



Faculty of Economics and Business

**The Moderating Effect of Financial Accessibility on the Relationship
between Creditworthiness and the Performance of Small and Medium
Enterprises (SMEs) in Construction Industry**

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**Doctor of Business Administration
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The Moderating Effect of Financial Accessibility on the Relationship between
Creditworthiness and the Performance of Small and Medium Enterprises
(SMEs) in Construction Industry

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A dissertation submitted

In fulfillment of the requirements for the degree of Doctor of Business Administration

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DECLARATION

I declare that the work in this dissertation was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The dissertation has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

A handwritten signature in black ink, appearing to read 'Liaw Huan Huan', written over a dotted line.

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Lastly, I offer my regards and blessing to all those who supported me in any respect during the completion of this dissertation.

ABSTRACT

This study aims to determine the relationship between creditworthiness and the performance of Small and Medium Enterprises (SMEs) within the dynamic context of the Sarawak Construction Industry. Creditworthiness is a crucial factor for SMEs in determining financial accessibility. Severe cash flow constraints have impacted SMEs' ability to meet their debt obligations. Drawing on the established 5Cs credit model comprising character, collateral, condition, capacity, and capital as independent variables, this study extends the model by introducing an additional dimension "Credibility" to comprehensively assess creditworthiness. The study also examines the moderating effects of financial accessibility on the identified relationships. The research was conducted through a questionnaire distributed to 150 SMEs in the Sarawak Construction Industry. The data collected was analyzed using the Statistical Package for the Social Sciences (SPSS 29.0) and SmartPLS 3.0 software. The study identified credibility, capital, and capacity as key predictors of SME performance, underscoring their fundamental roles in shaping business outcomes. The results indicate that credibility is the most influential factor, with the highest path coefficients among the creditworthiness dimensions. Capital and capacity also showed strong associations with both financial and non-financial performance, highlighting that a firm's financial robustness and its ability to meet business demands through available resources are essential for overall success.

Keywords: Creditworthiness, SMEs; Financial Accessibility; Financial Performance; Non-Financial Performance

Kesan Penyederhanaan Kebolehcapaian Kewangan terhadap Hubungan antara Kelayakan dan Prestasi Perusahaan Kecil dan Sederhana (PKS) Industri Pembinaan

ABSTRAK

Matlamat utama kajian ini adalah untuk mengenal pasti hubungan antara kebolehpercayaan dan pencapaian Perusahaan Kecil dan Sederhana (PKS) dalam konteks dinamik industri pembinaan Sarawak. Dalam konteks PKS, kelayakan kredit adalah faktor penting dalam menentukan akses mereka kepada kewangan. Kekangan aliran tunai yang teruk telah memberi kesan kepada kegagalan PKS terhadap obligasi hutang mereka. Merujuk kepada model kredit 5C yang melibatkan personaliti, cagaran, keadaan, kapasiti dan modal sebagai pemboleh ubah tidak bersandar, kajian ini meluaskan skop yang diuji dengan memperkenalkan dimensi tambahan iaitu “kredibiliti” untuk menilai kelayakan kredit dan permohonan secara menyeluruh. Tumpuan utama adalah untuk kajian mengenal pasti kesan dan pengaruh faktor berkenaan atas prestasi PKS. Kajian ini dikaji melalui kaedah soal selidik yang melibatkan 150 PKS dalam industri pembinaan Sarawak. Data yang dikumpul dan dianalisis menggunakan perisian Statistical Package for the Social Sciences (SPSS 29.0) dan SmartPLS 3.0. Hasil kajian menunjukkan bahawa kredibiliti muncul sebagai faktor yang paling berpengaruh, dengan pekali laluan tertinggi di antara dimensi kepercayaan kredit. Selain itu, kapasiti dan modal juga menunjukkan hubungan yang kukuh dengan prestasi keteguhan kewangan firma dan keupayaannya untuk memenuhi permintaan perniagaan melalui sumber yang ada adalah penting untuk kejayaan keseluruhannya.

Kata Kunci: Kebolehpercayaan Kredit, Model Kredit 5Cs; Akses kepada Kewangan; Prestasi Kewangan PKS; Prestasi Bukan Kewangan PKS

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LIST OF ABBREVIATIONS

CCRIS	Central Credit Reference Information System
CGS	Centre for Graduate Studies
CTOS	Credit Tip Off Service
DOSM	Malaysia's Department of Statistics Malaysia
GDP	Gross Domestic Product
POT	Pecking Order Theory
RDT	Resource Dependency Theory
SMEs	Small and Medium Enterprises

CHAPTER 1

INTRODUCTION

1.1 Introduction

Creditworthiness plays a significant role in nation-building as it influences an individual's or company's eligibility for financing, the pricing or interest rates charged, and their attractiveness to global investors. Creditworthiness is commonly defined as the ability of borrowers to fulfill their debt commitments on time and in full. According to Siekelova et al. (2017), creditworthiness is a critical aspect of both individual and corporate financial health and stability, making it essential for borrowers to actively improve their repayment behavior. Caplinska and Tvaronaviciene (2020) suggested that creditworthiness is used to assess a borrower's reliability in terms of their capacity to repay the outstanding debt balance to lenders, financial institutions, and other creditors. Furthermore, Abdullaev and Bobonazarov (2023) concluded that creditworthiness is a comprehensive assessment of a client's financial performance, reflecting the borrower's ability to make timely repayments on financial commitments.

These financial commitments include both the principal and the interest. Cancino et al. (2023) emphasize that creditworthiness is of vital importance for both individuals and organizations, serving as an indicator of their ability to meet financial obligations on time. Creditworthiness is pivotal in determining whether financial institutions should extend credit to borrowers. Mladentseva (2023) further asserted that a borrower's ability to obtain a loan is determined by their capacity to repay it, which is influenced by the borrower's financial stability and reliability. In addition, credit decisions are also subject to the recommendations made by credit officers within lending institutions. The efficiency of any credit-related

program relies heavily on a thorough understanding and evaluation of the borrower's character, particularly regarding loan repayment.

Financial institutions, as key elements of the market structure, play a crucial role in enabling a nation's economy to expand sustainably and continue improving the standard of living. Commercial banks aim to allocate funds with the lowest financial risks and the highest profit prospects (Anvarovich, 2021). Simultaneously, the primary sources of income for financial institutions are the interest rates they charge borrowers when providing loans. Therefore, financial institutions strive to ensure that customers will repay their loans on schedule, evaluating customers' creditworthiness based on their repayment history before granting new credit (Anvarovich, 2021). Creditworthiness requires the borrower to demonstrate financial strength and the capability to fulfill all financial obligations on time. It is also a critical factor for borrowers because their repayment history influences their ability to obtain new financing from financial institutions (Caplinska & Tvaronaviciene, 2020).

Redete (2022) argued that a country's progress and prosperity are strongly affected by its financial standing and credit rating. A high credit rating can contribute to sustainable development, while a low rating can have the opposite effect. Generally, a country with a high credit rating is seen as more creditworthy, meaning its debt obligations are at a lower risk of default. Achieving such a rating allows a country to borrow money at more favorable interest rates, reducing the debt burden and freeing up resources for other uses. A high credit rating also improves a country's access to financing from various sources, including multilateral institutions, bilateral partners, and capital markets, enabling it to meet its development needs while investing in public goods and services. Conversely, a country with a low credit rating is generally seen as less creditworthy, facing greater risks of defaulting

on its debt obligations. This makes it more difficult for such countries to borrow money at reasonable interest rates, increasing debt levels while decreasing fiscal space. Low credit ratings can limit a country's financial accessibility from various sources, as creditors may be reluctant to lend to high-risk borrowers, thereby restricting its ability to meet development needs or invest in public goods and services (Czarnitzki & Kraft, 2007).

According to Cancino et al. (2023), good creditworthiness can result in easier loan approval, eligibility for lower interest rates, enhanced trust from financial institutions, and faster access to loans or credit. On the other hand, poor creditworthiness can limit access to financial services, result in higher interest rates, or potentially lead to rejection of credit applications.

Orlova (2021) stated that by assessing each borrower's creditworthiness, financial institutions have enhanced their innovative methods to ensure full borrower identification, which can improve the quality of the bank's loan portfolio in advance. These innovative methods reduce financial institutions' credit risks while improving the reliability of potential borrowers' solvency assessments. However, underestimating or overestimating borrowers' risks due to faulty creditworthiness assessments can lead to unpredictable outcomes, including potential capital losses for banks.

Wasiuzzman et al. (2020) emphasized that SMEs' creditworthiness also encompasses their market standing in the industry, as well as their relationships with debtors and creditors. A positive reputation can enhance credibility, including business reputation and creditworthiness. Factors such as market share, competitive advantage, and growth prospects contribute to the overall assessment of creditworthiness. Additionally, repayment history is a critical component of lender decisions; lenders use credit records to evaluate borrower

behavior, where prompt repayment and responsible financial management lead to enhanced creditworthiness ratings.

Yangibaevich and Olimovich (2023) mentioned that a comprehensive method for assessing borrowers' creditworthiness has been developed. This approach involves determining the creditworthiness of borrower-enterprises by building an aggregated balance sheet based on financial statements and calculating financial ratios from the latest financial records.

Furthermore, financial institutions assess SMEs' financial health by evaluating their financial stability, including profitability, cash flow, and earnings stability over time. A stable financial position indicates the ability to meet financial obligations and repay loans (Siekelova et al., 2017). Several factors can contribute to low creditworthiness for a business, including poor business management leading to weak performance, weak cash flow, high financial commitments, high gearing levels, high default risk, and a lack of security guarantees (Abdou et al., 2016).

Additionally, financial providers assess organizational entities as part of the credit process, reviewing financial statements, cash flow statements, business plans, and projected business cash flows before extending any facilities to a corporation (Vidya & Rajaram, 2024). Moreover, Goel and Rastogi (2023) conducted a study to formulate behavioral credit scoring models for SMEs using certain behavioral and psychological constructs. They concluded that creditworthiness can also be predicted through borrowers' behavioral and psychological traits, with research showing that certain traits can significantly predict borrowers' default risk.

Vidya and Rajaram (2024) stated that the primary barriers preventing SMEs from obtaining financing from financial institutions include a lack of a solid track record of

success, insufficient existing data, and inadequate credit proposals to present to financial institutions. Additionally, stringent lending requirements by financial institutions are another factor preventing SMEs from securing loans. These issues hinder SMEs from acquiring the necessary financing to grow and expand their business operations.

In conclusion, creditworthiness is of utmost importance to SMEs operating in the construction industry, as it is essential for obtaining credit for expansion, operations, and overall performance. Conversely, limited information on credit histories and financial resources can make it difficult for lenders to grant additional facilities to SMEs. Credit officers process applications based on the credit histories and documents provided by SMEs, so it is crucial for SMEs to establish positive credit scores by meeting payment obligations promptly and maintaining financial discipline. SMEs should also keep track of their debt levels, avoid late payments on outstanding balances, and ensure the highest standards of fiscal accountability. In other words, Sarawak SMEs in the construction industry can enhance their creditworthiness by boosting operational efficiency, maintaining strong cash flow, and promptly meeting payment obligations.

1.2 Background of the Study

The small and medium enterprises (SMEs) sector is the backbone of the country's economy and a vital contributor to economic development and social well-being. SMEs are an essential component of the Malaysian economy, contributing to more than a third of the gross domestic product (GDP) and employing over four million Malaysians (Central Bank of Malaysia, 2023). The majority of business establishments in Malaysia are SMEs, which are crucial to the growth of the economy and the creation of employment opportunities (Yoshino & Hesary, 2018). According to a report by the Department of Statistics Malaysia

in 2020, SMEs made up more than 90% of all business establishments in the country, accounting for 48.0% of national employment and 38.2% of Malaysia's GDP (Cheong, 2022).

Before 2005, SMEs in Malaysia did not have standardized terms or conditions for classification. Policymakers and researchers faced challenges due to the absence of a uniform, official definition, making it difficult to study and support this crucial sector, which is the backbone of the economy. As a result, previous researchers were forced to develop their own definitions and standards, leading to a variety of classification techniques and a wide range of different research findings. The lack of an internationally recognized definition also hindered the development of specific policies and initiatives to stimulate SME growth, thereby limiting their contribution to economic development. In response, international organizations intensified efforts to establish an accurate definition of SMEs (Chin & Lim, 2018).

Table 1.1: Definition of Small Medium Enterprises (SMEs)

Previous definition as at 2005	Comparison	Definition as at 2013
Sales turnover of less than RM25 million <i>or</i> full-time employees of less than 150 workers	Manufacturing sectors	Sales turnover not exceeding RM50 million <i>or</i> full-time employees not exceeding 200 workers
Primary Agriculture and Services (including ICT): Sales turnover of less than RM5 million <i>or</i> full-time employees of less than 50	Others than manufacturing sectors	Services and other sectors: Sales turnover not exceeding RM20 million <i>or</i> full-time employees not exceeding 75 workers

Source: SME Corporation Malaysia (2005)

Table 1.1 presents the differences among SME classifications over the years. In 2005, SMEs were defined as manufacturing-related services (including agro-based businesses) with annual sales turnover not less than RM250 million and full-time employees not fewer than 150 workers. Additionally, in the primary agriculture and service sectors (including ICT), SMEs were defined as having sales turnover not less than RM5 million and employees not fewer than 50 workers (SME Corp, 2022). However, due to significant changes in market trends and inflation factors, the National SME Development Council (NSDC) reviewed and revised the definition of SMEs in July 2013. The latest definition categorizes SMEs in the manufacturing sector as businesses with sales turnover not exceeding RM50 million or full-time employees not exceeding 200 workers. For the services and other sectors, SMEs are defined as having sales turnover not exceeding RM20 million or full-time employees not exceeding 75 (SME Corp, 2022).

Based on Table 1.2, the categories for Micro, Small, and Medium Businesses within SMEs are outlined. Businesses in construction, manufacturing, services, and other sectors are classified as micro businesses if their sales turnover does not exceed RM300,000 and they employ no more than five persons. A business is categorized as a small business when its sales turnover ranges from RM0.30 million to RM15 million or it employs between 5 and 75 workers in the manufacturing sector. In the services and other sectors, a small business has a sales turnover between RM0.30 million and RM3 million or employs between 5 and 30 workers. Moreover, medium businesses are defined as those with a sales turnover between RM15 million and RM50 million or employing between 75 and 200 workers in the manufacturing sector. In the services and other sectors, medium businesses have a sales turnover between RM3 million and RM20 million or employ between 30 and 75 workers.

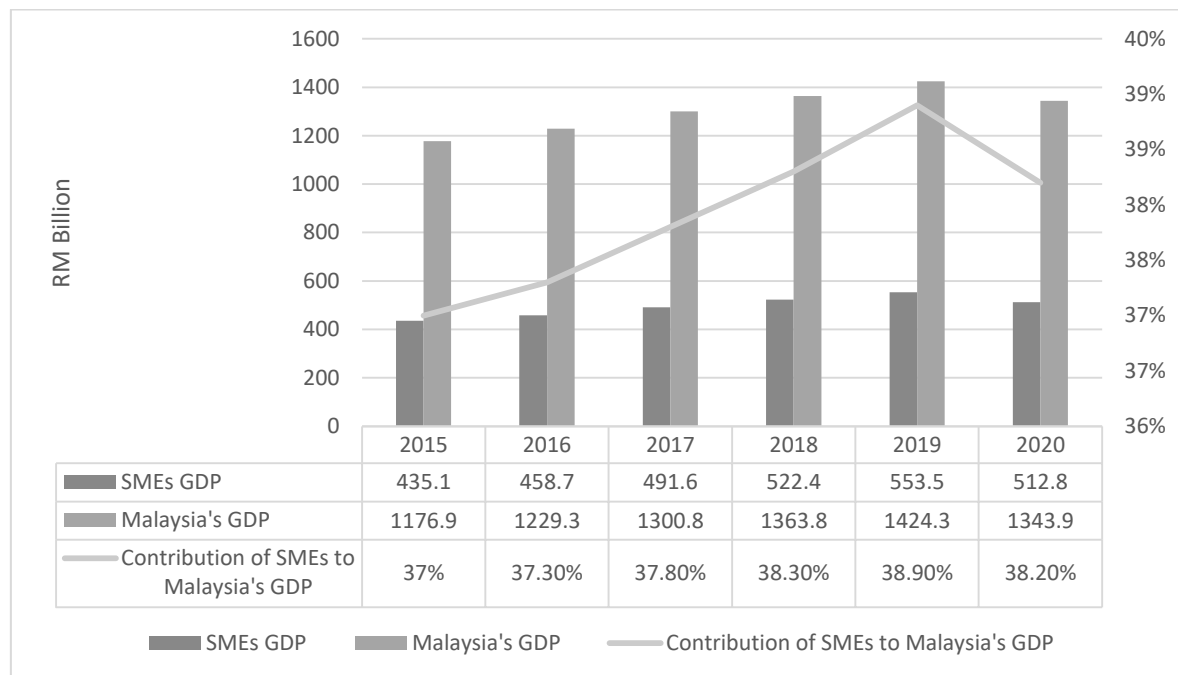
Table 1.2: The Micro, Small and Medium Business Categories

Manufacturing	SMEs	Service and Other Sectors
Sales turnover:		Sales turnover:
RM15mil $\leq$ RM50mil		RM3mil $\leq$ RM20mil
OR	Medium	OR
Employees: From 75 to $\leq$ 200		Employees: From 30 to $\leq$ 75
Sales turnover:		Sales turnover:
RM300,000 $\leq$ RM15mil		RM300,000 $\leq$ RM3mil
OR	Small	OR
Employees: From 5 to $\leq$ 75		Employees: From 5 to $\leq$ 30
Sales turnover:		Sales turnover:
< RM300,000		< RM300,000
OR	Micro	OR
Employees: < 5		Employees: < 5

Source: SME Corporation Malaysia (2005)

Based on Figure 1.1, the value added and contribution of SMEs to Malaysia's GDP from 2015 to 2020 is illustrated. In 2020, the SMEs' contribution to GDP decreased to 38.2%, compared to 38.9% in the previous year, 2019. The value added by SMEs in the service sector decreased by 9.2% in 2020, down from 7.5% in the preceding year. This sluggish momentum was primarily due to declines in wholesale and retail trade, food and beverage, forced shutdowns in the construction sector, and negative growth in the accommodation sub-sector, which posted a decline of 7.8%.

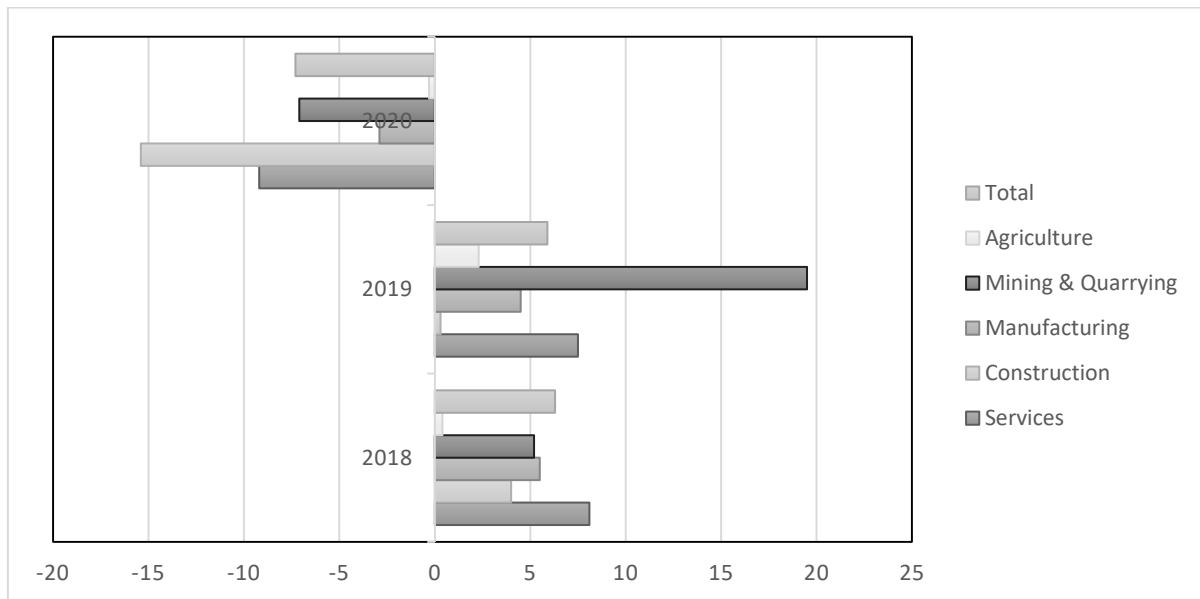
Figure 1.1: Contribution of SMEs to Malaysian's GDP from 2015 – 2020



Source: SME Corporation Malaysia (2020)

Furthermore, based on Figure 1.2, SMEs in the construction sector saw a significant decrease of 15.4% compared to a marginal decrease of 0.3% in the previous year, primarily due to declines across all sub-sectors. In the manufacturing sector, the value added by SMEs registered a negative growth of 2.9%, dropping from 4.5% in 2019. This decline was mainly attributed to a sharp fall in the production of non-metallic mineral products, basic metals, and fabricated metal products, which plummeted by 13.1% (compared to 4.9% in 2019). Conversely, the petroleum, chemical, rubber, and plastic products sector continued to record growth, albeit at a slower rate of 3.2% (down from 4.3% in 2019). The food, beverages, and tobacco products sector also maintained growth, albeit reduced to 2.0% (from 3.2% in 2019).

Figure 1.2: Annual Percentages Change of SMEs GDP



Source: SME Corporation Malaysia (2020)

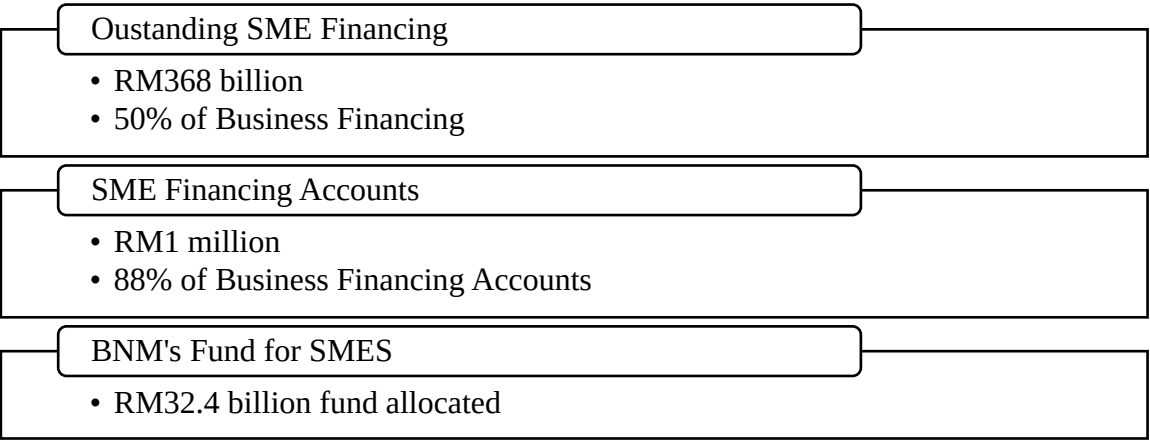
In the mining and quarrying sector, the value added by SMEs narrowed to 7.1%, down from 19.5% in 2019. Similarly, in the agriculture sector, the value added by SMEs decreased to 0.3% (from 2.3% in 2019). This decrease was due to declines across all sub-sectors, except for the livestock and other agriculture sub-sectors, which continued to show growth.

1.2.1 SMEs Access to Financing

Banking institutions are the most important source of financing for SMEs, contributing to more than 90% of overall funding. SMEs in Malaysia are less likely than corporate organizations to access financing facilities from financial institutions. As a result, internal funds or cash from the owner's savings are the primary sources SMEs rely on to run their operations. SME financing is also supported by Development Financial Institutions,

Bank Negara Malaysia’s (BNM) fund for SMEs, and various government funds (SME Corp, 2022).

Figure 1.3: Key SMEs Financing Indicators by Central Bank of Malaysia



Source: Central Bank of Malaysia (2023)

Based on Figure 1.3, which shows Bank Negara Malaysia's key SMEs financing indicators as of 31 July 2023, it indicates that SME financing accounted for 50% of the total business financing outstanding. Out of the 1 million SME accounts, 88% consist of business financing accounts. Additionally, BNM allocated RM32.4 billion from its fund to support SMEs.

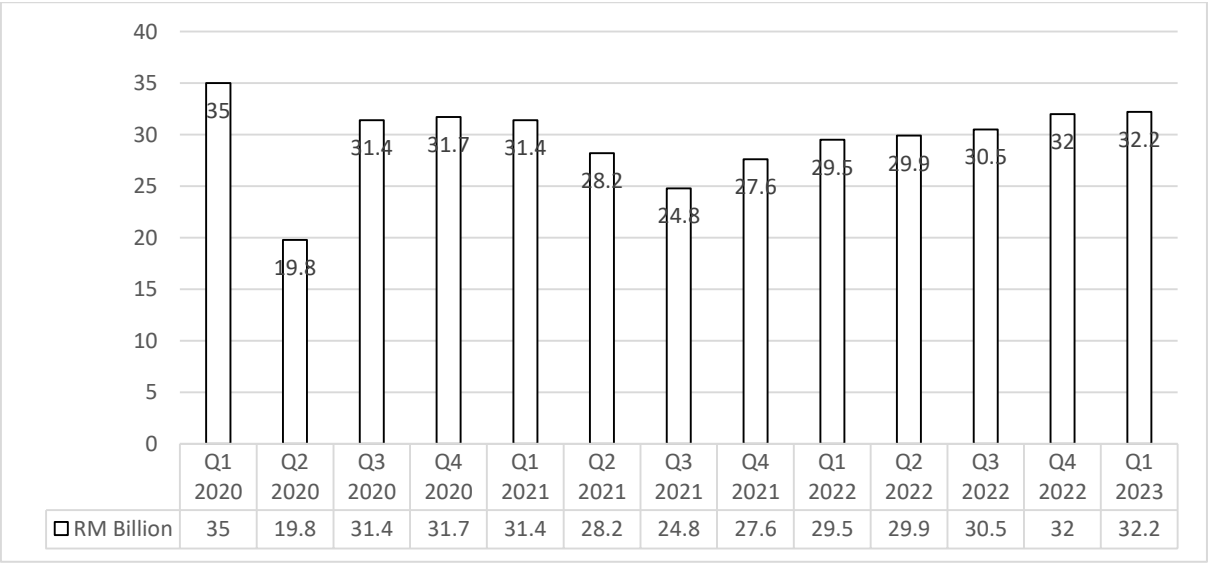
1.2.2 SMEs in Construction Industry

The construction industry in Malaysia is a significant pillar of the country's economic development, contributing substantially to its GDP and employment generation. Notably dynamic and diverse, Malaysia's construction sector encompasses a wide range of activities,

including infrastructure development, residential and commercial building projects, and industrial and institutional construction.

Over the years, Malaysia has witnessed remarkable growth in its construction sector, driven by robust government investments in key infrastructure projects such as highways, railways, ports, and airports. These projects aim to enhance connectivity and foster regional development. Additionally, ambitious initiatives like the Construction Industry Transformation Programme (CITP) have been implemented to modernize the industry, boost productivity, and incorporate sustainable practices. These efforts reflect Malaysia's commitment to achieving its long-term development goals while adhering to global standards. Despite occasional challenges, such as fluctuating material costs and skilled labor shortages, Malaysia's construction industry continues to demonstrate resilience and innovation, positioning itself as a crucial player in the nation's journey towards sustainable economic growth and infrastructure development.

Figure 1.4: The Value of Work in Construction Sector



Source: Department of Statistics Malaysia (2023)

According to Figure 1.4, Malaysia's construction industry is expected to grow by 3.5% in real terms in 2023, following an annual growth of 5% in 2022. This growth is supported by rising foreign and domestic investment, the execution of large infrastructure projects, and the country's economic stability, which have led to a steady increase in the industry's output since Q2 2022.

As reported by Department of Statistics Malaysia (2023), the construction industry's value added rose by 7.4% year-on-year (YoY) during Q1 2023, following annual increases of 10.1% and 15.3% in the preceding two quarters 2022 and 2023. In December 2022, Petronas announced plans to drill 96 new wells under their Development, Appraisal, and Exploration drilling program. Of these, 21 wells involved workover activities, while 28 wells were planned for Plug and Abandon activities in 2023. However, industry activity could face challenges due to subdued investor and consumer confidence, with higher inflation and mortgage rates potentially weighing on new investments and significantly reducing capital formation.

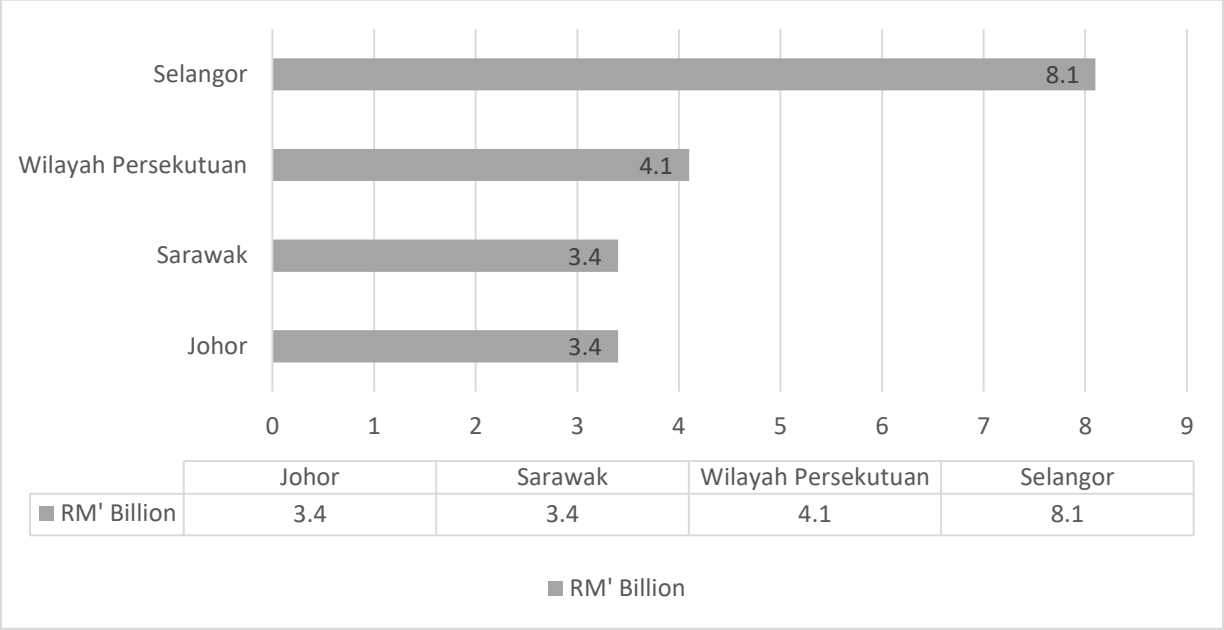
The construction industry in Malaysia is projected to experience an annual average growth rate of 6.2% from 2024 to 2027, driven by investments in large transport and energy projects. This growth will also benefit from the government's Public Private Partnership (PPP) 3.0 model, an infrastructure project financing mechanism introduced under Malaysia's 12th Malaysia Plan (2021-2025). In June 2021, the government unveiled its energy transition plans extending to 2040, with the goal of gradually increasing the share of renewable energy in the total energy mix from 2% in 2019 to 31% by 2025 and 40% by 2035. Additionally, as part of the Masyarakat Madani policy announced by the Ministry of Local Government Development (KPKT) in January 2023, the government plans to construct over 500,000 housing units by the end of 2025.

According to Malaysia's Department of Statistics (DOSM), the construction industry faced a significant decline of 19.4% in 2020 due to the global pandemic. However, the industry was expected to grow by 1.5% in real terms in 2021, boosted by the recovery in overall economic activity following the pandemic. Despite a significant decrease in construction activity during the third quarter of 2021, the industry remained stable overall, with declines observed in civil engineering, residential building construction, and non-residential building activity.

As economic conditions continued to improve, the Malaysian construction industry was projected to grow by 16.5% by 2023, supported by the government's emphasis on large infrastructure projects and increased investments in industrial and energy projects. Furthermore, in September 2021, the government announced the establishment of the PPP 3.0 model as a means of financing infrastructure projects under the 12th Malaysia Plan. As part of this plan, the government also aimed to develop 120 cities to achieve sustainable city status by 2025, providing additional support to private sector projects implementing strategic development programs.

In 2022, the GDP from the construction industry in Malaysia totaled approximately RM53.44 billion, an increase from RM50.89 billion in 2020, as the industry began to recover from the restrictions associated with the COVID-19 pandemic.

Figure 1.5: Total Work Construction Industry (Q1 2023)

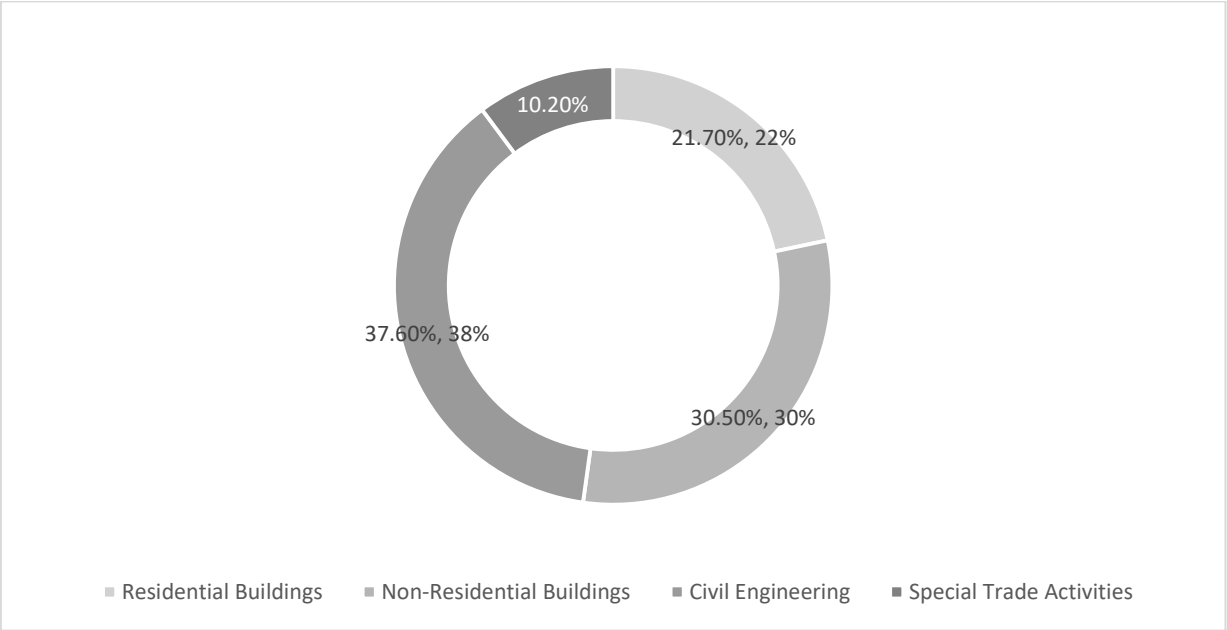


Source: Department of Statistics Malaysia (2023)

Based on Figure 1.5, the highest work done value in Q1 2023 among states in Malaysia was recorded in Selangor, with a total of RM8.1 billion (25.1%), followed by Wilayah Persekutuan with RM4.1 billion (12.7%). Sarawak and Johor both reported work done values of RM3.4 billion, each accounting for 10.6% of the total. SMEs play a crucial role in fostering economic development, especially in emerging markets like Sarawak. Sarawak has emerged as a leading state in Malaysia's construction industry, showcasing remarkable advancements and infrastructure development that have positioned it ahead of most other states, excluding Wilayah Persekutuan and Selangor. The state's commitment to pioneering large-scale infrastructure projects, including the development of vital road networks, bridges, and public facilities, has elevated its status within the nation's construction landscape. By emphasizing sustainable development and harnessing its abundant natural resources, Sarawak has effectively leveraged its unique geographical advantages to establish itself as a powerhouse in the construction sector. This demonstrates

Sarawak's remarkable dedication to fostering inclusive growth and long-term prosperity for its population.

Figure 1.6: Total Construction Work Completed in Q1 2023



Source: Department of Statistics Malaysia (2023)

Based on Figure 1.6, the total value of work done in Q1 2023 is indicated, with civil engineering work accounting for the highest percentage at 37.6%. Civil engineering encompasses the practice of designing and constructing infrastructure that serves the public interest, including dams, bridges, aqueducts, canals, highways, power plants, sewerage systems, and other forms of public infrastructure. Civil engineers apply scientific principles to design and build structures such as buildings, roads, and bridges that are safe, energy-efficient, and sustainable (Ayeshrh, 2022). The second highest contribution was from non-residential buildings, accounting for 30.5% of the work done, reflecting a focus on commercial building projects by many developers. This was followed by residential

buildings, which accounted for 21.7% of the work, and special trade activities, which made up 10.2%.

1.2.3 SMEs Construction Industry in Sarawak

Sarawak's construction industry plays a crucial role in its economy, significantly contributing to its GDP. According to the Department of Statistics Malaysia (DOSM), Sarawak contributed 9.5% to Malaysia's overall GDP growth in 2021, maintaining its position among the top six contributors. The contribution of SMEs in the construction sector rose notably from 46.4% in 2019 to 48.7% in 2020. DOSM also reported that this sector contributes 3.4% to Sarawak's overall economy, indicating that the SME construction industry plays an essential role in Sarawak's economic development.

The construction industry's performance in the state increased by 10.2% year-on-year, compared to a negative 8.8% growth in the previous year. This growth was driven by increased value in all four subsectors, with civil engineering being the most prominent at 44.7%, followed by residential buildings at 21.2%, and non-residential buildings at 17.8%. Several projects have contributed to the growth of SMEs in Sarawak's construction industry, including the Sarawak Corridor of Renewable Energy (SCORE) initiative, which encompasses infrastructure projects such as the Baleh Hydroelectric Project, Samalaju Industrial Park, and Tanjung Manis Halal Hub. Additionally, the implementation of the Post-COVID-19 Development Strategy 2030 (PCDS 2030) under the 12th Malaysia Plan (RMK-12) has allowed Sarawak to navigate the pandemic safely. The Sarawak government has pledged an estimated RM63 billion towards PCDS 2030 under RMK-12, with approximately RM30 billion coming from direct development expenditure and another RM33 billion through alternative forms of funding.

However, the SMEs in Sarawak's construction industry face several challenges. Ngu and Sam (2018) highlighted that labor productivity in the construction industry has been a concern for many contractors in Sarawak. Low productivity is mainly affected by poor time management, which leads to construction delays. Additionally, contractors must manage financial resources wisely to avoid cash flow overruns. Kamaruddeen et al. (2020) added that cost overruns are a significant problem hindering the successful completion of many projects in Sarawak's construction industry, a frequent occurrence across Malaysia's construction sector.

Gara et al. (2022) mentioned that Sarawak's construction projects were severely impacted by the COVID-19 pandemic in 2020. Most projects were halted, and productivity levels dropped drastically due to the need to comply with the government's SOP directives. As a result, many construction sites experienced financial losses, project overruns, and unexpected costs, such as site sanitization, protective equipment, and COVID-19 testing for workers on-site.

Zaini et al. (2020) stated that Building Information Modelling (BIM) is a valuable construction management tool that allows industry players to enhance coordination, exchange information, and improve the effectiveness of documentation in construction projects. The study concluded that implementing BIM is significant for Sarawak's construction industry, as it can improve productivity and efficiency through reliable and accurate cost estimation.

1.3 Background of CCRIS and CTOS

The financing engagement process begins with customer recruitment, where the financial lender is required to conduct the Know Your Customer (KYC) procedure before

initiating a relationship with the customer. As part of the KYC process, financial lenders perform an interview with the customer to gather basic information. Additionally, the lender conducts internal searches, such as those through Credit Bureau Malaysia and other internal sources, as well as reviewing the customer's financial statements.

Credit Bureau Malaysia involves two key components: the Central Credit Reference Information System (CCRIS) and the Credit Tip-Off Service (CTOS). CCRIS, developed by Bank Negara Malaysia (BNM), consolidates credit data into standardized credit reports, which provide insights into prospective borrowers' repayment histories. On the other hand, CTOS operates as a private agency that provides credit reports. These credit reports are widely used by various financial institutions, businesses, legal firms, and private entities within Malaysia.

A borrower's credit history is a crucial component reflecting their past borrowing records and repayment behavior. A good repayment record indicates a track record of timely repayments and responsible credit management. Lenders typically evaluate credit history based on CCRIS reports from Bank Negara Malaysia. In these reports, payment records are noted, with a "0" indicating no arrears in payment, "1" indicating one month in arrears, and "2" indicating two or more months in arrears. The CCRIS report also shows the SME's history of making payments on time. Consistent and timely payments demonstrate reliability and reduce the risk of default.

According to the Central Bank of Malaysia (2023), a credit report is a presentation of data regarding the credit history of an individual or company. Credit bureaus provide these reports to those who intentionally access the information on an individual's or company's credit history. The credit report includes details of monetary transactions with financial institutions or credit leasing companies, covering leases, credit, other non-credit-related

debts, and dealings with collection agencies. The report reflects the monetary transactions and repayment histories of the individual or company.

In addition to CCRIS, lenders also review the Credit Tip-Off Service (CTOS) report. CTOS is Malaysia's leading Credit Reporting Agency (CRA) and operates under the oversight of the Registrar Office of Credit Reporting Agencies, Ministry of Finance, regulated by the Credit Reporting Agencies Act 2010. CTOS Holdings Sdn Bhd, a private limited company, was incorporated in Malaysia on 17 July 2014. CTOS simplifies credit extensions by providing individuals and businesses with quick and easy access to vital information, expediting credit applications, and offering credit risk management solutions and services. CTOS reports are widely used by banks, financial institutions, insurance companies, telecommunication companies, large corporations, SMEs, legal firms, and statutory bodies (CTOS, 2023).

Table 1.3: Section A to E in CTOS Report

Section	Description – Individual	Description - Organization
A	Report Snapshot	Report Snapshot
B	Directorship and Business interest	Company Profile (SSM information)
C	Banking Payment History	Banking Payment History
D	Litigation Information	Litigation Information
E	Trade Referee Listing	Trade Referee Listing

Sources: CTOS (2023)

Furthermore, based on Table 1.3 the CTOS reports provide details regarding individuals or organizations borrowing in different sections from A to E. Individual reports include identity verification requirements such as name of borrower, National Registration

ID Card Number (NRIC), date of birth, and address verification in Section A of individual reports. Organizations may access Section A in the Report Snapshot which details individual or organizational names, business registration number and date, type of company formation, business registration address and operation location. Section B provides details regarding individual directorship and shareholding positions held within companies by an individual, as well as any incurred directorship or shareholding commitment by their lender, such as overall directorship or shareholding obligations in total, details for every company the borrower participates with as well as paid-up capital of each. Organization reports typically contain details from SSM reports on company directors and shareholders as well as financial standing of an entity in Section B. Section C display payment history that corresponds with CCRIS report. Section D demonstrate any legal cases the business may be involved with and Section E displays trade references by organizations like telecommunication firm, legal firms, hospital and etc to show the record when borrowers did not pay their bills on time.

1.4 Problem Statement

The construction industry in Malaysia has experienced steady growth over the past decade, contributing significantly to the country's GDP and socio-economic development (Kamaruddeen et al., 2020). Despite its importance, the industry faces numerous challenges that hinder its growth and efficiency. These challenges include workforce shortages, rising material costs, cost overruns, project delays, poor communication among stakeholders, and slow cash flow. Such issues not only impede project completion but also impact the

creditworthiness of construction companies, particularly SMEs, which play a crucial role in economic growth.

Creditworthiness is a critical factor for SMEs in the construction industry, as it determines their ability to secure financing. Recurring problems of cost overruns and project delays have been identified as significant factors affecting the creditworthiness of these companies. Contributing factors to cost overruns include material shortages, equipment unavailability, client-induced changes, errors during construction, price volatility of raw materials, and poor project management (Flyvbjerg et al., 2014). Collectively, these issues degrade the financial stability of SMEs, making it challenging for them to meet financial obligations and secure new credit facilities.

Moreover, the performance of SMEs in the construction industry is adversely affected by a lack of skilled labor and low productivity, which are critical for timely project completion (Esa et al., 2020; Ngu & Sam, 2018). Poor labor productivity often results from inadequate planning, insufficient financial management, and environmental factors (Robles et al., 2014). Delays in project delivery not only lead to financial losses but also negatively impact the credit ratings of these firms, further limiting their access to necessary financial resources (Ramanathan et al., 2012). Additionally, health and safety issues within the construction industry add another layer of complexity, as the sector is inherently hazardous. Frequent accidents and fatalities due to poor safety practices impose additional costs on SMEs and damage their reputations (Wong & Soo, 2019).

The financial constraints faced by SMEs in the construction industry are exacerbated by difficulties in maintaining adequate financial records, poor cash flow management, and reliance on project proceeds for debt repayment (Ramanathan et al., 2012). The COVID-19

pandemic has intensified these challenges, leading to a decline in the overall performance of SMEs and increasing their financial vulnerability.

At the core of these challenges is the difficulty SMEs face in securing affordable financing due to stringent collateral requirements, high lending rates, and extensive documentation processes imposed by financial institutions (Teo & Cheong, 1994; Yoshino & Hesary, 2018). These obstacles prevent SMEs from accessing the capital needed for growth and expansion, thereby affecting their overall performance. Despite the extensive literature on the relationship between creditworthiness and financial accessibility for SMEs (Changwesha & Mutezo, 2023; Premathilaksa & Muthusami, 2022; Sawitri, 2023; Wasiuzzaman et al., 2019), there is a lack of clear evidence specifically addressing the construction industry or incorporating additional variables such as credibility.

This study aims to fill this gap by examining the relationship between creditworthiness dimensions (character, capacity, capital, collateral, conditions, and credibility) and the financial and non-financial performance of SMEs in the Sarawak construction industry. Additionally, the study will assess the moderating effect of financial accessibility on these relationships. By providing a comprehensive analysis, this research seeks to offer practical recommendations for improving the creditworthiness and performance of SMEs in the construction sector, ultimately contributing to their sustainable growth and development.

1.5 Research Questions

The construction industry is one of the key drivers of economic growth and development in Malaysia, particularly in Sarawak, which has significant potential for infrastructure and urbanization projects. However, many SMEs in the construction industry face challenges in

accessing finance due to their low creditworthiness, which impacts their performance and competitiveness. Therefore, this study aims to address the following research questions:

- i. Does the creditworthiness dimension affect the financial performance of SMEs in the construction industry?
- ii. Does the creditworthiness dimension affect the non-financial performance of SMEs in the construction industry?
- iii. Does the financial accessibility moderate the relationship between the creditworthiness and financial performance of SMEs in construction industry?
- iv. Does the financial accessibility moderate the relationship between the creditworthiness and non-financial performance of SMEs in construction industry?

1.6 Research Objectives

The general objective of this study is to investigate the relationship between creditworthiness and the performance of SMEs in Sarawak's construction industry. The specific objectives of this study are defined as follows:

- i. To investigate the relationship between creditworthiness (character, capacity, capability, collateral, conditions, and credibility) dimension on SMEs financial performance in construction industry.
- ii. To examine the relationship of creditworthiness (character, capacity, capability, collateral, conditions, and credibility) dimension on SMEs non-financial performance in construction industry.

- iii. To assess the moderating effect of financial accessibility on the relationship between creditworthiness dimension and SMEs financial performance in the construction industry.
- iv. To investigate the moderating effect of finance accessibility of the creditworthiness dimension and SMEs non-financial performance in the construction industry.

1.7 Significance of the Study

The significance of this study in exploring the relationship between creditworthiness and the performance of SMEs in the Sarawak construction industry lies in its potential to provide valuable insights into the critical factors influencing the success of SMEs in this sector. The study sheds light on the factors that affect financial accessibility and the growth potential of SMEs in the construction industry, which is a key driver of economic development in Sarawak.

Additionally, this research contributes to the literature on the role of interfirm linkages between SMEs and large firms in enhancing creditworthiness and performance. The practical knowledge of creditworthiness used by financial institutions is valuable for SME business owners, particularly in bank loan applications. The determination of loan approvals for SMEs in the construction industry is closely linked to the applicant's creditworthiness, which is tied to the credit policies of financial institutions.

Moreover, increasing awareness of the integration between creditworthiness knowledge and company performance can enhance the understanding of business owners, academic researchers, and consultants regarding the credit assessment process for SME bank loans. The study also tests the applicability of the pecking order theory and resource dependency theory in explaining the financing decisions and performance outcomes of

SMEs in the construction industry. The pecking order theory provides insights into financing preferences, such as how SMEs choose between internal and external sources of financing, including internal funds, debt, and equity. On the other hand, the resource dependency theory focuses on organizational behavior, suggesting that organizations rely on external resources for their survival and success.

Consequently, this study is poised to make a substantive contribution to the existing body of knowledge in finance and management. It will foster a deeper understanding of the factors influencing SME performance and offer practical policy implications and recommendations for improving financial support and competitiveness within Sarawak's construction industry.

1.8 Scope of the Study

This study focuses on examining the relationship between creditworthiness and the performance of SMEs in the construction industry in Sarawak. It employs the 6Cs credit model, which includes the dimensions of character, capital, capacity, collateral, conditions, and an additional dimension, credibility. The study aims to determine how these dimensions affect both the financial and non-financial performance of SMEs, with financial accessibility from financial institutions serving as a moderating factor.

Primary data is collected through a questionnaire distributed to 150 SMEs in the Sarawak construction industry. The selected companies are engaged in various construction activities, including residential, commercial, and industrial construction, land development

and site preparation, general contracting for civil engineering works, renovation, remodeling, and specialized construction projects requiring specific skills and expertise.

This study seeks to fill a gap in existing research by focusing specifically on the construction industry, which has been less explored in previous studies on SME performance. By integrating the creditworthiness dimensions and examining their impact on SME performance, this study aims to provide valuable insights into how creditworthiness influences both financial and non-financial outcomes for SMEs in Sarawak's construction industry.

1.9 Definition of Terms

Creditworthiness: The ability of a borrower to fulfill their debt commitments on time and in full. It is a measure of the trustworthiness of an individual or company in repaying loans.

5Cs Credit Model: A framework used by financial institutions to evaluate the creditworthiness of borrowers, consisting of the following dimensions:

- **Character:** The borrower's reputation and track record for repaying debts.
- **Capital:** The borrower's financial reserves and net worth.
- **Capacity:** The borrower's ability to repay the loan based on income and existing debts.
- **Collateral:** Assets that the borrower can offer as security for the loan.
- **Conditions:** The economic and industry conditions that might affect the borrower's ability to repay the loan.
- **Credibility:** An additional dimension introduced in this study, referring to the trustworthiness and reliability of the borrower beyond the traditional 5Cs.

SMEs (Small and Medium Enterprises): Businesses with a limited number of employees and revenue, playing a crucial role in economic development. In Malaysia, SMEs are defined based on their annual sales turnover and number of full-time employees.

Financial Performance: Metrics that indicate the financial health and stability of a company, including profitability, revenue growth, return on assets, and other financial ratios.

Non-Financial Performance: Operational aspects of a company that impact its success, including productivity, efficiency, customer satisfaction, and employee engagement.

Financial Accessibility: The ease with which SMEs can obtain financing from financial institutions, influenced by factors such as interest rates, collateral requirements, and the lending policies of financial institutions.

Construction Industry: A sector of the economy focused on building, infrastructure, and related activities, including residential, commercial, and industrial construction, as well as land development and specialized construction projects.

Sarawak: A state in Malaysia, located on the island of Borneo, known for its diverse economy and significant contribution to the country's construction industry.

1.10 Organization of the Study

This dissertation is organized into five chapters, each contributing to a comprehensive understanding of the relationship between creditworthiness and SME performance in the construction industry in Sarawak.

Chapter 1: Introduction provides the background of the study, outlining the significance of creditworthiness for SMEs in the construction industry. It includes the problem statement, research questions, objectives, and the scope of the study. The chapter also introduces key definitions and terms used throughout the research.

Chapter 2: Literature Review reviews existing literature on creditworthiness and SME performance, focusing on the 5Cs credit model and its relevance to the construction industry. It also explores theories such as the Pecking Order Theory and Resource Dependency Theory, providing a theoretical foundation for the study.

Chapter 3: Research Methodology details the research design and methodology used to collect and analyze data. It includes the conceptual framework, hypothesis development, sampling methods, data collection procedures, and data analysis techniques. The primary data is collected through questionnaires distributed to SMEs in the Sarawak construction industry.

Chapter 4: Results and Findings presents the empirical findings of the study. It analyzes the relationship between the dimensions of creditworthiness and the financial and non-financial performance of SMEs. The chapter also examines the moderating effect of financial accessibility on these relationships, providing detailed statistical analysis and interpretation of the results.

Chapter 5: Discussion and Conclusion discusses the theoretical and practical implications of the findings, offering recommendations for SMEs, financial institutions, and policymakers. It highlights the limitations of the study and suggests directions for future

research. The chapter concludes by summarizing the key insights gained from the research and their potential impact on the construction industry in Sarawak.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter discusses the conceptual framework and provides a literature review of previous studies that examine the relationship between creditworthiness across the six dimensions of character, capacity, capital, collateral, condition, and credibility, and the financial and non-financial performance of SMEs in the construction industry.

2.2 Pecking-order Theory (POT)

In today's highly competitive business environment, businesses of all sizes, small, medium, and large corporations must develop specific strategies and robust capital structures to sustain their operations (Nastiti, 2016). A well-balanced combination of debt and capital is crucial for achieving an optimal capital structure within an organization. Factors such as liquidity, profitability, and firm size significantly influence capital structure decision-making. Oktaviyanti and Sumartik (2023) conducted a study on 40 manufacturing firms listed on the Indonesian stock exchange from 2018 to 2021. They identified liquidity, profitability, and firm size as significant factors affecting capital structure within these organizations. Jansen et al. (2013) defined capital structure as the combination of funding sources businesses utilize, including both external and internal corporate sources. Capital structure supports business operations and ensures the sustainability of future business activities (Alfitri et al., 2022).

The pecking order theory, a corporate finance model, explains how companies prioritize financing sources to achieve an optimal capital structure. It has been extensively

tested across multiple economies over the past 30 years. This theory predicts that firms favor internal sources of funding over external ones. According to Vani (2019), the pecking order theory describes a company's funding decision to create an orderly structure, with internal capital, such as retained earnings, being the primary source of funding. Companies prefer to generate organizational funding from business profits retained within the firm rather than distributing them to shareholders.

Wikartika (2017) analyzed that when companies require external financing, they typically issue bonds first, as bonds are considered the most secure form of security. If additional capital is needed, companies may then issue new shares. Nastiti (2016) further revealed that the common order of funding sources based on the pecking order theory is internal financing through profitability, followed by external debt, and finally equity financing. Profitability refers to a company's ability to generate revenue from its operations using its resources (Lutfiana & Hermanto, 2021). Vasiliou et al. (2009) noted that profitable companies tend to finance investment opportunities and business activities with retained earnings first, resorting to debt financing as a secondary option, and considering equity issuance as a last resort.

Nkansah-Sakyi (2023) found that Ghanaian SMEs use profitability as a means of internal financing to reduce organizational debt levels. The study concluded that Ghanaian SMEs prefer internal funds over external debt due to the higher costs associated with external financing. Yildirim and Celik (2022) supported this view, indicating that firms turn to external funding only when internal sources are insufficient, with a preference for low-risk debt over equity issuance. Pratiwi and Yulianto (2022) also concluded that liquidity and growth rate data have a significant positive impact on leverage, consistent with the pecking order theory.

The pecking order theory suggests that adverse selection can cause financially challenged firms to forego profitable investment opportunities due to the high costs of external financing. Reducing information asymmetry could help these firms access more external financing and increase their investment activities (Naranjo et al., 2020). Bhama et al. (2016) found that Indian companies adhere to the pecking order theory, using surplus profits to reduce debt financing and prioritizing internal funds. Miglo (2016) argued that the pecking order theory remains the best explanation for the relationship between profitability and capital structure, as businesses prioritize safe funding sources regardless of financial circumstances. Chasanah and Budhi (2017) noted that companies with high liquidity tend to have lower debt levels, aligning with the pecking order theory. Larger companies also have greater access to various funding sources and find it easier to secure loans from creditors (Linawati et al., 2022).

Pratiwi and Yulianto (2022) conducted research on the impact of asymmetric information on capital structure decisions, concluding that positive sales performance leads to greater debt issuance compared to equity. Companies tend to follow a financing hierarchy based on their sales performance. Previous studies have analyzed which theory best explains capital structure in various markets. In developed markets like the United States and Europe, evidence suggests that the pecking order theory is most applicable to start-ups or high-growth companies, albeit with certain specificities (Vasiliou et al., 2009).

Jansen et al. (2023) argued that traditional frameworks, such as the pecking order theory, require a broader perspective beyond the classic financing types. Romano et al. (2001) found that family firms have different attitudes toward family capital and external capital when increasing equity financing, prompting the need to distinguish between these

two types of capital. They proposed a pecking order that includes four financing types: internal financing, bank debt, family capital, and external capital.

2.3 Resource Dependency Theory (RDT)

Resource Dependency Theory (RDT) is a sociological theory that seeks to explain organizational behaviors by emphasizing the role of external resources in shaping an organization's structure and decision-making processes. In this study, the theory is applied to examine the moderating effect of financing accessibility. Farndale et al. (2022) highlighted that organizations heavily rely on external sources for the vital resources needed for their survival and success.

RDT asserts that organizations strive to mitigate uncertainty and reduce vulnerability by establishing strategic relationships with external entities. These relationships—whether in the form of partnerships, alliances, or collaborations—provide access to essential resources such as financial capital, information, and technology. RDT is particularly effective in illustrating how organizations manage complex dependencies, negotiate power dynamics, and engage in resource exchanges to enhance competitive advantage and adaptability in dynamic environments.

According to RDT, organizations depend on multidimensional resources for their survival. Consequently, non-profit organizations, in particular, face not only external pressures but also internal pressures from management that affect their resource acquisition (Pfeffer & Salancik, 2006). The theory posits that an organization's diverse functions are influenced by its reliance on vital resources, which, in turn, brings uncertainty that can hamper its efficiency and effectiveness (Hillman et al., 2009). For instance, the financial sector's structure is expected to reflect the production structure of the economy (Lin et al.,

2009). In resource-dependent economies, the financial sector is often shaped by the needs of large, well-known firms in the mineral extraction sector, leading to a smaller role for the domestic banking sector and more common use of capital markets compared to resource-poor countries.

Lin et al. (2009) argue that such a financial system poses particular challenges for SMEs and emerging industries. Iqbal (2023) further explains that RDT predicts increased dependence on resources from a key provider, which amplifies these challenges. These findings contribute to our theoretical understanding of financial reporting quality in universities, add to the limited literature on financial reporting in the non-profit and public sectors, and explore alternative theoretical frameworks in public sector accounting. By examining how entities interact with their external environment, RDT provides invaluable insights into the strategic decisions made by organizations seeking essential resources for sustained operations and growth (Reis & Oliveira, 2022).

RDT has been widely applied in the context of international business (IB) over the past four decades. Jiang et al. (2022) conducted a study on the use of RDT in international business literature and concluded that there is a substantial level of conceptual and empirical consensus on how multinational corporations (MNCs) manage their resource dependencies in various situations.

2.4 Justification of Main Theory

The primary focus of this study is to investigate the relationship between creditworthiness and the performance of SMEs, particularly how different dimensions of creditworthiness—character, capacity, capital, collateral, conditions, and credibility—

influence SME performance. Given this focus, the Pecking Order Theory (POT) emerges as the main theoretical framework for the study.

POT directly addresses the financing preferences and behaviors of firms, aligning with the study's aim to understand how SMEs prioritize and manage their sources of financing. It helps explore how SMEs' internal and external financing decisions impact their creditworthiness, making it a suitable framework for analyzing the dependent variable—SME performance.

Previous studies have widely applied POT to understand SME financing, providing a robust theoretical foundation for examining the relationship between creditworthiness and performance. While POT serves as the main theory, Resource Dependency Theory (RDT) complements the analysis by offering insights into the external dependencies and strategic relationships of SMEs. The combination of these theories allows for a comprehensive understanding of how both internal financing preferences and external resource dependencies influence SME performance in the construction industry.

By positioning POT as the primary theoretical framework and integrating RDT for additional context, this study can effectively explore the multifaceted nature of creditworthiness and its impact on SME performance.

2.5 Empirical Studies of Creditworthiness

The term credit originates from the Greek word "Credere," meaning trust (Siamat, 2016). Previous studies have demonstrated that the 5Cs of credit are essential for lending decisions. The 5C principles, introduced by banks, are designed to evaluate a borrower's future prospects, financial capabilities, and potential risk of default (Wulandari et al., 2024). One of the primary considerations for lending banks is the borrower's ability and willingness

to meet loan obligations. Borrowers come from diverse backgrounds with varying attitudes toward debt repayment. Some may lack the capacity to repay, while others may choose not to fulfill their obligations despite having the means. Additionally, a borrower's financial situation and risk profile can deteriorate over time, affecting their ability to service debt (Kasipillai & Roberts, 2022).

Credit officers seek potential borrowers who demonstrate both the capacity to repay and positive behavioral traits, such as leadership. After thoroughly evaluating each borrower, they propose appropriate risk management solutions to manage the borrower's loan account (Kasipillai & Roberts, 2022). According to Orlova (2021), credit decisions should be made for customers who meet the 5C principles: character, capacity, capital, condition, and collateral. Commercial banks employ the 5Cs approach in assessing customer creditworthiness, which involves a detailed loan appraisal process, selection of an appropriate loan maturity period, and calculation of the maximum allowable loan amount. Poor lending policies or inadequate credit analysis can have detrimental effects on a bank's profitability and performance (Ogoro & Onditi, 2016).

The 5Cs credit model refers to the five critical elements lenders consider when assessing credit risk. While these considerations alone may not be sufficient to approve a loan, they provide a framework for lenders to evaluate potential credit risks. Credit plays a unique role in the economic system, serving as an independent economic category that enables both the economy and individual entities to meet their financial needs. Through additional financing, credit allows enterprises to expand production, increase resources, and achieve their goals more quickly. Overall, credit can enhance the economic potential of society. The evolution of credit theories, especially during the period of developed

capitalism, reflects the growing importance of credit and banks in the economy. History shows that credit theory has evolved from understanding its essence and functions to becoming a crucial instrument for economic development and state regulation.

Studies on the 5Cs credit model indicate a correlation between the model and effective credit risk management. The 5Cs model helps control and mitigate credit risks and is a determinant of loan repayment, particularly in Islamic banks in Nigeria. The Information Theory of Credit refers to how a firm or individual's credit rating, as assessed by financial institutions, predicts their likelihood of repaying loans (Frost et al., 2019).

One key indicator of loan repayment is an effective credit evaluation system that manages customer credit lines efficiently. Loan recovery from individuals or firms depends on various factors, including credit management practices and prevailing economic conditions (Chaibi & Ftit, 2015). Credit assessments provide financial institutions with insights into a customer's financial strengths or vulnerabilities by examining repayment patterns and credit history. The effectiveness of credit assessments hinges on the procedures and methods used to evaluate a customer's credit history.

The goal of credit approval at financial institutions is to minimize the risk of default after issuing credit. However, credit management policies can sometimes disincentivize loan repayment (Freel et al., 2012). Owusu-Antwi and James (2010) identified high interest rates as a primary factor contributing to loan defaults, as high monthly repayments can burden borrowers, leading to defaults. Therefore, credit decisions should prioritize customers who meet the 5C principles: character, capacity, capital, condition, and collateral (Andrean et al., 2024). Careful credit evaluation is essential for lenders to prevent high default rates and non-

performing loans. Lenders must exercise caution to avoid information asymmetry, which can lead to adverse selection and non-performing loans.

Research has shown that all five Cs of credit have a significant correlation with asset quality, such as the non-performing loan ratio. Lenders should use this tool throughout their credit risk management processes to monitor default risks among borrowers. Some studies recommend adding a "caution" factor as an additional safeguard in the credit risk management process. While traditional criteria like character, capacity, capital, collateral, and conditions are essential, caution—provided by lenders—should guide the information collection, evaluation, and decision-making stages of credit risk management.

2.5.1 Character

Lending by banks to borrowers is inherently risky, as there is no guarantee of repayment. Ogeisia et al. (2014) conducted research to examine the impact of borrower characteristics on loan repayment behavior and found that the character of the borrower significantly affects loan repayment. The term "character" should not be limited to individual borrowers but should also apply to organizational borrowers (Kasipillai & Roberts, 2022). Character refers to the nature and personality of prospective borrowers, who should be reliable—a quality that lenders must carefully assess. Ravina (2019) found that personal characteristics significantly influence lenders' decisions to extend credit.

Bintang et al. (2023) conducted a study to determine the effect of debtor character and guarantees from SME entrepreneurs on credit approval during the pandemic. They concluded that debtor characteristics significantly influence credit approval, while guarantees from SMEs did not have a substantial positive impact during the pandemic. Additionally, Romney (2016) explains that if a borrower fails to repay a loan within the

agreed deadline, a formal collection process is initiated, which may involve selling the securities provided by the borrower to enforce payment. A borrower's ability to obtain loans depends on the lending institutions' assessment of their characteristics during the loan appraisal process. Effective credit program operations require a clear understanding and evaluation of borrower characteristics, such as marital status, education, gender, employment experience, assets, and the ability to pay (Mladentseva, 2023).

Sivatharshika and Thayaparan (2019) concluded that the education level of borrowers can determine loan repayment performance. Ogeisia et al. (2014) supported this finding, showing that borrowers with higher education levels have lower default rates than those with lower education levels. They also noted that borrowers with higher education are more likely to have stable employment with better benefits and potential annual increments, reflecting better repayment capabilities. However, Jote (2018) found that the relationship between borrower characteristics and loan repayment performance is mixed and inconsistent, with borrower income being a key indicator. Financial institutions generally assume that borrowers with high incomes are less likely to default on loans because they have more resources available for repayment (Sivatharshika & Thayaparan, 2019).

Jote (2018) further stated that the borrower's age is another significant indicator of loan repayment. Younger borrowers have more time to repay loans, resulting in lower monthly installments, while middle-aged borrowers have a higher probability of default. Older borrowers tend to exhibit higher maturity levels, leading to better loan repayment performance (Sivatharshika & Thayaparan, 2019). According to Siamat (2016), the foundation of credit is trust, where creditors believe that debtors will return the payment in full as agreed.

Hajek and Papouskova (2019) argue that character is the most comprehensive aspect of evaluating creditworthiness. Financial institutions screen potential borrowers through credit bureau reports, which indicate borrowers' financial repayment records. Credit searches assess borrowers' integrity and trustworthiness based on their historical borrowing records (Ashcroft et al., 2022). These records examine the borrowers' ethics, commitment, and reliability (Kabir, 2016).

Xie et al. (2023) conducted research on improving the accuracy and efficiency of credit evaluations to reduce default losses. Psychologist Albert Ellis mentioned that past behavior is the best predictor of future behavior. Character can be observed through the borrower's profile, references, and credit history. Attributes such as integrity, management style, lifestyle, and willingness to repay are critical in assessing character (Kasipillai & Roberts, 2022).

The detailed examination of the character variable demonstrates its crucial role in determining the creditworthiness and loan repayment behavior of borrowers. Research indicates that character significantly influences loan approval and repayment performance, providing a strong basis for developing hypotheses related to this variable. Studies by Ogeisia et al. (2014) and Ravina (2019) show that the character of a borrower, including traits like reliability and trustworthiness, significantly affects their ability to secure loans and their subsequent repayment behavior. This suggests that SMEs with well-characterized profiles are more likely to obtain financing, which can positively impact their financial performance by ensuring a steady flow of capital.

The findings of Bintang et al. (2023) and Mladentseva (2023) suggest that borrower characteristics, including education level and employment experience, play a critical role in credit approval and repayment. These characteristics can also influence non-financial

performance indicators, such as operational efficiency and reputation, as reliable and educated borrowers are better at managing their businesses and maintaining stakeholder trust.

2.5.2 Capacity

Capacity refers to an assessment of a borrower's ability to generate sufficient cash flows to meet debt obligations. The primary objective is to forecast the borrower's ability to repay the debt, ensuring that the credit applicant has adequate financial resources for servicing the debt before extending loan approval. Lenders consider the company's cash flow and repayment behavior, with a history of payments on both commercial and personal credit relationships serving as an indicator of future performance. This assessment includes examining the customer's accounts, with a focus on account liquidity and existing borrowings.

According to William and Brenda (2024), capacity encompasses having adequate resources, suitable strength, and sufficient capabilities to start, maintain, and grow operations as the company progresses through its lifecycle. The assessment of capacity involves evaluating the prospective borrower's ability to repay loans. This determination is based on financial information provided by the borrower, with banks particularly interested in metrics such as the Debt Service Coverage Ratio (DSCR) to gauge capacity. In addition to the debt-to-income ratio, lenders consider factors such as the business's history, the nature of its operations, and the stability of the current market (Wang & Liu, 2024). For individuals, capacity is assessed using the Debt Service Ratio (DSR), while for organizations, it is identified through operating cash flow. The purpose of assessing capacity is to determine the

ability to repay debt from the cash flow generated by the borrower, which is a crucial factor for lenders in assessing repayment risk.

Wang and Liu (2024) found that credit applications approved by banks using the new three pillars method demonstrated increased access to funding, which in turn enhanced sales and net profit performance due to improved production capacity. Credit appraisal remains central to the decision-making process when awarding credit to borrowers, as it evaluates loan applications to assess the repayment capacity of prospective borrowers (Fatemi & Fooladi, 2006). This process involves assessing both creditworthiness and expected cash flow streams while considering the risk associated with each borrower (Markus & Bernd, 2001). To mitigate risk, credit analysts apply prudence, conduct debtor visits, and coordinate with recovery departments to propose credit restructuring and attempt internal debt settlements (Hasibuan, 2023).

Hasibuan (2023) further explains that capacity reflects the potential debtor's ability to repay their debt. Credit analysts should assess how the client manages their business and the revenue they generate monthly. The debtor's capability is often evident from their bank statements over the past three months, which can reveal the most frequent credit transfer sources and the average monthly balance. For business entities, financial reports are examined to determine the growth of the debtor's income and whether the business generates adequate profits. Establishing credit risk limits helps banks protect themselves from potential losses and ensures compliance with legal requirements and industry standards (Budianto, 2023).

Moreover, Disemadi and Shaleh (2020) noted that the performance of Islamic Commercial Banks in financing management is influenced by SMEs' capacity to meet credit obligations. Many SMEs struggle with performance and capacity issues, impacting their

ability to fulfill credit obligations. To optimize the intermediary function of Sharia Commercial Banks, SMEs should maintain prompt repayment habits and financial stability, thereby supporting economic growth. Boahene et al. (2012) also highlighted that poor credit risk management could lead to significant financial losses and even bankruptcy, underscoring the importance of ongoing credit risk management by forecasting and mitigating potential risks.

While existing literature extensively discusses the importance of capacity in determining creditworthiness and loan repayment behavior, there is a notable gap in understanding the specific impact of capacity on the performance of SMEs in the construction industry, particularly in Sarawak. Most studies focus on general business environments or specific financial institutions, leaving limited empirical evidence on how capacity influences both financial and non-financial performance metrics in this specific context. Additionally, the dynamic interplay between capacity and other creditworthiness dimensions, such as collateral and credibility, has not been thoroughly explored. This study aims to fill these gaps by providing a detailed analysis of capacity's role in SME performance within the Sarawak construction industry.

2.5.3 Capital

Capital refers to the funds that a business owner invests in an organization to achieve its objectives. Financial institutions evaluate a company's capital to assess the risk posed by borrowers and the likelihood of unexpected losses (Ohlson, 1980). Capital represents the company's commitment to the business, which is reflected in various financial ratios, such as liquid ratios, solvency ratios, equity ratios, and profitability ratios, when assessing the

organization's risk. It is a key metric used by financial institutions to measure the company's leverage (Markus & Bernd, 2001).

Iqbal (2023) stated that higher capital investment in a business reduces the likelihood of default. Businesses with effective cost control management generate higher profitability with lower expenditures, allowing them to meet their breakeven points more easily. The lending function of financial institutions is crucial to the economy, as it supports the credit requirements of businesses for expansion or working capital needs. However, credit officers face the challenge of conducting accurate credit assessments to ensure the safety of lending activities while also performing these assessments quickly to avoid losing deals to competitors.

Capital also encompasses the organization's overall current and non-current assets, including cash on hand or in the bank, inventories, premises, office furniture, and more (Chen, 2024). In unforeseen circumstances, capital serves as additional security for the lender. Ramdhansyah & Silalahi (2013) found that SME entrepreneurs who struggle to access external capital may rely on personal funding or face challenges due to complex bank credit application procedures. Alternatively, they might prefer a financing model where financiers or financial institutions also act as coaches or coordinators.

Bhatt et al. (2023) emphasized that to ensure borrowers repay loans on time, lenders must conduct thorough credit evaluations. This process is vital for banks, as it affects the company's capital and interest revenue (Sari et al., 2024). Unexpected fluctuations in business operations can reduce bank profits or value, leading to the loss of capital (William & Brenda, 2024).

According to the Pecking Order Theory (POT), firms prefer to use internal funds before seeking external financing. This implies that SMEs with sufficient internal capital are

less reliant on external debt, reducing financial risk and enhancing financial performance (Cope, 2014; Karim & Anjom, 2016). Adequate capital allows SMEs to invest in operational improvements, employee training, and other non-financial aspects that contribute to overall business success (Caplinska & Tvaronavičienė, 2020).

While existing literature extensively discusses the importance of capital in determining creditworthiness and loan repayment behavior, there is a notable gap in understanding the specific impact of capital on the performance of SMEs in the construction industry, particularly in Sarawak. Most studies focus on general business environments or specific financial institutions, leaving limited empirical evidence on how capital influences both financial and non-financial performance metrics in this specific context. Additionally, the dynamic interplay between capital and other creditworthiness dimensions, such as capacity and credibility, has not been thoroughly explored. This study aims to fill these gaps by providing a detailed analysis of capital's role in SME performance within the Sarawak construction industry.

2.5.4 Collateral

Collateral refers to the assessment of assets that a credit applicant provides as security for a loan. Collateral or guarantees serve as additional forms of security that can be offered to the lender as a secondary source of repayment if the business being financed fails to meet its obligations under the loan contract. Assets such as equipment, buildings, accounts receivable, and, in some cases, inventory, are considered potential sources of repayment if they can be sold by the bank for cash. Both business and personal assets can be used as collateral for a loan, and some lenders may require a guarantee in addition to collateral as security. According to William and Brenda (2024), assets likely to retain their value in

deteriorating business conditions are the most desirable forms of collateral, and borrowers often pledge these assets to offset weaknesses in the firm's capital and capacity. However, even excellent collateral may not fully protect the lender against poor character.

Collateral serves as an additional security measure provided by borrowers to financial institutions to secure financial exposure. It acts as an alternative source for loan repayment in the event of a default (Jote, 2018). Collateral, whether physical or non-physical, should ideally exceed the credit provided in terms of validity and perfection (Andrean et al., 2024).

The types of security can be categorized into asset-based and non-asset-based collateral. Asset-based security includes properties, buildings, land, and Fixed Deposits (FDs). Non-asset-based security includes Joint and Several Guarantees (JSG), Corporate Guarantees (CG), and guarantees from government bodies such as Credit Guarantee Corporation (CGC) or Syarikat Jaminan Pembiayaan Perniagaan Berhad (SJPP). A proper valuation report is required for the lender to determine the value of the collateral asset, as the lender cannot lend more than the asset's value. The collateral quality is assessed using the Loan-to-Value Ratio (Kulathunga et al., 2020). However, many SMEs face challenges in securing working capital from conventional banks due to a lack of sufficient collateral, a limited track record, and constrained cash flow (Andrean et al., 2024).

According to Hasibuan (2023), collateral acts as a guarantee to protect the creditor or lender. If the borrower is unable to repay the loan, the collateral can be used to offset the outstanding balance. Credit analysts typically focus on the physical or non-physical collateral provided by the borrower and consider what guarantees can be enforced to recover the loan in the event of default.

Banks view collateral as a tool that provides incentive and signaling effects, helping to address issues of moral hazard and adverse selection in the presence of asymmetrical information. When a loan is secured with an asset as collateral, banks use it to mitigate the borrower's risk and reduce the likelihood of default (Fuady, 2013).

The availability of collateral reduces the lender's risk and can lead to more favorable loan terms, positively impacting the borrower's financial performance (Ogoro & Onditi, 2016). Collateral can also enhance a firm's credibility and stability, leading to improved relationships with stakeholders and better non-financial performance (Kabir, 2016).

While existing literature extensively discusses the importance of collateral in determining creditworthiness and mitigating default risk, there is a notable gap in understanding the specific impact of collateral on the performance of SMEs in the construction industry, particularly in Sarawak. Most studies focus on general business environments or specific financial institutions, leaving limited empirical evidence on how collateral influences both financial and non-financial performance metrics in this specific context. Additionally, the dynamic interplay between collateral and other creditworthiness dimensions, such as capacity and credibility, has not been thoroughly explored. This study aims to fill these gaps by providing a detailed analysis of collateral's role in SME performance within the Sarawak construction industry.

2.5.5 Condition

Conditions refer to the analysis of the prospects of the business sector being financed, taking into account economic, social, and political factors. Jufri et al. (2020) noted the significant influence of economic conditions on loan repayments, emphasizing that wide fluctuations in economic cycles can hinder customers' abilities to repay loans as planned.

Consequently, recovery and disbursement policies must consider these factors when planning credit strategies.

Conditions also focus on the intended purpose of the loan. According to Golden and Walker (1993), bankers forecast and project circumstances as business and economic conditions evolve. While predicting the future with certainty is impossible, proactive forecasting enables banks to react swiftly to market deteriorations. The decision to grant credit is generally influenced by current economic and business conditions, as well as specific circumstances related to the applicant's firm. Lenders assess the local economic climate, industry conditions, and any other external factors that might affect the performance of the business seeking financing.

This view is supported by Aziz and Utoyo (2019), who argue that condition risk is essentially the sensitivity of a borrower to general business conditions. Wulandari et al. (2024) suggested that lending policy must always align with a bank's strategy, taking into account factors such as industry norms, existing credit policies, the current economic climate, and general economic conditions. Conditions refer to the purpose and economic environment surrounding loan approval, requiring a comprehensive analysis to identify borrower vulnerabilities within their current economic situations and to measure obstacles that might increase the risk of loan default (Jufri et al., 2024).

Furthermore, Wulandari et al. (2024) emphasized that economic conditions are a vital component banks should consider when offering financing to potential customers. This includes evaluating national, regional, or global economic conditions that might impact a

debtor's financial situation. Additionally, the condition of the collateral, such as machinery, equipment, and properties, should be carefully assessed.

Wulandari et al. (2024) also concluded that applying the prudence principle in credit distribution is crucial to ensuring that financial institutions remain in good condition—liquid, solvent, and profitable. Banks have the right to reject loan applications if the borrower's financial conditions are not stable. Factors influencing financial conditions include the economy, financing tenure, financing amount, and other bank regulations. The terms and conditions of the credit agreement are also crucial. Conversely, Purwanto et al. (2023) highlighted the importance of understanding financial distress during the 2020-2021 pandemic for comparing the state of the banking system to pre-pandemic conditions from 2016-2019.

Karumba and Wafula (2012) noted that credit appraisal aims to identify the borrower's capacity and ability to repay the loan in accordance with the conditions of the loan contract. Bhatt et al. (2023) provided evidence that commercial banks often face challenges with non-performing loans due to inadequate credit analysis. The objective of credit appraisal is to assess the borrower's capability and willingness to repay the loan according to the terms and conditions of the credit agreement. Andrean et al. (2024) stated that credit risk assessment decisions are crucial for financial institutions, as inappropriate credit decisions can increase default risk.

Economic conditions such as interest rates, inflation, and market stability can significantly impact a firm's financial performance (Freel et al., 2012). External conditions

also influence non-financial performance by affecting business operations, employee morale, and customer satisfaction (Owusu-Antwi & James, 2010).

While existing literature extensively discusses the importance of economic, social, and political conditions in determining creditworthiness and loan repayment behavior, there is a notable gap in understanding the specific impact of these conditions on the performance of SMEs in the construction industry, particularly in Sarawak. Most studies focus on general business environments or specific financial institutions, leaving limited empirical evidence on how conditions influence both financial and non-financial performance metrics in this specific context. Additionally, the dynamic interplay between conditions and other creditworthiness dimensions, such as collateral and credibility, has not been thoroughly explored. This study aims to fill these gaps by providing a detailed analysis of the role of conditions in SME performance within the Sarawak construction industry.

2.5.6 Credibility

In this study, the traditional 5Cs credit model is expanded to become the 6Cs credit model by incorporating an additional "C": credibility. While credibility can be considered a subset of the character component, it provides a distinct and essential perspective on the borrower's trustworthiness and reliability, extending beyond a mere assessment of character.

Credibility refers to the degree to which others can have confidence in the information provided by a borrower. In the context of creditworthiness, it pertains to the trust, reliability, and believability of the information provided by the borrower. Credibility involves evaluating the quality of being trustworthy and is based on how much others trust the information presented (Cope, 2014).

Lenders conduct a thorough credibility assessment to mitigate risks before providing loans. This assessment includes evaluating the borrower's credit history, financial stability, and repayment behavior. These evaluations are critical to avoiding defaults and ensuring sound financial decisions for both the lender and the borrower. The assessment of a company's credibility involves scoring its past and present actions and using a holistic method of ratio analysis to determine its future operational viability (Cope, 2014).

Credibility extends beyond financial metrics, incorporating both behavioral and financial aspects of trustworthiness. This includes credit history checks, understanding the borrower's past credit behavior, financial statement analysis, gauging financial stability, income verification to ensure the authenticity of documents provided, collateral assessment to evaluate the security offered, and business plan evaluation to understand the strategy and revenue generation capability of the borrower (Karim & Anjom, 2016).

Credibility assessments are typically conducted by financial institutions' underwriters or credit analysts, and sometimes outsourced to credit reporting agencies for detailed reports and scores based on the borrower's financial history (Karim & Anjom, 2016).

A comprehensive credibility assessment allows lenders to identify potential risks of default, make informed lending decisions, minimize financial losses, ensure borrowers have the capacity to repay loans, and adhere to regulatory compliance, thereby preventing predatory lending and financial instability (Caplinska & Tvaronaviciene, 2020).

Research indicates that credibility significantly affects financial security and business development (Caplinska & Tvaronaviciene, 2020). The inclusion of credibility in the 5Cs model aligns with evolving credit assessment practices, providing a nuanced approach to evaluating borrower trustworthiness and enhancing the accuracy and reliability of financial data (Lui & Standing, 1989).

Incorporating credibility into the 5Cs model enriches the framework by addressing the qualitative aspects of creditworthiness. This addition acknowledges the importance of trust and reliability, which are crucial for securing favorable financing terms and fostering robust financial relationships. By evaluating credibility alongside traditional financial metrics, this study aims to provide a more comprehensive understanding of the factors influencing SME performance in the construction industry.

While existing literature extensively discusses the importance of credibility in determining creditworthiness and its impact on financial decisions, there is a notable gap in understanding the specific impact of credibility on the performance of SMEs in the construction industry, particularly in Sarawak. Most studies focus on general business environments or specific financial institutions, leaving limited empirical evidence on how credibility influences both financial and non-financial performance metrics in this specific context. Additionally, the dynamic interplay between credibility and other creditworthiness dimensions, such as collateral and capacity, has not been thoroughly explored. This study aims to fill these gaps by providing a detailed analysis of credibility's role in SME performance within the Sarawak construction industry.

2.6 Empirical Studies of SMEs Performance

SMEs play a crucial role in economic development in both developed and developing countries, contributing significantly to national economic growth (Mustapha & Sorooshain, 2019). In academic literature, "performance" refers to the outcomes of a company's business activities (Kotane & Kuzmina, 2017). According to Halachmi (2005), establishing a Performance Management System (PMS) for SMEs is essential, as it provides a systematic way to monitor and measure their performance. SME performance is often evaluated by

assessing their contribution to output and employment, productivity, and performance in innovation activities (Chin & Lim, 2018).

According to the SME Masterplan, six key forces drive SME performance: innovation and technology adoption, human capital development, access to financing, market access, the legal and regulatory environment, and infrastructure. However, previous studies indicate that SMEs in Malaysia face significant challenges in accessing financing due to difficulties in obtaining support from financial institutions. As a result, most SMEs rely on internal resources, such as personal savings, or funding from family, friends, and relatives, to finance their activities (Moha, 2002). Research has identified these financial constraints as common challenges faced by SMEs in East Asian countries (Harvie & Lee, 2002).

Additionally, Daniel and Okibo (2014) highlighted that an organization's performance is determined by its competitive strategy. Firms with a greater competitive advantage tend to perform better, while those with lesser advantages struggle. Business performance can be broadly classified into two categories: financial and non-financial performance.

2.6.1 SMEs Financial Performance

Financial performance measures how effectively a company can utilize its primary business model to generate revenue. It is a comprehensive evaluation of a company's overall standing across various categories, including assets, liabilities, equity, expenses, revenue, and overall profitability. Common financial metrics include earnings, profit margin, average order value, and return on assets (Almagtome & Abbas, 2020). Ahmad and Jamil (2020) emphasized that financial performance is determined by an organization's profits, business

sales turnover, and cash flow. Sales growth remains a crucial indicator of a company's financial performance, as the ability to obtain financial services—particularly credit at accessible and reduced costs—can significantly boost sales growth and, consequently, overall performance (Hasan et al., 2021).

Analyzing financial performance metrics can help identify internal investment opportunities, increase productivity, and maintain positive cash flow, which are essential for achieving successful corporate performance and sustainability (Shabbir & Wisdom, 2020). An organization with healthy cash flow is typically characterized by good repayment behavior and the maintenance of a strong business credit profile (Alshehhi et al., 2018). Ahmad (2016) highlighted that good cash flow is critical for boosting profitability, sustainability, and long-term planning, as it explains the movement of cash within the company.

Previous research has provided empirical evidence that companies with strong financial literacy can better identify and adapt to challenges, such as climate change in business and finance (Cherugong, 2015; Kimunduu et al., 2016). For example, a study of a soapstone firm in Kenya found that financial literacy training had a positive impact on the business's financial success (Salome & Memba, 2014).

Financial factors focus on the analysis of a company's financial statements, such as the balance sheet, income statement, and cash flow statement (Li et al., 2024). Yoshino and Hesary (2018) confirmed the importance of financial indicators for SMEs, particularly net income, short-term assets, liquidity, and capital. Rakshit et al. (2023) also emphasized the importance of financial indicators in assessing SMEs in Malaysia, specifically highlighting the profitability ratio, leverage ratio, liquidity ratio, activity ratio, and investment ratio.

Jones et al. (2023) examined the factors impacting SME performance management and found that quantitative factors significantly influence SME creditworthiness compared to qualitative factors. Ilbiz & Durst (2019) identified that leverage ratios, such as the debt-to-equity ratio, long-term debt-to-capital ratio, and net debt-to-EBITDA ratio, significantly impact the creditworthiness of non-financial corporate clients, with the debt-to-equity ratio being the most critical factor.

Vidya and Rajaram (2024) suggested that banks may lack adequate information about SMEs' business prospects, which firms generally consider private. The expectation of improved business conditions increases information asymmetry, making firms with positive prospects more likely to face financing constraints. Cheong et al. (2020) argued that accelerated growth can be difficult to manage and risky for firms, making it challenging for banks to assess the level of risk in firms with high expected growth. Sari et al. (2024) suggested that firms with higher profitability have a better perception of bank financing accessibility because higher cash flow generation decreases the probability of loan default. Andrean et al. (2024) also showed that profitability affects the likelihood of facing financial constraints. Kimunduu et al. (2016) provided evidence that firm performance positively influences access to bank financing. Wong and Soo (2006) demonstrated that financial constraints are higher for firms with low expected financial performance during periods of tight monetary policy compared to periods with loose monetary policy.

2.6.2 SMEs Non-Financial Performance

Non-financial performance refers to any quantitative information about a company that is not reported in monetary units (Ahmad & Jamil, 2020). Rather than relying on quantitative data in monetary terms, businesses must evaluate qualitative data to determine

whether their outcomes align with expectations. Moorthy et al. (2012) found a strong correlation between marketing information, the application of information technology, and the non-financial performance of SMEs. Similarly, Abdullah and Rosli (2015) highlighted that human resource management and market orientation significantly impact a business's non-financial performance. Ahmad and Jamil (2020) noted that non-financial performance is measured by factors such as employee conditions, valued customers, and product development.

Many companies recognize that qualitative information is crucial for enhancing performance. Non-financial performance measures are often considered primary indicators of future success. Common indicators include customer and employee satisfaction, market growth or expansion, and the number of products developed. Evaluating non-financial performance involves assessing factors such as customer loyalty and employee satisfaction, which can have a significant impact on financial performance (Daniel & Okibo, 2014). In the context of credit risk assessment, non-financial factors focus on qualitative characteristics such as management quality and the scope of business operations (Byusa & Nkusi, 2012).

Jote (2018) examined factors influencing banks' decisions to grant loans to SMEs in Congo, identifying six key factors: submission of all required information, capacity to present a mortgage guarantee, having a credit facility, maintaining a business banking account, registration with the commerce chamber, and profitable investments in the past 12 months. Redete (2022) studied credit assessment factors in Islamic banks in Indonesia, finding that the 5Cs of credit—character, capital, condition, collateral, and capacity—

significantly influence credit application approval, with fixed assets as collateral and borrower capacity being the most critical factors.

Orlova (2021) demonstrated a positive relationship between company size and access to capital, explaining that larger companies have greater access to credit due to their solid financial position, the ability to offer fixed assets as collateral, transparency, disclosure of information, and market power.

While extensive research exists on the financial and non-financial performance of SMEs, gaps remain in understanding the specific challenges faced by SMEs in the construction industry, particularly in Sarawak, in accessing financing and improving performance metrics. There is limited empirical evidence on the dynamic interplay between financial and non-financial performance indicators and how external factors such as economic conditions and regulatory environments influence these relationships.

2.6.3 Empirical Studies of Financial Accessibility

One of the most common issues for SMEs in the construction industry is the difficulty in accessing external funds, as fund providers are often reluctant to bear the risk of company failure. However, fund providers who have a better understanding of the conditions and risks associated with SME businesses are more likely to provide funding, thereby increasing access to external financial resources. When debt levels increase, the financial capital structure changes, leading to a higher debt-to-equity ratio (Bhatt et al., 2023). According to Ng et al. (2023), entrepreneurs utilize funds for investment, and when SME investment levels are high, creditors are more inclined to facilitate access to debt for entrepreneurs. Conversely, low investment levels signal a lack of vitality and trust from

external parties, prompting creditors to increase the costs of financial capital to minimize the effects of asymmetric information and underinvestment in SMEs.

Opportunity-based entrepreneurship theory suggests that key components to consider in business activities—including accessing funding sources—are the locus of change, sources of opportunity, and initiators of change (George, 2015). The locus of change can be found in stages such as new product creation, new market discovery, new resource finding or creation, the emergence of new production methods, and organizational changes. The sources of opportunity can vary, including the presence of asymmetric information among market participants, imbalances between supply and demand, and new market shocks. Participants who initiate change play a crucial role in creating entrepreneurial opportunities.

Ven and Khoa (2024) noted that access to financing is closely related to an entrepreneur's ability to obtain and utilize funds to develop their business. The availability of financial resources increases the intention to innovate and invest. Broad financial access enables entrepreneurs to secure funds, seize current opportunities, outperform competitors, and enhance their production and economic welfare (Manukyan & Parsyan, 2024).

While there is considerable research on the importance of financial accessibility for SMEs, there remains a significant gap in understanding the specific challenges faced by SMEs in the construction industry, particularly in Sarawak. Most studies focus on general business environments or other sectors, leaving limited empirical evidence on how financial accessibility influences both financial and non-financial performance metrics in this specific context. Additionally, the role of financial accessibility as a moderating factor in the relationship between creditworthiness components—such as character, capacity, capital, collateral, and credibility—and SME performance has not been thoroughly explored. This

study aims to fill these gaps by providing a detailed analysis of financial accessibility's moderating role in SME performance within the Sarawak construction industry.

2.6 Conceptual Framework

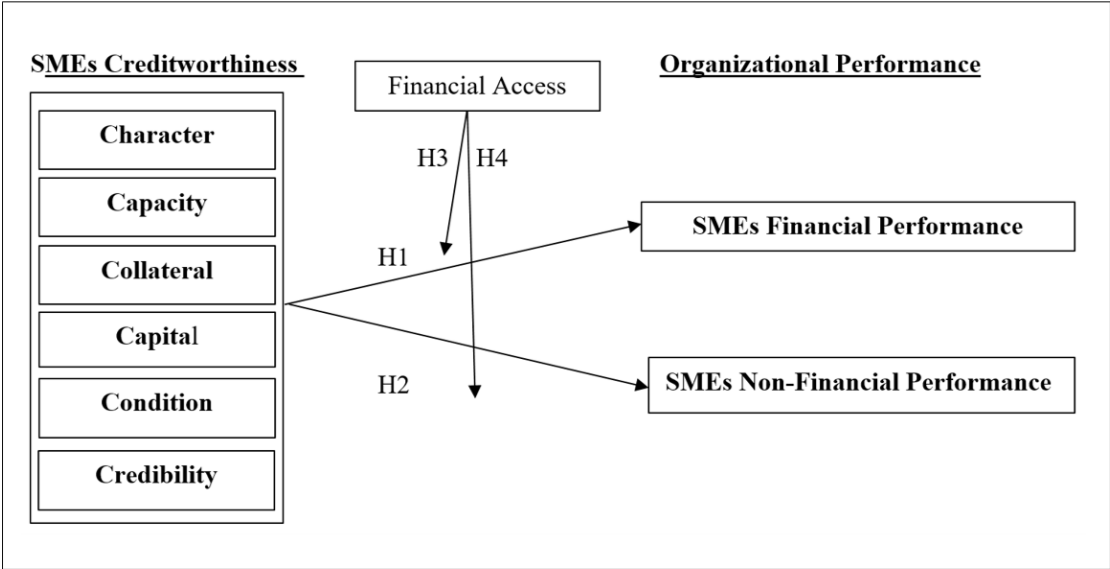


Figure 2.1: Conceptual Framework

Figure 2.1 illustrates the conceptual framework in this study. The conceptual framework for this study is designed to evaluate the relationship between SMEs' creditworthiness and organizational performance, specifically within Sarawak's construction industry. This framework incorporates six dimensions of creditworthiness—character, capacity, collateral, capital, condition, and credibility, and examines their impact on both financial and non-financial performance of SMEs. Financial access is considered a moderating variable that influences these relationships. Credibility is the additional dimension highlights the importance of trust and reliability of the information provided by the borrowers. It is represented in a dashed line to indicate its newly incorporated status in the traditional 5Cs model.

2.7 Hypotheses Development

This study examines the relationship of creditworthiness dimensions (character, capacity, capital, collateral, conditions, and credibility) on the financial and non-financial performance of SMEs in the construction industry. The development of hypotheses is based on empirical evidence from previous studies, which support or contradict the proposed relationships.

According to Frost et al. (2019), the 5Cs credit model demonstrates a positive correlation between creditworthiness and credit risk management. Effective credit assessments provide lenders with insight into a customer's financial vulnerabilities or strengths, enabling them to examine repayment patterns and credit score history (Owusu-Antwi & James, 2010). This suggests that higher creditworthiness is associated with better financial performance, as firms with strong credit profiles are more likely to obtain favorable financing terms and avoid financial distress.

Empirical evidence from various studies supports this hypothesis. For instance, Freel et al., (2012) found that financial performance, measured through metrics such as earnings, profit margin, and return on assets, is significantly influenced by the firm's creditworthiness. Furthermore, Ahmad and Jamil (2020) indicated that firms with better access to credit at lower costs experience improved sales growth and overall financial performance. Therefore, we hypothesize that:

H1: There is a positive relationship between creditworthiness dimensions (character, capacity, capital, collateral, condition, and credibility) and the financial performance of SMEs in the construction industry.

Non-financial performance encompasses various qualitative aspects of business operations, such as market reputation, customer satisfaction, and operational efficiency. Daniel and Okibo (2014) stated that an organization's performance is determined by its competitive strategy, indicating that firms with better competitive advantages, often derived from strong creditworthiness, perform better in non-financial areas.

Moorthy et al. (2012) concluded that marketing information and the application of information technology significantly impact the non-financial performance of SMEs. Additionally, Ahmad and Jamil (2020) emphasized that non-financial performance includes employee conditions, valued customers, and product development, all of which are influenced by the firm's creditworthiness and ability to secure necessary resources. Hence, we propose that:

H2: There is a positive relationship between creditworthiness dimensions (character, capacity, capital, collateral, condition, and credibility) and the non-financial performance of SMEs in the construction industry.

Previous studies have shown that SMEs in Malaysia often face difficulties in accessing financing due to the lack of support from financial institutions. Many SMEs rely on internal resources such as personal savings, family, friends, and relatives (Moha, 2002). Hasan et al. (2021) noted that the ability to obtain financial services, particularly credit at accessible and reduced costs, significantly boosts sales growth and overall performance.

Financial accessibility can enhance the impact of creditworthiness on financial performance by providing the necessary capital for growth and stability. Firms with better financial access can leverage their creditworthiness more effectively, leading to improved financial outcomes. Therefore, we hypothesize that:

H3: There is a moderating effect of financial accessibility on the relationship between creditworthiness dimensions and the financial performance of SMEs in the construction industry.

Financial accessibility also influences non-financial performance by enabling firms to invest in areas such as innovation, employee development, and market expansion. Moorthy et al. (2012) highlighted that marketing information and technology application strongly correlate with non-financial performance. Ahmad and Jamil (2020) noted that non-financial performance metrics, such as customer satisfaction and operational efficiency, are crucial for overall business success.

When firms have better access to financial resources, they can capitalize on their creditworthiness to enhance non-financial aspects of their operations. This can lead to improved market reputation, higher customer satisfaction, and better quality of work. Thus, we propose that:

H4: There is a moderating effect of financial accessibility on the relationship between creditworthiness dimensions and the non-financial performance of SMEs in the construction industry.

The hypotheses developed in this study are grounded in empirical evidence from previous research, which supports the proposed relationships between creditworthiness dimensions and SME performance. By examining the direct and moderating effects of financial accessibility, this study aims to provide a comprehensive understanding of the factors influencing the financial and non-financial performance of SMEs in the construction industry.

2.8 Research Gap

Despite the extensive literature on the relationship between creditworthiness and SME performance, there remains a notable gap in understanding how specific creditworthiness dimensions such as collateral and credibility interact with financial and non-financial performance metrics in the construction industry, particularly within the context of Sarawak. Most studies have focused on general business environments or specific financial institutions without delving into how these dimensions play out in the unique context of the Sarawak construction industry. Moreover, the dynamic interplay between these creditworthiness dimensions and external factors such as financial accessibility has not been thoroughly explored. This study aims to fill these gaps by providing a detailed analysis of the role of creditworthiness in influencing SME performance in Sarawak's construction sector, offering insights that are both context-specific and empirically grounded.

2.9 Summary

This chapter explored the empirical studies and theoretical foundations surrounding the creditworthiness and performance of SMEs, particularly focusing on the construction industry in Sarawak. The chapter commenced with an analysis of the 5Cs of credit—character, capacity, capital, collateral, and conditions—and introduced credibility as an additional dimension, expanding the traditional model to incorporate a broader perspective on borrower trustworthiness and reliability.

The section on character highlighted the importance of borrower traits, both individual and organizational, in influencing loan repayment behaviors and overall creditworthiness. Capacity was examined in terms of a borrower's ability to generate

sufficient cash flows to meet debt obligations, emphasizing its critical role in ensuring financial stability and reducing default risks. Capital was discussed as the financial foundation and commitment of a business, impacting its leverage and ability to secure favorable financing terms. Collateral was analyzed as a secondary source of loan repayment security, crucial for mitigating lender risks and enhancing credit accessibility. The conditions component addressed the economic, social, and political factors that influence the broader business environment and borrower performance.

The addition of credibility to the 5Cs model underscored the importance of assessing trustworthiness beyond financial metrics, incorporating both behavioral and financial aspects to provide a comprehensive evaluation of borrower risk. Furthermore, the chapter delved into the empirical studies of SME performance, distinguishing between financial and non-financial performance metrics. Financial performance was measured through profitability, sales growth, and cash flow indicators, while non-financial performance was evaluated through qualitative factors such as customer satisfaction, employee conditions, and product development.

A significant part of the discussion focused on financial accessibility, identifying the challenges SMEs face in obtaining external funding and the impact of financial constraints on their performance. The role of financial accessibility as a moderating factor in the relationship between creditworthiness and SME performance was highlighted, proposing hypotheses to test this moderating relationship. Despite the extensive research, gaps remain in understanding the specific dynamics within the construction industry in Sarawak. This chapter lays the foundation for addressing these gaps by proposing a detailed analysis of the

role of creditworthiness components and financial accessibility in influencing SME performance.

Overall, Chapter 2 establishes a comprehensive framework for assessing the creditworthiness and performance of SMEs, setting the stage for empirical investigation in subsequent chapters. The synthesis of existing literature and identification of research gaps provide a clear direction for the study, aiming to contribute valuable insights into the financial management and growth strategies of SMEs in the construction industry.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology employed in the study, including the research design, conceptual framework, hypotheses development, questionnaire description, quantitative sampling strategy, pre-test process, data collection methods, and proposed data analysis techniques. The primary aim of this study is to evaluate the relationship between creditworthiness and SME performance in Sarawak's construction industry. A comprehensive review of existing literature, including journal papers, articles, and relevant websites, was conducted to gain insights on this topic. Through this process, the researcher identified the objectives, scope, and goals of the study. The core focus of this study is to determine SMEs' financial and non-financial performance based on six dimensions of creditworthiness: character, capacity, capital, collateral, condition, and credibility.

3.2 Research Paradigm

The research paradigm provides the philosophical framework that underpins the study, guiding the choice of methods and interpretation of results. This study adopts a positivist paradigm, characterized by the belief that reality is objective and can be measured through observable phenomena (Ogeisia et al., 2013). Positivism emphasizes the use of quantitative methods to test hypotheses and derive conclusions based on empirical evidence (Creswell, 2013).

Under this paradigm, the study aims to objectively evaluate the relationship between creditworthiness and SME performance by collecting and analyzing quantitative data. The positivist approach aligns with the study's goal of identifying measurable factors that influence

SME performance and testing the proposed hypotheses through statistical methods. This paradigm ensures that the findings are grounded in rigorous empirical analysis, providing a reliable foundation for understanding the dynamics of creditworthiness and performance in the construction industry.

The adoption of the positivist paradigm also involves using structured instruments, such as questionnaires, to collect data from a representative sample of SMEs. The data is then analyzed using statistical techniques to determine the strength and nature of the relationships between variables. This approach allows for the generalization of findings to a broader population, enhancing the study's validity and reliability (Fornell & Larcker, 1981).

By following a positivist paradigm, this research seeks to contribute to the body of knowledge with clear, quantifiable insights into the factors that affect SME performance in the construction industry, providing valuable implications for practitioners and policymakers.

3.3 Research Design

A research design is a strategic plan that outlines the steps researchers will take to achieve their goals and evaluate the hypotheses they have developed (Kumar et al., 2013). It also provides a framework that guides the analysis and attainment of research objectives. In this study, an explanatory research approach is employed, which involves investigating existing aspects and available information, as well as measuring the dimensions of creditworthiness—such as character, capacity, capital, collateral, condition, and credibility—to define SMEs' financial and non-financial performance.

This approach includes conducting an in-depth examination of specific issues from various angles that align with the construction industry and its structural considerations. Once the relevant attributes have been identified, it is crucial to create an effective sampling plan before conducting any further studies. After establishing the study's objectives, the target

population and sample are determined. The survey utilized an online questionnaire to collect data from respondents. A pretest study was also conducted to ensure that the questions were reliable and understandable, minimizing the risk of unintended errors during data collection.

Survey-based primary data was collected in this chapter to gather essential information, which was then analyzed to reveal both positive and negative findings. The procedures covered in this chapter include research design, survey instrument development, questionnaire creation, sample selection process, data collection process, data analysis techniques, statistical analysis techniques, and measurement processes.

Lastly, data analysis involves compiling and interpreting the collected information to present the results clearly and comprehensibly. Quantitative analysis is employed for data assigned with numerical values, facilitating the generation of descriptive statistics, correlations, and various statistical tests. The quantitative data analysis includes reliability and validity testing to draw conclusions and make recommendations for future improvements.

3.4 Measurement

Formulating an appropriate research question is one of the cornerstones of research. A good question should be specific yet debatable, clearly revealing the study's area of focus (Ashcroft, 2022). In this study, an empirical survey was developed in Sarawak to gather information regarding components of creditworthiness—such as character, capacity, capital, collateral, condition, and credibility—that are essential for determining SMEs' financial and non-financial performance. The questions were developed in English and include both closed-ended and causal questions. Closed-ended questions use a predetermined scale, allowing respondents to select one option at a time, which is an effective way to gather quantitative data.

Causal questions play a prominent role in the questionnaire as they aim to assess causal relationships among variables.

The questionnaire design involved both the adoption and modification of existing instruments developed by Xie et al. (2019), Ng et al. (2023), and Bhatt et al. (2023). The questionnaire contains a total of 43 closed-ended questions, divided into three sections: Section A, Section B, and Section C.

- **Section A** focuses on demographic information.
- **Section B** addresses the dimensions of creditworthiness, including character, capacity, collateral, capital, condition, and credibility, to evaluate the company's creditworthiness in financial dealings.
- **Section C** examines SMEs' performance in terms of both financial and non-financial metrics. This section also includes questions related to the moderator variable—financing access.

Table 3.1 presents the Development of the Research Questionnaire, detailing the measurement items, constructs used to operationalize the research hypotheses, and sources of reference.

Table 3.1: Development of Research Questionnaire

Section	Construct	Survey Questions	Descriptive	Citation
A	Demographic Information	A1. Year of Business Commencement	Focuses on the respondent's	Bhatt et al., (2023)
		A2. Ownership Structure	demographic	Ngu et al., (2023)
		A3. Customer Base	information	
		A4. Annual Turnover of the company		

B	Character	CH1. Our company has high credit discipline.	Evaluates the company's	Bhatt et al., (2023)
		CH2. Our company has a good repayment reputation.	creditworthiness in financial	Ngu et al., (2023)
		CH3. Our company has a strong ability to pay the debts.	dealings	George (2015)
		CH 4. Our company always pays the loan installment before the due date.		Ven and Khoa(2024)
				Manukyan and Parsya (2024)
	Capacity	CA1. Our company can easily obtained the raw materials.	Evaluates the company's creditworthiness	Bhatt et al., (2023)
		CA2. Our company has an experience management team.	s in financial dealings	Ngu et al., (2023)
		CA3. Our company allocates funds from financing to support operations.		George (2015)
		CA4. Our company manage risks and adapts to changing circumstances.		Ven and Khoa(2024)
				Manukyan and Parsya (2024)
	Collateral	CO1. Our company has valuable assets.	Evaluates the company's	Bhatt et al., (2023)

	CO2. Our company's fixed assets are free from encumbrance.	creditworthiness in financial dealings	Ngu et al., (2023) George (2015)
	CO3. Our company has a high forced sale value of collateral in secure loans.		Ven and Khoa(2024)
	CO4. Our company has marketability and quality of collateral in secure loans.		Manukyan and Parsya (2024)
Capital	CP1. Our company has realistic cash flow.	Evaluates the company's	Bhatt et al., (2023)
	CP2. Our company has available cash in bank.	creditworthiness in financial	Ngu et al., (2023)
	CP3. Our company's annual revenue or turnover is on an increasing trend.	dealings	George (2015) Ven and Khoa(2024)
	CP4. Our company has a strong credit score from credit referencing bureaus.		Manukyan and Parsya (2024)
Conditions	CN1. Our company complies with regulatory requirements.	Evaluates the company's creditworthiness	Bhatt et al., (2023) Ngu et al., (2023)
	CN2. Our company is not affected by the specific industry trends.	s in financial dealings	George (2015)

CN3. Our company is not affected by the changes in overall economic climate. (e.g., economic downturns, inflation rates)	Ven and Khoa(2024)
CN4. Our company does not encounter with project-specific risks or challenges. (e.g., weather-related delays, unexpected site conditions)	Manukyan and Parsya (2024)

Credibility	CR1. Our company is adaptable to changing market conditions.	Evaluates the company's creditworthines	Bhatt et al., (2023)
	CR2. Our company practices transparency and adheres to quality standards.	s in financial dealings	Caplinska & Tvaronaviciene (2020)
	CR3. Our company has notable achievements, awards, or recognitions.		
	CR4. Our company's key personnel (such as executives, managers, and technical experts) are		

qualified and experienced in
their respective fields.

C	Financial	FP1. Organizational	To measure the	Bhatt et al., (2023)
	Performance	performance measured by	construction	George (2015)
		return on sales.	company's	
		FP2. Organisational	financial	
		performance measured by	performance	
		operating cash flow.		(Abdullah & Rosli, 2015)
		FP3. Organisational		
		performance measured by		
		return on assets (ROA).		
		FP4. Organisational		
		performance measured by		
		return on equity (ROE).		
		FP5. Organisational		
		performance measured by		
		return of investment (ROI).		
	Non-	NFP1. Organisational	To measure the	Bhatt et al., (2023)
	Financial	performance measured by	construction	George (2015)
	Performance	company's reputation.	company's non-	
			financial	
			performance	
				(Abdullah & Rosli, 2015)

NFP2. Organisational
performance measured by
customer’s satisfaction.

NFP3. Organisational
performance measured by
market share in the industry.

NFP4. Organisational
performance measured by
the quality of work
delivered.

NFP5. Organisational
performance measured by
work delivered within the
project timeframe. (e.g. no
delays in the project
executed)

Financing	FA1. Our company has	To evaluate the	Bhatt et al., (2023)
Access	received loans in the past 5	financial	
	years.	accessibility	George (2015)
		affected on the	
		company’s	(Ven & Khoa, 2024)
		performance	

FA2. Our company receives loans easily from financial institutions.

FA3. Our company receives loans from more than one financial institution.

FA4. Our company can readily secure financing from banks with which it has a longer relationship with our company.

FA5. Our company is aware of alternative financing options such as venture capital and crowdfunding.

3.5 Population and Sampling

3.5.1 Target Population

In conducting research, it is important to understand the population to limit its scope, scientifically select samples, access data for collection, and draw research conclusions. The study population includes all individuals or items relevant to the study (Mwita, 2022). In this study, the researcher focused on the principal activities involved in the construction industry and accessing funding from any financial institutions within the past five years. The population

of this study included all construction companies that have been in business for more than two years and are registered in Sarawak.

Table 3.2: Total Construction Companies in Sarawak

Location	No	Location	No
Kuching	3,012	Sibu	657
Sarikei	49	Serian	27
Limbang	25	Lawas	15
Bintagor	12	Kanowit	5
Baram	4	Betong	3
Lutong	3	Bekenu	2
Siburan	2	Tatau	2
Belawai	1	Engkelili	1
Miri	788	Bintulu	523
Kota Samarahan	42	Kapit	26
Sri Aman	25	Mukah	14
Bau	11	Saratok	5
Lundu	4	Daro	3
Niah	3	Roban	2
Simujan	2	Belaga	1
Debak	1	Julau	1

Source: Bradsheet (2024)

Based on the statistic in Table 3.2, its shows that there are total 5,271 of construction companies in the whole Sarawak. However, from the statistics it shows that most of the companies registered in Kuching which consists of total 3,012 of construction companies.

Besides that, 788 of construction companies from Miri, 657 of construction companies from Sibu and 523 of construction companies from Bintulu.

This population was chosen because construction companies are the most challenging sector in obtaining financing from financial institutions (Khan et al., 2020). Establishing the target population clearly based on the purpose and practicalities of the research project was essential, ensuring that they represent the total population to avoid sampling bias. Sampling bias occurs when a sample does not accurately represent its population, leading to inaccurate results. The target population is a subset of the entire population, and it is crucial that any selected sample represents it accurately.

The practice of selecting subsets of items from a larger population for study or analysis is referred to as sampling. Sampling is vitally important to fields like statistics and data analysis, as it allows researchers to draw inferences about an entire population without needing to analyse everything within it. When choosing an appropriate sampling method, its reliability can play an integral part in reaching valid conclusions from the data.

To be eligible for this study, respondent must meet four criteria:

1. Business establishment for more than 2 years
2. Construction companies registered in Sarawak
3. Accessing funding from any financial institutions within the past 5 years.
4. The nature of business or principal activities of the organization involved in :
General contractor, Property development, Demolition and site preparation, Others
specialized construction activities and Construction of other civil engineering
projects

3.5.2 Sampling Method

This study used non-probability sampling techniques, specifically purposive or judgmental sampling, to select the respondents. Purposive or judgmental sampling refers to a non-probability sampling technique where the researcher selects participants based on their judgment or purposeful criteria rather than using random selection (Agha, 2019). In purposive or judgmental sampling, the researcher intentionally chose participants who possessed specific characteristics, knowledge, or experiences relevant to the research objectives. This approach is commonly used when the goal is to gain in-depth insights from individuals who are particularly knowledgeable or experienced in the area of study. Whether using the term "purposive" or "judgmental," the key idea is that the selection of participants is not random but based on the researcher's judgment and the specific goals of the study.

Each selected company provided only one respondent, preferably someone knowledgeable about the company's financial and operational performance, such as a financial manager or owner. This approach prevented the overrepresentation of any single company's perspective and captured a wide range of experiences and practices within the industry.

Additionally, the GPower program was used to perform the power analysis. GPower is a statistical power analysis software that helps researchers determine the appropriate sample size for their studies and assess the statistical power of their analyses. It is widely used in the fields of psychology, social sciences, and other disciplines to optimize experimental design. GPower is a valuable tool to enhance the robustness of studies by ensuring an adequate sample size to detect meaningful effects. While GPower provides useful estimates, researchers should also consider the context of their specific study and consult with statisticians for comprehensive guidance. G*Power allows researchers to calculate the required sample size based on various parameters such as effect size, significance level, and desired power. It supports a wide range of statistical tests, including t-tests, ANOVA, regression analysis, and chi-square tests.

In addition to the power analysis, Post Hoc Analysis was implemented to enable the researcher to evaluate the achieved power after collecting data. There are total 5,271 of the construction companies in Sarawak. The G*Power analysis indicated a required sample size of 85 for this study. However, 150 questionnaires were distributed to account for a potential low response rate and ensure that the final sample size was adequate to meet the required 85 completed responses. This approach ensured that the study had sufficient power and reliable data for analysis.

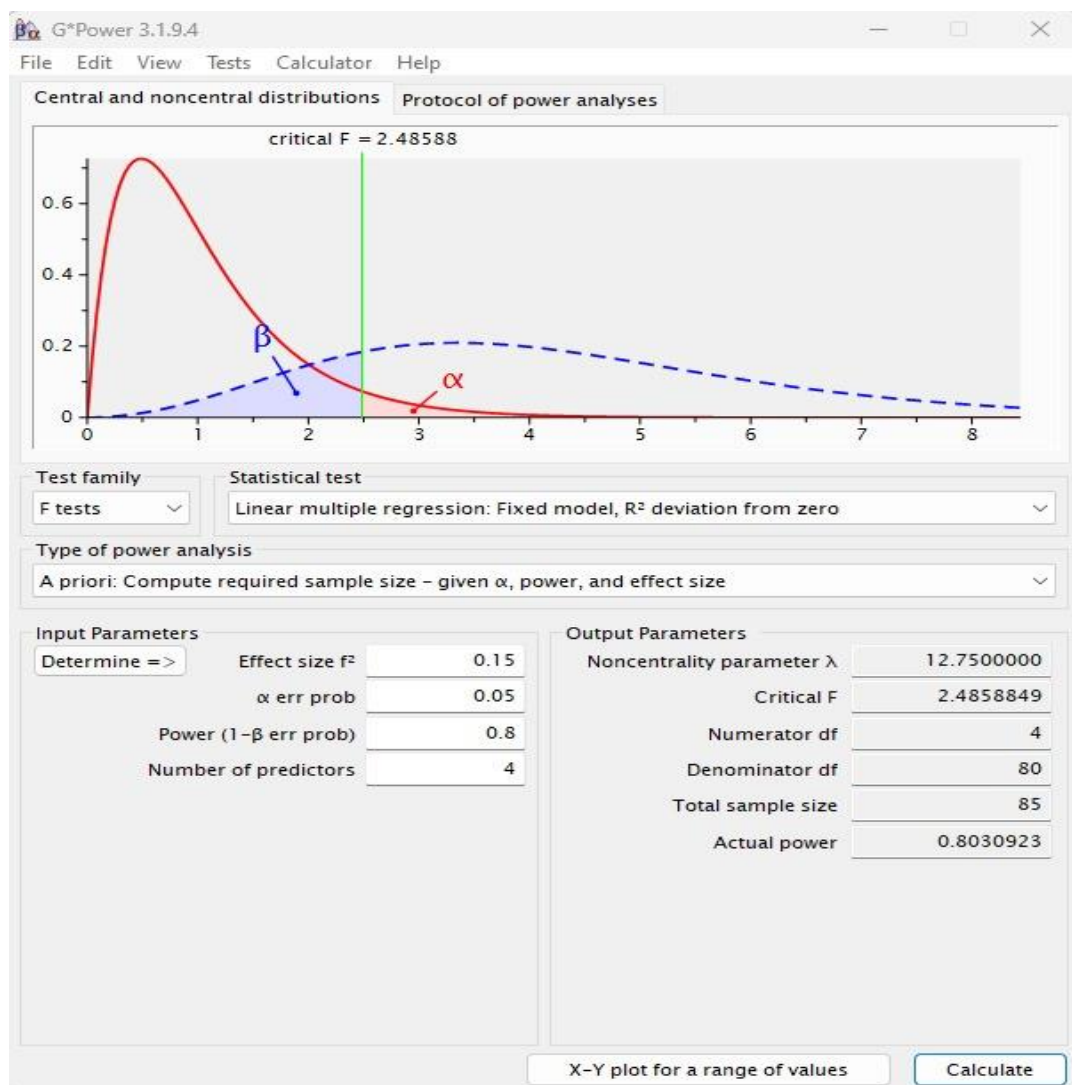


Figure 3.5: G*Power Analysis

In this study, the researcher employed a sampling design as a framework for selecting items and estimating sample size. Sampling designs provide a strategic method for selecting a representative sample from an entire population. When conducting research with a sampling design, the researcher takes four key steps into account: identifying the target population, determining the sampling elements, selecting the sampling technique, and estimating the sample size of the participants. A well-structured sampling design offers various means of reducing the time required for the study while maintaining accuracy in the results.

3.6 Data Collection Procedure

The data collection procedure refers to the systematic method used to gather data for research in this study. Quantitative methods were utilized via questionnaire surveys to collect data from all SMEs in the construction industry registered in Sarawak. The data were gathered using a list of SMEs in the construction industry in Sarawak provided by SME Corporation Malaysia Negeri Sarawak. The questionnaire was distributed to construction companies that met the eligibility criteria. The process involved several steps to ensure the accuracy and reliability of the data collected.

3.6.1 Primary Data

In this research, primary data were gathered through questionnaire surveys, a popular method for collecting primary information by asking standard questions to organizations enrolled as samples. The primary data were collected through survey-structured questionnaires, which had been pre-tested to ensure their validity and reliability. A Google Form online questionnaire was distributed via email to all respondents. Primary data is collected for the first time by the researcher from main sources specifically for research purposes and has not been

previously analyzed (Konig & Drebler, 2021). Primary data collection methods typically include surveys, interviews, observations, and experiments (Mwita, 2022). These methods allowed the researcher to tailor data collection to address specific research questions and obtain fresh insights not available through pre-existing sources. The benefits of using primary data included the ability to gather information directly relevant to the research, ensuring accuracy and reliability (Kabir, 2016). According to Sony et al. (2020), primary data are highly accurate as they are collected directly from the targeted respondents, minimizing potential errors and inaccuracies. Researchers also have control over data collection methods and can customize the research design to provide up-to-date information for accurate analysis.

The data collection steps began with the preparation and design of a comprehensive questionnaire based on the research objectives, which was pre-tested to ensure clarity, validity, and reliability. The questionnaire was designed using Google Forms for ease of distribution and data collection. A list of eligible SMEs was obtained from SME Corporation Malaysia Negeri Sarawak. The questionnaire was sent via email to the selected construction companies, including a cover letter explaining the study's purpose and assuring respondents of confidentiality. Respondents were allowed one month to complete the survey. The response rate was regularly monitored to ensure the minimum sample size was reached. If response rates were below expectations, reminders were sent via email or telephone to encourage participation. Once the data collection period ended, all responses were ensured to be complete, and the data were downloaded from Google Forms. The data were verified and cleaned to prepare for analysis. Appropriate statistical methods and software were used to analyze the collected data. The results were interpreted in line with the research objectives and hypotheses.

The structured approach to data collection ensured that the study gathered accurate and reliable data, directly relevant to the research questions. This method provided up-to-date

insights and allowed the researcher to maintain control over the entire data collection process, ensuring high-quality data for subsequent analysis.

3.6.2 Pre-Test

The pre-test in this study was conducted before the actual data collection to identify and correct potential problems prior to the main survey administration. A pre-test is a preliminary assessment or trial designed to ensure that questions work as intended and can be understood by the target respondents (Hilton, 2015). This process helps detect issues such as measurement errors, respondent burden, and the influence of question order on response patterns. Pre-tests are typically conducted on small samples representing the target population to expose any issues with tools or procedures, allowing for necessary adjustments before full-scale data collection begins (Creswell, 2022).

For this study, the pre-test involved distributing the questionnaire to a small sample of entrepreneurs from construction companies in Sarawak. The purpose was to ensure that respondents understood all questions and scales within the questionnaire and to identify any possible confusion. Feedback from these testers was collected to refine the instrument. The results of the pre-test aimed to identify and resolve potential problems, ensuring the survey instrument was clear, concise, and easy to understand, thus leading to higher response rates and improved data quality.

Prior to the main survey, a pre-test was conducted to evaluate the reliability and validity of the questionnaire designed to assess Creditworthiness, Company Performance, and Financing Access. The pre-test aimed to refine the survey items, ensuring they comprehensively captured the intended constructs. The sample consisted of 50 respondents, drawn from a cross-section of companies in the construction sector in Sarawak.

The reliability of the questionnaire was examined using Cronbach's alpha, with the analysis yielding an alpha coefficient of .909 for the 39 items. This high value indicates excellent internal consistency, suggesting that the items measure a cohesive underlying construct. Descriptive statistics were generated for each item, revealing mean scores predominantly ranging around 3 to 4 on a 1-5 scale, with skewness and kurtosis within acceptable ranges for most items.

An exploratory factor analysis was also conducted, despite the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) being .409, which is below the commonly recommended threshold of .6. However, given that this was a pre-test and the small sample size, this value was deemed to be an artifact of the preliminary testing phase. The Bartlett's Test of Sphericity was significant ($p < .001$), supporting the factorability of the correlation matrix.

The pre-test was instrumental in validating the questionnaire's structure and content. The high internal consistency, supported by the reliability analysis, suggested that the survey items collectively provided a reliable measure of the targeted constructs. The exploratory factor analysis, despite the lower KMO value, did not invalidate the factor structure observed but rather highlighted the need for a larger-scale study to confirm these findings definitively. This thorough development process demonstrated the questionnaire's capacity to serve as a reliable and valid measure, laying a solid foundation for the larger-scale research.

In summary, the pre-test involved 50 respondents from construction companies in Sarawak, and their feedback was crucial for refining the questionnaire. The high Cronbach's alpha value indicated excellent reliability, and although the KMO value was low, the significant Bartlett's Test of Sphericity supported the factorability of the correlation matrix. These steps ensured that the questionnaire was well-structured and valid for the larger-scale study.

3.7 Data Analysis Methods

The data collected were analysed using the Statistical Package for the Social Sciences (SPSS 29.0) and SmartPLS 3.0 software. SPSS was utilized to analyse the data, with further details described below. SPSS was applied to examine the demographic information of respondents and produce descriptive analyses for the variables. SmartPLS was used to examine the measurement models and structural models.

3.7.1 Descriptive Statistics

This study employs a quantitative descriptive method. Descriptive techniques serve to describe the condition of variables studied while quantitative measures measure their influence; primary data was utilized during this research project. The researcher employed a descriptive research design. Descriptive studies focus on determining how often something occurs or their relationships, making this method ideal as the researcher sought to gather detailed information through descriptions that allowed him to identify variables and hypothetical constructs. Data analysis was done using descriptive statistics such as the mean, standard deviations, percentages, and tabulations. Inferential statistics were also computed using Pearson's Moment Correlation Coefficient.

The data collected was then coded to enable analysis. Data analysis was done using descriptive statistics such as the mean, standard deviations, percentages, and tabulations. Inferential statistics were then computed with the help of the SPSS package to arrive at conclusions based on the survey data collected. To examine the extent to which the C's of good and bad credit influence credit worthiness of SMEs for bank loans, Pearson's moment correlation co-efficient was used as it gives information about the degree of correlation as well as the direction of the correlation.

This research employs a Likert Scale as the measurement method of each variable in this investigation, measuring attitudes by asking respondents to express either approval or disapproval of certain subjects, objects, or events. The Likert scale typically uses five assessment categories - (1) strongly disagree, (2) disagree, (3) doubtful, (4) agree and (5) strongly agree - for assessment. It was subjected to validity and reliability tests as well as multiple regression analysis to ascertain its influence between variables.

3.7.2 PLS-SEM

This study explores relationships among variables through hypothesis testing using structural modelling (Structural Equation Model-SEM) combined with Partial Least Square (PLS). SEM allows researchers to answer formulation of problems and test hypotheses while PLS takes advantage of measuring models involving formative and reflective assessment tools within small populations (Magno, et al. 2022).

PLS-SEM's procedures involve four distinct phases. First is Measurement Model Specification - this stage needs to take place prior to making an estimate or providing estimates. Formulate Model Based on Theory and Results of Previous Research; Estimation PLS Structural Equations through Ordinary Least Square Regression Analysis with Latent Variable Score Loads as Input Source. Also provide Evaluation Model. SEM-PLS does not currently support an individual Goodness of Fit criterion. SEM-PLS statistics address discrepancies between manifest variables (observed variables), or approximate values in case of latent variables estimated by their equation model and observed or approximate values observed variables of dependent variables, respectively (Hair & Alamer 2022), and what values the equation estimates as estimates (Hair & Alamer 2022). Evaluation Model Results | SEM-PLS Measurement and Structure are evaluated through nonparametric criteria and bootstrapping

techniques in SEM-PLS; evaluation includes two steps - measurement model evaluations followed by structural models' evaluations.

Evaluation of measurement models involves assessing their reliability and validity when measuring construct measures, with different approaches using reflection or formative approaches requiring consideration of different evaluation measures (Kang & Shao 2023). Reflective models typically include Convergent Validity, Internal Consistency Reliability and Discriminant Validity measures while formatively measured constructs differ significantly due to different measures being utilized; reflective measuring also takes into account different concepts when developing evaluation metrics such as Convergent Validity or Internal Consistency Reliability or Discriminant Validity metrics which differ considerably when measuring reflectively measured construct measures (Kang & Shao 2023).

3.7.3 Measurement Model

In structural equation modelling (SEM), measurement models may either be reflective or formative in nature. In reflective measurement models, indicators are affected by latent variables, meaning changes to the constructs being studied cause changes to the indicators.

However, in formative measurement models, the indicators work the other way around; an alteration to the indicators leads to changes in the construct being studied. Formative measurement models are statistical models employed in SEM to represent relationships between observed indicators and latent constructs (Hair et al., 2020). This approach works well when indicators contribute directly to defining or shaping the construct rather than simply reflecting it.

Formative measurement models require careful attention when applied in social sciences or other disciplines with complex causal structures, making them a key tool in comprehending complex causality structures. The measurement models function as the

structure and connection between latent variables and observed indicators. A measurement model assists with the analysis of information derived from empirical data sources, helping researchers draw conclusions about latent structures by analyzing the results (Diamantopoulos et al., 2008).

Additionally, measurement models play a crucial role in the development and testing of assessments, ensuring that the outcomes are accurate and precisely reflect the desired concepts. In general, the purpose of a measurement model is to enhance the accuracy and reliability of empirical research by providing a theoretical and statistical framework for understanding the relationships between latent and observed variables.

Measurement models provide a precise and concise depiction of the connections between latent variables and their observable indicators. They help researchers conceptualize and comprehend complex concepts in a systematic manner (Kashyap & Kesharwani, 2022).

3.7.4 Structural Model

In PLS-SEM, the structural model functions as an essential tool for research that is quantitative, offering an exhaustive framework to study and comprehend the complicated connections between variables within the system. Its main function is understanding the causal structure and interdependencies among various components of the system. Through the incorporation of the mathematical model of hypothesised connections the structural model allows researchers to quantify and assess the effect of one factor on the other, providing insights into the underlying processes of the phenomena being studied. Beyond causal inference the structural model can be used to support predictive modelling, helping in predicting outcomes based on certain connections (Lohmoller, 1989). Furthermore, it aids in the evaluation and improvement of theoretical frameworks, offering a methodological approach to assessment of models. In the end it is a vital instrument for those who want to uncover the intricate nature of

interconnected variables, resulting in an understanding of complex systems, and guiding the use of evidence-based decisions (Sarstedt & Ringle, 2019).

Furthermore, the structural model defines as a framework that is used in a variety of research and scientific disciplines to analyse and describe the relationship between variables. Structural models concentrate on the connections between various observed variables. The principal function of structural models is to help understand the causal or correlated structure of variables, assisting researchers better understand the interplay of variables and dynamics of the system.

3.8 Summary

This chapter detailed the research methodology employed in this study, focusing on the systematic approach to gathering and analysing data. It outlined the target population and sample size, emphasizing the criteria for selecting construction companies in Sarawak. Data collection conducted using online surveys via Google Forms, ensuring accessibility and ease for respondents. The chapter also described the pre-test procedure, which involved refining the questionnaire based on feedback from a small sample of entrepreneurs to ensure clarity and reliability.

The main data collection will follow, with measures in place to monitor response rates and encourage participation. For data analysis, SPSS used to examine demographic information and produce descriptive statistics for the variables. SmartPLS utilized to evaluate the measurement and structural models, ensuring a comprehensive analysis of the relationships between variables. This methodological framework provides a robust foundation for the study, ensuring the collection of accurate and reliable data. The results, which presented and interpreted in the next chapter, will offer insights into the relationship between creditworthiness and SME performance in Sarawak's construction industry.

CHAPTER 4

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the results and discussions of the statistical analyses conducted on the data collected for this study. Following a meticulous process of data cleaning and preparation, the chapter delves into a descriptive analysis, providing a foundational understanding of the data characteristics and the initial patterns that emerge. Subsequently, an exploratory factor analysis (EFA) is performed to unveil the underlying structure of the constructs and to validate the dimensionality of the questionnaire.

Section 4.3 outlines the EFA process, including the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity, which assess the data's suitability for factor analysis. This section proceeds to discuss the extracted communalities and factor loadings, shedding light on the amount of variance each item shares with the factors identified.

A critical part of establishing the robustness of the constructs is presented in Section 4.4, where the measurement model is assessed. This includes a detailed reliability analysis, verification of convergent validity, and examination of discriminant validity, ensuring the measures are both reliable and valid.

Moving forward to Section 4.5, the focus shifts to the structural model assessment. It begins with evaluating the model fit and its explanatory power to establish how well the model represents the data. In-depth discussions on the path coefficients and hypothesis testing reveal the nature and strength of the relationships between constructs. Furthermore, the moderating effects of financial access on these relationships are explored, which could offer insightful

implications for the theoretical framework and practical applications in the construction industry.

4.2 Preliminary Data Analysis

A total number of 150 questionnaires were distributed to SMEs in the construction sector in Sarawak. The total of 102 questionnaires were returned with a response rate of 68%. The initial phase of data analysis was designed with a meticulous approach to filtering, ensuring the relevance and applicability of the survey responses gathered. The process commenced with a rigorous screening based on three pivotal preliminary questions—designated as P1, P2, and P3. These questions were formulated to ascertain the eligibility of the participants with precision, by inquiring into key aspects of their operations and structural status.

- **P1: Is your company registered in Sarawak?** This question aimed to confirm the geographical relevance of the participants to the study, as the focus is on SMEs located within Sarawak.
- **P2: Is your company involved in the construction sector?** This question was essential to ensure that the responses were directly applicable to the construction industry, aligning with the sector-specific focus of the research.
- **P3: Has your company accessed funding from any financial institutions in the past five years?** The inclusion of this question helped to assess the financial engagement of the companies, which is pertinent to understanding their investment capabilities and economic activities within the construction sector.

Responses indicating a "No" to any of these questions triggered the exclusion of the participant from further analysis, adhering strictly to the study's inclusion criteria. This filtration process was not merely procedural but was foundational in maintaining the research's integrity. It facilitated a focused examination on a cohort that was not only registered within

Sarawak but also actively engaged in the construction sector and had a history of accessing financial support from institutions within the past five years. Establishing this uniform baseline was crucial for drawing insights that were both meaningful and contextually aligned with the study's objectives.

4.3 Demographic Profile

Delving deeper, the analysis transitioned towards understanding the demographic landscape of the participating companies. This step was vital in laying the groundwork for a nuanced comprehension of the contextual background from which the data was sourced. A notable diversity was observed in the tenure of business operations among the respondents, with a significant portion (43.8%) indicating a business lifespan of 11-15 years. This highlights a depth of industry experience prevalent within the sample, suggesting that these entities have navigated multiple economic cycles and industry shifts.

Table 4.1: Demographic Profile – Year of Business Commencement

Year of Business Commencement		Frequency	Percent (%)
Valid	Less than 5 years	12	11.8
	6-10 years	28	27.5
	11-15 years	42	41.2
	More than 15 years	20	19.6
	Total	102	100.0

In terms of organizational structure, a predominant preference for the private limited company format ('Sdn Bhd') was evident, with 88.5% of respondents identifying with this

classification. This mirrors a broader regional trend, underscoring the flexibility and financial benefits typically associated with this type of corporate entity.

Table 4.2: Demographic Profile – Ownership Structure

	Ownership Structure	Frequency	Percent (%)
Valid	Sole proprietorship	7	6.9
	Partnership	5	4.9
	Sdn Bhd	90	88.2
	Total	102	100.0

Furthermore, the survey illuminated a skew towards smaller enterprises, with 68.8% falling within the small business category (5 to 30 employees), highlighting the critical role these entities play within the sector.

Table 4.3: Demographic Profile – Company Size

	Company Size	Frequency	Percent
Valid	Micro (less than 5 employees)	17	16.7
	Small (5 - 30 employees)	68	66.7
	Medium (30 - 75 employees)	17	16.7
	Total	102	100.0

The diversity extends to the customer base demographics, with a significant majority (76%) of companies engaging in both private and government construction projects. This versatility in project management reflects a broad operational scope and the ability to navigate varied regulatory and contractual landscapes.

Table 4.4: Demographic Profile – Customer Base

	Customer Base	Frequency	Percent (%)
Valid	Private construction project only	17	16.7
	Government construction project only	10	9.8
	Private & government construction project	75	73.5
	Total	102	100.0

Financially, the data revealed a concentration of firms within the mid-range turnover bracket, with 40.6% reporting annual turnovers between RM1,000,000.00 and RM5,000,000.00. This financial profile suggests a balanced level of economic activity, with potential implications for creditworthiness and access to further financing. The diversity observed in tenure, ownership structure, size, customer base, and financial turnover provides a multifaceted understanding of the sample, essential for the subsequent exploration of creditworthiness, performance, and financing access within the construction industry in Sarawak.

Table 4.5: Demographic Profile – Annual Turnover

	Annual Turnover of the company	Frequency	Percent (%)
Valid	Less than RM500,000.00	19	18.6
	RM500,000.00 - RM1,000,000.00	21	20.6
	RM1,000,000.00 - RM5,000,000.00	41	40.2
	More than RM5,000,000.00	21	20.6
	Total	102	100.0

Table 4.6: Summary of Demographic Characteristics of the Respondents

		Year of Business Commence ment	Ownership Structure	Company Size	Customer Base	Annual Turnover of the company
N	Valid	96	96	96	96	96
	Missing	0	0	0	0	0
	Mean	2.72	2.81	2.04	2.60	2.68
	Std. Deviation	.879	.549	.560	.747	1.000
	Minimum	1	1	1	1	1
	Maximum	4	3	3	3	4

4.4 Descriptive Analysis

The descriptive statistics for the study variables are presented in Table 4.7. A sample of 102 respondents was analysed across various metrics, including Character, Capacity, Collateral, Capital, Condition, Credibility, Financial Performance, Non-Financial Performance, and Financial Access.

Character was measured on a scale from 5 to 20, with the average score being 16.12 (SD = 3.21), indicating a relatively high perceived character among the respondents. **Capacity** showed a range from 6 to 20, with a mean of 15.67 (SD = 3.04), suggesting that the capacity of the individuals was rated above the midpoint of the scale.

Collateral values ranged from 4 to 20, with an average score of 14.67 (SD = 3.98). This wide dispersion implies a varying degree of collateral that the respondents could offer.

Capital scores also ranged from 6 to 20, with a mean of 15.20 (SD = 2.56), pointing towards a moderate level of capital among the sample.

Condition had scores between 7 and 20, with a mean score of 14.20 (SD = 3.37), which suggests that the conditions under which the respondents operate vary moderately. **Credibility** had a mean score of 15.40 (SD = 2.85) on a scale of 6 to 20, reflecting a positive assessment of respondents' credibility.

In terms of performance, **Financial Performance** varied from 8 to 25, with an average score of 17.90 (SD = 3.44), indicating a high level of financial performance among the respondents. **Non-Financial Performance** scores ranged from 10 to 25, with an average of 18.90 (SD = 3.34), suggesting that the respondents also rate highly on non-financial performance metrics. Lastly, **Financial Access** ranged from 10 to 25, with a mean score of 19.58 (SD = 3.76), which is indicative of relatively high financial access among the respondents.

The overall findings from the descriptive analysis suggest that the respondents report a positive assessment across most of the metrics. The standard deviations are moderately high for several variables, indicating variability in the respondents' perceptions and experiences. Such variability could provide insights into the different factors influencing the study's constructs.

Table 4.7: Descriptive Analysis for the Study Variables

	Min	Max	Mean	Std.	Skewness		Kurtosis	
				Deviation				
			Statistic		Statistic	Std. Error	Statistic	Std. Error
Character	5.00	20.00	16.1176	3.20672	-1.040	.239	1.363	.474
Capacity	6.00	20.00	15.6667	3.03880	-.537	.239	.168	.474
Collateral	4.00	20.00	14.6667	3.89041	-.663	.239	-.008	.474
Capital	6.00	20.00	15.1961	2.56804	-.347	.239	.626	.474
Condition	7.00	20.00	14.1961	3.36564	-.191	.239	-.393	.474
Credibility	6.00	20.00	15.4020	2.85373	-.687	.239	1.120	.474
Financial	8.00	25.00	17.9902	3.44258	-.021	.239	.194	.474
Performance								
Non-	10.0	25.00	18.9804	3.33888	-.123	.239	-.270	.474
Financial	0							
Performance								
Financial	10.0	25.00	19.5784	3.76128	-.290	.239	-.575	.474
Access	0							

4.5 Exploratory Factor Analysis (EFA)

The exploratory factor analysis (EFA) undertaken to assess the underlying structure of the constructs measured yielded substantive insights.

4.5.1 Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity

The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity are preliminary tests that ascertain the suitability of the data for factor analysis. A KMO value of .853 in the analysis indicates a high degree of common variance among items, which is ideal for factor analysis. Values above .8 are considered good for factor analysis (Kaiser, 1974). Complementing this, the Bartlett's Test of Sphericity has an approximate Chi-Square value of 321.748, with 36 degrees of freedom and a significance level of less than .001.

The Bartlett's Test further supported by showing a significant chi-square statistic, affirming the presence of substantial correlations among items that are suitable for structure detection (Bartlett, 1954). These tests provide the statistical justification for proceeding with EFA, ensuring that the data set is appropriate for uncovering the underlying factor structure.

Table 4.8: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.853
Bartlett's Test of Sphericity	Approx. Chi-Square	321.748
	df	36
	Sig.	.000

4.5.2 Communalities

In the execution of the exploratory factor analysis via Principal Component Analysis, the communalities post-extraction resulted in a clear indication of the variance in each original variable that the extracted factors are able to elucidate. The initial communalities were set to 1.000 for all variables, which is a standard starting point that posits each variable's variance is entirely explicable by the subsequent factor extraction.

Following the extraction process, the communalities present a varied landscape of how each variable aligns with the extracted factors. 'Character' and 'Condition' revealed a communality of .606 and .639 respectively, suggesting that 60.6% and 63.9% of its variance resonates with the extracted factor structure. 'Capacity' and 'Collateral' demonstrate even higher communalities of .717 and .779, respectively, indicating a robust correspondence with the underlying factors, accounting for 71.7% and 77.9% of their variances. 'Capital' and 'Credibility' also exhibit strong communalities, .674 and .774 accordingly, further validating the extracted factor model's relevance.

Conversely, 'Condition' depicted a lower communality of .539, implying that just over half of its variance is captured by the extracted factors, indicating the presence of unique variance not accounted for by the model. 'Financial Performance' and 'Non-Financial Performance' stand out with high communalities of .759 and .830, suggesting that a significant portion of their variance—75.9% and 83%, sequentially—is well-explained by the factor structure. 'Financial Access' has a communality of .553, which, while lower than the others, still indicates that the factor model explains a fair majority of its variance.

Table 4.9: Communalities

Communalities		
	Initial	Extraction
Character	1.000	.606
Capacity	1.000	.717
Collateral	1.000	.779
Capital	1.000	.674
Condition	1.000	.639
Credibility	1.000	.774

Financial Performance	1.000	.759
Non-Financial Performance	1.000	.830
Financial Access	1.000	.553

Extraction Method: Principal Component Analysis.

The communalities in the study were predominantly above the .6 benchmark, indicating that a considerable proportion of the variance in the survey items is accounted for by the extracted factors (Costello & Osborne, 2005).

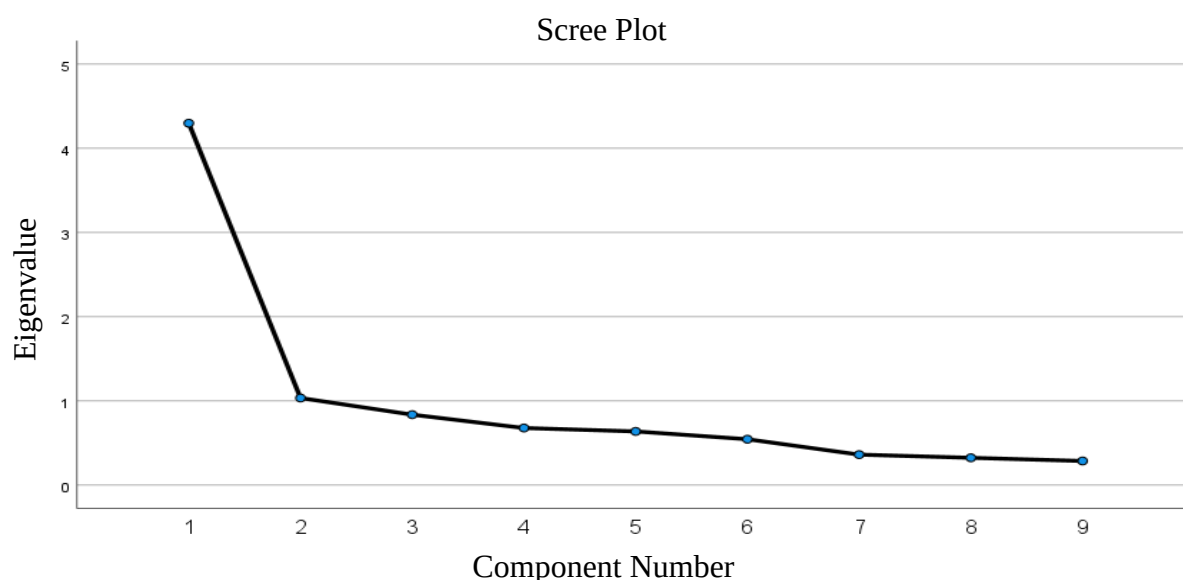


Figure 4.1: Scree Plot

The scree plot above exhibits a clear inflection point or 'elbow,' which typically denotes the threshold beyond which the additional factors contribute minimally to the explanation of variance. The eigenvalues begin at a peak with the first component and exhibit a sharp decline up to the second component. Past this juncture, the decline in eigenvalues moderates considerably, leveling off into a more gradual descent.

The plot suggests a substantial drop after the first component, with a less steep decline following the second component. The elbow of the scree plot appears after the second component, indicating that the first two components capture the most significant proportion of

variance within the dataset. Subsequent components display eigenvalues approaching one, a benchmark below which factors are typically deemed to contribute little to the model's explanatory power. Based on this observation, a two-factor solution might be considered optimal, capturing the essential structure of the data while avoiding the extraction of factors that do not meaningfully contribute to our understanding of the variance.

The adoption of this two-factor solution is corroborated not just by the visual inspection of the scree plot but also aligns with the Kaiser criterion, which suggests retaining factors with eigenvalues greater than one.

4.5.3 Factor Loadings

Upon completion of the exploratory factor analysis, a Varimax rotation with Kaiser Normalization was performed to clarify the structure of the loadings and enhance interpretability. The Rotated Component Matrix reveals the loadings of each variable on the two extracted components, elucidating the underlying patterns within the dataset. The rotated component matrix, which facilitates the interpretation of factor loadings by maximizing the variance of loadings within factors, revealed distinct associations of items with the respective factors. Items with strong loadings on a single factor suggest that these items are highly representative of the construct that the factor embodies (Tabachnick & Fidell, 2007).

Component 1 is characterized by substantial loadings from 'Character' (.644), 'Capacity' (.763), 'Collateral' (.811), 'Capital' (.729), 'Condition' (.663), and 'Credibility' (.728), suggesting that this factor encapsulates elements associated with intrinsic qualities or qualifications, possibly reflecting an overarching concept such as 'Organizational Attributes'. Notably, 'Financial Access' also loads moderately on this factor (.532), implying some relation to these attributes, albeit less pronounced.

Component 2 displays a different pattern, with 'Financial Performance' (.728) and 'Non-Financial Performance' (.909) demonstrating strong loadings, indicating this factor predominantly reflects performance metrics. The substantial loading of 'Non-Financial Performance' on Component 2, in particular, points to a distinct dimension that captures aspects of performance not directly tied to financial metrics. 'Credibility' also shows a moderate loading on this component (.380), suggesting a nuanced relationship with performance aspects.

Variables with lower loadings on a given factor, such as 'Character', 'Capacity', 'Collateral', 'Capital', and 'Condition' on Component 2, suggest that these attributes contribute less to the construct defined by this factor. In the context of 'Character', for instance, its higher loading on Component 1 (.644) versus Component 2 (.302) highlights its stronger association with the intrinsic qualities factor.

The extraction method, Principal Component Analysis, facilitated the reduction of data dimensionality, while the rotation method employed ensured that the factors were orthogonal, maintaining their independence. The matrix portrays a clear and theoretically interpretable factor structure, with each component reflecting distinct conceptual domains pertinent to the research study. The component transformation matrix, detailing the interrelations between the extracted factors, offers further insight into the multidimensional nature of the constructs assessed. Understanding these interrelations is pivotal for constructing a coherent theoretical model that accurately reflects the complexities of the constructs under study (Fabrigar et al., 1999).

This specificity in loading patterns aids in the clear delineation of the constructs measured, enhancing the validity of the survey's conceptual framework, and facilitates a deeper understanding of the latent variables underlying the survey responses, laying a solid foundation for subsequent analyses and discussions within the research.

Table 4.10 : Factor Loadings

Rotated Component Matrix		
	Component	
	1	2
Character	.644	.302
Capacity	.763	.186
Collateral	.811	.147
Capital	.729	.208
Condition	.663	.014
Credibility	.728	.380
Financial Performance	.359	.728
Non-Financial Performance	.069	.909
Financial Access	.532	.265
<i>Extraction Method: Principal Component Analysis.</i>		
<i>Rotation Method: Varimax with Kaiser Normalization.</i>		

4.5.4 Reliability Analysis

In this segment, the study assessed the reliability and consistency of the survey responses through various statistical measures using SPSS version 27. The initial eligibility confirmation of all 96 cases provided a solid foundation for further analysis, ensuring that each participating company adhered strictly to the inclusion criteria. This rigorous adherence underscores the precision of the preliminary screening process and sets the stage for a reliable data set.

The reliability of the instrument used in this study was assessed using Cronbach's alpha to determine the internal consistency of the nine items intended to measure various constructs. The analysis was conducted in a sample of 96 participants. The overall Cronbach's Alpha for the scale was found to be .851, and after standardizing the items, a slightly higher alpha of .858 was reported. This suggests a high level of internal consistency among the scale items, indicating that they reliably measure the underlying construct (Nunnally, 1978). This exemplary coefficient not only validates the reliability of the questionnaire but also emphasizes the coherence of the measured constructs, indicating that the survey items effectively capture the intended dimensions of the study.

In examining individual item statistics, the means ranged from 14.4218 (Condition) to 19.6458 (Financial Access), indicating variability in central tendency across the scale. This was further substantiated by standard deviation values, which reflected a reasonable spread of responses among participants. DeVellis (2016) underscores the importance of such analysis to comprehend the central tendencies and dispersion of responses, facilitating an understanding of the collective perspective of the participants.

Table 4.11: Individual Item Statistics

Factors	Mean	Std. Deviation
Character	16.1667	3.25953
Capacity	15.7083	3.03633
Collateral	14.6563	3.90635
Capital	15.1875	2.51861
Condition	14.2188	3.38481
Credibility	15.3854	2.78103
Financial Performance	17.9792	3.41815

Non-Financial Performance	19.0417	3.32745
Financial Access	19.6458	3.74160

Inter-item correlation provided further insight, with a mean correlation of .402, suggesting a moderate positive relationship between items. However, the range of correlations (.167 to .613) highlighted differences in the strength of these associations. The inter-item correlation matrix revealed no excessively high correlations, precluding concerns over redundancy. Nonetheless, all items showed positive correlations with each other, aligning with the assumption that they measure related constructs. In particular, items related to financial metrics (Financial Performance and Non-Financial Performance) showed strong internal consistency, suggesting they are reliable indicators of the construct. According to Field (2013), positive inter-item correlations are crucial for confirming that survey items are measuring coherent constructs, aligning with the theoretical framework of the study.

Table 4.12: Inter-Item Correlation Matrix

Inter-Item Correlation Matrix									
	Character	Capacity	Collateral	Capital	Condition	Credibility	Financial Performance	Non- Financial Performance	Financial Access
Character	1.000	.587	.428	.506	.285	.524	.311	.329	.372
Capacity	.587	1.000	.561	.492	.350	.588	.398	.215	.386
Collateral	.428	.561	1.000	.589	.464	.613	.469	.185	.408
Capital	.506	.492	.589	1.000	.431	.457	.366	.294	.389
Condition	.285	.350	.464	.431	1.000	.479	.286	.167	.222
Credibility	.524	.588	.613	.457	.479	1.000	.549	.333	.441
Financial Performance	.311	.398	.469	.366	.286	.549	1.000	.492	.259
Non-Financial Performance	.329	.215	.185	.294	.167	.333	.492	1.000	.264
Financial Access	.372	.386	.408	.389	.222	.441	.259	.264	1.000

The ANOVA table within the reliability analysis further illuminated the distinction between items, with the between-items mean square (369.860) significantly exceeding the residual mean square (6.613), $F(8, 760) = 55.933$, $p < .001$. This confirms that the variability among items contributed meaningfully to the overall scale variance.

Table 4.13: ANOVA Table

ANOVA						
		Sum of	df	Mean	F	Sig
		Squares		Square		
Between People		4226.777	95	44.492		
Within	Between	2958.877	8	369.860	55.933	.000
People	Items					
	Residual	5025.567	760	6.613		
	Total	7984.444	768	10.396		
Total		12211.221	863	14.150		
Grand Mean = 16.4433						

Individual reliability statistics for each item were as follows: Character (.833), Capacity (.828), Collateral (.824), Capital (.832), Condition (.846), Credibility (.821), Financial Performance (.837), Non-Financial Performance (.853), and Financial Access (.846). Each item demonstrated high reliability, with alpha coefficients well above the generally accepted threshold of .7, reinforcing the scale's robustness.

Table 4.14: Reliability for Factors

Factors	Number of Items (Constructs)	Cronbach's Alpha
Character	4	.833
Capacity	4	.828
Collateral	4	.824
Capita	4	.832
Condition	4	.846
Credibility	4	.821
Financial Performance	5	.837
Non-Financial Performance	5	.853
Financial Access	5	.846

In summary, the reliability analysis of the survey responses, through item statistics, inter-item correlations, ANOVA, and Cronbach's Alpha, affirms the robustness and consistency of the data collected. The high degree of internal consistency, evidenced by the exemplary Cronbach's Alpha score, provides a strong empirical foundation for the study's subsequent findings. This rigorous validation of the survey's reliability ensures that the insights derived from the data are both credible and impactful, laying the groundwork for meaningful analysis and discussion in the realms of creditworthiness, performance, and financing access within Sarawak's construction industry.

4.6 Measurement Model Assessment

Following the preliminary and factor analysis conducted using SPSS (Sections 4.1 to 4.3), the subsequent analysis transitions to Partial Least Squares Structural Equation Modeling

(PLS-SEM) utilizing SmartPLS. This section focuses on assessing the measurement and structural models in relation to the study's hypotheses concerning the impact of creditworthiness dimensions on SMEs' financial and non-financial performance in the construction industry, with a particular emphasis on the moderating role of financial accessibility.

4.6.1 Internal Consistency Reliability

The measurement model assessment ensures the constructs used in the study accurately reflect the observed data. This section aligns the reliability and validity assessments with the study's hypotheses concerning creditworthiness dimensions.

Table 4.15 : Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Capacity	0.849	0.852	0.898	0.688
Capital	0.783	0.799	0.860	0.607
Character	0.896	0.901	0.929	0.766
Collateral	0.878	0.881	0.916	0.732
Condition	0.767	0.768	0.844	0.578
Credibility	0.819	0.822	0.880	0.648
Financial Access	0.854	0.860	0.895	0.631
Financial Performance	0.871	0.878	0.905	0.657

4.6.2 Cronbach's Alpha and Composite Reliability

The assessment of internal consistency, through Cronbach's Alpha and Composite Reliability (rho_a, rho_c) scores ranging from 0.767 to 0.896 and 0.852 to 0.929 respectively, confirms the high internal consistency of the constructs.

Accordingly to Hair et al. (2017) suggest that values above 0.7 for Cronbach's Alpha and Composite Reliability indicate acceptable levels of internal consistency, validating the reliability of the measurement models associated with Character, Capacity, Capital, Collateral, Condition, and Credibility.

With a Cronbach's alpha of 0.849 and composite reliability scores of 0.852 (rho_a) and 0.898 (rho_c), 'Capacity' exhibits a high level of internal consistency. The AVE of 0.688 suggests that a majority of the variance in the items measuring 'Capacity' is captured by the construct, indicating good convergent validity.

'Capital' shows a Cronbach's alpha of 0.783 and composite reliabilities of 0.799 (rho_a) and 0.860 (rho_c), which are above the acceptable threshold, ensuring reliable measurement. The AVE is 0.607, indicating that over 60% of the variance is accounted for by the construct.

This construct has the highest Cronbach's alpha (0.896) and composite reliability scores (0.901 for rho_a and 0.929 for rho_c), reflecting excellent internal consistency. The AVE value of 0.766 is also very high, suggesting that the construct 'Character' is measured with a high degree of precision and validity.

The reliability of 'Collateral' is evidenced by a Cronbach's alpha of 0.878 and composite reliability scores of 0.881 (rho_a) and 0.916 (rho_c). With an AVE of 0.732, it indicates a strong relationship between the construct and the variables designed to measure it.

With the lowest Cronbach's alpha in the table at 0.767, 'Condition' is still above the accepted 0.7 threshold but might require further investigation to see if the reliability can be improved. The composite reliabilities are adequate (0.768 for rho_a and 0.844 for rho_c), and

the AVE is 0.578, which is just below the preferred threshold of 0.6, possibly indicating a need to reassess the items measuring this construct.

Demonstrating Cronbach's alpha of 0.819 and composite reliabilities of 0.822 (ρ_a) and 0.880 (ρ_c), 'Credibility' shows a solid internal consistency. The AVE of 0.648 denotes that a considerable amount of variance in the variables is explained by the 'Credibility' construct, affirming its validity.

This construct has strong internal consistency with a Cronbach's alpha of 0.854 and composite reliability scores of 0.860 (ρ_a) and 0.895 (ρ_c). The AVE of 0.631, while not as high as some other constructs, still signifies a respectable level of convergent validity.

With a Cronbach's alpha of 0.871 and composite reliability of 0.878 (ρ_a) and 0.905 (ρ_c), 'Financial Performance' shows excellent internal consistency. The AVE of 0.657 means that most of the variance in the items measuring 'Financial Performance' can be attributed to the construct itself, indicating a good level of convergent validity.

These findings provide a robust foundation for Hypotheses 1 and 2, confirming the methodological soundness in assessing creditworthiness dimensions.

4.6.3 Convergent Validity

The establishment of convergent validity, with Average Variance Extracted (AVE) values ranging from 0.578 to 0.766, signifies that a significant portion of the variance in the indicators is accounted for by their respective constructs.

According to Fornell and Larcker (1981), AVE values exceeding 0.5 demonstrate adequate convergent validity, underscoring the measures' effectiveness in capturing the essence of the constructs they are intended to represent. This validation is crucial for assessing the relevance of the constructs in evaluating SMEs' creditworthiness and its subsequent impact on performance, directly supporting Hypotheses 1 and 2.

4.6.4 Discriminant Validity

In the context of the study's measurement model, discriminant validity pertains to the degree to which constructs that are theorized to be different are indeed distinct as per the data. The assessment of discriminant validity is an essential step to ensure that each construct captures phenomena that are not simply a reflection of other variables within the model.

For the assessment of discriminant validity in this study, the Fornell-Larcker criterion is used. In the Fornell-Larcker criterion, discriminant validity is established when the square root of the AVE of each construct (which should be on the diagonal) is larger than the correlations between the construct and any other construct in the model (which are the off-diagonal values). This ensures that the construct shares more variance with its own measures than with other constructs, thus supporting the uniqueness of the constructs.

From the correlation matrix, the square root of the AVE for all the constructs is greater than the off-diagonal values (correlations with other constructs). Hence, discriminant validity is established for these constructs, as the constructs share more variance with their own measures than with other constructs.

Table 4.16: Discriminant Validity – Cross Loading

							Financial	Financial	Non-
	Capacity	Capital	Character	Collateral	Condition	Credibility	Access	Performance	Performance
CA1	0.827	0.4	0.529	0.404	0.274	0.444	0.324	0.399	0.233
CA2	0.853	0.487	0.539	0.481	0.4	0.5	0.22	0.375	0.16
CA3	0.794	0.421	0.372	0.515	0.415	0.501	0.394	0.361	0.168
CA4	0.843	0.414	0.549	0.477	0.463	0.578	0.377	0.315	0.253
CH1	0.458	0.446	0.792	0.397	0.311	0.435	0.365	0.275	0.31
CH2	0.511	0.407	0.908	0.379	0.315	0.507	0.273	0.288	0.306
CH3	0.568	0.575	0.931	0.424	0.442	0.507	0.371	0.328	0.318
CH4	0.567	0.396	0.863	0.353	0.303	0.427	0.325	0.264	0.28
CN1	0.501	0.451	0.463	0.295	0.682	0.51	0.249	0.247	0.421
CN2	0.322	0.321	0.221	0.395	0.849	0.37	0.148	0.229	0.123
CN3	0.206	0.242	0.25	0.313	0.837	0.331	0.157	0.192	0.145

CN4	0.218	0.437	0.114	0.476	0.651	0.374	0.252	0.353	0.021
CO1	0.505	0.524	0.483	0.852	0.335	0.515	0.379	0.395	0.214
CO2	0.491	0.471	0.358	0.856	0.392	0.539	0.296	0.473	0.165
CO3	0.462	0.554	0.307	0.883	0.488	0.567	0.384	0.483	0.147
CO4	0.472	0.577	0.39	0.829	0.45	0.514	0.417	0.404	0.192
CP1	0.557	0.811	0.502	0.599	0.377	0.546	0.34	0.44	0.246
CP2	0.318	0.803	0.387	0.541	0.417	0.397	0.349	0.334	0.258
CP3	0.357	0.821	0.37	0.406	0.428	0.34	0.24	0.308	0.272
CP4	0.351	0.672	0.358	0.343	0.394	0.277	0.342	0.215	0.272
CR1	0.501	0.41	0.342	0.436	0.522	0.802	0.346	0.459	0.25
CR2	0.651	0.394	0.46	0.497	0.489	0.824	0.294	0.498	0.342
CR3	0.338	0.465	0.428	0.658	0.44	0.763	0.44	0.469	0.22
CR4	0.442	0.396	0.494	0.432	0.361	0.828	0.405	0.451	0.353
FA1	0.328	0.116	0.22	0.247	0.148	0.366	0.737	0.256	0.234
FA2	0.37	0.406	0.33	0.385	0.161	0.328	0.789	0.223	0.156
FA3	0.324	0.359	0.335	0.284	0.165	0.357	0.834	0.226	0.269

FA4	0.291	0.454	0.358	0.446	0.32	0.384	0.839	0.301	0.255
FA5	0.274	0.281	0.275	0.339	0.316	0.376	0.769	0.252	0.229
FP1	0.441	0.418	0.233	0.512	0.336	0.487	0.384	0.826	0.313
FP2	0.436	0.417	0.328	0.42	0.351	0.512	0.443	0.804	0.425
FP3	0.263	0.252	0.217	0.419	0.268	0.443	0.109	0.818	0.394
FP4	0.287	0.275	0.295	0.216	0.172	0.374	0.156	0.801	0.469
FP5	0.311	0.332	0.275	0.448	0.239	0.513	0.139	0.803	0.475
NFP1	0.256	0.299	0.291	0.225	0.254	0.398	0.304	0.533	0.806
NFP2	0.173	0.387	0.364	0.174	0.298	0.322	0.193	0.373	0.909
NFP3	0.076	0.252	0.195	0.304	0.356	0.259	0.219	0.442	0.71
NFP4	0.247	0.111	0.253	-0.018	0.131	0.209	0.201	0.302	0.805
NFP5	0.242	0.22	0.26	0.125	0.097	0.238	0.265	0.371	0.782

Table 4.17: Discriminant Validity – Fornell-Larcker criterion

	Capacity	Capital	Character	Collateral	Condition	Credibility	Financial Access	Financial Performance	Non- Financial Performance
Capacity	0.829								
Capital	0.518	0.779							
Character	0.601	0.525	0.875						
Collateral	0.563	0.62	0.445	0.856					
Condition	0.463	0.515	0.395	0.488	0.76				
Credibility	0.607	0.515	0.538	0.625	0.562	0.805			
Financial Access	0.396	0.406	0.382	0.429	0.285	0.458	0.795		
Financial Performance	0.439	0.428	0.332	0.515	0.347	0.584	0.32	0.811	
Non- Financial Performance	0.247	0.333	0.348	0.208	0.29	0.366	0.293	0.506	0.805

Table 4.18: Discriminant Validity – Heterotrait-monotrait ratio (HTMT)

							Financial	Financial
	Capacity	Capital	Character	Collateral	Condition	Credibility	Access	Performance
Capacity								
Capital	0.624							
Character	0.688	0.616						
Collateral	0.656	0.734	0.506					
Condition	0.51	0.618	0.408	0.586				
Credibility	0.724	0.629	0.624	0.741	0.656			
Financial Access	0.471	0.5	0.436	0.497	0.319	0.55		
Financial Performance	0.495	0.491	0.375	0.565	0.394	0.679	0.348	
Non-Financial Performance	0.298	0.386	0.385	0.254	0.358	0.419	0.337	0.584

For further assessment of discriminant validity in this study, the HTMT (Heterotrait-Monotrait ratio) criterion is used. The HTMT is a more recent approach to assessing discriminant validity, which compares the mean of the heterotrait-heteromethod correlations (correlations between indicators measuring different constructs) with the mean of the monotrait-heteromethod correlations (correlations between indicators measuring the same construct) (Henseler, Ringle, & Sarstedt, 2015).

From the HTMT matrix, it is observed that most of the HTMT values are below the conservative threshold of 0.85, suggesting satisfactory discriminant validity for those pairs of constructs. The results suggest that, overall, the constructs used in this study are sufficiently distinct to proceed with further analyses.

4.7 Structural Model Assessment

The assessment of the structural model within Partial Least Squares Structural Equation Modeling (PLS-SEM) focuses on the predictive capabilities of the model and the strength and significance of the hypothesized paths. The objective is to evaluate how well the model captures the relationships between creditworthiness dimensions, SMEs' financial and non-financial performance, and the moderating role of financial access.

4.7.1 Model Fit and Explanatory Power

The model fit in PLS-SEM is assessed through the Standardized Root Mean Square Residual (SRMR). An SRMR value below 0.08 is generally considered a good fit, while values below 0.10 indicate an acceptable fit, suggesting that the model's residuals are within a reasonable range (Hu & Bentler, 1999). The SRMR of 0.102, slightly above the recommended threshold, does indicate an acceptable fit.

The R^2 values for financial (0.425) and non-financial performance (0.243) represent the proportion of variance explained in the dependent variables. An R^2 value of 0.425 for financial performance suggests that approximately 42.5% of the variance can be explained by the independent variables included in the model, which is substantial. The non-financial performance has an R^2 of 0.243, indicating that almost a quarter of its variance is explained, which is moderate. According to Hair et al. (2017), these values signify the model's relevance and impact in explaining the outcomes of interest, confirming that creditworthiness and financial access are important determinants of SME performance.

4.7.2 Path Coefficients and Hypotheses Testing

The structural model's path coefficients serve as indicators of the strength and direction of the relationships between constructs within the model. Hypotheses testing using path coefficients is integral in PLS-SEM to confirm theoretical predictions (Hair et al., 2017).

The observed positive path coefficients between creditworthiness dimensions and both financial and non-financial performance support the pivotal role of these factors in enhancing SME performance in the construction industry.

The paths from Capacity, Capital, and Credibility to Financial Performance are all positive and statistically significant, with p-values less than 0.05, confirming a strong predictive relationship. These dimensions of creditworthiness are instrumental in driving the financial success of SMEs. Notably, Credibility exhibits the highest path coefficient to Financial Performance, indicating it is a particularly crucial factor.

Table 4.19: Creditworthiness Dimensions' Effects on SME Performance (Hypotheses 1 and 2)

Path	Path			
	Values (β)	Standard Deviation	T- Value	P- Value
Capacity -> Financial Performance	0.057	0.086	5.090	0.000
Capacity -> Non-Financial Performance	-0.099	0.110	2.237	0.025
Capital -> Financial Performance	0.121	0.083	5.138	0.000
Capital -> Non-Financial Performance	0.152	0.105	3.159	0.002
Character -> Financial Performance	-0.04	0.099	3.366	0.001
Character -> Non-Financial Performance	0.203	0.098	3.554	0.000
Collateral -> Financial Performance	0.177	0.071	7.226	0.000
Collateral -> Non-Financial Performance	-0.171	0.138	1.511	0.131
Condition -> Financial Performance	-0.019	0.132	2.635	0.008
Condition -> Non-Financial Performance	0.089	0.177	1.638	0.102
Credibility -> Financial Performance	0.423	0.081	7.181	0.000
Credibility -> Non-Financial Performance	0.254	0.102	3.569	0.000
Financial Access -> Financial Performance	0.06	0.099	3.227	0.001
Financial Access -> Non-Financial Performance	0.145	0.096	3.063	0.002

Character shows a complex relationship with a negative path coefficient to Financial Performance, yet a positive and significant one to Non-Financial Performance. This suggests that while Character may not directly boost financial metrics, it could enhance other aspects of SME success that are not captured by financial performance alone.

Collateral's significant positive impact on Financial Performance is not mirrored in Non-Financial Performance, indicating its influence may be restricted to financial outcomes. Similarly, Condition has a minor but significant positive impact on Financial Performance, and no significant impact on Non-Financial Performance, suggesting its influence may be less pervasive across performance metrics.

Financial Access demonstrates positive and significant effects on both types of performance, indicating its role as an enabler or amplifier of the creditworthiness-performance relationship.

Table 4.20: Summary Table (Hypotheses 1 and 2)

Creditworthiness Dimensions	Impact on Financial Performance	Impact on Non-Financial Performance	Notes
Capacity	Positive ($p < 0.001$)	Negative ($p = 0.025$)	Strong positive impact on Financial Performance; negative impact on Non-Financial Performance.
Capital	Positive ($p < 0.001$)	Positive ($p = 0.002$)	Positive impact on both Financial and Non-Financial Performance.
Character	Negative ($p = 0.001$)	Positive ($p < 0.001$)	Negative impact on Financial Performance; strong positive impact on Non-Financial Performance.
Collateral	Positive ($p < 0.001$)	Not significant ($p = 0.131$)	Significant positive impact on Financial Performance; not significant for Non-Financial Performance.

Condition	Negative (p = 0.008)	Not significant (p = 0.102)	Minor negative impact on Financial Performance; not significant for Non-Financial Performance.
Credibility	Very Positive (p < 0.001)	Positive (p < 0.001)	Strongest positive impact on both Financial and Non-Financial Performance.
Financial Access	Positive (p = 0.001)	Positive (p = 0.002)	Positive impact on both Financial and Non-Financial Performance, indicating a moderating role of Financial Access.

Based on the structural model testing:

H1: There is a positive relationship between creditworthiness dimensions (character, capacity, capital, collateral, condition, and credibility) and SMEs' financial performance in the construction industry.

- The path from **Capacity** to Financial Performance is positive and significant ($\beta = 0.057$, $p < 0.001$), supporting H1.
- The path from **Capital** to Financial Performance is also positive and significant ($\beta = 0.121$, $p < 0.001$), supporting H1.
- **Character** has a negative effect on Financial Performance ($\beta = -0.04$, $p = 0.001$), which does not support H1 as stated, but indicates a significant relationship worthy of further investigation.
- **Collateral** exhibits a strong positive relationship with Financial Performance ($\beta = 0.177$, $p < 0.001$), in line with H1.

- **Condition** shows a negative, albeit significant, path to Financial Performance ($\beta = -0.019$, $p = 0.008$), which, like Character, does not support the positive direction hypothesized in H1.
- Finally, **Credibility** has the strongest positive relationship with Financial Performance ($\beta = 0.423$, $p < 0.001$), strongly supporting H1.

H2: There is a positive relationship between creditworthiness dimensions (character, capacity, capital, collateral, condition, and credibility) and SMEs' non-financial performance in the construction industry.

- The path from **Capacity** to Non-Financial Performance is negative and significant ($\beta = -0.099$, $p = 0.025$), which does not support the positive direction hypothesized in H2.
- **Capital** has a positive and significant effect on Non-Financial Performance ($\beta = 0.152$, $p = 0.002$), supporting H2.
- **Character** shows a substantial positive relationship with Non-Financial Performance ($\beta = 0.203$, $p < 0.001$), supporting H2.
- The effect of **Collateral** on Non-Financial Performance is not significant ($\beta = -0.171$, $p = 0.131$), which does not support H2.
- **Condition** has a non-significant positive path coefficient ($\beta = 0.089$, $p = 0.102$), which does not support H2.
- **Credibility** displays a significant positive effect ($\beta = 0.254$, $p < 0.001$), in support of H2.

4.7.3 Moderating Effects of Financial Access

In assessing the influence of financial access on the creditworthiness-performance relationship, the interaction effect analysis provides insights into how financial accessibility can modify the impact of SMEs' creditworthiness on their performance outcomes.

Table 4.21: Moderating Effects of Financial Access on SME Performance (Hypotheses 3 & 4)

	Path Values	Standard		
Path	(β)	Deviation	T-Value	P-Value
Financial Access x Collateral ->				
Financial Performance	-0.044	0.115	0.546	0.585
Financial Access x Collateral ->				
Non-Financial Performance	-0.166	0.113	1.224	0.221
Financial Access x Capital ->				
Financial Performance	0.061	0.101	1.175	0.240
Financial Access x Capital -> Non-				
Financial Performance	0.13	0.104	0.827	0.408
Financial Access x Capacity ->				
Financial Performance	-0.054	0.144	0.473	0.636
Financial Access x Capacity ->				
Non-Financial Performance	0.138	0.102	0.056	0.956
Financial Access x Condition ->				
Financial Performance	-0.078	0.133	0.441	0.659
Financial Access x Condition ->				
Non-Financial Performance	-0.053	0.117	0.241	0.809
Financial Access x Character ->				
Financial Performance	-0.166	0.107	2.180	0.029

Financial Access x Character ->

Non-Financial Performance	-0.13	0.108	1.532	0.126
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Financial Access x Credibility ->

Financial Performance	0.302	0.148	0.737	0.461
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Financial Access x Credibility ->

Non-Financial Performance	0.139	0.111	1.191	0.234
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An in-depth evaluation reveals that the moderating effect of Financial Access on the collateral-to-financial performance relationship did not reach statistical significance ($p = 0.585$), suggesting that within this context, Financial Access does not meaningfully modify the influence exerted by Collateral on Financial Performance. Similarly, its interaction with Non-Financial Performance metrics remained non-significant ($p = 0.221$), indicating a potential stability in the impact of Collateral on non-financial aspects, irrespective of financial access variability.

The Capital construct, while foundational to creditworthiness, evidenced non-significant p -values in interaction with Financial Access, implying a static influence on performance outcomes irrespective of financial ingress ($p = 0.240$ for Financial Performance; $p = 0.408$ for Non-Financial Performance). Such findings could denote a threshold beyond which the marginal benefits of capital do not synergize with increased financial access, or alternatively, they may hint at the interplay of other concealed factors.

Mirroring Capital, the modulatory influence of Financial Access on the Capacity-performance dynamic did not achieve significance, suggesting that Capacity's impact on performance is potentially more reliant on intrinsic management proficiencies and effective resource allocation than on the facilitation of external financial resources ($p = 0.636$ for Financial Performance; $p = 0.956$ for Non-Financial Performance).

Similarly, the Condition of the business landscape appeared to maintain its direct trajectory on SME performance, with Financial Access failing to significantly modulate this relationship ($p = 0.659$ for Financial Performance; $p = 0.809$ for Non-Financial Performance). This suggests an inherent potency in the business condition's direct influence on performance metrics, undisturbed by varying degrees of financial access.

Conversely, a notable interaction was observed between Financial Access and the Character in influencing Financial Performance, manifesting a significant negative effect ($p = 0.029$). This counterintuitive finding implies a paradox where SMEs exhibiting robust character attributes may not necessarily convert such traits into enhanced financial outcomes with increased financial access.

While the interactions between Financial Access and Credibility did not reach significance, the observed directional trends encourage further investigation into the nuanced ways through which credibility and financial access may interplay.

Table 4.22: Summary Table (Hypotheses 3 and 4)

Creditworthiness Dimension	Effect on Financial Performance	Effect on Non-Financial Performance	Notes
Collateral x Financial Access	Not significant ($p = 0.585$)	Not significant ($p = 0.221$)	Financial Access does not significantly moderate the impact of Collateral.
Capital x Financial Access	Not significant ($p = 0.240$)	Not significant ($p = 0.408$)	Financial Access does not significantly moderate the impact of Capital.

Capacity x Financial Access	Not significant (p = 0.636)	Not significant (p = 0.956)	Financial Access does not significantly moderate the impact of Capacity.
Condition x Financial Access	Not significant (p = 0.659)	Not significant (p = 0.809)	Financial Access does not significantly moderate the impact of Condition.
Character x Financial Access	Negative interaction (p = 0.029)	Not significant (p = 0.126)	Financial Access negatively moderates the impact of Character on Financial Performance.
Credibility x Financial Access	Not significant (p = 0.461)	Not significant (p = 0.234)	Financial Access does not significantly moderate the impact of Credibility.

Based on the structural model testing:

H3: There is a positive relationship between creditworthiness dimensions and SMEs' financial performance moderated by financial accessibility in the construction industry.

- For Character, the moderation effect of Financial Access is significant but negative (p = 0.029). This indicates that while there is a moderating effect, it is not in the expected positive direction; therefore, **H3 is partially rejected** for Character.
- For the other dimensions, specific p-values for the moderating effect is not statistically significant.
- For H3, the expected positive moderation effect of Financial Access on the relationship between creditworthiness dimensions and SMEs' financial performance is not

supported by the data, except for the dimension of Character, where it is supported but in a negative direction. Thus, H3 is rejected for all the dimensions except Character, for which the hypothesis is partially rejected because the effect is significant but negative.

H4: There is a positive relationship between creditworthiness dimensions and SMEs' non-financial performance moderated by financial accessibility in the construction industry.

- The data provided do not show significant moderating effects of Financial Access on Non-Financial Performance. Therefore, **H4 is rejected.**

In conclusion, Chapter 4 has systematically elucidated the nuanced interplay between creditworthiness, financial access, and company performance in the construction sector. The model diagram presented encapsulates the empirical findings, illustrating the varied impact of different creditworthiness dimensions on financial and non-financial performance, as well as the moderating role of financial access.

The visual representation underscores the critical influence of factors such as credibility, capital, and capacity, which are key drivers of SME success. It also highlights the complexity of character's relationship with performance outcomes, calling attention to the less straightforward aspects of creditworthiness.

Financial access emerges as both an amplifier and a modulator, reinforcing the positive aspects of creditworthiness while also presenting potential challenges, as indicated by its diverse interaction effects. This diagram serves as a roadmap for practitioners, indicating which factors to leverage for enhanced performance and where caution is needed when navigating financial landscapes.

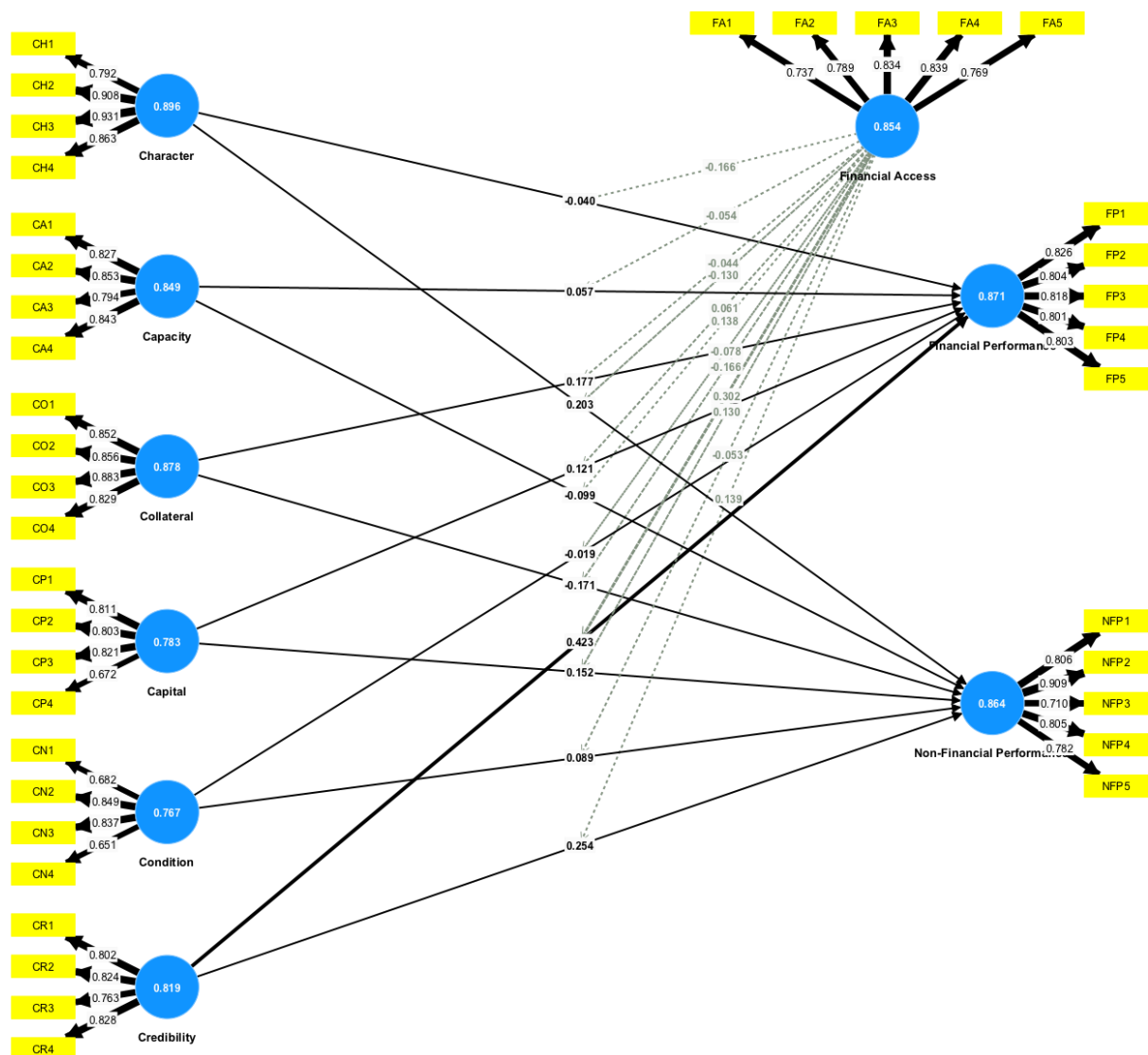


Figure 4.2 : The Impact of Creditworthiness and Financing Access on Company Performance Model

The insights gleaned from this analysis will not only inform strategic decision-making for stakeholders in the construction industry but also provide a foundation for future research, where the contours of creditworthiness and financial access further explored and understood. The subsequent chapter will build upon these insights, offering recommendations and strategies for SMEs to optimize their creditworthiness and utilize financial access effectively, aiming to bolster their performance and sustainability in the competitive construction market.

CHAPTER 5

CONCLUSION

5.1 Introduction

The detailed analyses in Chapter 4 of the thesis uncovered significant insights regarding the influence of creditworthiness dimensions on the financial and non-financial performance of SMEs in the construction sector of Sarawak. This chapter integrates these findings, emphasizing the role of various creditworthiness factors and the moderating effects of financial access on SME performance.

5.2 Summary of the Results

This section summarizes the findings from Chapter 4. The subsections explored different aspects critical to understanding the overarching research question: How do creditworthiness dimensions influence financial outcomes when moderated by financial access? Below is a brief recapitulation of the key results.

5.2.1 Creditworthiness Dimensions

The study identified **credibility**, **capital**, and **capacity** as key predictors of SME performance, underscoring their fundamental role in shaping business outcomes.

Credibility emerged as the most influential factor, with the highest path coefficients among the creditworthiness dimensions. This finding suggests that the trustworthiness and reliability of a business, as perceived by financial institutions and other stakeholders, are critical in enhancing its performance. This dimension's strong predictive power highlights the importance of maintaining transparent business practices and adhering to ethical standards, which are increasingly valued in today's market.

Capital and Capacity also showed strong associations with both financial and non-financial performance, indicating that a firm's financial robustness and its ability to meet business demands through available resources are essential for its overall success.

Character and Condition displayed more complex relationships with performance outcomes. Character was found to negatively impact financial performance but positively affect non-financial performance, suggesting that personal qualities and ethical standards may play a more nuanced role that extends beyond traditional financial metrics to influence broader aspects of organizational effectiveness.

While Collateral significantly boosted financial performance, it did not show a notable impact on non-financial performance. This underscores its traditional role as a securement for loans and financial credibility in the eyes of lenders but suggests limited influence on operational or strategic aspects of business performance.

5.2.2 Financial Access as a Moderator

Financial access significantly modulated the relationships between creditworthiness dimensions and performance, but not uniformly across all factors. It notably impacted Character negatively, which was unexpected. This suggests that while financial access generally supports SME performance, its effects can vary dramatically based on specific creditworthiness dimensions. The interaction effects between financial access and other creditworthiness dimensions like Capacity and Condition were not significant, suggesting that these relationships might be influenced by other unmeasured factors or are inherently stable regardless of changes in financial access.

5.2.3 Statistical Measures and Model Fit

Exploratory Factor Analysis (EFA) validated the data's suitability for uncovering underlying factor structures, reflected in high Kaiser-Meyer-Olkin (KMO) values and significant results from Bartlett's Test of Sphericity, confirming that the variables are adequately correlated for the analysis. Cronbach's Alpha and Composite Reliability scores across all constructs exceeded accepted thresholds, affirming the internal consistency and reliability of the measurement models used in this study. Structural Model Assessments demonstrated good explanatory power for financial performance ($R^2 = 0.425$) and moderate explanatory power for non-financial performance ($R^2 = 0.243$). Standardized Root Mean Square Residual (SRMR) values indicated an acceptable fit of the model, suggesting that the model adequately captures the relationships among the variables.

5.3 Theoretical Implications

This section of the dissertation explores the theoretical implications of the study, specifically examining how the findings contribute to and enhance existing academic theories related to SMEs in the construction industry.

5.3.1 Extension of the 5Cs Credit Model

This study enhances the traditional 5Cs credit model by incorporating 'credibility' as a vital dimension, thus enriching the model with a qualitative aspect that assesses trustworthiness and transparency in financial dealings. The extension and differentiation of credibility from the character within the 5Cs model are crucial because it specifically assesses the reliability and trustworthiness based on financial stability, past behaviour, and compliance with financial commitments, which are essential for evaluating the trustworthiness of information provided by borrowers.

Cope (2014) emphasized the importance of evaluating credibility, noting that it involves an assessment of financial stability and repayment behaviour, which are critical for lenders before making financing decisions. This aligns with Karim and Anjom (2016), who identified credibility as a significant component of inter-organizational trust, indicating how much an investing organization fears opportunistic risks and believes the seller will complete transactions dependably.

By integrating credibility into the 5Cs model, this research aligns with the evolving needs of credit risk management, where understanding the trustworthiness and reliability of borrowers has become as important as evaluating their financial metrics. This shift reflects a more nuanced approach to creditworthiness, emphasizing that dynamics of trust and transparency are critical to financial relationships and decision-making processes in the banking sector. This broader approach provides a more comprehensive framework for evaluating borrower creditworthiness, accommodating the complexities of modern financial environments where both qualitative and quantitative assessments play crucial roles.

5.3.2 Impact on Resource-Based View (RBV)

The findings of this study emphasize the critical role of intangible assets such as credibility and character, providing robust support for the Resource-Based View (RBV) of the firm. RBV posits that unique resources of a firm can provide sustainable competitive advantages. The insights from this research highlight how these intangible resources are essential not only for securing financial access but also for enhancing overall business performance, which offers deeper insights into the strategic management of resources within SMEs.

From the literature review, Farndale et al., (2022) elaborates on resource dependency theory, which complements the RBV by highlighting the significance of external resources in

shaping organizational strategies and outcomes. Farndale et al., (2022) suggests that organizations, especially SMEs, are heavily dependent on external sources for vital resources needed for survival and success. This dependence is crucial in the context of financial access, where SMEs' ability to secure external funding can significantly impact their operational capabilities and competitive positioning.

The integration of RBV and RDT in this study demonstrates the intertwined nature of internal capabilities and external dependencies. The findings that credibility and character significantly influence SME performance underpin the RBV by showing that these intangible assets, which include trustworthiness and ethical standards, act as critical resources that can yield competitive advantages. Moreover, the study aligns with Farndale et al., (2022) discussions on how strategic relationships and resource dependencies shape organizational outcomes, reinforcing the importance of managing both internal assets and external relationships effectively.

This research not only supports but also extends the RBV by demonstrating that the intangible resources of credibility and character are pivotal for SME success in the construction sector. This extension is particularly relevant in modern business environments where trust and ethical considerations are increasingly seen as essential components of business strategy and risk management.

5.3.3 Contribution to Stakeholder Theory

This study significantly enhances the understanding of stakeholder theory by elucidating the dynamic and reciprocal relationships that SMEs maintain with financial institutions, which profoundly influence their operational and strategic outcomes. It underscores the notion that financial institutions are not merely external funders but are, in fact,

integral stakeholders whose engagement is pivotal for the survival, growth, and competitive positioning of SMEs.

Drawing upon the comprehensive literature review, it is evident that the role of financial stakeholders is crucial, particularly in sectors where financial accessibility can act as a barrier to growth and sustainability. This analysis aligns with Farndale et al.,(2022), who articulates the significance of these relationships, positing that the involvement of financial institutions transcends simple financial support—they also furnish critical resources that assist SMEs in navigating operational challenges and seizing new opportunities. Furthermore, the discussions integrate insights from Reis & Oliveira (2022), who support the viewpoint that strategic relationships with financial institutions can mitigate risks and uncertainties, thereby enabling SMEs not only to access essential capital but also to obtain vital information and support services that enhance their operational capabilities.

This refined understanding contributes substantively to stakeholder theory by demonstrating that the interactions between SMEs and their financial stakeholders are essential for more than just securing financing. These relationships contribute significantly to strategic decision-making and long-term sustainability. This broader perspective emphasizes that stakeholders, particularly those in the financial sector, play a multifaceted role that can deeply influence the trajectory of SME growth and performance within competitive markets.

Overall, this research affirms and expands stakeholder theory by highlighting the complex interdependencies between SMEs and their key financial stakeholders, illustrating how these relationships are crucial to fostering an environment conducive to business success and resilience in the construction sector.

5.3.4 Advances in Moderation Analysis

This research deepens the understanding of moderation effects within the sphere of business performance studies, specifically demonstrating how external conditions, such as financial access, significantly influence the efficacy of internal capabilities, namely creditworthiness. This detailed exploration into moderation aligns with theoretical frameworks highlighted in Chapter 2, emphasizing the complex interaction between various environmental factors and SME performance.

As detailed in the literature review, financial access is posited not simply as a facilitator but as a critical modulator that can enhance or attenuate the effects of SMEs' internal capabilities on their performance outcomes. This concept is supported by the findings of seminal works such as those by Farndale et al., (2022) and Reis & Oliveira (2022), which suggest that the level of financial access can dramatically alter the impact of a firm's creditworthiness on its operational success. These studies elucidate that while financial access generally bolsters business performance, its influence varies across different dimensions of creditworthiness.

For instance, Farndale et al., (2022) provides evidence that financial access can amplify the benefits of robust capital and capacity, yet it may simultaneously moderate the impacts of character traits negatively on financial performance. This introduces a nuanced dynamic, where financial access does not uniformly benefit all aspects of creditworthiness, suggesting the necessity for strategic management to navigate these complexities effectively.

By integrating empirical data with established theoretical discussions, this dissertation advances the field of moderation analysis in business and management studies. It offers new insights into how external economic conditions like financial access interact with internal business capabilities, enhancing our understanding of their combined impact on SME performance. The synthesis of these findings underscores the critical need for firms to consider

both internal attributes and external conditions comprehensively when analysing performance dynamics.

5.3.5 Implications for Empirical Research Methodology

The methodology chapter outlines that PLS-SEM's capability to dissect the relationships within the hypothesized model extends beyond traditional analysis techniques. It incorporates a rigorous assessment through bootstrapping techniques to validate the paths and constructs, ensuring the reliability and validity of the measurement models (Hair & Alamer, 2022). This detailed methodological approach underscores the relevance of PLS-SEM in providing precise estimates that inform significant business decisions and academic insights.

The deployment of PLS-SEM in this research not only aligns with the established frameworks but also offers a template for future studies in similar domains, promoting a robust approach to understanding and interpreting complex models in empirical research. The insights derived from this application are pivotal, enhancing the theoretical and practical comprehension of SME performance dynamics, especially in contexts characterized by multifaceted and interdependent relationships.

In conclusion, the use of PLS-SEM in this study exemplifies a sophisticated empirical approach that bridges theoretical constructs with practical implications, facilitating a deeper understanding of the underpinnings of SME performance and the critical role of creditworthiness moderated by financial access. This methodological advancement contributes significantly to the empirical literature, providing a pathway for future research to explore nuanced business phenomena with enhanced precision and insight.

5.4 Practical Implications

This study presents several practical implications for practitioners within the construction industry, particularly in how they might prioritize and manage various dimensions of creditworthiness to optimize company performance. The findings underscore the importance of strategic management of creditworthiness factors including credibility, capital, and financial access. Each of these factors plays a crucial role in enhancing the resilience and operational success of firms within the industry.

5.4.1 Enhancing Credibility through Transparent Practices and Solid Financial Reporting

Credibility emerges as a critical factor in creditworthiness that influences both potential investors' and financial institutions' decision-making processes. Transparent practices and robust financial reporting are fundamental in establishing and maintaining credibility. Transparency not only builds trust with stakeholders but also reduces the perceived risk, making the company more attractive to lenders and investors (Parris et al., 2016).

Implementing comprehensive governance practices that ensure accurate and timely information disclosure is essential. These practices might include more detailed and frequent financial disclosures, third-party audits, and the adoption of international accounting standards. Such measures enhance transparency and provide stakeholders with a clear understanding of the company's financial health and managerial capabilities, thereby improving credibility (Fung, 2014).

Moreover, maintaining an open line of communication with stakeholders during both favourable and adverse times helps in strengthening trust. Companies that proactively communicate their strategies, challenges, and responses to changing market conditions are often perceived as more credible and reliable (Crane, 2020).

In Malaysia, where regulatory standards are increasingly aligning with global best practices, credibility through transparency and solid financial reporting is critical. The Malaysian government has been actively enhancing corporate governance frameworks to boost investor confidence and improve business practices across sectors, including construction. Implementing rigorous governance and transparency standards is thus not only a regulatory requirement but a strategic advantage in the Malaysian market.

For instance, construction firms in Malaysia are now encouraged to provide detailed and regular updates on their ongoing projects, including timelines, budget adherence, and compliance with environmental regulations (KPMG, 2020). These disclosures are made through annual reports and, increasingly, sustainability reports that provide insights into the company's environmental, social, and governance (ESG) practices—a reflection of global trends in corporate reporting.

Another practical example is the enforcement of the Companies Act 2016, which places greater responsibility on directors to act in the best interest of the company and its shareholders (Companies Commission of Malaysia, 2016). This includes strict duties regarding the accuracy of financial statements, which must provide a true and fair view of the company's affairs. For construction firms, this might involve disclosing the valuation of work in progress, methodologies for recognizing revenue from long-term contracts, and risk assessments of projects undertaken.

Furthermore, construction companies in Malaysia are expected to align with international financial reporting standards (IFRS), enhancing comparability and reliability for international investors (Malaysian Accounting Standards Board, 2021). As such, firms are increasingly adopting Integrated Reporting (IR) frameworks that go beyond the traditional financial statements to include non-financial information, such as innovation in construction techniques, human capital development, and the company's overall impact on society.

The regulatory landscape in Malaysia also encourages construction firms to engage in practices that contribute to sustainable development. This aligns with the global shift toward sustainable and responsible investment (SRI), where construction firms can tap into green financing by demonstrating commitment to sustainable building practices and adherence to green building standards like the Green Building Index (GBI) (Malaysian Green Building Confederation, 2020).

Additionally, the government's push for digitization in the construction sector, as part of the Construction Industry Transformation Program (CITP), calls for firms to adopt Building Information Modeling (BIM) to enhance transparency and efficiency (Construction Industry Development Board Malaysia, 2016). This digital approach allows for better collaboration among stakeholders and aligns with the government's vision for a modernized construction sector.

For construction companies in Sarawak, adhering to these enhanced standards can facilitate compliance with PCDS 2030, which emphasizes sustainable and accountable development practices. Transparent reporting and credible business practices crucial as the region seeks to attract investment and drive economic recovery and growth post-pandemic. This includes disclosing environmental impact assessments and sustainability practices, increasingly important under the new developmental guidelines (Government of Sarawak, 2023).

5.4.2 Focusing on Building a Strong Capital Base to Improve Resilience and Funding Opportunities

Capital structure is another pivotal aspect of creditworthiness that significantly impacts a company's resilience and its ability to capitalize on funding opportunities. A strong capital base not only buffers the company against financial distress but also positions it favorably for accessing new funding sources.

Businesses in the construction sector are advised to maintain a healthy balance between debt and equity to optimize their capital structure. Equity financing, though often more expensive in terms of diluting ownership, does not burden the company with fixed obligations and provides more flexibility and stability in times of financial downturns. Debt financing, on the other hand, while less costly, increases the company's financial risk during downturns (Lui & Standing, 1989)

Practitioners should also consider innovative financing options such as green bonds or sustainable loans, which can be particularly appealing in today's environmentally conscious market. These instruments not only serve to improve the capital structure but also align the company with broader sustainable practices, potentially attracting a new segment of eco-conscious investors (Williams & Brenda, 2024).

The economic landscape in Malaysia, characterized by its dynamic market and evolving financial sectors, offers diverse funding opportunities. Such a financial ecosystem is replete with traditional banking instruments, burgeoning venture capital presence, and government-backed financial incentives. An exemplar of this is the Malaysian government's move to bolster the Venture Capital and Private Equity Tax Deduction for high-tech and high-impact projects, as evidenced by the initiatives under the 11th Malaysia Plan. This initiative provides construction companies with alternative funding sources outside of conventional loan facilities.

However, it also requires firms to maintain robust capital structures to withstand economic fluctuations. The intricacy lies in structuring capital in a manner that balances debt and equity to optimize cost of capital while ensuring operational liquidity. A well-calibrated capital structure is crucial in enabling firms to withstand market volatilities, such as those experienced during the commodity price fluctuations that impact material costs in construction projects.

In a practical sense, take the Pan Borneo Highway project as an example—it requires considerable financial resources, as well as advanced technology and efficient coordination. Construction companies aiming to win contracts for parts of this extensive infrastructure initiative must have solid financial backing. This ensures they can both compete effectively in the bidding process and follow through with project completion successfully. Similarly, engaging with the Sarawak Digital Economy initiatives under PCDS 2030 is an opportunity that demands significant investment. However, it also holds the potential to significantly advance Sarawak's economy. For construction firms, these projects present both challenges in terms of investment and management, as well as opportunities for growth and expansion.

Aligning financial strategies with the objectives of PCDS 2030 is key for construction companies to position themselves for government and international investments. A well-balanced approach to finance—maintaining a healthy mix of equity and debt—will make firms more appealing to investors who are keen to support infrastructure projects that align with PCDS 2030's goals. Moreover, being prepared to enter into public-private partnerships (PPPs) can give companies a competitive edge. The success in such partnerships largely depends on a company's financial health and its ability to handle large projects that often require collaboration with government and other partners.

In essence, for construction firms in Sarawak, having a strong and well-managed capital structure is crucial. It not only provides the stability to manage the risks associated with large-

scale infrastructure projects but also positions these firms to take full advantage of the growth opportunities presented by the state's development strategy.

5.4.3 Recognizing the Role of Financial Access as Both an Amplifier and a Potential Challenge in Managing Financial and Operational Outcomes

Financial access plays a dual role in influencing a company's performance. On one hand, adequate financial accessibility allows companies to invest in new technologies, hire additional labor, and expand operations, thereby enhancing growth and operational capabilities. On the other hand, it can also present challenges, particularly if not managed wisely (Modigliani & Miller, 1958).

The findings suggest that while financial access can enhance the positive impacts of factors like capital and capacity, it can also exacerbate vulnerabilities associated with factors such as poor character or inadequate governance structures. Therefore, managing financial access involves not just securing adequate and timely finances but also ensuring that these resources are channeled into productive uses that align with long-term strategic goals (Barua, 2020).

For practical application, construction companies should develop comprehensive financial strategies that address both the acquisition and the management of financial resources (Debrah et al., 2022). This includes establishing strict criteria for evaluating investment opportunities, continuously monitoring and managing financial risks, and ensuring that all financial activities align with the overall strategic objectives of the company.

Moreover, practitioners must be adept at navigating financial markets to optimize their capital structure according to changing economic conditions and internal corporate strategies. This might involve engaging with new types of financial instruments or diversifying funding sources to reduce dependence on any single creditor or investor group (Kumar et al., 2020).

In the context of Malaysia's socially and economically diverse landscape, financial access plays a critical role in shaping business outcomes. The government's emphasis on financial inclusivity and the development of comprehensive financial markets opens up numerous avenues for construction firms to access funding (Cheong et al., 2020). However, this access must be managed strategically to prevent over-leverage and ensure alignment with long-term business goals.

For Sarawak, which is experiencing rapid development under the PCDS 2030 framework, companies must navigate financial access carefully. The initiative aims to transform Sarawak into a high-income economy by 2030 through infrastructure, digital economy, and community-oriented projects. Construction firms, therefore, need to align their financial strategies with these goals, ensuring that financial accessibility translates into sustainable business growth rather than short-term gains (Sarawak Government Publications, 2023).

An exemplar of this strategic alignment can be found in the approach to funding the Sarawak Metro project. This initiative, a cornerstone of PCDS 2030's infrastructure development, necessitates significant capital outlay, and construction firms involved must carefully balance their capital sourcing to ensure project viability without compromising financial stability. A practical application of this strategic financial management might see a construction company opting to combine government grants, which are often provided for infrastructural projects under PCDS 2030, with long-term loans at favourable interest rates. This blend of financing reduces the cost of capital while aligning with the developmental ethos of PCDS 2030.

Moreover, firms should consider the implications of engaging in community-oriented projects, such as the construction of affordable housing in line with PCDS 2030's community development goals. These projects may not yield immediate high returns but contribute to the

firm's long-term sustainability by establishing a reputation as a responsible corporate citizen committed to Sarawak's socio-economic upliftment. The strategic foresight in financing such projects could involve securing subsidies or entering into risk-sharing agreements with government bodies, thereby aligning the firms' financial strategies with the broader developmental narrative.

In the domain of the digital economy, Sarawak's construction firms are compelled to finance technological advancements and digitalization of their operations. Financial accessibility for such modernization can be sourced from specialized technology funds or digital economy initiatives sponsored by the government. Investing in these areas not only supports the objectives of PCDS 2030 but also provides the firm with long-term competitive advantages.

In conclusion, enhancing company performance through improved management of creditworthiness factors such as credibility, capital, and financial access is critical for practitioners in the construction industry. The practical implications, grounded in rigorous academic research and industry best practices, provide a robust framework for companies seeking to optimize their financial and operational outcomes in the dynamic construction industry environment.

5.5 Recommendations

5.5.1 Creditworthiness Improvement Strategies

5.5.1.1 Strengthening Credibility

Credibility, within the construction industry, is contingent upon transparent practices and meticulous financial reporting (Lundh et al., 2024). In Malaysia, adherence to Malaysian Financial Reporting Standards (MFRS) and regular auditing by reputable firms are non-negotiable for establishing a trustworthy reputation. A practical embodiment of this is the integration of MFRS-compliant software in financial management systems. Such systems enable Sarawak's construction SMEs to provide stakeholders with transparent financial insights, essential for informed decision-making and fostering investor confidence.

Moreover, building trust through consistent ethical practices is paramount (Porath, 2023). Firms should not only meet but strive to exceed the industry standards for safety, quality, and ethics. Establishing a reliable and honest track record in project delivery and corporate governance contributes significantly to long-term business success. This dedication to trustworthiness aligns with the socio-economic pillars of Sarawak's PCDS 2030, underscoring the importance of ethical business operations in achieving regional development goals.

5.5.1.2 Enhancing Capital

Equity financing emerges as a strategic route to bolster capital without the constraints of excessive debt (Goodhart & Lastra, 2020). This approach could be actualized through private equity investments or considered public offerings within the framework of the Securities Commission Malaysia. For instance, a Sarawak construction firm might enhance its capital base by showcasing its strategic involvement in PCDS 2030 projects, thereby attracting investors who are aligned with the developmental vision of the region.

Retention of earnings should be regarded as an intrinsic element of financial prudence, paving the way for re-investment in key growth areas (Ball et al., 2020). This can manifest in the allocation of profits towards the funding of technologically advanced, sustainable construction projects, resonating with the ethos of Sarawak's infrastructural ambitions and the MADANI framework.

5.5.1.3 Increasing Capacity

Skills development is integral to maintaining a competitive edge (Mahdi & Nassar, 2021). Construction SMEs should prioritize investment in employee training programs that focus on the proficiency of modern construction techniques and sustainability practices. In alignment with the MADANI framework, the emphasis on green building standards and certifications can enhance a firm's capacity to engage in sustainable construction projects.

Technological advancements present a conduit for operational efficiency and cost reduction (Khan et al., 2020). Adoption of advanced construction technologies like BIM, and engagement with digital tools, can drastically improve project planning and execution. This not only supports the PCDS 2030's focus on a technologically driven economy but also places SMEs at the forefront of the digital transformation in construction.

5.5.2 Optimizing Financial Access

Optimizing financial access involves strategic maneuvers that not only improve the liquidity and financial stability of SMEs but also enhance their ability to engage in long-term sustainable growth activities (Hu & Kee, 2022).

For SMEs, particularly in the construction sector, securing loans with favourable terms is vital. This includes lower interest rates, longer repayment periods, and flexible payment options that align with the cash flow patterns typical to the industry, where payments can be

irregular and tied to project milestones. Negotiating these terms requires a good understanding of market conditions and strong financial propositions. SMEs might benefit from consulting with financial advisors or using tailored financial services that cater specifically to the construction industry's unique needs.

For construction SMEs in Malaysia, particularly those operating within the framework of Sarawak's PCDS 2030 and under the guiding principles of the MADANI framework, this involves a dual approach, which are securing favourable loan terms and effectively leveraging government support programs. Under the PCDS 2030 and the MADANI framework, the Malaysian government has introduced several initiatives aimed at supporting the construction sector. These include grants, subsidies, and special loan programs designed to foster innovation, sustainable practices, and infrastructure development. SMEs should actively seek out these opportunities and ensure they meet the eligibility criteria to benefit from these programs. This might involve aligning business practices with sustainable and innovative construction methods that are increasingly favoured by government policies.

Combining these strategies effectively requires an integrated approach. SMEs should maintain robust financial records and project management practices to enhance their creditworthiness and attractiveness to both lenders and government programs. This involves regular financial auditing, transparent reporting, and strategic planning that aligns with both current economic conditions and long-term sectoral forecasts.

5.5.2.1 Securing Favorable Loan Terms

Successful financial management requires that construction SMEs engage proactively with banks and other financial institutions to negotiate loan terms that align with their long-term business strategies (Wang, 2024). This negotiation process should focus on securing lower interest rates, extended repayment periods, and possibly obtaining flexible payment options

that correspond to project cash flows. For instance, construction projects often experience fluctuating financial needs and delayed returns on investment. Therefore, obtaining credit facilities with customizable repayment plans can significantly ease the financial burden and enhance project viability.

Moreover, SMEs should strive to build strong relationships with multiple financial institutions (Kulathunga et al., 2020). This not only increases their borrowing options but also enhances their ability to secure more competitive terms. A diversified approach to banking and finance can provide leverage in negotiations, ensuring that terms can be adjusted to better meet the evolving needs of the business.

The Malaysian government, through initiatives like the MADANI framework, offers a variety of financing programs designed to bolster SMEs, including those in the construction sector (CIDB, 2023). These programs often provide more favourable terms than those available through traditional commercial lending channels. For example, government-backed loans might offer lower interest rates or subsidies that specifically support infrastructure development or technological innovation in construction.

SMEs should remain well-informed about these opportunities and apply for government programs that align with their business objectives. Participation in these programs not only eases financial strain but also aligns SMEs with national economic development goals, potentially leading to further support and collaboration opportunities.

5.5.2.2 Government Support Programs

In an industry as dynamic as construction, continuous improvement and innovation are crucial for maintaining competitiveness (Skordoulis et al., 2020). The Malaysian government encourages this innovation through R&D incentives, including tax reliefs and grants,

particularly for developments in sustainable practices and new construction technologies. SMEs should capitalize on these incentives to invest in R&D activities that lead to more efficient, cost-effective, and environmentally friendly construction methods.

For instance, investing in the development of modular construction techniques or green building materials can not only reduce the overall project costs but also align the company with the increasing global and national demand for sustainable development, a key aspect of both the MADANI framework and PCDS 2030.

Public-Private Partnerships (PPPs) represent a significant opportunity under the PCDS 2030 for constructing major infrastructure projects (Fabre & Straub, 2023). These partnerships allow private companies to undertake public projects with financial and sometimes technological support from the government. For SMEs, this is a chance to engage in larger projects than they might otherwise be able to manage independently.

Actively seeking out PPP opportunities requires SMEs to have a clear understanding of the public sector's goals and the specific requirements of each project. Engaging in PPPs can provide SMEs access to larger markets and more significant projects, fostering growth and enhancing their reputation within the industry.

5.5.3 Risk Management

Effective risk management is critical for the sustainability and profitability of small and medium enterprises (SMEs) in the construction sector (Dvorsky et al., 2021). In the dynamic and often volatile market of Malaysia, particularly in Sarawak under the evolving PCDS 2030 framework, SMEs must adopt rigorous and tailored risk management strategies. These strategies should encompass both credit and market risk assessments and be reflective of the SMEs' specific creditworthiness profiles.

Credit risk assessment involves analysing the creditworthiness of customers and partners. SMEs must evaluate the financial stability of their clients and suppliers to mitigate the risk of defaults and delayed payments. Implementing rigorous credit control measures, such as credit scoring and enhanced due diligence, can help SMEs avoid financial disruptions.

Given the volatile nature of the construction market, SMEs need to assess and prepare for fluctuations in market demands and price changes. This can include strategies such as diversifying client portfolios, investing in market research, and staying adaptable to changing economic conditions.

The regulatory environment in Malaysia can be challenging, and it is crucial for SMEs to ensure compliance with all legal requirements. This involves keeping up-to-date with changes in the law, engaging with legal experts, and implementing compliance training for staff.

5.5.3.1 Tailored Risk Management Strategies

SMEs must engage in comprehensive credit risk assessments to fully understand and prepare for potential financial risks (Crovini, Santoro & Ossola, 2021). This process involves analyzing the creditworthiness of clients and project partners, as well as assessing the financial health of the SME itself. Effective credit risk management may include conducting detailed financial analyses of potential clients or contractors, examining their past project completions, payment histories, and overall financial stability. This helps in making informed decisions about with whom to do business, and under what terms, to minimize the likelihood of financial losses.

Additionally, establishing clear credit control policies, such as phased payments or upfront deposits, can mitigate the risk of non-payment (Noori, 2021). Regular reviews of these policies should be conducted to ensure they remain effective and responsive to changing market

conditions. Keeping abreast of market trends and regulatory changes is essential for construction SMEs (Liu et al., 2022). These entities need to regularly evaluate how fluctuations in the market and shifts in government regulations might impact their operations. This involves not only tracking changes in the cost of materials and labor but also staying updated with new laws that could affect project delivery, such as environmental regulations or building standards.

SMEs should also engage in scenario planning to anticipate potential market changes and develop strategies to mitigate these risks (Naradda et al, 2020). For example, securing fixed-price contracts for materials during periods of market stability can protect against price fluctuations during economic volatility.

5.5.3.2 Specific Creditworthiness Profile Reflection

Given the particular risks associated with the construction sector in Sarawak, such as environmental hazards, political changes, or economic fluctuations, SMEs should consider insurance products tailored to these unique challenges (Md Husin & Haron, 2020). Customized insurance solutions might include coverage for project delays due to unforeseen environmental issues, damages from natural disasters, or liability for construction defects.

Furthermore, as Sarawak continues to develop under the PCDS 2030, construction projects may face increased risks associated with infrastructure complexity and technological integration. Insurance products that specifically cover these aspects can be a crucial part of risk management strategies, providing financial security and peace of mind.

Diversifying the project portfolio is a key strategy for spreading risk and enhancing financial stability (Khakimovna, 2024). Construction SMEs should look to balance their project types across residential, commercial, and infrastructure development. Additionally, expanding into new geographic areas within Malaysia can reduce the dependency on the Sarawak market alone.

Diversification can also extend to the technological aspects of construction (Zabala-Iturriagagoitia et al., 2020). By investing in digital construction methods and sustainable building practices, SMEs can access a broader range of market opportunities, align with global trends, and reduce risks associated with traditional construction methods.

5.6 Limitations of the Study

The study was conducted solely within the Sarawak region. This geographical limitation means the findings may not be applicable to other areas, which could have different economic conditions and business practices. Geographic specificity restricts the external validity and generalizability of the results to broader contexts (Bryman, 2012). Focusing exclusively on the construction sector limits the applicability of the findings to other sectors that may not share the same characteristics, such as financial volatility and dependency on economic cycles typical of the construction industry (Flyvbjerg, 2014).

The study primarily utilized quantitative methods, which might not capture all nuances of SME performance and creditworthiness. Qualitative data could provide deeper insights into underlying reasons and motivations not captured through survey methods (Creswell, 2013). The conclusions drawn from the study depend heavily on the representativeness of the sample size. A small or biased sample can lead to generalizations that do not hold across the wider population (Kothari, 2004). Employing a cross-sectional approach limits the ability to draw causal inferences from the data. Longitudinal designs could better determine causality by observing changes over time (Menard, 2002).

The statistical power of the study affects the ability to detect true effects, and limitations in this area may result in Type I or II errors, potentially leading to incorrect conclusions (Cohen, 1988). The use of SEM assumes linear relationships among variables, which may not fully capture complex, real-world interactions that are non-linear (Hayes, 2013). The findings are

context-specific and influenced by the regional economic and industrial conditions at the time of study. Changes in these conditions can alter the dynamics between creditworthiness and SME performance, thus affecting the generalizability of the results over time (Shadish et al., 2002).

Interpretations are constrained by the theoretical frameworks and variables selected for analysis. Excluding variables such as macroeconomic factors, market conditions, or company-specific strategies might influence SME performance but were not considered in the study.

5.7 Directions for Future Research

By acknowledging the limitations, the research underlines the contextual applicability of its findings and highlights areas for further detailed investigation to enrich the understanding of SME performance dynamics in varying contexts. Future research should expand the geographical and sector scope, integrate mixed methods to enrich data interpretation, and employ longitudinal designs to establish causality more robustly. Additionally, including more variables could provide a fuller understanding of the factors affecting SME performance and creditworthiness (Cherugong, 2015)

Future research could include comparative analyses between different regions or countries to explore how geographic and cultural contexts influence the relationship between creditworthiness and SME performance (King et al., 1994). Such studies could help validate the findings from Sarawak across broader contexts. Investigating this relationship in regions with varying economic stability could provide insights into how economic fluctuations impact SME creditworthiness and performance. Expanding the research to include multiple sectors would allow for the examination of whether and how sector-specific factors influence SME performance and creditworthiness. This could involve sectors with different risk profiles,

capital structures, and market dynamics than the construction industry. Research could explore the interplay between different sectors, such as the influence of the construction sector on manufacturing and services, particularly in how SMEs manage credit across these interfaces.

Menard (2002) discusses the strength of longitudinal studies in establishing causality by observing changes over time, which could be pivotal for understanding shifts in SME performance and creditworthiness. Implementing longitudinal studies would allow researchers to track changes over time, offering a more dynamic view of how SME creditworthiness and performance evolve and respond to external pressures. Incorporating qualitative methods such as interviews, case studies, or ethnographic research could provide deeper insights into the motivations, strategies, and internal dynamics of SMEs that surveys alone may not capture. To address the richness of data interpretation, integrating mixed methods in future research is advocated by Creswell and Plano Clark (2018), who highlight the benefits of this approach in providing comprehensive insights into research questions.

Raudenbush and Bryk (2002) argue for the use of hierarchical linear modeling to analyze data that involve complexities such as nested structures, which could be relevant when examining SMEs across different sectors or regions. Utilizing advanced statistical models, such as hierarchical linear modeling (HLM) or machine learning algorithms, could help uncover non-linear relationships and complex interaction effects between variables. Future studies could incorporate both macroeconomic indicators and micro-level data, such as managerial strategies and operational efficiencies, to provide a holistic view of factors impacting SME performance. To address the richness of data interpretation, integrating mixed methods in future research is advocated by Creswell and Plano Clark (2018), who highlight the benefits of this approach in providing comprehensive insights into research questions.

Future research should leverage theories from behavioral economics, finance, and psychology, such as Kahneman and Tversky's Prospect Theory (1979) or the broader field of

behavioral finance, to dissect decision-making processes in SMEs, particularly in relation to credit and performance. This approach could unveil the cognitive biases and rationalities that influence SME leaders' financial decisions. Engaging interdisciplinary methodologies that merge insights from economics, sociology, and business management could enrich our understanding of SME dynamics across diverse economic and cultural landscapes (Granovetter, 1985).

Furthermore, investigations into the effects of specific governmental policies on SME creditworthiness and performance are crucial. Such research might examine the impacts of changes in tax regulations, interest rates, or subsidy schemes, providing valuable feedback loops to refine both academic theories and practical models (Bertoldi et al., 2021). For instance, understanding how digital technologies and innovations in digital finance, e-commerce, and online business models affect SME operations can shed light on new avenues for creditworthiness and market performance (Mangifera et al., 2022).

Additionally, the role of sustainability in SME financing merits attention, especially exploring how green credentials influence creditworthiness and access to green finance. This could include studying the impact of environmental performance on financial advantages in the context of increasing global emphasis on sustainable development (Debrah et al., 2022).

5.8 Conclusion

This study has explored the intricate dynamics of SME performance within the construction industry, with a focused examination of the roles played by creditworthiness and financial access. The findings contribute significantly to both academic understanding and practical applications, offering valuable insights into how these factors influence SME sustainability and growth.

The study has systematically dissected the elements of creditworthiness—credibility, capital, and capacity—and their pivotal influence on the operational and financial outcomes of SMEs. By integrating a nuanced analysis of financial access as both a facilitator and a barrier to SME performance, this research extends the theoretical frameworks of financial management within the construction sector. The examination of these dynamics through the lens of contemporary economic theory enriches the scholarly discourse by demonstrating the complex interdependencies between internal management practices and external economic conditions.

Furthermore, the application of advanced statistical methodologies to assess these relationships provides a robust empirical foundation that future researchers can build upon. This work not only fills a critical gap in the existing literature by linking creditworthiness and financial access with SME performance but also sets a precedent for future empirical inquiries into the sector-specific nuances of business performance.

For industry stakeholders, the practical implications of this study are manifold. The research underscores the importance of maintaining a strong credit profile, highlighting how elements such as enhanced credibility, robust capital structures, and expanded capacity can directly impact business success. These insights are particularly valuable in guiding SMEs in the construction sector to prioritize financial strategies and business practices that enhance their market competitiveness and operational efficiency.

Moreover, the study's findings on the critical role of financial access provide actionable strategies for SMEs to better leverage financial tools and resources. This includes practical advice on negotiating favorable loan terms, effectively utilizing government support programs, and engaging in public-private partnerships under initiatives like Malaysia's PCDS 2030 and the MADANI framework. These strategies not only help in mitigating financial risks but also

in capitalizing on growth opportunities within the evolving economic landscape of Sarawak and beyond.

This research also has significant implications for policy-makers and industry leaders. By demonstrating the tangible benefits of improved financial access and robust creditworthiness, the study advocates for more supportive financial and regulatory environments. Policymakers are encouraged to consider the formulation and implementation of policies that facilitate easier financial accessibility for SMEs, support the development of risk management capabilities, and foster an environment conducive to business growth and innovation.

In conclusion, this study provides comprehensive insights into the factors that drive SME performance in the construction industry, with a specific focus on the interplay between creditworthiness and financial access. The study highlights the importance of strategic financial management and provides a clear roadmap for SMEs to enhance their performance. It also calls on stakeholders to support an ecosystem that promotes financial stability and access, ensuring that SMEs can thrive in competitive and challenging markets. Through its academic contributions and practical recommendations, this research serves as a cornerstone for future studies and a guide for industry practices, ultimately aiming to bolster the resilience and prosperity of SMEs in the construction sector.

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APPENDIX I
QUESTIONNAIRE



FACULTY OF
ECONOMICS & BUSINESS

**THE RELATIONSHIP BETWEEN CREDITWORTHINESS AND THE
PERFORMANCE OF SMALL AND MEDIUM ENTERPRISE (SMEs) IN
CONSTRUCTION INDUSTRY**

Dear Respondent,

First of all, thank you for your time for taking part in this survey. The main purpose of this survey is to measure the the relationship between creditworthiness and the performance of small and medium enterprise (SMEs) in construction industry.

I am a final year student of Doctorate Business Administration (DBA) from Universiti Malaysia Sarawak (UNIMAS). The purpose of this questionnaire is purely academic research

Please note that this survey is conducted solely for academic purposes, and the results analysed and reported in an aggregated manner. **Your responses treated with strict confidentiality.** The completion of this questionnaire will take approximately 5 minutes of your time. There is no right or wrong answer in this questionnaire. We are merely interested to know your opinion and suggestions. Kindly complete the questionnaire based on your honest opinion. We guarantee your utmost confidentiality of whatever information you provide, and no source of personal data identified during the aggregation of the data.

If you have any questions or require further clarification regarding this questionnaire, please feel free to contact me via email at jaenetliaw@gmail.com

Again, thank you for your precious time and kind cooperation.

Sincerely Yours,

Jaenetliaw

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PRELIMINARY QUESTIONS: The following questions serve as a confirmation of whether you are eligible to answer all questions in this survey. Please mark ☒ in the relevant boxes to indicate your response.

- P1. Is your company registered in Sarawak?** ☐ Yes ☐ No
- P2. Is your company involved in the construction sector?** ☐ Yes ☐ No
- P3. Has your company accessed funding from any financial institutions?** ☐ Yes ☐ No

Important note: If you answer "NO" to any of the question above, your survey ended here. Thank you for your time and cooperation.

Section A: Demographic Information

In this section, we kindly request that you provide demographic information about your company, which kept strictly confidential for research purposes.

Please mark ☒ in the relevant boxes to indicate your response.

- A1. Year of Business Commencement**
- | | |
|--|---|
| ☐ Less than 5 years | ☐ 6-10 |
| ☐ 11-15 | ☐ More than 15 years |
- A2. Ownership Structure**
- | | |
|--|--|
| ☐ Sole proprietorship | ☐ Limited Partnership Liability |
| ☐ Partnership | ☐ Sdn Bhd |
- A3. Company Size**
- | | |
|---|--|
| ☐ Micro (<i>less than 5 employees</i>) | ☐ Medium (<i>30 - 75 employees</i>) |
| ☐ Small (<i>5 – 30 employees</i>) | |
- A4. Customer Base**
- | | |
|--|---|
| ☐ Private construction project only | ☐ Government construction project only |
| ☐ Private & government construction project | |
- A5. Annual Turnover of the company**
- | | |
|--|--|
| ☐ Less than RM500,000.00 | ☐ RM500,000.00 – RM1,000,000.00 |
| ☐ RM1,000,000.00 – RM5,000,000.00 | ☐ More than RM5,000,000.00 |

Section B: Creditworthiness Assessment

On a scale of 1 to 5, how you would rate your company on the creditworthiness dimensions?

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Character		1	2	3	4	5
CH1	Our company has high credit discipline.					
CH2	Our company has a good repayment reputation.					
CH3	Our company has a strong ability to pay the debts.					
CH4	Our company always pays the loan installment before the due date.					
Capacity		1	2	3	4	5
CA1	Our company can easily obtained the raw materials.					
CA2	Our company has an experience management team.					
CA3	Our company allocates funds from financing to support operations.					
CA4	Our company manage risks and adapts to changing circumstances.					
Collateral		1	2	3	4	5
CO1	Our company has valuable assets.					
CO2	Our company's fixed assets are free from encumbrance.					
CO3	Our company has a high forced sale value of collateral in secure loans.					
CO4	Our company has marketability and quality of collateral in secure loans.					
Capital		1	2	3	4	5
CP1	Our company has realistic cash flow.					
CP2	Our company has available cash in bank.					
CP3	Our company's annual revenue or turnover is on an increasing trend.					
CP4	Our company has a strong credit score from credit referencing bureaus.					
Condition		1	2	3	4	5
CN1	Our company complies with regulatory requirements.					
CN2	Our company is not affected by the specific industry trends.					
CN3	Our company is not affected by the changes in overall economic climate. (e.g., economic downturns, inflation rates)					
CN4	Our company does not encounter with project-specific risks or challenges. (e.g., weather-related delays, unexpected site conditions)					
Credibility		1	2	3	4	5
CR1	Our company is adaptable to changing market conditions.					
CR2	Our company practices transparency and adheres to quality standards.					
CR3	Our company has notable achievements, awards, or recognitions.					
CR4	Our company's key personnel (such as executives, managers, and technical experts) are qualified and experienced in their respective fields.					

Section C: Company Performance

On a scale of 1 to 5, how you would rate yours company financial performance and non-financial performance as compared to other companies?

Much Worse	Worse	Neutral	Better	Much Better
1	2	3	4	5

Financial Performance		1	2	3	4	5
FP1	Organisational performance measured by return on sales.					

	(i.e. how much operating profits gain from every RM1 of sales)					
FP2	Organisational performance measured by operating cash flow. (i.e. does company generated sufficient positive cash flow)					
FP3	Organisational performance measured by return on assets (ROA). (i.e. how much profit generated from every RM1 of assets)					
FP4	Organisational performance measured by return on equity (ROE). (i.e. how much profit generated from every RM1 invested by shareholders)					
FP5	Organisational performance measured by return of investment (ROI). (i.e. how much profit generated from every RM1 invested)					

Non-Financial Performance		1	2	3	4	5
NFP1	Organisational performance measured by company's reputation.					
NFP2	Organisational performance measured by customer's satisfaction.					
NFP3	Organisational performance measured by market share in the industry.					
NFP4	Organisational performance measured by the quality of work delivered.					
NFP5	Organisational performance measured by work delivered within the project timeframe. (e.g. no delays in the project executed)					

Section D: Financing Access

On a scale of 1 to 5, how you would rate your company financial performance and non-financial performance via access to financing?

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

Financing Access		1	2	3	4	5
FA1	Our company has received loans from financial institutions					
FA2	Our company receives loans easily from financial institutions.					
FA3	Our company receives loans from more than one financial institution.					
FA4	Our company can readily secure financing from banks with which it has a longer relationship with our company.					
FA5	Our company is aware of alternative financing options such as venture capital and crowdfunding.					

End of survey. Thank you for your participation.

APPENDIX II

LIST OF COMPANIES QUESTIONNAIRE DISTRIBUTED

No.	Company Name	No.	Company Name
1	Musyati Machinerries Sdn Bhd	53	Wawasan Capital Sdn. Bhd.
2	Power Cartel Sdn Bhd	54	Lauta Jaya Sdn. Bhd.
3	Tecktonic Minerals Sdn Bhd	55	Treca Bina Sdn Bhd
4	Tecktonic & Sons Holdings Sdn Bhd	56	Sk Indah Sdn Bhd
5	San Chin-Bbc Jv Sdn Bhd	57	Melatai Resources Sdn. Bhd.
6	Rkr Land Sdn Bhd	58	Rj Realty Sdn Bhd
7	San Chin Trading Co	59	Hartanah Construction & Development SB
8	Kota Dijaya (Sarawak) Sdn Bhd	60	Konsortium Bumi Consultants And Services SB
9	San Chin Realty Sdn. Bhd.	61	Asteel Development Sdn. Bhd.
10	Rimba Central Sdn Bhd	62	Yung Kong Construction Sdn Bhd
11	Rimba Hartawan Sdn Bhd	63	Infinite Project Management Sdn Bhd
12	Houlee Contracts Sdn Bhd	64	Diameco Project Management Sdn Bhd
13	Houlee Engineering Sdn Bhd	65	An-Nashr Resources
14	Howah Ceiling & Renovation Sdn Bhd	66	Syarikat Rabong and Salang Construction
15	Howah Ceiling & Construction Sdn. Bhd.	67	Shadeeq works Enterprise
16	Howasar Contracts Sdn. Bhd.	68	Syarikat Usahasama Baima
17	Amma Home Sdn. Bhd.	69	Evertch Engineering
18	Hll Concrete Resources Sdn Bhd	70	Syarikat Jaya Letrik Dan Keluarga
19	Bumia Sdn. Bhd.	71	Tazz Teknik
20	Eco Planet Resources Sdn. Bhd.	72	Cahaya Sejahtera Jaya
21	Syarikat Perniagaan Dasra Sdn. Bhd.	73	A.D.S Electrical Company
22	Globalship Engineering And Welding SB	74	Ahkma Group Sdn. Bhd
23	Grandwork Concept Sdn Bhd	75	Diamond Geo Tech Sdn. Bhd
24	Hck Premier Builders Sdn. Bhd.	76	Syarikat Bina Inspirasi
25	Jyd Bina Sdn. Bhd.	77	Wefan Construction
26	K J S Capital Sdn. Bhd.	78	5S Bersaudara Sdn. Bhd
27	Lcs Metal Works Sdn Bhd	79	EPR (Kuching) Sdn Bhd
28	Lya Construction Group Sdn. Bhd.	80	Sara Muhibbah Sdn Bhd
29	Qisar Roban Associates Sdn. Bhd.	81	Turbowolf Resources Sdn Bhd
30	Premier Builders Sdn. Bhd.	82	Bumimas Synergy Sdn Bhd
31	Techkem Resources Sdn Bhd	83	Layun Enterprise Sdn Bhd
32	Mirecont Sdn Bhd	84	Exquisite Avenue Sdn Bhd
33	Mexajati Sdn Bhd	85	Bumi Prima Century Sdn Bhd
34	Betong Concrete Sdn Bhd	86	Torr Energy Sdn Bhd
35	Kueh Joo Sang Construction Sdn Bhd	87	Wawasan Gas Sdn Bhd
36	Pembinaan Maju Nt Sdn Bhd	88	K-Frontiers Sdn Bhd
37	Cheng Feng Construction Sdn Bhd	89	Global Pipeline Engineering Sdn Bhd
38	Syarikat Sutano Sdn Bhd	90	Exclusive Revenue Sdn Bhd
39	Bong Jee Nyan Construction Sdn. Bhd.	91	Maysville Sdn Bhd
40	Pembinaan Ali Shapiee Sdn. Bhd.	92	Zima Enterprise Sdn Bhd
41	Lth Enterprise Sdn. Bhd.	93	Technology Professional Engineering (Sarawak) Sdn Bhd
42	Hannen Construction Sdn. Bhd.	94	Global Tesla Sdn Bhd
43	Welcojaya Homes Sdn. Bhd.	95	T3 Synergy Sdn Bhd
44	Tiong Ung Siew Sdn. Bhd.	96	Jayvestar Sdn Bhd
45	AI System Engineering & Services Sdn Bhd	97	Ciri Kuasa Sdn Bhd
46	Mazmur Teknikal Sdn Bhd	98	HMN Nadhir Sdn Bhd
47	Vista Trade Sdn Bhd	99	Armani Rewards Sdn Bhd /
48	Genviro Sdn Bhd	100	Bizwin Technologies Sdn Bhd
49	Instrumenttechniques Sdn Bhd	101	Cergas Asli Sdn Bhd
50	STN Power Solutions (M) Sdn Bhd	102	Syarikat Am-Me Sdn Bhd
51	Spring Power Sdn Bhd	103	Ragam Muhibbah Sdn Bhd

52	Pekat Energy (Sarawak) Sdn Bhd	104	Blessing PU Engineering Sdn Bhd
105	Angsana Jaya Sdn Bhd	128	Hazz Global Sdn Bhd
106	Tele Kenyalang Engineering Sdn Bhd	129	Dinasti Tandin
107	Gala Emas Sdn Bhd	130	Empayar Megah Engineering Sdn Bhd
108	Masama Sdn Bhd	131	Faizal Electrical (FBI)
109	Gabungan Binaan Jurutenaga Sdn Bhd	132	Geoimpact Resources
110	PRISTINE GROWTH SDN. BHD.	133	Kalaka Jaya Sdn Bhd
111	Metro Glide Sdn Bhd	134	Mutiara Technology Centre Sdn Bhd
112	Tanah Pesat Sdn Bhd	135	Perusahaan Sama Enterprise
113	Pristine Growth sdn Bhd	136	Pine Contract & Supplies
114	Likun Sdn Bhd	137	Syarikat Elektrik Terash Jaya Sdn Bhd
115	Green Source Energy Sdn Bhd	138	Diameco Project Management Sdn. Bhd.
116	FDH Electrical Sdn Bhd	139	Diameco Advance Sdn. Bhd. (1361156-M)
117	Lanco Sdn Bhd	140	Diameco Bina Sdn. Bhd.
118	Raceco Power Sdn Bhd	141	Global Eco Properties Sdn. Bhd.
119	Suri Pantas Sdn Bhd	142	Global Eco Development Sdn. Bhd.
120	Firas Resources	143	Ups Protection Sdn Bhd
121	Aba Enterprise	144	Mirecont Sdn Bhd
122	Serba Dinamik Sdn Bhd	145	Hiap Ghee Seng Sdn Bhd
123	Perunding Timur (S) Sdn Bhd	146	Waterline Sdn Bhd
124	Ody Enterprise	147	Samado Sdn Bhd
125	E-Concern (M) Sdn Bhd	148	Redpyne Sdn Bhd
126	VI Sempurna Sdn Bhd	149	Junda Realty Sdn Bhd
127	L & M Hardware engineering sdn bhd	150	Multi Construction Sdn Bhd

APPENDIX III
PROOF READING REPORT

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