

**THE EFFECT OF BANK CREDIT TO PRIVATE SECTOR ON THE
GROWTH OF SMALL AND MEDIUM ENTERPRISES IN THE
MANUFACTURING SECTOR IN ZAMBIA**

A RESEARCH REPORT

BY

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Administration

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DECLARATION

I, **Kabaso Fegus Kabwe**, do hereby declare that this dissertation report is my original work to the best of my knowledge and it has not been presented for the award of any degree or other qualification at the University of Zambia, the Zimbabwe Open University, or indeed any other university for academic purposes. I further declare that all other works of people used in the research have been duly acknowledged.

Signature:

Date:

CERTIFICATE OF APPROVAL

This dissertation of **Kabaso Fegus Kabwe** has been approved as partial fulfilment of the requirements for the award of the Master of Business Administration (MBA) by the University of Zambia in collaboration with Zimbabwe Open University

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DEDICATION

To

Dad and Mum

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I would like to recognize and pay tribute to the following individuals and institutions, without whom I would not have been able to successfully make it through my Masters' degree, especially completing this research. The University of Zambia Institute of Distance Education (IDE) team, particularly my Supervisor Mr. Donald Fulai for providing valuable insights and direction into this subject matter.

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ABSTRACT

The manufacturing sector is key to the industrialization agenda in Zambia, which is driven by the private sector. The small and medium enterprises constitute a bigger proportion of the private sector and are regarded as the backbone of economic growth in the country. This study investigated the effect of bank credit or loans on the growth of SMEs in the manufacturing in Zambia between 2013-2023. The turnover or sale quarterly data for SMEs in manufacturing sector was used as a proxy for SME growth. Bank credit or loans disbursed to MSMEs in manufacturing was used as the key explanatory variable. However, other variables were included to help explain the growth movements in the model. Descriptive statistics, correlation matrix and the co-integration and error correction model (ECM) was used to test the hypotheses and answer the research questions.

The study revealed that bank credit to the SMEs in the manufacturing sector though important, did not have statistically significant effect on the growth of the SMEs in the manufacturing sector both in the long run ($p=0.132$) and short run ($p=0.133$). In the same light, the effect of GDP on growth of SMEs in the manufacturing sector was not statistically significant though positive in both the long run ($p=0.168$) and short run ($p=0.094$). However, this study revealed that inflation had statistically significant negative effect on the growth (turnover) of SME in the manufacturing sector during the period considered in the long run ($p=0.020$) and short run ($p=0.010$). The study recommends that a stable macroeconomic environment is necessary for growth and survival of SMEs in manufacturing sector in Zambia. Further, the monetary authorities should address the rigidities in bank lending by relaxing some stringent conditions which prohibit SMEs from accessing credit to grow and survive.

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ACRONYMS

ADF	Augmented Dickey-Fuller
ARDL	Autoregressive Distributed Lag
BOZ	Bank of Zambia
DBZ	Development Bank of Zambia
DEA	Data Envelope Analysis
ECM	Error Correction Model
ECT	Error Correction Term
EMDEs	Emerging Markets and Developing Economies
4NDP	Fourth National Development Plan
GDP	Gross Domestic Product
IMF	International Monetary Fund
MCTI	Ministry of Commerce, Trade and Industry
MOFNP	Ministry of Finance and National Planning
MSMED	Ministry of Small and Medium Enterprises Development
MSMEs	Micro, Small and Medium Enterprises
NPL	Non-Performing Loans
OLS	Ordinary Least Squares
PACRA	Patents and Company Registration Authority
PP	Phillip-Perron
SIDO	Small Enterprises Development Organization
SMEs	Small and Medium Enterprises
VIS	Village Industries Services
ZAMSTATS	Zambia Statistics Agency
ZDA	Zambia Development Agency
ZRA	Zambia Revenue Authority

CHAPTER ONE

INTRODUCTION

1.1 Overview

In Chapter one, the background to the study has been presented. Further, the chapter highlights the statement of the problem, purpose of the study, objectives of the study, the significance of the study, research questions, as well as the theoretical framework on which this study was constructed. The Chapter also provides the scope and limitations of this study and some operational definitions used in this study.

1.2 Background to the Study

World over, micro small and medium enterprises (MSMEs) have been recognized to be among the key drivers for poverty reduction and improvement of the quality of life for households through wealth and job creation. The 2023 Revised National Micro Small and Medium Enterprise Development Policy by the Ministry of Small and Medium Enterprises Development (MSMED) states that small and medium enterprises are a majority representing about 90 percent of businesses worldwide and they account for more than 50 percent of employment. These entities also contribute up to 40 percent of national income in emerging or developing economies.

The role and significance of the MSMEs on economic development has been on Zambia's growth agenda for a long-time dating way back as early as the 1980's (MCTI, 2008). Through the Small Industries Development Act of 1980, the Zambian Government established the Small Enterprises Development Organization (SIDO) with a view of enhancing the effectiveness of the sector's contribution to national economic growth. In the same line, the Fourth National Development Plan (4NDP) of 1989 identified the need to provide the necessary infrastructure for the small and medium enterprises through SIDO, the Development Bank of Zambia (DBZ) and the Village Industries Services (VIS) as well as promoting access to credit for those SMEs that demonstrated potential to grow and improve their productive capacities.

Nonetheless, these interventions had very limited success due to mainly inadequate funding, and poor management including the lack of support and political will from Government. Following the shift from a command to free market economy in 1991,

private enterprises were given some lifeline through the introduction of structural and economic reforms which led to increased activity in the MSMEs sector. In addition, the establishment of the Industrial, Commercial and Trade Policy in 1994 and the replacement of the Small Industries Development Act of 1980 with the Small Enterprises Development Act of 1996 by Government, also contributed to the sector's growth and significance.

According to the Revised National Micro, Small and Medium Enterprise Development Policy (MSMED, 2023), MSMEs in Zambia contributes about 70 percent to the gross domestic product (GDP) and about 88 percent of employment. They also account for about 97 percent of all businesses making a significant share of domestic and export earnings. However, despite the great potential for economic development that the MSME sector can offer including equitable wealth redistribution and poverty alleviation, there are a number of bottlenecks which continue to hinder its growth and its potency to effectively contribute to national economic development. The Ministry of Commerce, Trade and Industry (2008) pointed out that limited access to markets, limited access to appropriate technology, as well as limited access to suitable business financing solutions are among the main bottlenecks facing the MSMEs sector in Zambia. In addition, the sector is also confronted with inadequate business infrastructure, limited technical and management skills as well as inadequate regulatory systems.

These sentiments have also been echoed in the revised policy highlighting that the full potential of MSMEs is not fully exploited arising from various binding constraints which continue to hinder their success. The revised policy also acknowledge that limited access to affordable finance, limited access to local and foreign markets, poor uptake of technology, lack of innovation and weak entrepreneurial culture to be among the main bottlenecks chocking and impeding the growth of the MSMEs in Zambia.

1.3 Statement of the Problem

The private sector, consisting of both small- and large-scale firms, continues to be the bedrock of economic growth, job and wealth creation. Small and Medium Enterprises (SMEs) in this regard plays a significant role as they account for most of the private sector worldwide and more so in the emerging markets and developing economies (EMDEs). According to the World Bank (2022), SMEs accounted for about 90% of the

businesses across the globe and that formal ones contributed up to 40% of national income (GDP) in the emerging economies. Therefore, a well-functioning SME sector has the potential to be a major source of employment and innovation, and can raise productivity, growth, and economic diversification (IMF, 2020). Realizing the critical role played by the manufacturing sector to the overall economic growth prospects of Zambia, the government have embarked on several initiatives intended to create a vibrant MSMEs-led manufacturing sector.

Simuchimba *et al.* (2020) noted that within the MSMEs sector in Zambia, manufacturing activities accounts for about 41 percent of all business activities. This is a significant share which suggests how important manufacturing by the MSMEs is in promoting economic growth and resilience. However, manufacturing, which is mainly driven by MSMEs accounts for less than 10 percent of the national economy despite its huge potential to create jobs and wealth among the Zambian people through backward and forward linkages. As mentioned severally above, one of the binding constraints facing the MSMEs including those in manufacturing, is access to affordable financing for their survival and growth. This is one fundamental aspect of business management which managers grapple with in coming up with a suitable capital structure for the firm.

Several studies have been conducted to understand key factors that affect the operational efficiency of the SMEs in various sectors. These studies have yielded varying results, creating an opportunity to undertake further investigations. However, very few studies have been undertaken to examine the effect of bank credit to SMEs in the manufacturing sector.

1.4 Purpose of the Study

The main objective of the study was to examine the effect of bank credit (loans) on the growth of the SMEs in manufacturing sector.

1.4.1 Specific Objectives

The specific objectives of this study were as follows:

- 1) To assess the effect of domestic bank credit to the private sector on the growth of the small and medium enterprises in the manufacturing sector in Zambia.

- 2) To examine other economic parameters that effect the growth the small and medium enterprises in the manufacturing sector in Zambia.

1.5 Research Questions

In view of the problem statement and motivation, the following were the key research questions that are expected to be answered by this study:

- 1) To what extent does bank credit to Small and Medium Enterprises (SMEs) in manufacturing sector in Zambia affect their growth or turnover?
- 2) What other economic parameters that have an effect the growth the Small and Medium Enterprises (SMEs) in the manufacturing sector in Zambia?

1.6 Significance of the Study

There have been several studies that have been carried out on the effects of the bank credit to the private sector both in Zambia and across the globe. The motivation for most of these studies lies in the fact that credit to the private sector is one fundamental consideration in determining how well developed or how deep a financial system is to support the growth of the economy through its intermediary role especially in the developing world. Though the majority of the results of these studies point to a general consensus that credit to the private sector enhances growth of the SMEs and contribute to the overall performances of the economy, some findings suggests this subject matters remains inconclusive requiring further investigations using empirical data. Most importantly, investigations into specific areas of SMEs sector such as manufacturing has not been adequate, and the few studies undertaken yield varying results.

Simuchimba *et al.* (2020) looked at the technical efficiency aspect of the SMEs in manufacturing sector to provide some empirical evidence of the performance and some key factors affecting performance of the SMEs in this sector. However, to the best understanding of this study, very few studies have been undertaken on SMEs in the manufacturing sector to determine the effect of bank credit on their growth, particularly in the Zambian context if any. Therefore, the results of this study will add to the body of knowledge for policy makers, technocrats, and academia to reposition the role of the SMEs sector in the economic development agenda of Zambia.

1.7 Theoretical Framework

Access to finance is one important factor that potentially assist small and medium enterprises (SMEs) to grow and contribute to employment, wealth creation and overall economic growth in many economies worldwide. There are several theories that have been postulated in support of the key role that a well-developed financial sector plays in fostering economic development. Other scholars have however, argued that an efficient financial system is brought about by economic development. One of the key theories is the “finance-led growth hypothesis” or the supply-leading hypothesis, which was initially suggested by Schumpeter (1911), and a number of studies have been carried out in an attempt to validate this theory, but with varying results and conclusions.

The finance-led growth hypothesis argues that a well-functioning financial sector is necessary to facilitate growth in the real sector leading to economic growth (Adeyeye *et al.*, 2015). This suggests that economic growth is dependent on how well the financial sector is deepened. The theory hypothesizes that when the financial sector is well developed or deep, the supply of financial services increases resulting in an optimal allocation of resources which causes economic growth. It is thus clear that this hypothesis suggests that causality flows from finance to economic growth because of improved intermediation. It stresses that the existence of financial institutions and the supply of their financial assets, liabilities and related financial services in advance of demand for them would provide an efficient allocation of resources from surplus spending units to deficits, thus boosting investment which in turn stimulate growth (Ovat, 2016).

Robinson (1952) on the other hand and in contrary, postulated and argued that financial deepening arise as the economy grows. In his view, demand for financial services is enhanced as the economy is progressively growing, thereby deepening the financial sector. This hypothesis is popularly referred to as the demand-following or the “growth-led finance hypothesis”. Several other scholars agree with Robinson adding that economic expansion causes a rise in macroeconomic activities which ultimately cause the development of the financial sector.

One other theory that attempts to link finance and economic growth is the “stage of development hypothesis” espoused by Patrick (1966). This hypothesis is a blend of the finance-led growth hypothesis and the growth-led finance hypothesis suggesting that the

causal link between financial development and economic growth alternates as the economy grows. This theory believes that finance-led growth hypothesis holds during the early stages of development, but fades away as the economy grows during which the growth-led hypothesis kicks in.

The theoretical underpinning of this study was the “finance-led growth hypothesis” which will provide the theoretical framework to link bank credit or loans and the growth of the SMEs in the manufacturing sector. Bank credit to private sector is one key indicator which shows how well developed and deepened a given financial system is to optimally allocate resources while overcoming major economic bottlenecks encountered by SMEs.

1.8 Hypotheses

To establish the influence of bank credit on the growth or turnover of SMEs in the manufacturing sector, using the finance led growth hypothesis, the data for this study will be tested for the following hypothesis.

H₀: Bank credit to SMEs in manufacturing sector does not have effects on their growth in Zambia

H₁: Bank credit to SMEs in manufacturing sector do have effects on their growth in Zambia

1.9 Scope of the Study

Small and Medium Enterprises operate in an array of sectors which includes construction, mining, agriculture, hospitality, and trading among several others. However, this study focussed on the Small and Medium Enterprises who are in the manufacturing sector as one key sector that has a significant role in the industrialization agenda in Zambia. In this regard, the data which was considered in this study was primarily on the SMEs in this sector. Furthermore, the data used was secondary data spanning from 2013 to 2023 collected from Zambia Revenue Authority, The Bank of Zambia and the Zambia Statistical Agency.

1.10 Study Limitations

Like any other research undertaking, this study had its own limitations which needed to be taken into consideration when interpreting these results. Firstly, time series analysis has its own inherent limitations. For example, differencing a series in order to make it stationary can introduce noise and randomness into the time series, which has potential of reducing the information content and likely to affect the interpretation, inference and hypothesis testing. Further, time series data may suffer from the problem of generalization from a single study, coupled with limitations of obtaining or accurately identifying the correct model to represent the data.

Another limitation pertained to the different sources of data which were pooled into one dataset for this study. SMEs sales data was obtained from the Zambia Revenue Authority, while data on bank loans, lending rates and monetary base came from the Bank of Zambia. Data concerning GDP was obtained from the Zambia Statistical Agency. This of course had implications on the compatibility, accuracy and quality of data used in this study. Another limitation could have arisen from span of the period covered in this study which only had a ten years data series.

1.11 Ethical Considerations

This study was based on time series secondary data recorded in databases at the Zambia Revenue Authority, the Bank of Zambia and the Zambia Statistical Agency. There was no researcher respondent physical interaction during data collection. Therefore, no ethical clearance was required for this study. However, all the required data ethics during data collection and analysis were strictly considered and followed for the credibility of this study. Formal requests were made to respective institutions for the needed data in order to obtain authentic and accurate data to conduct this study.

1.12 Key Operational Definitions

In order to provide a more clear and concise understanding, some operational definitions of key terms used in this study are listed below:

- i. **SMEs:** Small and midsize enterprises (SMEs) are businesses that maintain revenues, assets, or a number of employees below a certain threshold or those with limited number of employees and a relatively low turnover. Each country has its own definition of what constitutes a small and midsize enterprise.

- ii. **Turnover:** Turnover is how quickly a company has replaced assets within a specific period. It can include selling inventory, collecting receivables, or replacing employees. It is an accounting concept that shows the efficiency of a business, mainly by determining how quickly a business gets cash from accounts receivables or sells its inventory.
- iii. **Bank credit to the private sector:** Domestic credit to private sector by banks refers to financial resources provided to the private sector by other depository corporations (deposit taking corporations except central banks), such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment.
- iv. **Gross Domestic Product (GDP):** Is a measure, in monetary value, of final goods and services produced in a country in a given period of time (say a quarter or a year). It counts all of the output generated within the borders of a country.
- v. **Inflation:** Is the rate of increase in prices over a given period of time. Inflation is typically a broad measure, such as the overall increase in prices or the increase in the cost of living in a country.
- vi. **Industrialization:** Is the act of transforming or value addition, on a commercial scale, of raw materials into finished or semi-finished products and includes the assembling of inputs into finished or semi-finished products. It is the process by which an economy moves from primarily agrarian production to mass-produced and technologically advanced goods and services.
- vii. **Manufacturing:** Is the processing of raw materials or parts into finished goods through the use of tools, human labour, machinery and chemical processing. Is the act of transforming on a commercial scale, of raw materials into finished or semi-finished products and includes the assembly of inputs into finished or semi-finished products.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

Chapter two is a presentation of relevant theoretical and empirical work carried out by other researchers particularly on this subject matter. This chapter therefore, highlights various schools of thought, research findings and assumptions on the effect of bank credit to the private sector on growth of the SMEs in Zambia. It considers several and similar scholarly work conducted in other countries as well as those undertaken in the local context of Zambia. The review of literature provided the basis to further understand the problem statement as well as providing further insights in the research questions and methodology from various perspectives.

2.2 Characteristics of SMEs Sector

There is enough evidence which postulates that micro small and medium enterprises (MSMEs) are a backbone of most economies across the world and have become a major focus area of many policymakers as well as many other development partners. Several characteristics have been observed that distinguish micro small and medium enterprises from larger enterprises. Literature suggests that uncertainty, innovation, and evolution are the three central aspects that differentiates small and medium enterprises (SMEs) from large firms (Senderovitz, 2009). Another important characteristic of SMEs as pointed out by Lekhanya (2016) is the limited access to finance, lack of technical and business skills, as well as inaccessible and unreliable communication and transport services, in addition to having a small market are among the most severe constraints characterizing SMEs especially those in rural areas.

In the Zambian context, growth in the number of formal enterprises has been observed over the years with those in wholesale and retail trade and in repair of motor vehicles and motorcycles accounting for a larger share of about 47 percent in 2019 (MSMED, 2023). Others are in construction, agriculture, forestry, fishing, and manufacturing, among others. Most of the MSMEs are predominantly found in the more urbanized provinces such as Lusaka, Copperbelt, Southern and Central provinces due to primarily the availability of supporting infrastructure such as roads, rail, markets, and financial services. The National Financial Sector Development Policy (MOFNP, 2017) reveal that

over 85 percent of the MSMEs in rural areas are unbanked compared to 15 percent of their urban counterparts. It also notes that access to finance is limited among the MSMEs on account of the high levels of informality, cost of borrowing and collateral requirements while most of them in Zambia are family businesses and remain characterised by low-level of technology.

2.3 Definition of MSMEs

There is no standard definition of MSMEs, and it varies from country to country depending fundamentally on the state and degree of development as noted by Ovat (2016). Academics, policymakers, international institutions such as the European Commission and the World Bank, and statistical agencies mainly use the quantitative criteria in defining MSMEs such the number of employees, annual turnover, and annual balance sheet. In the Zambia context, MSMEs are defined based on their annual turnover, total fixed investments, number of employees and their legal status. Table 1 below outlines the definitions adopted in Zambia for micro small and medium enterprises using the annual turnover and number of employees.

Table 1: Definition of Micro Small and Medium Enterprises

Sector	Annual Turnover	No. of Employees
Micro enterprises	Up to K1,000,000	Up to 10 persons
Small enterprises	K1,000,001 – K10,000,000	11 – 50 persons
Medium enterprise	K10,000,001 – K50,000,000	51 – 100 persons

Source: Revised National Micro Small and Medium Enterprises Development Policy (2023)

2.4 The Importance of Manufacturing in Economic Development

The role of manufacturing has been documented severally by many studies about economic growth in developing countries (Haraguchi *et al*, 2016). Empirical studies have shown that manufacturing sector has been the main engine of fast and sustained economic growth. Naude and Szirmai (2012) also argued that high productivity in manufacturing played a key role in structural transformation of a traditional economy and remained a main defining feature of economic development. They contend that in

the twenty-first century, manufacturing development remains relevant and critical for poor countries for the to catch-up with more advanced economies and to provide increasing standards of living for their people. They further stated that African countries should continue to strive for manufacturing growth to increase their growth prospects and becoming more resilient to external shocks as well as adverse changes in terms of trade. This was premised on the fact that manufacturing brings about special opportunities for reaping economies of scale, engaging in technological progress and learning, profiting from spill overs to other sectors and providing job opportunities for variously skilled levels of labour.

Attiah (2019) also observed that there are a lot of theoretical and empirical evidence for the importance of industrialization through manufacturing for economic growth. He pointed out that manufacturing sector offers special opportunities for capital accumulation which is one of the aggregate sources of growth. He also noted that manufacturing brings opportunities for economies of scale which are less available in agriculture or services, technological progress which diffuses into other economic sectors while fostering linkages and spill over effects between sectors and subsectors which creates positive externalities to investments in given sectors. Herman (2015) also added that manufacturing has the multiplier effects, which is closely related to the other sectors of the economy. He observed that the links can be “backwards” as is the case with mining or construction or can be “forward” as the case may be with sectors such as transportation, wholesale and retail and business services.

2.5 Industrialization in Zambia

According to the National Industrial Policy, Zambia’s industrialization vision is to be an industrialized and competitive nation with a diversified, innovative and globally competitive industrial base, which contributes to sustainable growth and employment creation by 2027 (MCTI, 2018). Its broad objective is to transform Zambia from a producer and exporter of primary products into a net exporter of value-added goods utilizing local primary resources with increased citizens’ participation. One of the specific objectives of the National Industrial Policy is to increase the growth of the manufacturing sector from an average of 5 percent to 20 percent and its contribution to GDP from 8 percent to 15 percent by 2027.

The policy identified eight manufacturing sub-sectors as priority drivers of manufacturing, which include processed foods, textiles and garments, engineering products, wood and wood products, leather and leather products, mineral processing and products, pharmaceuticals, and the blue economy. Further, construction, agriculture, tourism, energy, ICT and health were identified as key supportive sectors in the industrialization process. The focus on the manufacturing sector in the industrialization process in Zambia was largely driven by its notable contribution to the gross domestic product (GDP), its contribution to employment creation, its impact on attracting investment inflows as well as its contribution to total exports.

The manufacturing sector continues to contribute positively to GDP growth over the years despite facing some major constraints such as limited access to key domestic markets like mines, chain stores and government procurement; limited diversification; low levels of investments; limited access to affordable long-term finance; prevalence of outdated technology; limited access to appropriate manufacturing related technical skills to meet industry needs, unfavourable tax policies; lack of targeted investment promotion; and underdeveloped quality infrastructure while also facing stiff competition from imports.

Realizing that the manufacturing sector faces many challenges, government acknowledged the need for an enabling environment that promotes industrialization in which business terms and conditions are fair and transparent. Government has also put in place a regulatory framework through the Competition and Consumer Protection Act of 2010 which strengthens the enforcement of fair-trading practices in the country that ensure efficient allocation resources to industrialization. Despite these initiatives, Chansa et al (2019) argued that Zambia's developmental structures have failed to nurture development primarily due to lack of development roles which made it difficult for the country to develop a dynamic industrial policy, thereby being stuck in traditional import substitution activities for the growth process. They contended that though Zambia succeeded in building developmental structures, she failed to embrace pro-growth policies which should be a subject of intense future research.

2.6 The Manufacturing sector in Zambia

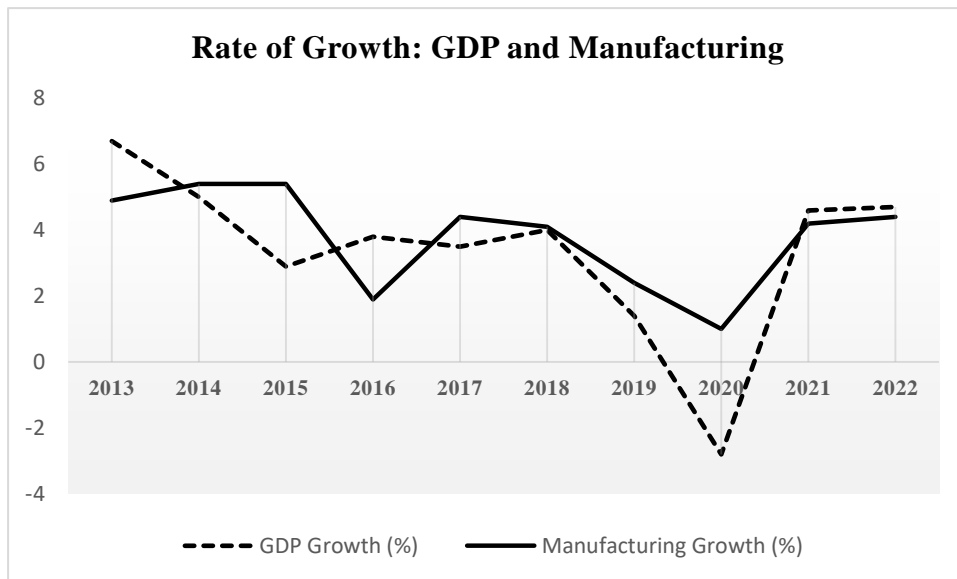
Manufacturing, being the focus of this study, has long been recognized as an engine of growth in industrial countries (Dinh, 2013). In many developing countries, the manufacturing sector has greatly contributed to industrialization as well as economic growth and development. The manufacturing sector in Zambia continues to be among the key sectors that facilitates broad based economic growth. Its contribution to gross domestic product (GDP) over the years has remained relatively stable around 7.9 percent as observed by PMRC (2021). However, the growth has been impacted negatively on account of the high cost of doing business and the unstable macroeconomic environment. The situation was further compounded by the advent of the COVID-19 pandemic as the sector slumped by 4.6 percent in the second quarter of the year 2020.

Simuchimba *et al.* (2020) pointed out that manufacturing is an important sector in the Zambian context highlighting several reasons. They argued that it is the hub of value addition which is crucial for generating growth opportunities and transforming the economy towards more formalized jobs. Further, they contended that manufacturing is critical in the creation of gainful employment opportunities stating that in 2020, the actualized employment was highest in the manufacturing sector which accounted for 43.4 percent of the jobs created. In addition, manufacturing has been seen to be important for linkages to agriculture and other primary sectors.

2.6.1 Trends of GDP and Total Manufacturing Growth (2013-2022)

The economic reports published by the Ministry of Finance and National Planning (MOFNP) revealed that the growth of both real gross domestic product (GDP) and total manufacturing exhibited a downward trend from 6.7 percent and 4.9 percent in 2013 to 4.7 percent and 4.4 percent in 2022 respectively. The biggest slump was observed in the year 2020 on account of the ravaging effects of the COVID-19 pandemic which affected the world economies beginning in 2019. Figure 1 shows a ten-year growth trend in percentage terms, for both real GDP and total manufacturing sector from 2013 to 2022.

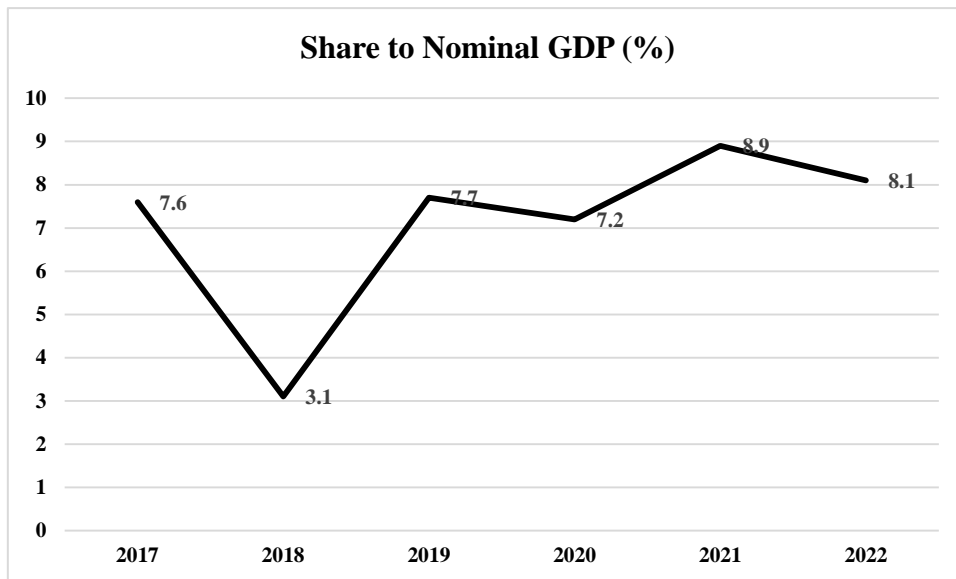
Figure 1: Trends in GDP and Total Manufacturing Growth (2013-2022)



Source: Economic Reports-Ministry of Finance and National Planning

According to the Zambia Development Agency, the manufacturing sector is largely driven by the agroprocessing (food and beverages), textiles, and leather subsectors (ZDA, 2013). Other drivers include the secondary processing of metals, fertilisers, chemicals, explosives, and construction materials such as cement. With regards the share to nominal GDP, manufacturing sector has depicted some nominal growth from 7.6 percent in 2013 to 8.1 percent in 2022. However, there has been periods of slumps, particularly in 2018 when the manufacturing sector in Zambia only accounted for only about 3.1 percent of the country’s nominal GDP as revealed in economic reports by the MOFNP (Figure 2).

Figure 2: Percentage Contribution of Manufacturing to Nominal GDP



Source: Economic Reports-Ministry of Finance and National Planning

2.6.2 SMEs in the Manufacturing Sector in Zambia

Manufacturing is one of the key SMEs business activities in Zambia alongside trading, services, and mining (Chisala, 2008). The main activities under manufacturing include primarily textile products, carpentry and other wood-based business, light engineering and metal fabrication, food processing, leather products, processing of semi-precious stones, essential oils and ceramics. Further, Simuchimba et al. (2020) argued that within the MSMEs sector in Zambia, manufacturing activities account for about 41 percent of the business activities. However, using the data envelope analysis (DEA) approach, they found that the overall technical efficiency among the SMEs in the manufacturing sector is relatively low which potentially reduce their output contribution. Their study also revealed that SMEs in this sector operated at significantly less than full plant capacity and there was need for extensive infrastructure development and technological upgrading, marketing, and management for the manufacturing SMEs to realize their full productive potential.

Dinh (2013) also argued that labour-intensive light manufacturing played a critical role in the economic transformation of most high-performing developing countries such as Mauritius, Vietnam, among others. Light manufacturing has been described as the production of goods that are relatively simple to make and Dinh (2013) stated that these firms were mainly characterised by a few formal medium enterprises and a huge number

of small informal, low-productivity firms providing products for the domestic markets. These enterprises mainly provide low paying jobs, earning little in foreign exchange and provide few employment opportunities as their growth is affected by a number of binding constraints including input availability, cost, access to industrial land, access to finance, and entrepreneurial skills.

2.7 Access to finance by SMEs

According to Batrancea et al. (2022), access to funding plays a key role in the development of any business and more so for small and medium enterprise which constitute about 90% of business entities while providing nearly 50% of the globe workforce. A descriptive study by Muganda et al. (2016) on the effects of business financing on the performance of small and medium enterprises in Lurambi sub-county in Kenya suggested that sources of business financing, commercial loan financing, retained earnings, and trade credits affected financial performance of SMEs significantly. They argued that for SMEs to realize higher levels of performance, they should explore financing options within a given financial system.

Domestic or banks' credit to the private sector is one avenue through which businesses in the SME sector can be supported to meet their financing needs for growth and survival (Ovat, 2016). Funyina (2020) examined the determinants of bank credit to the private sector across 17 commercial banks in Zambia between 2008 and 2017 using the fixed effects panel approach and the bank-level data. The results suggested that both bank-specific variables (lag of bank credit, capitalization, NPL ratio, liquidity ratio, investment in securities ratio, cash reserve ratio, foreign funding, domestic deposits and bank size) and macroeconomic variable (BOZ policy rate, total government debt, inflation and GDP growth) significantly affected bank credit to the private sector. Similarly, Senei and Moeti (2017) investigated the effect of various factors on the supply of credit to the private sector in Lesotho using an autoregressive distributed lag cointegration approach on quarterly time series data for the period 2005 to 2014. The study showed a significant positive relationship, both short and long-run, between the supply of credit to the private sector and the bank deposits.

2.8 Impact of bank credit on SMEs Growth

Several studies acknowledge that the existence and survival of SMEs to a larger extent depends on adequate financing and a number of studies have been carried out to determine the effect of SME financing, particularly bank loans or loans on their growth with varying outcomes. For example, Ovat (2016) examined the role played by commercial banks' credit in facilitating the growth of SMEs in Nigeria using the cointegration and error correction mechanism. The study findings suggested that commercial banks' credit did not contribute significantly to the growth of SMEs in Nigeria but observed that SMEs should have easy access to credits by commercial banks to be facilitated by favourable lending rates from the monetary authorities.

Employing the error correction model to determine the impact of banking sector credit on the growth of SMEs in Nigeria, Ayuba (2015) found that banking sector credit had a significant impact on the growth of SMEs which also had positive impact on some macroeconomic variables including inflation, exchange rates, among others. This study also observed that financial lending authorities should relax the stringent conditions associated with credit facility in the funding of SMEs in the country.

In the same line, Imoughele and Ismaila (2014) used the cointegration and error correction modelling (ECM) technique to investigate the impact of commercial bank credit on Nigeria's small and medium enterprises between 1986 and 2012. The study showed a long run relationship between SMEs and selected macroeconomic variables. However, the study found that commercial bank credit to SMEs, total government expenditure and bank density had direct but insignificant impact on the country's SMEs output. This study attributed this outcome to stringent policy in accessing credit facility and the crowd out effect of government expenditure in the economy.

In Thailand, Amornkitvikai and Harve (2016) considered the impact of finance on the performance of the Thai manufacturing Small and Medium-sized enterprises. This study focussed on the key sources of finance existing for Thai manufacturing SMEs and their importance for SME performance and measured by technical efficiency, export performance and technological innovation. The study affirmed that retained earnings were crucial to increasing SME technical efficiency, but loans from unlicensed moneylenders deteriorated their export performance.

Onyeiwu *et al.* (2021) also examined the financing of small and medium scale enterprises and its growth impact in Nigeria using the ordinary least squares (OLS) estimation. The results suggested that lending rates and gross capital formation reduced the aggregate of SME contribution to GDP by 7 percent and 5 percent, respectively. Further and surprisingly, credit to SMEs did not retain its significant effect on growth as is the case with other similar studies. The study however, recommended that affordable local loans to SMEs was necessary to enhance the performance of SMEs and growth simultaneously.

2.9 Impact of bank credit on growth of SMEs in manufacturing sector

Nwosa and Oseni (2013) looked at the subject from another perspective by considering the impact of bank loans to SMEs on the manufacturing output in Nigeria for a period spanning from 1992 to 2010, employing the error correction modelling technique. The results of their study revealed that bank loans to the SME sector had no significant impact on manufacturing out both in the long and short run. If view this finding, the study recommended for greater deliberation and conscious effort by the government in ensuring that loans are given to ultimate users as well as moderation of collaterals and interest rates to make it more attractive to stakeholders in the SMEs sector.

Another interesting study considered the impact of bank credit on manufacturing sector output in Nigeria by Ayuba *et al.* (2021). This study adopted the ARDL model and Granger causality to test if bank credit does have a significant impact om manufacturing sector output in Nigeria. The post-estimation results of the study suggested that manufacturing sector output and bank credit at first difference and inflation rate at level, had a unidirectional causality from manufacturing sector output to bank credit. However, the results also indicated that bank credit exerted significant positive impact on manufacturing sector output and a long run relationship among variable. Ayuba *et al.* (2021) recommended that regulatory authorities should encourage the manufacturing sector through accessible and affordable bank credit that will encourage investors to access adequate loan facilities to enhance productivity in the sector.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

In Chapter three, the necessary procedural steps which were undertaken to conduct this study have been highlighted. The chapter details the research design for this study, the study population and sampling techniques which were employed in carrying out this study. Further, the chapter provides more insights the data used, how data was managed and analysed and how the model used was specified and estimated. The chapter, therefore, details the framework which was used in order to address the stated research questions for this study.

3.2 Research Design

This study employed a quantitative research philosophy. According to Yilmaz (2013), quantitative research explains phenomena according to numerical data which are analysed by means of mathematically based methods, especially statistics. It investigates a phenomenon by testing a hypothesis that consists of measurable variables to determine if the hypothesis is supported or not. This study followed the finance-growth nexus as postulated in the finance-led growth hypothesis using a time series econometric cointegration and Error Correction Model (ECM) approach. It followed the work of Ajisafe & Okunade (2020) which investigated the finance-led growth hypothesis by examining the impact of financial development and domestic investment on economic growth in Nigeria using the ARDL and VECM Granger causality.

3.3 Study Population and sampling

The study population from which the sample was drawn for this present study were the small and medium enterprises (SMEs) in Zambia who were formally registered with the Patents and Company Registration Authority (PACRA) and submitted monthly the sales or turnover returns to the Zambia Revenue Authority (ZRA). The study sample covered only the SMEs in the manufacturing sector using convenience sampling, a non-probability sampling technique. This sampling techniques was chosen because it suited well the study approach considering that this study was not looking at individual SMEs, but aggregate variables in the manufacturing sector. Though predominantly used in quantitative research, Etikan *et al*, (2015) argued that convenient sampling technique is

applicable to both qualitative and quantitative studies. They described convenience sampling as a type of nonprobability or non-random sampling where members of the target population that meet certain practical criteria such as accessibility, availability, proximity are included for the purpose of the study.

3.4 Data for the study

The study used secondary time series data for a period of eleven (11) years spanning from 2013 to 2023. The dependent variable for this study was the turnover or sales aggregated quarterly as proxy indicator for growth of SMEs in manufacturing, collected from the Zambia Revenue Authority (ZRA). The main explanatory variable in this present study was bank credit (loans) to SMEs in the manufacturing sector collected from the Bank of Zambia. However, other independent variables which included gross domestic product at constant prices (GDP), exchange rates, lending rates, inflation, and monetary base (broad money) were added to the model whose data was collected from Bank of Zambia and the Zambia Statistics Agency (ZAMSTATS). These other variables were used as possible explanatory variables which were assumed to have an effect on the growth of SMEs in manufacturing sector.

3.5 Definition of Variables

As mentioned above, this study focussed on investigating the effects of bank credit (loans) on the growth of the SMEs in the manufacturing sector. Quarterly turnover or sales (*turnover*) was used as a proxy dependent variable to indicate growth of the SMEs in manufacturing. This was on the basis that turnover is part of the criteria used in the definition of MSMEs in Zambia as shown in the Revised National Micro, Small and Medium Enterprise Policy. Further, this was also informed by other similar studies undertaken in other jurisdictions where turnover was used to proxy growth of these enterprise. The turnover data collected only contained figures for small and medium enterprises for the period under consideration.

The main explanatory variable in this study was the bank credit (*loans*) to the private sector. This data was collected from the Bank of Zambia publications and contained only loans (in K' millions) advanced specifically to the small and medium sized businesses in the manufacturing sector. The selection of this variable was premised on the available evidence in varying degrees, that bank credit influences the growth and performance of

SMEs. Other explanatory variables included in this study are the real gross domestic product (*gdp*), exchange rates (*exch*), lending rates (*lend*), inflation rates (*inf*) and monetary base (*mbase*) to help in investigating other variables which influenced the growth of SMEs in the manufacturing sector as shown in Table 2 below.

Table 2: Definition of Key Variables

No.	Variable Name	Variable Label	Definition	Ex Ante sign
1	Turnover or sales for SMEs in manufacturing	" <i>turnover</i> "	This is a dependent variable as a proxy for SMEs growth.	
2	Bank credit to the private sector	" <i>loans</i> "	This is an explanatory variable to help predict the growth of SMEs in manufacturing.	+
3	Real Gross Domestic Product	" <i>gdp</i> "	This is an explanatory variable which indicates economic activity in a country	+
4	Lending rates	" <i>lend</i> "	This variable indicates the cost of borrowing in the financial system	-
5	Inflation rates	" <i>inf</i> "	This variable indicates the general price level in the economy for goods and services	-
6	Monetary base	" <i>mbase</i> "	This variable indicates the quantity of money in the economy or in circulation (coins and note, and demand deposits)	+

3.6 Data management and analysis

The data collected on sales or turnover, bank credit, GDP, lending rates, exchange rates, inflation rates and monetary base, from the Zambia Revenue Authority (ZRA), the Zambia Statistical Agency and the Bank of Zambia was first inputted in Microsoft Excel spreadsheet as the first stage of inspection and validation. This data was then exported to Stata 13, one of the specialized statistical software for analysis especially economic data. The analysis began by summarising all the variables using the descriptive statistics including the means, standard deviations, among several others. Data was then further analysed to test for the null hypothesis using the Cointegration and Error Correction Model (ECM).

3.7 Model Specification

This study, postulated that growth of SMEs in manufacturing (proxied as *turnover*) was a function of domestic private credit to the SMEs in manufacturing and other confounding factors as depicted in the following function:

$$\text{turnover}_t = f(\text{loans}, \text{gdp}, \text{lend}, \text{inf}, \text{mbase}) \quad (1)$$

where: *turnover* = a proxy variable for growth in sales

loans = represent the bank credit to SMEs in the manufacturing sector

gdp = the real gross domestic product

lend = the bank lending rates

inf = the inflation rates

mbase = the monetary base

With the above functional model, the long run model using the OLS was specified as:

$$Y_t = \beta_0 + \beta_1 Z_t + \epsilon_t \quad (2)$$

Where: Y_t = is the dependent variable (turnover) at period t;

Z_t = is a group of explanatory variables in the functional form

ϵ_t = I(0), if variables are cointegrated

To estimate the short run model or Error Correction Model, residuals from the long run model were used, but lagged by one period as follows:

$$\epsilon_{t-1} = y_t - \beta_0 - \beta_1 Z_{t-1} \quad (3)$$

Incorporating to the long run model the error correction term, which are residuals of the long run regression, but lagged one period, the following short run model was specified:

$$\Delta Y_t = \beta_0 + \beta_1 \Delta Z_t + \beta_2 \epsilon_{t-1} + V_t \quad (4)$$

where ϵ_{t-1} = residual lagged one period or the error correction term (ECT)

Substituting the ECT into equation (4), the short run model was as follows:

$$\Delta Y_t = \beta_0 + \beta_1 \Delta Z_t + \beta_2 (y_t - \beta_0 - \beta_1 Z_{t-1}) + v_t \quad (5)$$

β_2 was the estimated coefficient for the error correction term (ε_{t-1}) where $-1 < \beta_2 < 0$ which determines the speed of adjustment towards the long-run equilibrium. The ECM entails therefore, that the deviations from the long-run equilibrium are corrected gradually by the error correction term (ECT) through a series of partial short-run adjustments.

3.8 Model Estimation and Analysis

To test the null hypothesis that bank credit to SMEs in manufacturing sector does not have effects on their growth in Zambia, this study employed the Cointegration and Error Correction Model (ECM), a multivariate model which considers both the short and long run effects. The ECM describes how a dependent variable and the independent variable would behave in the short run while being consistent with a long run cointegrating relationship. The approach can be applied on a smaller sample, provides unbiased long-run estimates with valid t-statistics if some regressors are endogenous and also provides a method of assessing short-run and long-run effects of one variable on the other simultaneously.

To undertake this procedure, testing of all the variables for stationarity using the Augmented Dickey-Fuller (ADF) and the Phillip-Perron (PP) tests for unit root (stationarity) was first performed and ensuring that all the variables had the same order of integration. This was a necessary step because if variables do not have the same order of integration, the ECM would produce spurious results which are not valid (Gujarati, 2003). Secondly, the long run model using the ordinary least squares (OLS) was estimated, followed by the estimation of the Error Correction Model (ECM), a short-run model, by incorporating the error correction term (ECT) in the long-run model. The ECT are basically the residuals of the long-run regression model but lagged by one period.

CHAPTER FOUR

RESULTS AND FINDINGS

4.1 Overview

Following the methodology as outlined in the previous chapter, chapter four contains the key findings in addressing the objectives of this study. The chapter is arranged in such manner that provides a step by step presentation of the results using tables, graphs and figures, complemented by brief explanations and clarifications where necessary to ensure understanding of the underlying principles. In this chapter, descriptive statistics for the main variables, both the dependent and explanatory variables have been presented. In addition, the chapter also outlines correlational analysis, and inferential statistics using regression analysis techniques.

4.2 Descriptive Statistics

The results of basic descriptive statistics for the variables included in this study are reported in Table 3 below. The descriptive statistics reported include the number of observations or time series data points, means and standard deviations (SDs). It can be observed that the study had 44 quarterly data points for all the variables except GDP (*gdp*) spanning from the first quarter of 2013 to fourth quarter of 2023. It can further be noted that the mean amount of bank credit to SMEs in manufacturing (*loans*) was only about K1.11 million compared to the mean amount of turnover or sales (*turnover*) of about K356.36 million.

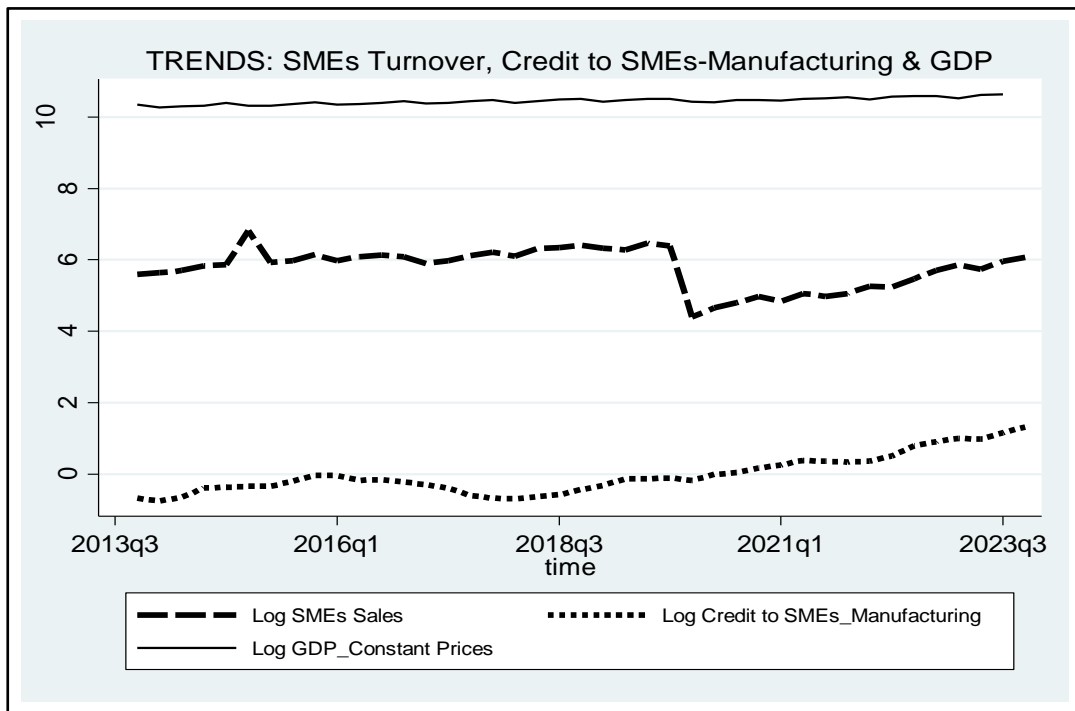
Table 3: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
turnover	44	356.3643	176.2842	81.4	913.53
loans	44	1.112955	.7740308	.47	3.72
gdp	43	34089.88	3450.903	27959.21	41789.66
lend	44	23.99977	3.724125	16.18	29.2
inf	44	11.44614	5.442468	6.27	23.7
mbase	44	19934.36	10691.66	7261.95	48887.65

A trends analysis for turnover or sales of SMEs in the manufacturing sector, bank credit to SMEs in the manufacturing sector and GDP was carried out after taking their natural logarithms. This was intended to inspect how these variables in this study behaved

overtime, between 2013 and 2023. A thorough inspection of their trends suggested that all these variables were trending upwards albeit at a slow rate. Nonetheless, credit to SMEs in the manufacturing sector showed slightly more growth rate compared to turnover and real GDP during the period under consideration. Another key observation was a slump in SME turnover during the year 2020 before beginning to slightly pick up in 2021.

Figure 3: Trends in Turnover, Bank Credit and GDP



The correlation results presented in Table 4 below, suggested a weak negative correlation ($\rho = -0.2467$) between turnover and bank credit in this study. This study also suggested a negative correlation between turnover and inflation ($\rho = -0.3854$) and the monetary base ($\rho = -0.3651$).

Table 4: Correlation results between turnover and explanatory variables

	turnover	loans	gdp	lend	inf	mbase
turnover	1.0000					
loans	-0.2467	1.0000				
gdp	-0.0501	0.7785	1.0000			
lend	0.0485	0.3376	0.5923	1.0000		
inf	-0.3854	0.2497	0.2228	0.4394	1.0000	
mbase	-0.3651	0.9342	0.8229	0.4694	0.4126	1.0000

4.3 Unit root test (stationarity)

Many financial and economic time series data are presumed to be non-stationary implying that they contain a unit root because they fluctuate and, in many instances, tend to trend upwards. The Box-Jenking approach suggests that differencing the logs of the economic time series data results in stationary data which can now be used in various time series econometric models. Unit root tests are helpful in establishing if a time series is stationary. Before performing a formal test for unit root, all the variables were log transformed to enable the interpretation of the results as elasticities or in percentage terms.

In this study, graphical presentation of each time series data before taking their first difference suggested that their trends were not steady as depicted in Figures 5 – 7. It can clearly be observed that before taking the first difference on turnover, the trend exhibited a random walk with a drift which also indicated a non-stationary stochastic process. However, bank credit to SMEs in the manufacturing sector as well as the GDP and lending rates showed purely a random walk without a drift before the first difference was taken on the series.

Figure 4: Trend in Turnover before and after first difference

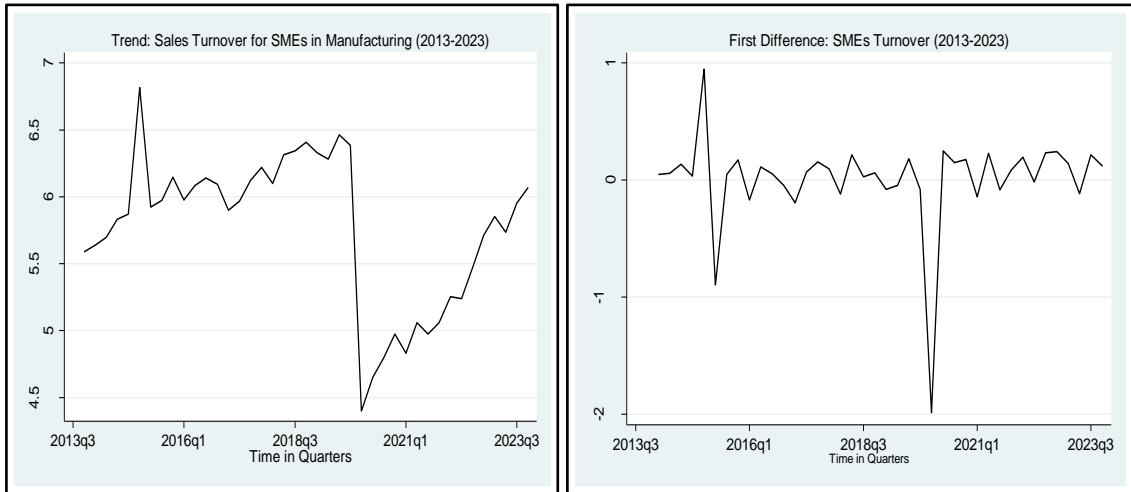


Figure 5: Trend in Bank Credit to SMEs before and after first difference

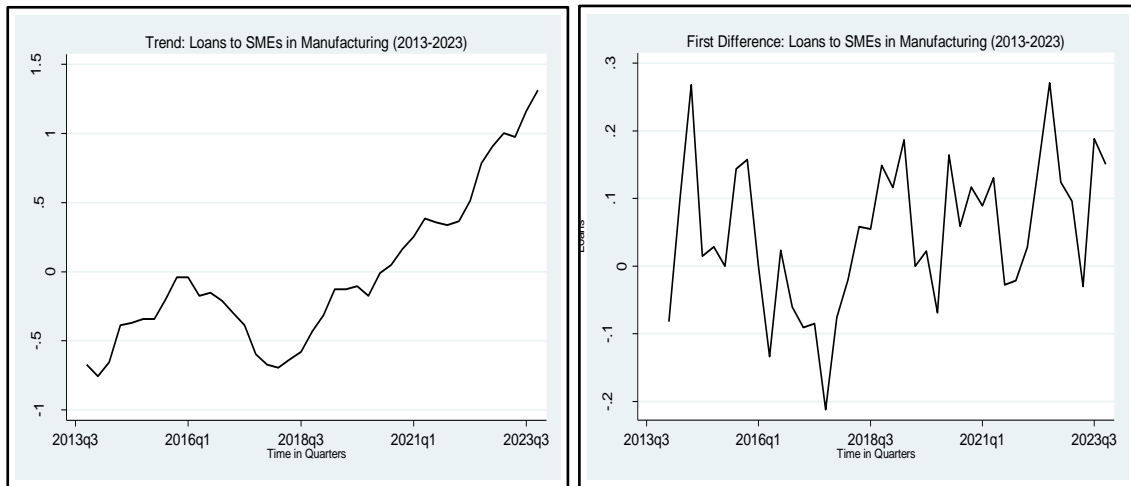


Figure 6: Trend in GDP before and after first difference

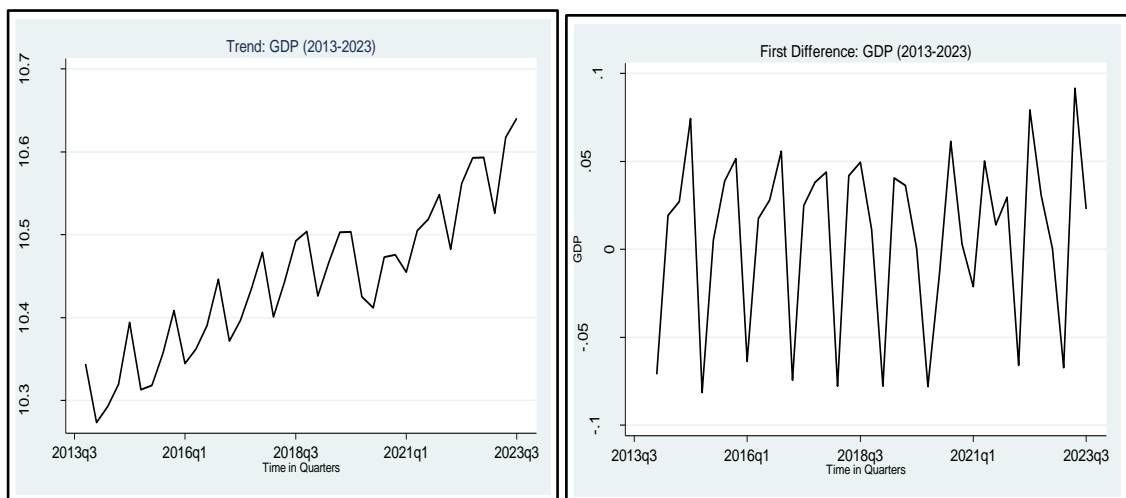
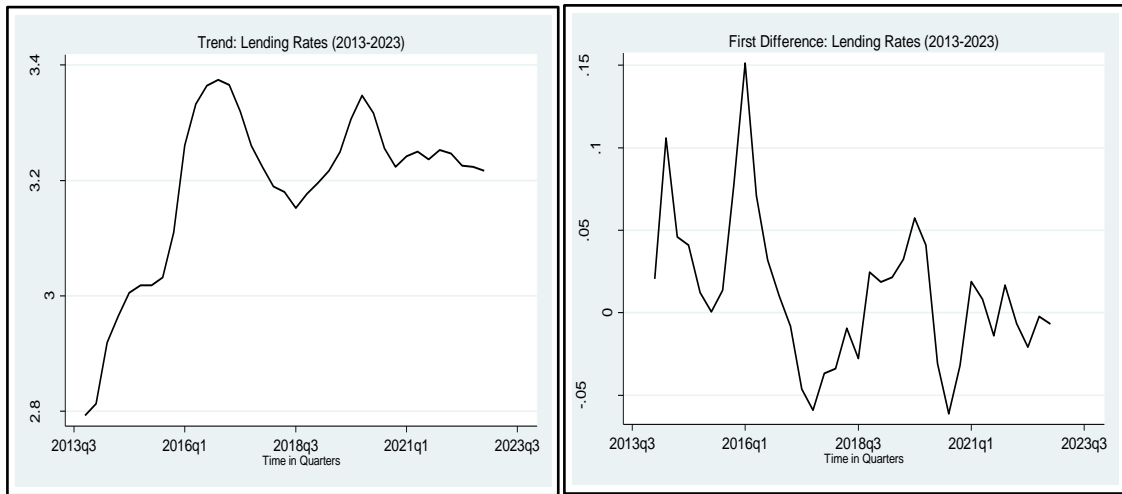


Figure 7: Trend in Lending rates before and after first difference



The augmented Dickey-Fuller (ADF) test is one of the most popular tests procedure for unit root whose null hypothesis is that the time series contains a unit root (random walk). In this study the ADF test was conducted on each time series data included in the model alongside the Phillip-Perron test for unit root to establish how steady the data was and establish their order of integration. The null hypothesis can only be rejected if the ADF and PP test for p-values are less that the 5 percent significance level. Table 5 presents the results of the Augmented Dickey-Fuller and Phillip-Perron tests for unit root.

Table 5: ADF and PP Unit Test for unit

Variable	ADF (p-value)	ADF First Difference (p-value)	Phillip Perron (p-value)	Phillip Perron First Difference (p-value)	Order of Integration
Turnover	0.1283	0.0000	0.1370	0.0000	I(1)
Loans	0.9977	0.0007	0.9949	0.0010	I(1)
Real GDP	0.5279	0.0000	0.8505	0.0000	I(1)
Lending Rates	0.1401	0.0323	0.1996	0.0269	I(1)
Inflation Rates	0.3792	0.0016	0.1854	0.0015	I(1)
Monetary Base	0.9725	0.0000	0.9558	0.0000	I(1)

The results of the ADF and PP test for unit root before first different suggested that the null hypothesis cannot be rejected. All the variables had a unit root of zero-order integration. However, it was established that all variables were a series of I(1) which suggested a likelihood of cointegration among them. Therefore, the ADF and PP test for unit root strongly indicated the presence of the first-order integration.

4.4 Co-integration test

A test for co-integration is necessary in time series data analysis as it informs the kind of model to use in the estimation process such as the VAR models, ECM among others. There are several tests that can be performed to establish if at all the variables in the proposed model do have a long run relationship or equilibrium. Some of these tests are the Johansen Test approach and the Engle-Granger test procedure. In this study, the Johansen test for co-integration was employed on account that it is an improved version of the Engle-Granger test. Using the Johansen test, co-integration is determined with unrestricted co-integration rank test and the presence of co-integrating equation (r) confirms that co-integration exists (Adeyeye *et al*, 2015).

According the Johansen test for co-integration, the null hypothesis (H0) was that there was no co-integrating equation and the alternative hypothesis (H1) was that there was co-integrating equation. The decision rule in this study was that if the trace statistic and the max statistic were greater than the critical value at 5 percent significant level, then the co-integrating equation existed, and thus the null hypothesis could be rejected in favour of the alternative hypothesis. The results of the Johansen test for co-integration are presented in Table 6 below.

Table 6: Johansen Test for Co-integration

Johansen tests for cointegration						
Trend: constant					Number of obs =	40
Sample: 2013q4 - 2023q3					Lags =	3
maximum				trace	5%	
rank	parms	LL	eigenvalue	statistic	critical	value
0	78	279.8358	.	131.8715	94.15	
1	89	304.58855	0.70993	82.3660	68.52	
2	98	319.78586	0.53227	51.9714	47.21	
3	105	332.27342	0.46441	26.9963*	29.68	
4	110	339.28261	0.29564	12.9779	15.41	
5	113	343.86664	0.20483	3.8098	3.76	
6	114	345.77156	0.09085			
maximum				max	5%	
rank	parms	LL	eigenvalue	statistic	critical	value
0	78	279.8358	.	49.5055	39.37	
1	89	304.58855	0.70993	30.3946	33.46	
2	98	319.78586	0.53227	24.9751	27.07	
3	105	332.27342	0.46441	14.0184	20.97	
4	110	339.28261	0.29564	9.1681	14.07	
5	113	343.86664	0.20483	3.8098	3.76	
6	114	345.77156	0.09085			

A close inspection of the trace test results of the Johansen test in the above table suggested that there were five co-integrating equations in the proposed model. It can be observed that the null hypothesis was rejected at $r=0$, $r=1$, $r=2$, and $r=5$. Using the max statistics, the null hypothesis was also rejected at $r=0$ and $r=5$. These results, therefore, indicated that indeed there existed cointegrating equations in the model and concluded that there was a long-run equilibrium or relationship among the variables. The indication that cointegration existed, suggested that the error correction model (ECM) was the appropriate model to be used for this study.

4.5 Long-run OLS Regression

Before, running the error correction model, a long-run ordinary least squares model was fitted as presented in Table 7 below. The model $F(5, 37)$ was significant with a p -value (0.0005) less than 5 percent significance level. Further, the adjusted R-squared (0.3624) showed that the model explained about 36 percent of movements in dependent variable and thus almost 64 percent of the variations in growth of SMEs in manufacturing in the long-run was not explained by the explanatory variables in the model prompting for a need for further research.

Table 7: Long-run OLS Regression Results

Source	SS	df	MS	Number of obs = 43		
Model	5.80644763	5	1.16128953	F(5, 37) =	5.78	
Residual	7.43981945	37	.201076201	Prob > F =	0.0005	
Total	13.2462671	42	.315387312	R-squared =	0.4383	
				Adj R-squared =	0.3624	
				Root MSE =	.44842	

lturnover	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lloans	.5834912	.379219	1.54	0.132	-.1848794	1.351862
lgdp	2.051943	1.458682	1.41	0.168	-.9036283	5.007514
llend	1.570214	.6248633	2.51	0.016	.3041209	2.836307
linf	-.5261358	.2172321	-2.42	0.020	-.9662899	-.0859818
lmbase	-1.449543	.4976187	-2.91	0.006	-2.457815	-.4412721
_cons	-5.216958	13.41628	-0.39	0.700	-32.40093	21.96701

The results revealed that there was no sufficient statistical evidence to suggest that bank loans or credit had a significant effect on the growth or turnover for the SMEs in the manufacturing sector in the long-run (p -value=0.132). The results of this study revealed that a one percent increase in loans or bank credit to the SMEs in the manufacturing sector led to only about 0.58 percent increase in turnover. Equally there was no sufficient statistical evidence that GDP had a positive effect on the growth of SMEs in

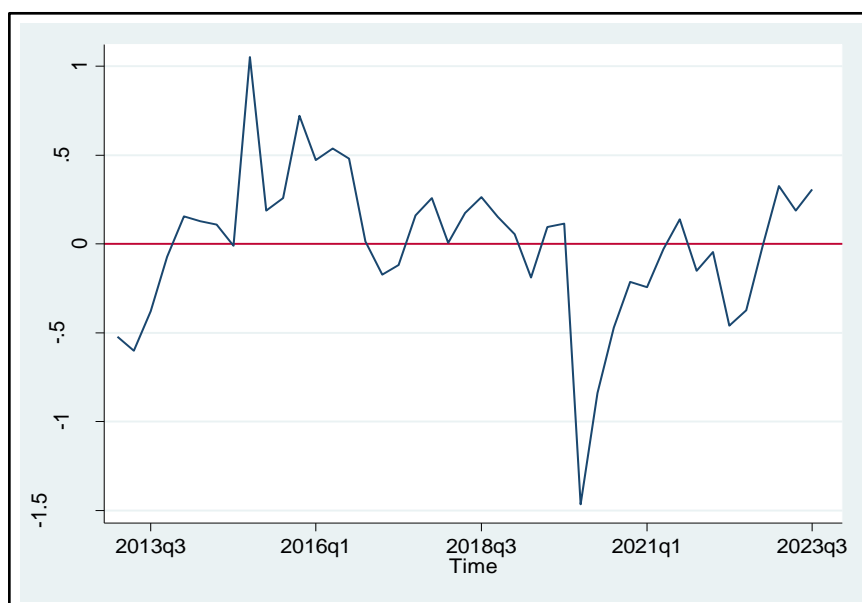
manufacturing in Zambia ($p\text{-value}=0.168$) despite showing that a percentage increase in real GDP 1 resulted in about 2.05 percent increase in turnover for the SMEs in the manufacturing.

On the other hand, lending rates ($p\text{-value}=0.016$), inflation rates ($p\text{-value}=0.020$) and monetary base ($p\text{-value}=0.006$) were found to be statistically significant in their effect on the growth or turnover of SMEs in the manufacturing sector in the long-run. Interestingly, a percentage increase in lending rates resulted in about 1.57 percent increase in turnover. The increase in the inflation rate had deteriorating effect on turnover as a percentage increase resulted in about 0.53 percent decrease in turnover.

4.6 Error Correction Model (Short run model)

The Error Correction Model was employed in this study after determining that the variables were stationary of order one and that a long run relationship or equilibrium existed. This was based on an assumption or condition of the ECM that variables should be non-stationary in levels, but they have to become stationary after first differences. In this study, the ECM was used to explain the short-run deviations could have occurred while estimating the long-run co-integrated equations. It was also used to test the main hypotheses for this study. The residuals are plotted and shown in Figure 9 below alongside the trends line.

Figure 8: Plot for the Long-run residuals



The results of the error correction model (short-run model) are presented in Table 8 below. The results of the model suggested that the adjusted R-squared value of 0.5614 showed that 56 percent of the variations in the dependent variable was jointly explained by the explanatory variables in the model. Compared to the long-run OLS model, the explanatory variable in the ECM were able to explain more in terms of the variations in the growth of SMEs in the manufacturing sector in Zambia. The F-statistics value of 9.75 (6, 35) and its associated *p-value* (0.0000) clearly indicated that the overall model was statistically significant in this present study.

The results of the ECM also suggested that there is no sufficient statistical evidence to suggest that bank loans or credit had a significant effect on the growth or turnover for the SMEs in the manufacturing sector in the long-run (*p-value*=0.133). However, the results of this study revealed that a one percent increase in loans or bank credit to the SMEs in the manufacturing sector led to about 0.49 percent increase in turnover. The GDP contribution to growth of SMEs in manufacturing in Zambia was also not statistically significant (*p-value*=0.094). In the short-run, the lending rates were not statistically significant (*p-value*=0.095) as opposed to the long-run results. Nonetheless, inflation rates (*p-value*=0.010) and monetary base (*p-value*=0.006) were also found to be statistically significant on their effect on the growth of the SMEs in the manufacturing sector even in the short run.

Table 8: Results of the ECM (short-run model)

Source	SS	df	MS			
Model	8.11439572	6	1.35239929	Number of obs =	42	
Residual	4.85561237	35	.138731782	F(6, 35) =	9.75	
				Prob > F =	0.0000	
				R-squared =	0.6256	
				Adj R-squared =	0.5614	
				Root MSE =	.37247	
Total	12.9700081	41	.316341661			
lturnover	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lloans	.4896241	.317975	1.54	0.133	-.1558995	1.135148
lgdp	2.098762	1.217334	1.72	0.094	-.3725568	4.57008
llend	.9286683	.5409441	1.72	0.095	-.1695067	2.026843
linf	-.4898218	.180707	-2.71	0.010	-.8566765	-.122967
lmbase	-1.234523	.4183486	-2.95	0.006	-2.083816	-.3852299
error						
L1.	.5754338	.1424957	4.04	0.000	.2861521	.8647155
_cons	-5.848103	11.28208	-0.52	0.607	-28.75194	17.05573

To provide a snapshot of the outcomes of the analysis of this study, Table 9 below presents the results of both the long run and short run (ECM) ordinary least squares estimates.

Table 9: Comparison of the Long run and Short run (ECM) Results

Variables	Long-run		ECM - Short run	
	Coefficients	p-value	Coefficients	p-value
Turnover (Dependent variable)				
Bank Credit (Loans)	0.5835	0.1320	0.4896	0.1330
GDP	2.0519	0.1680	2.0988	0.0940
Lending Rates	1.5702	0.0160	0.9287	0.0950
Inflation	- 0.5261	0.0200	- 0.4898	0.0100
Monetary Base	- 1.4495	0.0060	- 1.2345	0.0060
Error Term	-	-	0.5754	0.0000

CHAPTER FIVE

DISCUSSION

5.1 Overview

The focus of this chapter is to provide more insight on the key findings of this study with respect to the study objectives, research questions and the hypothesis. The focus of this chapter is on the key findings in relation to study objectives and the research questions stated for this study. The chapter also attempts to compare the findings of this study to other studies carried out by other researchers in several other countries and within Zambia using various statistical and estimation procedures. The discussion in this chapter also provided the basis for the policy recommendations of this study.

5.2 Major Findings

The main objective of this study was to examine whether bank credit to the SMEs in the manufacturing sector had a significant effect on their growth using turnover or sales as a proxy growth indicator. Further this study investigated other variables that may have an effect on the growth of the SMEs in the manufacturing sector in Zambia, besides the bank credit. The study hypothesized that bank credit has no effect on the growth of the SMEs in the manufacturing sector. In testing this hypothesis, the key research question was does bank credit (loans) have a significant effect on the growth of the SMEs in the manufacturing sector? Data on loans to SMEs in manufacturing sector from the Bank of Zambia formed part of the explanatory variables including GDP, lending rates, inflation rates and monetary base as reported in the results.

Firstly, this study revealed that there was insufficient statistical evidence to reject the null hypothesis that bank credit to the SMEs in manufacturing had no significant effect on the growth of the SMEs in manufacturing. Both the long run and the short run models (ECM) in this study pointed to the same outcome. In consideration of some studies that have examined the impact of credit to private sector on growth of SMEs in general, the effect of bank loans or credit was expected to be significant in this present study, but this was not the case. It is important to note that a negative correlation observed ($\rho = -0.2467$) in the results, though weak, was also an interesting outcome of this study.

A similar study by Nwosa and Oseni (2013) which also investigated the impact of bank loans to SMEs sector on the manufacturing output in Nigeria using the ECM technique found that there was no significant impact on manufacturing output both in the long and short run. However, a study undertaken by Ayuba *et al.* (2021) in Nigeria on bank credit on manufacturing sector output in Nigeria using the ARDL model and Granger causality to test suggested unidirectional causality from manufacturing sector output to bank credit and that bank credit exerted significant positive impact on manufacturing sector output.

There are a few possible reasons that were drawn from the findings of this study on this research matter. Basically, the findings raised questions on if the loans obtained by SMEs in the manufacturing sector were used for their intended purpose and yielding the necessary and expected outcomes in terms of growth. Another important question was whether these SMEs in the manufacturing sector were beneficially owned by non-residents who might have wished to obtain loans elsewhere and not necessarily from the domestic banking sector due to impediments in the loans acquisition.

A further question to note is whether the quantum of loans obtained by individual SMEs in the manufacturing sector were sufficient to trigger their growth. Other questions that may have arisen concerned the cost of borrowing funds in the domestic banking sector. It has been observed severally that high lending rates has been a huge hinderance for most SMEs to borrow funds to support their growth. Those who could have borrowed, could have spent much of their revenues on servicing the high interest on these loans to the detriment of their growth and survival. One other concern that this result raised pertained to the management abilities or skills of those running these SMEs in Zambia.

It is of course well documented that managerial skills continue to be deficient or to lack in most SMEs, and this may have a serious impact on decision making for growth and survival even when financing had been made available. This also points to some issues raised by Simuchima *et al* (2020) that the overall technical efficiency among the SMEs in the manufacturing sector was low which potentially may have had a negative impact on their output contribution. These and many other questions indeed call for more innovations and reforms in the banking sector intermediary functions in order to support the growth of the private sector especially the SMEs. Therefore, studies of this nature

will trigger scholars, researchers and academicians to generate interest in trying to unveil the bottlenecks which SMEs continue to face in their quest to grow and survive.

The study also considered whether other variables had effect on the growth of the SMEs in the manufacturing sector in Zambia. The variables considered are GDP, lending rates, inflation, and the monetary base. There is sufficient literature which argues that economic growth as measured by GDP has a positive effect on the performance of the SMEs and several other sectors of the economy. The growth in GDP entails increased productivity as well as an increase in income, expenditure, investment, and savings. However, this study did not find a significant effect of GDP on the growth of SMEs in the manufacturing sector in Zambia ($p\text{-value}=0.094$) as measured by turnover growth. This could partly be attributed to the slump in economic activity occasioned by the COVID-19 pandemic which disrupted business operations not only in Zambia, but worldwide for the period covered in this study.

The effects of inflation were quite evident both in the short run ($p\text{-value}=0.010$) and in the long run, suggesting that higher inflation rates led to decreased sales (turnover) or growth for the SMEs in the manufacturing sector. There are variations among several studies undertaken on how inflation affects the growth of SMEs, one of which is the study by Ayuba (2015). However, in this study, the effects of inflation on the growth and general performance of the SMEs in manufacturing cannot be overemphasised. The increase in the general price level reduces the purchasing power of consumers of product produced which results in reduced sales and revenues for the enterprises.

On the other hand, there is enough evidence that inflation lead to higher cost of doing business as the prices of inputs goes up. This is likely to have affected and impeded the growth of the SMEs especially those in the manufacturing sector as observed in Zambia between the years 2018-2021 when inflation rates were quite high due to several factors including high and unsustainable debt levels the country was faced with during this period. This was clearly suggestive that appropriate monetary policies that ensure inflation was kept under check should be instituted by the relevant monetary and policy authorities who are charged with such responsibilities.

CHAPTER SIX

CONCLUSIONS AND POLICY IMPLICATIONS

6.1 Overview

Chapter six highlights the key conclusions drawn from this study in consideration of the major findings and discussions in the preceding chapters four and five. The chapter also highlights the need for further research on the subject matter while also stating some key policy implications which may require specific and targeted actions and interventions from policy decision makers, academicians and the business community with a view of enhancing the growth of SMEs in manufacturing.

6.2 Conclusion

This study investigated the effect of SME manufacturing bank credit or loans on the growth of SMEs in the manufacturing sector in Zambia. The variable used to ascertain the growth was turnover or sales as a dependent variable. The main explanatory variable used to test the hypothesis was the bank credit or loans to the SMEs in the manufacturing sector. The study also included other explanatory variables firstly as control variables and to attempt to examine other variables that may have an effect on the SME growth in the manufacturing sector. These other variables included GDP, lending rates, inflation, and the monetary base. The Co-integration and ECM was employed to test the hypotheses of this study.

From this study's empirical and analytical findings, bank credit to the SMEs in the manufacturing sector though important, was not significant in predicting its effect or effect on the growth of the SMEs in the manufacturing sector. The study noted that manufacturing is one of the key sectors in Zambia which is primarily driven by the private sector alongside mining, and agriculture. The sector has high potential to contribute to the industrialization agenda of the country if it is properly supported through facilities such as business financing options as well as an enabling policy, legal and regulatory environment. The results of this study signalled that there were many questions that begged for answers which hinged on how well developed the financial sector is, to be able to support the growth of SMEs in various sectors. The outcome of this study also suggested that various government policy such as the credit guarantee schemes should

be well targeted to capture sectors that have huge potential to grow and contribute to sustainable economic growth and resilience.

The study also highlighted that though GDP was not a statistically significant predictor of growth of SMEs in the manufacturing sector, the it had a positive effect on SME turnover both in the short and long run. Further, the study revealed that inflation was one of the key and statistically significant predictor of SME growth in the manufacturing sector during the period considered. This clearly suggested that favourable macroeconomic environment had potential to support the growth and survival of the SMEs in the manufacturing sector. It is therefore, prudent that macroeconomic stability and growth is pursued diligently by both the monetary and fiscal authorities for the SMEs to realize their full growth potential.

6.3 Policy Implications (Recommendations)

- 1) The credit guarantee scheme initiative that government has embarked on through the establishment of the Zambia Credit Guarantee Scheme to support SMEs should be streamlined to target key economic sector such as manufacturing if the country is to accelerate the industrialization agenda.
- 2) There must be deliberate and conscious efforts by the government in ensuring that loans are given to ultimate users in this case the SMEs. There is a possibility by implication of the results of this study that these SMEs do not directly benefit from the credit facilities to boost their growth and survival.
- 3) There must be deliberate and conscious steps by government and the banking sector to ensure that moderation of collaterals and interest rates or lending rates is done to make loans more attractive to stakeholders in the SMEs manufacturing sector.
- 4) The banking sector must become more innovative in the design of the loan products targeted at the SMEs in a more affordable manner to increase uptake.
- 5) There must be deliberate and conscious efforts to build managerial capacity and skills among the SMEs for them to improve their productivity and resilience in the competitive business environment. Institutions such as the Zambia Development Agency should be encouraged to scale up the capacity building programmes which target sectors like manufacturing.

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ANNEXES

Annex 1: Data Matrix (dataset)

Year	Sales (K'mill)	SME Loans Manufacturing (K'million)	Real GDP (K'billion)	Lending rates	CPI	Inflation	Monetary base
2013	183.56	0.52	28,211.55	16.18	127.74	6.83	8149.31
2013	193.22	0.51	27,959.21	16.18	130.46	6.93	7261.95
2013	227.32	0.56	28,763.03	16.38	132.76	7.13	8197.54
2013	267.32	0.51	31,078.43	16.32	134.10	7.00	9765.41
2014	280.89	0.47	28,948.33	16.66	137.32	7.53	9625.01
2014	297.87	0.52	29,515.64	18.52	140.65	7.83	10735.39
2014	341.43	0.68	30,325.14	19.39	143.30	7.93	11671.56
2014	354.04	0.69	32,667.88	20.20	144.78	7.97	12226.86
2015	913.53	0.71	30,115.78	20.45	147.51	7.43	12397.88
2015	373.60	0.71	30,274.84	20.46	150.58	7.07	12997.77
2015	392.36	0.82	31,474.98	20.74	153.86	7.37	14753.67
2015	466.52	0.96	33,137.92	22.42	171.32	18.30	16174.11
2016	393.62	0.96	31,093.26	26.08	180.40	22.30	15334.79
2016	439.74	0.84	31,644.76	28.00	182.74	21.37	15836.59
2016	463.95	0.86	32,545.79	28.91	183.91	19.57	16478.77
2016	442.72	0.81	34,414.21	29.20	187.60	9.60	17048.04
2017	364.76	0.74	31,946.87	28.96	192.73	6.83	16693.73
2017	390.81	0.68	32,751.94	27.65	194.97	6.67	15844.72
2017	456.38	0.55	34,021.14	26.06	195.89	6.50	15855.86
2017	501.98	0.51	35,550.65	25.12	199.37	6.27	15941.93
2018	445.55	0.50	32,893.15	24.28	205.23	6.47	12331.30
2018	552.90	0.53	34,298.83	24.05	209.45	7.53	12137.55
2018	569.47	0.56	36,042.54	23.39	211.46	7.93	13202.96
2018	606.59	0.65	36,453.64	23.97	215.26	8.00	12946.23
2019	559.80	0.73	33,723.25	24.42	221.14	7.73	12390.01
2019	534.26	0.88	35,120.72	24.95	226.77	8.13	12423.00
2019	641.02	0.88	36,421.94	25.77	231.64	9.53	13721.89
2019	591.94	0.90	36,435.57	27.29	239.11	11.07	14946.50
2020	81.40	0.84	33,699.87	28.43	250.95	13.47	16720.10
2020	104.62	0.99	33,248.95	27.57	263.19	16.07	20616.08
2020	121.45	1.05	35,352.10	25.93	267.90	15.67	25300.54
2020	144.79	1.18	35,454.11	25.11	281.15	17.53	26117.75
2021	125.27	1.29	34,712.33	25.59	306.58	22.17	26666.07
2021	157.39	1.47	36,501.87	25.80	325.12	23.50	29482.37
2021	144.73	1.43	37,010.82	25.44	331.41	23.70	34777.39
2021	157.48	1.40	38,118.93	25.87	337.54	18.93	30638.38
2022	191.39	1.44	35,689.54	25.70	349.50	14.13	29331.71
2022	188.31	1.67	38,634.43	25.17	359.13	10.47	28833.88
2022	237.55	2.19	39,842.12	25.11	364.12	9.87	30972.82
2022	302.41	2.48	39,860.35	24.94	366.88	9.80	35192.53
2023	348.45	2.73	37,271.17	25.61	383.49	9.63	39475.85
2023	309.72	2.65	40,847.39	25.65	394.82	9.97	43269.57
2023	384.66	3.20	41,789.66	25.77	404.27	11.03	43738.65
2023	433.26	3.72		26.30	414.08	12.87	48887.65

Annex 2: Test for Stationarity before Differencing

```

: *TEST FOR STATIONARITY BEFORE FIRST DIFFERENCE
:
: dfuller lturnover
Dickey-Fuller test for unit root                                Number of obs =      43
-----
Test Statistic          1% Critical Value      Interpolated Dickey-Fuller      5% Critical Value      10% Critical Value
Z(t)                    -2.449                -3.628                -2.950                -2.608
-----
MacKinnon approximate p-value for Z(t) = 0.1283
:
: pperron lturnover
Phillips-Perron test for unit root                            Number of obs =      43
Newey-West lags =      3
-----
Test Statistic          1% Critical Value      Interpolated Dickey-Fuller      5% Critical Value      10% Critical Value
Z(rho)                  -10.370               -18.424               -13.076               -10.560
Z(t)                    -2.417                -3.628                -2.950                -2.608
-----
MacKinnon approximate p-value for Z(t) = 0.1370
:
: dfuller l1cans
Dickey-Fuller test for unit root                                Number of obs =      43
-----
Test Statistic          1% Critical Value      Interpolated Dickey-Fuller      5% Critical Value      10% Critical Value
Z(t)                     1.561                 -3.628                -2.950                -2.608
-----
MacKinnon approximate p-value for Z(t) = 0.9977
:
: pperron l1cans
Phillips-Perron test for unit root                            Number of obs =      43
Newey-West lags =      3
-----
Test Statistic          1% Critical Value      Interpolated Dickey-Fuller      5% Critical Value      10% Critical Value
Z(rho)                   1.739                -18.424               -13.076               -10.560
Z(t)                     1.064                -3.628                -2.950                -2.608
-----
MacKinnon approximate p-value for Z(t) = 0.9949
:
: dfuller lgdp
Dickey-Fuller test for unit root                                Number of obs =      42
-----
Test Statistic          1% Critical Value      Interpolated Dickey-Fuller      5% Critical Value      10% Critical Value
Z(t)                    -1.511                -3.634                -2.952                -2.610
-----
MacKinnon approximate p-value for Z(t) = 0.5279
:
: pperron lgdp
Phillips-Perron test for unit root                            Number of obs =      42
Newey-West lags =      3
-----
Test Statistic          1% Critical Value      Interpolated Dickey-Fuller      5% Critical Value      10% Critical Value
Z(rho)                  -1.335               -18.356               -13.044               -10.540
Z(t)                    -0.685               -3.634                -2.952                -2.610
-----
MacKinnon approximate p-value for Z(t) = 0.8505
:
: dfuller l1end
Dickey-Fuller test for unit root                                Number of obs =      43
-----
Test Statistic          1% Critical Value      Interpolated Dickey-Fuller      5% Critical Value      10% Critical Value
Z(t)                    -2.406                -3.628                -2.950                -2.608
-----
MacKinnon approximate p-value for Z(t) = 0.1401
:
: pperron l1end
Phillips-Perron test for unit root                            Number of obs =      43
Newey-West lags =      3
-----
Test Statistic          1% Critical Value      Interpolated Dickey-Fuller      5% Critical Value      10% Critical Value
Z(rho)                  -4.670               -18.424               -13.076               -10.560
Z(t)                    -2.219                -3.628                -2.950                -2.608
-----
MacKinnon approximate p-value for Z(t) = 0.1996
:
: dfuller l1inf
Dickey-Fuller test for unit root                                Number of obs =      43
-----
Test Statistic          1% Critical Value      Interpolated Dickey-Fuller      5% Critical Value      10% Critical Value
Z(t)                    -1.803                -3.628                -2.950                -2.608
-----
MacKinnon approximate p-value for Z(t) = 0.3792
:
: pperron l1inf
Phillips-Perron test for unit root                            Number of obs =      43
Newey-West lags =      3
-----
Test Statistic          1% Critical Value      Interpolated Dickey-Fuller      5% Critical Value      10% Critical Value
Z(rho)                  -9.664               -18.424               -13.076               -10.560
Z(t)                    -2.260                -3.628                -2.950                -2.608
-----
MacKinnon approximate p-value for Z(t) = 0.1852
:
: dfuller lmbase
Dickey-Fuller test for unit root                                Number of obs =      43
-----
Test Statistic          1% Critical Value      Interpolated Dickey-Fuller      5% Critical Value      10% Critical Value
Z(t)                     0.205                 -3.628                -2.950                -2.608
-----
MacKinnon approximate p-value for Z(t) = 0.9725
:
: pperron lmbase
Phillips-Perron test for unit root                            Number of obs =      43
Newey-West lags =      3
-----
Test Statistic          1% Critical Value      Interpolated Dickey-Fuller      5% Critical Value      10% Critical Value
Z(rho)                  -0.042               -18.424               -13.076               -10.560
Z(t)                    -0.033                -3.628                -2.950                -2.608
-----
MacKinnon approximate p-value for Z(t) = 0.9558

```

Annex 3: Test for Stationarity after Differencing

```

*TEST FOR STATIONARITY AFTER FIRST DIFFERENCE
.
. dfuller dlturlover
Dickey-Fuller test for unit root                               Number of obs   =       42
-----
Test Statistic          1% Critical Value   Interpolated 5% Critical Value   Dickey-Fuller 10% Critical Value
-----
Z(t)                    -7.588                -3.634                -2.952                -2.610
-----
MacKinnon approximate p-value for Z(t) = 0.0000
. pperron dlturlover
Phillips-Perron test for unit root                               Number of obs   =       42
Newey-West lags =       3
-----
Test Statistic          1% Critical Value   Interpolated 5% Critical Value   Dickey-Fuller 10% Critical Value
-----
Z(rho)                  -46.620                -18.356                -13.044                -10.540
Z(t)                    -7.708                -3.634                -2.952                -2.610
-----
MacKinnon approximate p-value for Z(t) = 0.0000
.
. dfuller dlloans
Dickey-Fuller test for unit root                               Number of obs   =       42
-----
Test Statistic          1% Critical Value   Interpolated 5% Critical Value   Dickey-Fuller 10% Critical Value
-----
Z(t)                    -4.178                -3.634                -2.952                -2.610
-----
MacKinnon approximate p-value for Z(t) = 0.0007
. pperron dlloans
Phillips-Perron test for unit root                               Number of obs   =       42
Newey-West lags =       3
-----
Test Statistic          1% Critical Value   Interpolated 5% Critical Value   Dickey-Fuller 10% Critical Value
-----
Z(rho)                  -24.234                -18.356                -13.044                -10.540
Z(t)                    -4.098                -3.634                -2.952                -2.610
-----
MacKinnon approximate p-value for Z(t) = 0.0010
.
. dfuller dlqdp
Dickey-Fuller test for unit root                               Number of obs   =       41
-----
Test Statistic          1% Critical Value   Interpolated 5% Critical Value   Dickey-Fuller 10% Critical Value
-----
Z(t)                    -8.566                -3.641                -2.955                -2.611
-----
MacKinnon approximate p-value for Z(t) = 0.0000
. pperron dlqdp
Phillips-Perron test for unit root                               Number of obs   =       41
Newey-West lags =       3
-----
Test Statistic          1% Critical Value   Interpolated 5% Critical Value   Dickey-Fuller 10% Critical Value
-----
Z(rho)                  -38.219                -18.288                -13.012                -10.520
Z(t)                    -14.428                -3.641                -2.955                -2.611
-----
MacKinnon approximate p-value for Z(t) = 0.0000
.
. dfuller dllend
Dickey-Fuller test for unit root                               Number of obs   =       42
-----
Test Statistic          1% Critical Value   Interpolated 5% Critical Value   Dickey-Fuller 10% Critical Value
-----
Z(t)                    -3.028                -3.634                -2.952                -2.610
-----
MacKinnon approximate p-value for Z(t) = 0.0323
. pperron dllend
Phillips-Perron test for unit root                               Number of obs   =       42
Newey-West lags =       3
-----
Test Statistic          1% Critical Value   Interpolated 5% Critical Value   Dickey-Fuller 10% Critical Value
-----
Z(rho)                  -16.499                -18.356                -13.044                -10.540
Z(t)                    -3.095                -3.634                -2.952                -2.610
-----
MacKinnon approximate p-value for Z(t) = 0.0269
.
. dfuller dlinf
Dickey-Fuller test for unit root                               Number of obs   =       42
-----
Test Statistic          1% Critical Value   Interpolated 5% Critical Value   Dickey-Fuller 10% Critical Value
-----
Z(t)                    -3.964                -3.634                -2.952                -2.610
-----
MacKinnon approximate p-value for Z(t) = 0.0016
. pperron dlinf
Phillips-Perron test for unit root                               Number of obs   =       42
Newey-West lags =       3
-----
Test Statistic          1% Critical Value   Interpolated 5% Critical Value   Dickey-Fuller 10% Critical Value
-----
Z(rho)                  -24.357                -18.356                -13.044                -10.540
Z(t)                    -3.989                -3.634                -2.952                -2.610
-----
MacKinnon approximate p-value for Z(t) = 0.0015
.
. dfuller dlmbase
Dickey-Fuller test for unit root                               Number of obs   =       42
-----
Test Statistic          1% Critical Value   Interpolated 5% Critical Value   Dickey-Fuller 10% Critical Value
-----
Z(t)                    -5.037                -3.634                -2.952                -2.610
-----
MacKinnon approximate p-value for Z(t) = 0.0000
. pperron dlmbase
Phillips-Perron test for unit root                               Number of obs   =       42
Newey-West lags =       3
-----
Test Statistic          1% Critical Value   Interpolated 5% Critical Value   Dickey-Fuller 10% Critical Value
-----
Z(rho)                  -32.865                -18.356                -13.044                -10.540
Z(t)                    -5.074                -3.634                -2.952                -2.610
-----
MacKinnon approximate p-value for Z(t) = 0.0000

```

Annex 4: Gantt Chart (Timelines)

No.	Activity	Time line (2023)									
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
1	Prepare and finalize the research proposal	■									
2	Approval of the proposal by supervisor		■								
3	Defense of proposal (Viva Voce)		■	■							
4	Data Collection				■						
5	Data cleaning, validation and coding				■						
6	Data Analysis					■					
7	Drafting first draft of the research report					■					
8	Review of the first draft by the supervisor						■				
9	Incorporation of comments from supervisor						■				
10	Dissertation defense							■			
11	Incorporating comments from examiners							■	■		
12	Prepare an article extract and submit to UNZA journal for possible publication								■		
13	Submission of bound copies to the University in preparation for									■	
14	Graduation										■
	TOTAL BUDGET	■	■	■	■	■	■	■	■	■	■

Annex 5: Budget

No.	Activity	Resources Required	Budget (K)
1	Prepare and finalize the research proposal	Stationery	500.00
2	Approval of the proposal by supervisor	Fuel	1,500.00
3	Defense of proposal (Viva Voce)	Stationery, fuel, poster	3,000.00
4	Data Collection	Stationery and fuel	1,000.00
5	Data cleaning, validation and coding	Refreshments	200.00
6	Data Analysis	Refreshments	300.00
7	Drafting first draft of the research report	Refreshments, stationery, fuel	2,000.00
8	Review of the first draft by the supervisor	Fuel	1,000.00
9	Incorporation of comments from supervisor	Refreshments, stationery, fuel	2,500.00
10	Dissertation defense	Fuel, stationery	600.00
11	Incorporating comments from examiners	Refreshments	300.00
12	Prepare an article extract and submit to UNZA journal for possible publication	Fuel, stationery	1,100.00
13	Submission of bound copies to the University in preparation for	Stationery, binding expenses, fuel	3,500.00
14	Graduation	Fuel, Graduation robe, refreshments	5,000.00
	TOTAL BUDGET		22,500.00

Annex 6: Request letter for Data from ZRA

c/o University of Zambia (UNZA)
P.O. Box 32379
LUSAKA

19th January 2024

The Director
Research and Corporate Strategy
Zambia Revenue Authority
P.O. Box 35710
LUSAKA

RE: REQUEST FOR DATA

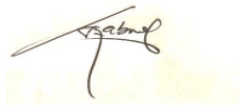
The subject matter refers.

I am a student (No. 721000059) pursuing a Master's Degree in Business Administration (MBA) with the University of Zambia in collaboration with the Zimbabwe Open University. I have successfully completed my course work and am currently working on my dissertation titled: "*The effect of credit to the private sector on the growth of Small and Medium Enterprises in the manufacturing sector-an econometric analysis*". I have proposed to use sales or turnover as proxy for growth in SMEs in this current study.

Against this background, I am therefore, kindly requesting for data on sales/turnover for SMEs in the manufacturing sector which could be disaggregated by small and medium size on monthly or quarterly basis to allow for a sample size that would give a reasonable study power for better statistical inference. If a data series is available spanning for a period of 15-20 years, yearly aggregates would be preferred.

Attached is an introductory letter from the University for your easy of reference. I would be most grateful if this request is considered in the affirmative at your earliest convenience.

Yours sincerely,



Kabaso F. Kabwe
NRC. 197481/31/1
Student No. 721000059
Email: Kabaso.Kabwe@mofnp.gov.zm; kabwe.2006@gmail.com
Mobile: 0955 771963; 0976 931390

ZRA/DRCS/008/24

13 February 2024

Kabaso F. Kabwe (Student No. 721000059)
C/o University of Zambia,
Institute of Distance Education,
P.O Box 32379,
Lusaka.

Dear Sir,

RE: REQUEST FOR DATA

Reference is made to your letter dated 19th January 2024 on the above subject.

We are happy to provide you with the monthly sales data (turnover) for Small and Medium Taxpayers who operate in the Manufacturing Sector in Zambia from January 2013 to December 2023. We have prepared a separate Microsoft Excel file that contains the requested statistics. Please remember to adhere to all ethical research standards while analyzing the data.

Should you need any further information please feel free to get in touch with my office.

Yours faithfully,



Ezekiel Phiri
DIRECTOR - RESEARCH AND CORPORATE STRATEGY