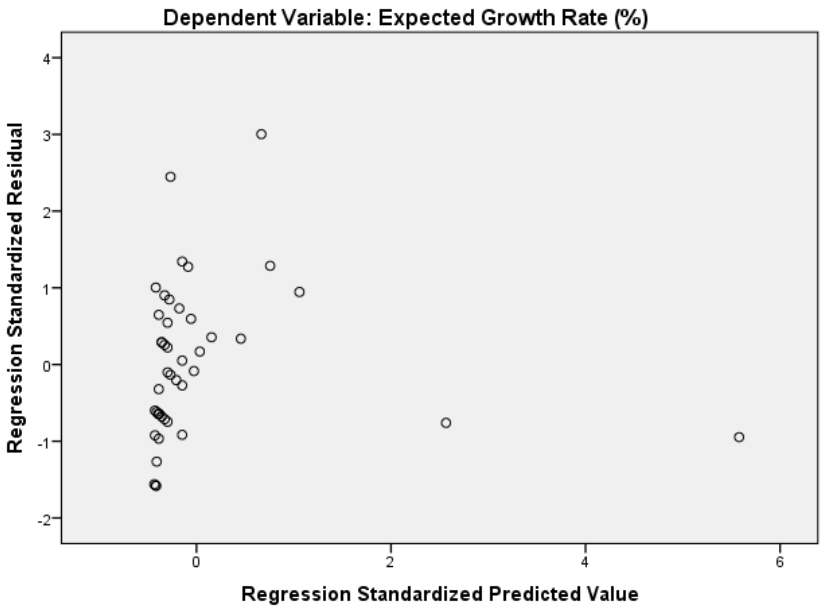

Figure 16. Hypothesis 3 scatter plot of *ZRESID against *ZPRED for the coefficient of correlation model.

Therefore, the pattern as indicated in the scatter plot exhibits linearity and homoscedasticity. Furthermore, for the normal distribution assumption, the correlation coefficient assumes that the two variables under study must form a bivariate normal distribution population; otherwise, the variables do not fit under the correlation coefficient.

For the normality assumption, Figure 17 testified that the data for hypothesis 3 are bivariate normally distributed. With these findings, and after satisfying all the conditions and assumptions of correlation coefficient, I concluded that the relationship between the variables was statistically significant, and that the variability of expected growth rate (εGR) is related to the expected approved funding request (εAFR) from a multilayered capital market. Hence, the null hypothesis was rejected in favor of the alternate hypothesis.

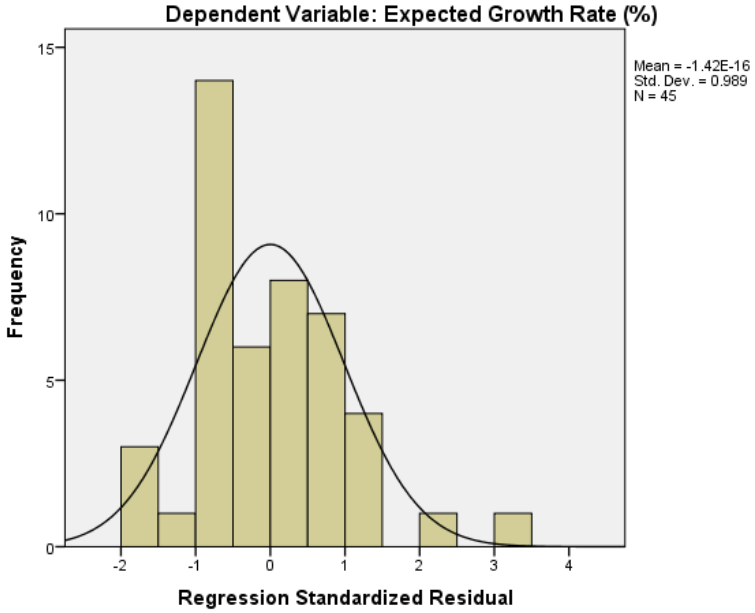

Figure 17. Hypothesis 3 histogram of normally distributed residuals for the correlation coefficient model.

Summary of Results

In Chapter 4, I presented the statistical findings of the research. I aligned the means and forms to the overall research design and methodology illustrated and discussed in Chapter 3. It was my conviction that through these research findings, I have systematically provided answers to the three research questions posed as the theme of the study. The first of these research questions was: To what extent does credit score (credit rating, credit histories, and creditworthiness), age, and size of firm limit SMEs' access to funds from financial institutions? With respect to this research question, I found that SMEs approved funding request is a function of the age of the company, credit rating associated with the entrepreneur, and size of the firm on a composite level. Contrary to earlier assertions and positions, I also found that in the individualized state, only the size of the total firm assets (ToA) significantly influenced the way banks and financial institutions assessed a funding request.

With respect to the second research question, I posed: To what extent does funding constraint limit the growth of SMEs? My intention was to decipher to what extent inadequate funding could impede SME strategic growth and development. Specifically, in this research question, I found that the relationship between funding and SME growth was positively related. Thus, increasing funds to SMEs translates to growth in the same direction and vice versa.

Furthermore, in the third research question, I posed: What is the relationship between funding from the multilayered capital market and SME growth? In absolute terms, I wanted to determine the willingness of entrepreneurs to access other variations of

the capital market to source funds and finance business operations. Using this question, I found that the relationship between expected growth rate and expected approved funding request for SMEs was positively related. Thus, increasing funds from the multilayered capital market to SMEs translates to growth in the same direction and vice versa.

Giving the results obtained in this chapter, I proceeded to Chapter 5 where I discussed the findings of the analyzed data to provide answers to each of the three research questions of this study. Further, I presented in Chapter 5 the implications of the research findings to the SME community and gave recommendations for action, social change, and further research.

Chapter 5: Discussion, Conclusions, and Recommendations

In this study, I investigated the effects of funding limitations on SMEs' business operations and growth. I also examined the multiplier effect of restricted access to finance on business survival. SMEs are key strategic businesses in creating employment and contributing to the gross national income of nations. Despite their contributory role, SMEs face restricted access when it comes to funding compared to other established corporations. The purpose of the study was to investigate a multilayered capital system as an alternative funding business survival strategy for SMEs in order to bridge the funding and access gap created by frameworks of the traditional banks and financial institutions.

To fulfill this purpose, I conducted a quantitative study of a correlational design tripod to answer three research questions:

1. To what extent do credit score (credit rating, credit histories, and creditworthiness), age, average turnover, and size of firm limit SME access to funds from financial institutions?
2. To what extent does funding constraint limit the growth of SMEs?
3. What is the relationship between funding from multilayered capital markets and SME growth?

With respect to the first research question, the findings indicated that the combination of (a) age or longevity of the business, (b) the credit score of the entrepreneur, (c) the average turnover of a given period, and (d) the size of the balance sheet measured by the total assets has a significant impact on the way banks and other financial institutions grant credit to SMEs. However, when the variables were analyzed

on a case-by-case basis, the results varied significantly. The results demonstrated the power rested on the individuality of the variables. Among the variables, only total assets (ToA) of a company influenced banks' and other financial institutions' (BOFI) lending decisions. Banks put more leverage on the quality of the balance sheet to determine how contributory the asset would be toward the future cash flow of an SME. Further, BOFI used the individual component to judge the repayment capability of the borrower, and the total assets represented a good fallback strategy.

I used the second research question to investigate funding constraint and its corresponding impact on SME growth within the same period. The results showed a significant correlation between denial of funding request by banks and other financial institutions to SMEs and the corresponding growth trajectory record for that time. The impact of denials or restricted access to funds moves in the same direction. The results indicated borrowers' lower internally generated funds capacity were inadequate to finance growth or the combination of internally generated funds and other means were not robust enough to provide funding leverage to support growth drive. Hence, as the last resort, the borrowers sought external funding support and stimulated the projected growth from the inflow from the lenders. The findings of the research question align with what I described in Chapter 2. SMEs follow the position of the pecking order theory (PoT)—financing with internally generated funds first because they are not subject to asymmetric information "syndrome, and less expensive than debt or equity. It is only when this is not sufficient that borrowers default to external lenders" (Newman & Borgia, 2012). In some

instances, the application of the tradeoff theory (ToT) also comes into an SME's decision strategy to take advantage of the cheaper cost of capital associated with debt.

With respect to the third research question as hypothesized, I found that when it comes to sources for funding beyond traditional banks and other financial institutions, SMEs are ready for an alternative. Entrepreneurs are open to sources for funds in a multilayered capital market over a National Stock Exchange Market (NSE) because of fewer hurdles and lower entry barriers. In addition, the findings showed a relationship between the expected available funds and the organic growth that would come from the funds sourced from the tiered capital market system. Essentially, SMEs are open to the idea of achieving the same objective in a less stringent environment. Although 8% of the respondents believed otherwise and did not consider the multilayered capital market system as a platform for the near future, 92% had a strong conviction that the multilayered capital would provide the required financial leverage.

With a brief summary of the key findings as stated thus far, the next section of this chapter (i.e., interpretations of research findings) provides the detailed findings of the research questions. The explanations and further discussions are provided to buttress the underlying theoretical framework of this study, followed by recent discoveries and the body of literature presented in Chapter 2. The body of literature is used to either confirm the findings or draw contrasts based on the specificity of either the variables or the relationship. Further, I provide other sections that (a) examine the implication of the findings on social change, especially from the perspective of the key strategic stakeholders taking into consideration the recent debate between SMEs and micro-firms;

(b) identify the key limitations of the study to survey design on targeted class of participant, and in relation to the barriers, challenges encountered in data collection, and procedural caution required before a blanket generalization of the research findings to other areas of the economy; (c) recommend actions in the area of policymaking and structure implementation, and further research as applicable to the emerging frontier in the SME industry; and (d) provide a concluding statement where I summarize my findings, recommendations, and conclusion for all of the chapters of this study.

Interpretation of Research Findings

Research Question 1

This research question addressed the role played by the combination of entrepreneur credit scores (CS), the age or years of operations (YEARS), average turnover (AT), and the size of the firm (ToA) as they affect banks' and other financial institutions' decisions about SMEs' applications for funds. The research question was used to probe the weight and extent of considerations that banks and other financial institutions accord these variables when SME applications are reviewed for decisions. The findings showed a significant statistical relationship between the combinations of credit score, age, size, and banks and other financial institutions' consideration when granting credit to SMEs. However, on an individual basis as shown in Table 10, only the size of the firm measured in total assets (ToA) influenced the decision process of banks and other financial institutions significantly toward SME loan applications. Arguably, this was because all the other independent variables had a *p*-value that was greater than .05, and only total assets (ToA) had a *p*-value less than 0.05. In addition, ToA positively

correlated to the approved funding request (AFR) with coefficient/beta of 2.185. In the same thought, banks and other financial institutions considered the size of the balance sheet as a means for firms to absorb future exposure that may emanate from the additional burden of loans. On a risk management platform, the lending framework used by financial institutions collaborates the policy thrust required by the Basel accords to mitigate future risk. The Bank of International Settlements (2006) encourages banks to use complex internal rating-based (IR) approaches to determine the probability of default (PD) (Geraldes & Gama, 2012). When SMEs make credit requests, banks employ both the quantitative and qualitative parameters to judge the relevance of total assets toward lending decisions. Mulaga (2013) argued that due to information asymmetry as reflected in a firm's behavior, the leaders fall back on total assets (size) as a parameter for a lending decision. Smaller firms use less external financing than larger firms because of financial exclusion. Invariably, small firms are judged less transparent for not disclosing vital information that could have helped banks' decision making. Therefore, with the absence of verifiable information, the opacity triggers adverse selection problems, and banks default to taking a stricter credit rationing position toward SMEs' access to the fund. Newman and Borgia (2012) examined the propensity of a firm to seek external leverage using age, size, management experience, and profitability as independent variables. Of the variables tested, only size and asset structure had a significant positive influence on a firm's leverage. This result confirms the importance of size toward credit decisions because additional funding necessitates leverage.

Regarding age or years of operation (YEARS) on a multiple regression basis, the findings showed no statistical correlation between the age of a firm and access to finance. Simply, this means banks and other financial institutions gave fewer preferences to firms' years of operation or longevity when making credit decisions. It did not matter how long a firm had been in the business. The composition of the total assets added more value to the key decision points when it came to extending credit by banks and other financial institutions. However, on an individual relationship, the age (YEARS) had a positive but nonsignificant correlation with access to finance. Although the variable had a positive correlation of 27.3% with access to finance, the correlation was not strong enough to determine the behavior of a financial institution. However, Mulaga (2013) concluded otherwise by asserting that when it comes to external financing, the age of a firm has a nonsignificant negative relationship. To this end, one could question whether there is a correlation between firms' age and size of the balance sheet. I explored the data and found the correlation at 25.4%. Although the relationship between age and size was positive, the positivity was nonsignificant to the behavior of banks and other financial institutions toward making credit decisions. Contrary to the overall findings of this study, Beck and Dermirguc-Kunt (2006) argued that size, age, and ownership are the key decision points that predict firms' obstacles to access to finance. While the size based on Beck's arguments correlates with the findings of this research, the same cannot be said of age that took a different posture. Also, Kuntchev et al. (2013), using the World Bank enterprise survey data, noted that the probability of credit constraint decreases with the

size of the firm. They argued that the larger the size of the firm, the lower the financial constraint the firm faces from banks and other financial institutions.

With total revenue as a determinant, the overall findings of the multiple regressions showed a positive relationship to funding. However, the exclusion of total revenue from the regression equation did not enhance in any way the degree of relationship with access to finance. Although the individual relationship showed a positive correlation with access to credit, the outcome was not as strong as that of total assets (ToA). Using Argentina's SME data, Hermelo and Vassolo (2007) concluded that there was a direct correlation between return on sales and growth; a 1% increase in return on sales led to a 1% increase in growth. If this statement is extrapolated further, the return on sales significantly depends on sales that in turn influence the growth. Thus, this finding confirms the research findings in a different dimension.

Regarding credit score, the overall findings of the multiple regressions showed a positive relationship to funding. However, the exclusion of credit did not improve the extent of the relationship with access to finance. However, the findings did not confirm Geraldes and Gama's (2012) findings on the effects of Basel capital accord on banks' credit scoring on credit availability. Geraldes and Gama determined that due to the tighter requirements of Basel Capital Accord, banks with internally automated credit scoring systems advance more credit to small businesses. Furthermore, Geraldes and Gama linked the willingness of banks to advance credit to small business to the quality of total assets in the balance sheet.

Overall, in view of these findings, I concluded that the approved funding request (AFR) was totally dependent on age (YEARS), credit score (CS), average turnover (AT), and total assets (ToA) on the individual of significance of the model. However, among all of these determinants, ToA had the higher correlation at 80.3%, credit score (CS) 44.6%, total revenue (AT) 38.0%, and age (YEARS) 27.3%. Further, the use of adjusted R^2 between stepwise and forced method indicated unfavorable (0.8%) loss when credit score, age, and total revenue were included in the analysis. To this end, the null hypothesis was rejected in favor of the alternate hypothesis. Hence, age (YEARS), credit score (CS), average turnover (AT), and total assets (ToA) were significantly related to the determination of approved funding requests (AFR) for SMEs.

Research Question 2

In this research question, I considered whether SME realization of growth over a given period is a result of unrestricted access to finance. Thus, the hypothesis was to predict the relationship between firms' growth YoY to having banks and other financial institutions approve credit requests. The result of the analysis, as shown in Table 13, indicates a correlation coefficient *r* of +0.775 (77.5%). Statistically, *r* closer to 1 indicates a strong relationship between growth rate and level of approved funding request for SMEs. In addition, the positivity indicates directional correlation as the increase in approved funding request increases, the growth rate increases in the same direction. Similarly, as one variable decreases in value, the second variable also decreases in value. The coefficient of determination (CoD) of 60.1% justified the variability between growth rates and approved funding. As shown in Table 15, the level of the model's prediction is

significant at $F(1, 49) = 73.906$, and $p < .05$ because the total R^2 is statistically significant at $p < 0.05$. The result means the approved funding request (AFR) on growth rate (GR) is 99.5% certain. In 2006, Demirguc-Kant and Beck used the World Bank enterprise survey data across countries to conduct empirical research on access to finance and growth. Demirguc-Kant and Beck's findings that access to finance is an important growth constraint for SMEs were confirmed by my research findings. Adade and Ahiawodzi (2012) used data from Ho Municipality in Ghana to test the correlation between the growth of SMEs and access to credit and found a positive correlation (p. 46). Adade and Ahiawodzi's findings indicate an increase in access to credit promotes the growth of SMEs. Mulaga's research in 2013 on Malawi data showed a significant positive relationship between growth and the use of external finance for SMEs at p-value = 0.001. According to Mulaga, growing firms are likely to seek external funding support to meet their growth aspirations. In contrast to my findings and other results discussed so far, Anastasov and Mateev (2011) found a strong negative relationship between funding and growth using data from Central and Eastern Europe. It is possible that Anastasov and Mateev's findings are influenced by the region of study, terms of constraint, or type of industry. The other distinction drawn by Anastasov and Mateev was in terms of short vs. long-term growth. Anastasov and Mateev made conclusions based on the short-term liquidity constraint and not the long-term.

Research Question 3

In this research question, I considered the implications of introducing a tiered capital market system as an alternative means for SMEs to realize their growth prospects.

The new capital system is expected to provide the new frontier that provides unrestricted access to finance, a substitute for conventional banking and other financial systems. I asked a research question addressing the relationship between funding from the multilayered capital market and SME growth. I hypothesized that funding from the tiered capital market would not lead to SME growth. The results as shown in Table 17 indicated a correlation coefficient *r* of +0.754 (75.4%). Further, results indicated a strong relationship between growth rate and level of expected funding (*ε*AFR) from the capital market (multilayered) for SMEs because *r* was closer to one. The positivity indicates a directional correlation, as the increase in approved funding request (*ε*AFR) increases the expected growth rate (*ε*GR) value. Similarly, as one variable decreases in value, the second variable also decreases in value. Using the coefficient of determination (CoD) of 56.8%, the results mean 56.8% of the variability in expected growth rate (*ε*GR) was explained by expected funding from the capital market. As shown in Table 18, the level of the model's prediction was significant at $F(1, 43) = 56.442$, and $p < .05$ because the total R^2 was statistically significant at $p < 0.05$ level. The results mean the expected growth rate (*ε*GR) on expected approved funding request (*ε*AFR) was 99.5% certain.

In view of this finding, I concluded that a multilayered capital system could provide an alternative business survival strategy for SMEs. SMEs will no longer be subjected to financial exclusion due to information asymmetry, as the new capital system frontier would take care of these challenges. Furthermore, in line with Adade and Ahiawodzi (2012) findings on Ho Municipality in Ghana, the correlation coefficient of these two constructs would always be positive. As a listing practitioner, Mugaloglu

(2012) suggested a policy shift from the conventional NSE to a tiered capital-based market system in order to account for other significant parts of the economy excluded by informal lenders. Mogaloglu postulated a policy shift to a well accommodating platform that would give voice to the less privileged segment of the financial system. Therefore, implementing this system would increase SME access to funds with no barrier experienced in the conventional system. It would also stimulate healthy competition between the larger firms and smaller firms in the product and idea breakthrough because funding will no longer be a barrier.

Social Implications

Further to the enrichment of the body of literature that emanates from this study, the research findings enhance a trajectory toward positive social changes. The findings complement existing literature and set a new course toward SME sustainability based on significant contributions made to the economy. In this regard, the positive social implications and changes would be in the area of employment generation, government policy thrust to ameliorate existing gaps in lending frameworks, SME operational efficiency, and capital market formulation.

Government Policy Formulation

The findings of this study showed a significant statistical relationship between funding from the multilayered capital system and expected SME growth. The implication revealed that SMEs are open to the idea of the layered capital system across the nation and are willing to access the market for funds. Although 7% of the respondents thought otherwise, the majority of the respondents felt strongly about the potential contribution

that a multilayered capital system could make toward a sustainable SME growth. Thus, from the policy formulation perspective, and in view of the yearnings of the SME population, the government could collaborate with the investment communities to formulate positive economic policy that would crystalize the implementation of a generally acceptable tiered capital system. Socially, the development of a multilayered capital system that runs at the state level or other community levels would facilitate improved mutual understanding and cooperation among investor and investee within the community. Furthermore, in a market-based system, government is expected to set the structures and other supporting legislations that will empower the creative and innovative segment of the population that are not averse to take the risk. Consequently, putting the framework in place would liberate the sense of autonomy, self-dependency, and perception of a contributor and not a receiver of economic handouts in the area of job creation.

SME Community

The efforts of SMEs looking to improve and strengthen their access to funding from banks and other financial institutions must be geared toward the quality of the total asset. As reflected in the findings of the research, there is a strong correlation between access to funds and the quality of total assets of the company. Thus, this signifies the importance of qualitative performing assets in the overall risk framework of lenders. As one of the risk mitigants, lenders place emphasis on the absorption capability of SMEs' historical assets if the additional line of credit is to be granted. Although from the asymmetry information perspective, SMEs are not open to an additional burden to keep

up with preparing books of account or rendering financial statements. Arguably, the finding will change SME culture toward information keeping, preparing financials, and keeping qualitative assets that would translate to unlimited access to funds. Further, the findings from the positive relationship between community-based capital markets and SME growth indicates a breakaway from the traditional belief system geared toward the central capital system. Therefore, on a social platform, SMEs stand to benefit by improving their relationship with the immediate community, increase and improve corporate social responsibility by engaging in activities that project a positive atmosphere, and improve customer and community perceptions about the SMEs most especially when viewed through the lens of social community engagements. In the long run, these strategies will translate to equitable funding access.

Employment Generations and Other Social Modules

In line with the strategic position occupied by SMEs, the findings from the study stipulated that increased access to the fund for SMEs increase the growth rate. Thus, the positive relationship between funding and growth shows that if SMEs have adequate access to credit, this will stimulate the engagement in new ideas, create new product lines, engineer constructive innovations, and discover new ways of doing things. All of these positive contributory constructs would lead to hiring more people and creating employment for greater numbers of the population. This finding collaborates that of Adade and Ahiawodzi (2012), who concluded from their study that the relationship between access to credit and growth is 1:10.5 times. Therefore, the effect of the increase in growth leads to increase absorption of work force into the main economy to sustain the

growth- creating a drive for more unemployed to be engaged. Dermirguc-Kunt and Beck (2006) also found earlier that finance as a constraint has a direct positive relationship to growth. Consequently, the human capital absorption rate (HCAR) increases when SMEs experience growth due to unlimited access to funds. The changes in HCAR occur through active gainful employment and supporting willing economic agents' economic, social, and financial freedom.

Limitations of the Study

For this study, the key limitations were in the area of data survey instrument designs and data collection. Thus, this could affect the generalizability of the research findings beyond the key industrial sectors under study.

In the area of survey design, to address research question 1, I designed the hypothesis to include credit score as one of the independent variables to likely influence the outcome of credit decision making by banks. Thus, the initial plan was to ask potential participants to provide their average credit score within the last five years of seeking financial support from banks and other financial institutions. However, due to participant indifference because of the specificity and direct nature of the question, I redesigned the questions from interval to ordinal form to give the participants the opportunity to provide their credit score as a range. Although, I later converted the data into a scale by taking the average, I strongly believe the direct response would have been a preferred way to avoid approximation.

Further, in the area of data collection, first, it was difficult to get direct responses from targeted specific key offices of the selected SMEs, especially the known names in

the industry. I waited for six weeks to receive reasonable feedback from this targeted group and only 8% responded. However, when the response from the specified targeted group was not forthcoming, in the interest of time, I used the responses of SME groups on LinkedIn. The adjusted plan contrasted with the initial plan where targeted groups are assigned higher weights, and the plan to compare their responses to the general population as a form of control. With the new plan, I redistributed the weight, and LinkedIn SME group participants later constituted a significant portion of the research data (90% of the respondents). In the area of the multilayered capital market systems, the idea is new and participants were initially skeptical about its application. The participants projected this position given the existence of a National Stock Exchange Market System (NSE) and the tendency for the new frontier to be less acceptable to the public.

Recommendations

In line with the outcomes of this study, the recommendations are two-fold: (a) recommendations for action to the policymakers and (b) recommendations for further study.

Recommendations for Action

The first recommendation for action is a call for the policymakers to investigate further the benefits of supporting the institutionalization of multilayered capital as an alternative means to finance SMEs. In view of the position on social and economic contributory roles played by SMEs, these positions can further be sustained if SMEs gain access to unlimited funds. Thus, policymakers should facilitate the setting up of the multilayered capital system, encourage private investment participations, incentivize

community ownership through programs, and rate the bonds in agreement with the national capital market system. In line with the findings of this research, there is a need for policy thrust formation that specifically targets the struggling SMEs getting access to finance, and position them to finding freedom through a platform of a capital market system where equity can be accessed. Accordingly, Mogaloglu (2012) expressed the creation of multilayered capital markets as a platform to harness the capacity of both formal and informal sectors. In this regard, more SMEs would transition from the informal to the newly created formal sector to enjoy the benefits, as well as to comply with basic requirements of financial reporting. Most likely, the act would trigger an innovative solution that could overcome the challenges due to information asymmetry. In another perspective based on the findings of research questions 1 and 3, it is also imperative that government continue to enjoy the social support from SME agents that generates employment. Thus, the creation and development of a multilayered capital market should be geared toward having unlimited access to equity finance just like larger corporations. Therefore, with lower entry barriers to the layered market, SMEs of different sizes and assets can approach the market to boost their liquidity positions without any form of inferiority complex. The sense of financial exclusion from the mainstream capital market will be resolved, and the SME community will gravitate to coordinated financial engineering. Also, and for this to be successful, policymakers need to support the tiered market framework with a functional legal system that protects the lenders/shareholders within the overall framework of the financial system.

Based on this proposition, the structure of the market can be illustrated as shown in Figure 18. Each player in the new market is guaranteed access and equality.

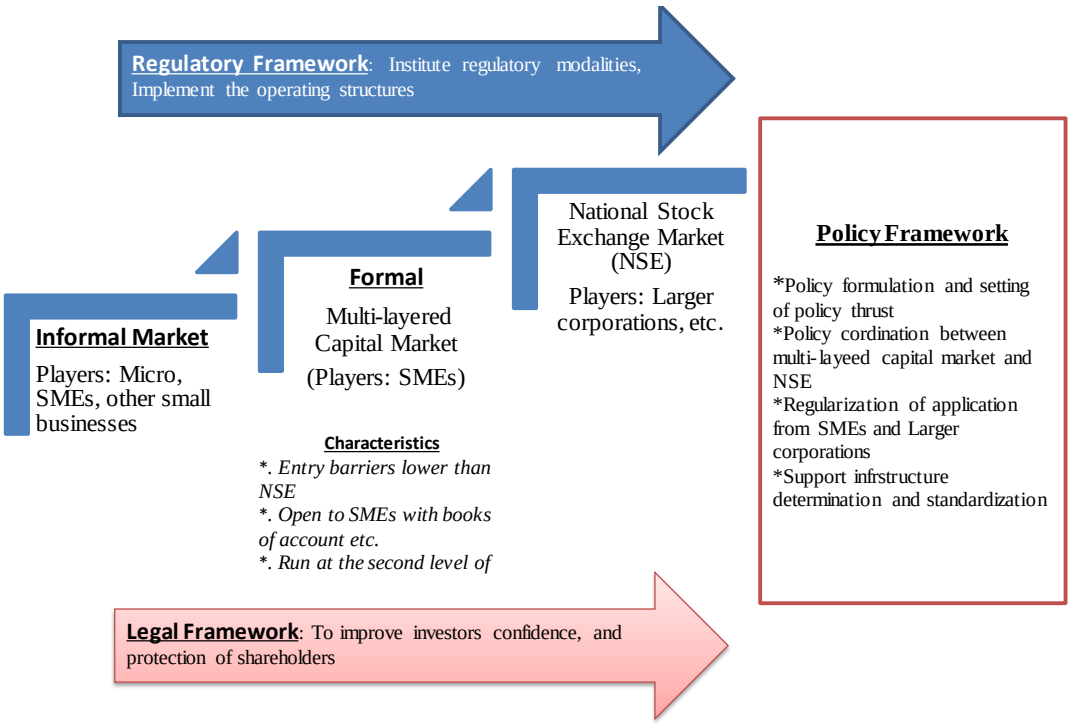

Figure 18. A representative of multilayered capital market systems.

Strategically, as represented in Figure 18, the market players occupy three categories: (a) the informal market, (b) the formal market, and (c) the national capital market. Thus, to redirect the needy sector to the new created multilayered capital market, the powers of informal market players are harnessed, positioned, and encouraged to participate in the formal operations through lower entry barriers, lower cost of capital, and at par funding approval rate relative to what larger corporations enjoy by conventional means.

Recommendations for Further Study

The recommendations for further studies came because of limited studies that have occurred in the field of SMEs and a multilayered capital market system, and generalizability of the findings of this research. It is my conviction that researchers need to delve further into the area of SMEs and funding beyond the traditional system of finance from banks and other financial institutions. Extensively, prior research and literature were geared toward understanding the factors that determine SME growth. Although finance has been agreed to be the prima facie factor for growth and sustainability (OECD, 2012), little has been done in the area of linking it directly to SME growth. Thus, it becomes imperative to investigate and understand the factors that could lead to the increase or sustainable finance to SMEs without the effect of the information asymmetry factor.

In addition, I recommend additional research on the seamless working relationship between the established stock exchange market and a multilayered capital market. Further, there is a need to understand the relationship and the multiplier effect of one market over the other in the area of liquidity, viability, and market capitalization to justify the required investor confidence for both markets.

To operationalize the above, I will disseminate my findings to the scholar-practitioners and the general academic field as a tool to leverage upon for future purposes. Only when information is available can further criticism, roadway, and breakthrough in business funding be achieved. Aside from this, I intend to serialize and release the results of the study to relevant social media platforms, SME organizations,

conferences, and seminars. Overall, I will publish the research findings through UMI Dissertation Publishing on ProQuest and other financial journals.

Concluding Statement

The uniqueness of this research cannot be over-emphasized, as it focused on the new frontier in SME funding vis-a-vis a multilayered capital market- unlimited benefits that have been enjoyed by larger corporations in times past. As commonly highlighted in the literature, the credit-constrained level of SMEs is higher than larger firm; thus, SMEs default to using trade credit, funds from family and friends, and other informal sources to finance their working capital. The use of informal sources is due to financial exclusion practiced by banks and other financial institutions because of inadequate information for credit decisions (information asymmetry). In recent times, banks have also increased basic requirements for credit based on the requirements of Basel Accords (I, II, and III) to determine borrowers' credit risk level in the credit rating approach. Conversely, the complexity and strictness of the approaches have not been favorable to SMEs toward funding independence.

Accordingly, the research speaks to variables that could contribute to the major financial constraints experienced by SMEs, the effects of adequate funding for SME growth, and the possible effects of an alternative source of finance to SME growth; multilayered capital market. In addition, the study touches on the experiences and findings in another part of the world because SMEs fulfill the same objectives. About financial constraints, I examined the effects of the credit score (credit rating, credit histories, and creditworthiness), age, and size of the firm regarding financial institutions'

credit decisions toward SMEs. I also examined the relationship of credit availability to SME growth using the funding from banks and the multilayered capital market.

From the findings with respect to financial constraints, I can conclude that SMEs approved funding request is not a function of the combination of age of the company (AGE) and credit rating associated with entrepreneur (CS), but that of size of the firm (ToA). Contrary to earlier assertions on the individualized state, only the size of the total firm assets (ToA) significantly influenced the way banks and financial institutions approved funding requests. Further, on the relationship between access to funds and growth, I found that the relationship between funding and SME growth is positively related. Thus, increasing funds to SMEs translates to growth in the same direction and vice versa. Also, on the relationship between funding from the multilayered capital market and SME growth, I found that the relationship between expected growth rate and expected approved funding request for SMEs is positively related. Thus, increasing funds from the multilayered capital market to SMEs translates to growth in the same direction and vice versa.

Overall, the institutionalization of the multilayered capital market as an alternative funding strategy will facilitate the transitioning of informal “players” to a formidable formal financial platform where funding is unrestricted and not subjected to information asymmetry. The framework will stimulate and enhance ideal formulation and realization (NEXT GEN), empower SMEs maximization of growth and development opportunities, increase contributions to gross national output, and socially make people

better off through gainful employment and reduced dependency on the government (i.e., fewer handouts).

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Appendix: Abbreviations

AFR	Approved funding request
AI	Asymmetry information
AT	Average turnover
CoD	Coefficient of determination
CS	Credit scores
CRS(s)	Credit reporting system(s)
εGR	Expected growth rate
εAFR	Expected approved funding request
GR	Growth rate
IFC	International finance corporation
IRB	Institutional Review Board
LC(s)	Large corporation(s)
LE(s)	Large enterprises(s)
LSE(s)	Local stock exchanges
NSE(s)	National stock exchanges
PoT	Pecking order theory
SME(s)	Small and medium-sized enterprises(s)
ToA	Total assets
ToT	Trade off theory
URR	University Research Reviewer

Curriculum Vitae

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PROFESSIONAL OVERVIEW

A chartered accountant, certified professional in project management and risk management, well versed in accomplishing strategic business goals and meeting critical deadlines in fast-paced, challenging and stressful environments. Highly analytical and dynamic senior executive equipped with quantifiable achievement in directing financial management, project portfolio management, risk management and operations management for Fortune 500 firms. A detailed oriented professional with unique leadership quality grounded in strategic planning with strong strengths and qualifications in project management, financial management, economics and risk management.

AREAS OF EXPERTISE

• Financial and Operations Management	• Project Portfolio Management / Risk Management
• Cash flow Analysis & Management • Corporate Governance and Leadership • Change Management and ERP Implementations • General Accounting and Financial Auditing	• Credit Analysis & Risk Management • Strategic Planning and IT Management • Profitability Modeling and Forecasting / EVM • Credit Analysis & Risk Management • Financial Analysis/ Reporting & Analytical Abilities
• Budget Implementation and Control • Corporate Finance • GAAP &IFRS Implementations	• Internal Audit • Problem Solving/Strong Organizational Abilities • Mentoring, Training and Team Building

EDUCATION:

PHD, MANAGEMENT (SPECIALIZATION IN FINANCE) – Walden University, USA (In view)

M.A – Harvard University, USA
M. SC., FINANCE - University of Calabar, Nigeria

B.SC., ECONOMICS - Ambrose Alli University, Nigeria

EXPERIENCE:

CENTENE CORPORATION **2012 - DATE**
SENIOR MANAGER, FINANCIAL PLANNING & STRATEGY

Lead Georgia operations Inpatient Cost Management (ICM) of over 300,000 lives with duties that include development and measurement of annual operating plans, capital budgeting and planning, quarterly forecasts, analysis of current- past trends in key performance indicators, monthly financial performance and operational reporting, and cost savings project management. Managing medical cost trends to explore cost savings and care coordination opportunities.
Support the Vice President in collaborating cross functionally with division wide projects for identifying, implementing, and tracking operational, financial and clinical savings initiatives.

Notable Projects Accomplished
- ⇨ Developed and implemented enterprise-wide Medical Cost model for Outpatient, ER, PCP and Specialty
- ⇨ Managed Yearly financial planning cycles in line with State of Georgia Mandate
- ⇨ Led company-wide savings initiatives drive that reduce HBR by 10% YoY
- ⇨ Redesigned Impatient cost validation workflow that resulted in $15M savings to C2C
- ⇨ Launched "What Do You Know" (WDYK) concept, a knowledge sharing platform that re-align employee's drive and motivation to company's vision
- ⇨ Managed "Cost Buster" program to identify and reward cost avoidance initiative from employees

ZEP INC. **2011 - 2012**
CONSULTANT, FINANCIAL PLANNING & ANALYSIS

Provide leadership on the financial implication on merger and business consolidation. Negotiated with the leadership to managed $320 million five-year senior, secured credit facility for the acquisitions of two non-par operations in US. Serviced debt covenants on credit facility and managed interest rate exposures. Project managed the implementation of Wallstreet software for treasury operations (Treasura).Managed the translation exposure of foreign operations (Europe, Canada and North America). Forecast daily cash management positions, Presented periodic finance and operating reports to the Board, the Finance Committee of the Board and the President/CEO. Built and cultivated long-term quality relationships with stakeholders and implemented strategic business decisions of the CEO

Notable Accomplishments:
- ⇨ Averaged 38% percent increase in client business infrastructure due to implementation of customized business turnaround solutions.

- ⇨ Implemented u+5 days consolidated financial package that include Canada, Europe and North America operations.
- ⇨ Completed SAP FICO conversion and integration project as the internal Project Manager. Provided project management oversight on the entire lifecycle configuration and implementation
- ⇨ Managed the daily cash flow position, borrowed funds and hedged exposures.

SIEMENS INDUSTRY INC. **2008 - 2011**
HEAD, ASSET MANAGEMENT (PERFORMANCE CONTROLLING – FP&A)

Successfully managed key Asset components across the U.S, Mexico, and Canada business segments to sustain continuous cashflow positions. Implemented a centralized Account payable financing (DPO) through Siemens Financial Services. Institutionalized KeyBusiness Data (KBD) as a performance-controlling framework for Residential Production Division (RPD). Responsible for managing company-wide asset reduction/improvement strategies (PUMA) targeted at $50MM YoY. Implemented a centralized inventory management. Worked with Supply chain management to repositioned and streamline the warehouse operation from 12 to 9 as a cost reductions strategy.

Notable Accomplishments:

- ⇨ Worked with Plant & Segment controllers to developed Inventories reduction strategies and reduced company-wide inventory by 18% and DIO by 3days.
- ⇨ Reduced accounts receivable by 20%, DSO on average of 4days on YoY basis through the implementation of credit managements strategies.
- ⇨ Saved $25MM through AP contract terms re-negotiations and centralized financing option.
- ⇨ Managed, reviewed and tracked AR and CAIDS ageing and implemented strategies that drove down the over dues by 15%.
- ⇨ Implemented a cost reduction process that Saved $2MM from COMPASS cost center from total overhead $18MM.
- ⇨ Managed and controlled all assets capitalization transactions, impairment testing and ensure compliance with IFRS requirements.

BANK OF AMERICA **(FINANCIAL SERVICES)** **2007 - 2008**
OPERATIONS ANALYST

Improved processes on internal operations to support domestic and international consumer, commercial and wholesale bank businesses or services functions. Engaged in basic level reporting, call center support, reviewed and processed transactions for item processing, sorting using electronic or mechanical equipment, reconciling, statement rendering, MICR/image, float, lock box, remittance, ATM deposit, and performing other support operations functions as required. Maintained internal operational and financial controls and ensures they meet bank standards and ensured quality service and effective and efficient

operations support for the assigned area's internal business partners and/or external customers/clients

Notable Accomplishments:

- ⇨ Redesigned electronic sorting process to include the Wholesale and Retail banking customer profile
- ⇨ Reduced check imaging processing time by 5% that lead to increased customer access to liquidity

MTN COMMUNICATIONS **NIGERIA** **2004 – 2007**
SENIOR MANAGER (PMO)

Managed the overall IT projects from cradle to grace, ensured compliance with best practice and cost reduction framework. Responsible for the end-end business process re-work through ARIS. Implemented robust vendor selection processes that was geared toward quality and cost reduction. Implemented cross-functional business processes improvements, and instituted enterprise-wide risk management best practice. Established the pioneer project management office (PMO) and re-engineered growth strategies to cater for non-IT projects. Successfully conducted unscheduled failover 'drill' that tested the Business Continuity Plan with minimal impact on the overall business operations. Established SMART project goals, baselines and metrics with sponsors and resolve project issues with stakeholders. Develop and manage overall project finance and risk mitigation plan. Leverage track record of operational excellence to make strategic decisions with emphasis on value creation on project outcomes, and continuous improvement for higher project management maturity.

Notable Accomplishments:

- ⇨ Achieved 95% project performance in line with set business case
- ⇨ Managed to reduced project slippages by 30% through the implementation centralized reporting
- ⇨ Reviewed and evaluated User Requirements (URS) transformation into functional specifications
- ⇨ Reduced wastages and scrap by 5% through Enterprise Asset Management, Maintenance.
- ⇨ Project Managed the full implementation of Disaster Recovery Plan (DRP) using effective methodology
- ⇨ Project Managed the full systems review analysis and integrations for M&A of CDMA operations
- ⇨ Implemented a change control Board (CCB) to prevent unwarranted project changes
- ⇨ Implemented Project Dashboard and Executive monitoring system using Earned Value Methodology

H. PIERSON ASSOCIATES **2002 - 2004**
HEAD, CREDIT ANALYSIS & MANAGEMENT

Provided the strategic oversight to consumer risk design, credit analysis, quantification and implementation for financial institutions. Work with client top management executive to understand area of needs, conduct gap analysis, and offer customized solution framework. Managed client expectations, and perform continuous process improvement on the overall credit structure. Design and managed training interventions, the bridge the knowledge gap between "AS IS" and "TO BE"

Notable Accomplishments:

- ⇨ Carried our financial analysis on client financial information (common sizing, spreading and analysis).
- ⇨ Re-engineered credit review process (credit analysis, investigation, quantification, structuring and pricing) for the Top five banks in Nigeria.
- ⇨ Benchmarked, designed and implemented knowledge gap intervention for A Rating Financial Institutions
- ⇨ Published client comparable benchmarking analysis as necessary in support of key business decisions and objectives.
- ⇨ Partnered with consulting arm to conduct due diligence on four (4) Banks Merger and Acquisitions.
- ⇨ Implemented accounts payable process & receivable cycle for $500M size company.
- ⇨ Partnered in the Implemented Asset & Liability Management (ALM) framework for six (6) commercial Banks.
- ⇨ Reviewed and tested Banks risk management framework in line with Basel II accord.

AA CHARTERED ACCOUNTANTS & CO NIGERIA **1998–2002**
SENIOR AUDITOR

Managed overall Audit process, responsible for directing and ensuring timely completion of audit engagements and special assignments, reviewed processes and financial statements, analyze financial reporting risk, test client financial statement for correctness and inherent risk.

Notable Accomplishments:

- ⇨ Prepared audit finding memoranda and working papers to ensure that adequate documentation exists to support the completed audit and conclusions.
- ⇨ Conducted operational, compliance, financial and investigative audits.
- ⇨ Performed Test of control and Test of procedure for statutory audits.
- ⇨ Prepared Audit reports and recommends corrective action to management
- ⇨ Lead Consultant in the redesign of the finance function of a public company, design of organization structure including the development of job descriptions, development of financial policies and procedures.
- ⇨ Senior Consultant on the business process improvement and transformation of the finance function including the design and documentation of financial policies and procedures for a company in the Manufacturing sector.

PROFESSIONAL TRAINING & CERTIFICATION

PMP® Certified Project Management Professional, Project Management Institute, USA	**2007**
Information Technology Infrastructure Library (ITIL), UK	**2006**
Practitioner, Enhanced Telecom Operations Map, SA	**2005**
Practitioner, Projects IN Controlled Environments (Prince2), UK	**2005**
Associates, Chartered Institute of Stockbrokers of Nigeria	**2005**
Associates, Institute of Chartered Accountants of Nigeria	**1999**

TECHNICAL PROFICIENCY

Microsoft Office Suite, MS Project 2007, Primavera, @Risk, Crystal Ball, GuidonVue, A+, Database Management, SAP FI, SAP Project, software i.e. MAP, Blackbaud, FundEz, Peachtree, QuickBooks, SAP, Sage, ACL, SQL, Business Object, IFS, OFA, Host Analytics, Globus, Finacle, Hyperion Enterprise & Essbase, Fox Pros, Dac easy, ARIS, Wallstreet Treasura,Amysis, Microstrategy, TruCare, Portico, Terradata