DETERMINANTS OF GREEN FINANCING ADOPTION AMONG SMALL AND MEDIUM-SIZED ENTERPRISES (SMEs) IN MALAYSIA

LEE MIN ERN
LIM HOOI XING
LIM JIA WEI
NA SIOW HAN
YEE PUO XIN

BACHELOR OF BUSINESS ADMINISTRATION (HONOURS) BANKING AND FINANCE

UNIVERSITI TUNKU ABDUL RAHMAN

TEH HONG PIOW FACULTY OF BUSINESS AND FINANCE
DEPARTMENT OF BANKING AND RISK MANAGEMENT

SEPTEMBER 2025

DETERMINANTS OF GREEN FINANCING ADOPTION AMONG SMALL AND MEDIUM-SIZED ENTERPRISES (SMEs) IN MALAYSIA

BY

LEE MIN ERN
LIM HOOI XING
LIM JIA WEI
NA SIOW HAN
YEE PUO XIN

A final year project submitted in partial fulfillment of the requirement for the degree of

BACHELOR OF BUSINESS ADMINISTRATION (HONOURS) BANKING AND FINANCE

UNIVERSITI TUNKU ABDUL RAHMAN

TEH HONG PIOW FACULTY OF BUSINESS AND FINANCE
DEPARTMENT OF BANKING AND RISK MANAGEMENT

SEPTEMBER 2025

DECLARATION

We hereby declare that:

(1) This undergraduate FYP is the end result of our own work and that due acknowledgement has been given in the references to ALL sources of information be they printed, electronic, or personal.
(2) No portion of this FYP has been submitted in support of any application for any other degree or qualification of this or any other university, or other institutes of learning.
(3) Equal contribution has been made by each group member in completing the FYP.
(4) The word count of this research report is 26160.

Name of Student:	Student ID:	Signature:
1. LEE MIN ERN	2104651	
2. LIM HOOI XING	2105881	
3. LIM JIA WEI	2105538	
4. NA SIOW HAN	2106274	
5. YEE PUO XIN	2105008	

Date: 8/9/2025

ACKNOWLEDGEMENT

First and foremost, we would like to express our heartfelt gratitude to our supervisor, Dr William Choo Keng Soon, for his invaluable guidance, constructive feedback, and unwavering support throughout the course of this Final Year Project. His expertise and encouragement have been instrumental in shaping the direction and outcome of our research.

We would also like to extend our sincere appreciation to our teammates, whose dedication, cooperation, and team spirit made this journey both productive and enjoyable. Their commitment and collaborative efforts ensured that every stage of this project was carried out efficiently and effectively.

Our deepest thanks go to all the participating Small and Medium-Sized Enterprises (SMEs) who generously responded to our survey and provided us with insightful and meaningful responses. Their time, honesty, and willingness to share their perspectives made a significant contribution to the success of this study.

Lastly, we would like to acknowledge all individuals and organisations who have supported us directly or indirectly throughout this journey. Whether through academic advice, moral support, or technical assistance, your contributions have been truly appreciated and have played a part in making this project a success.

PREFACE

This research project is submitted in partial fulfilment of the requirements for the Bachelor of Business Administration (Hons) in Banking and Finance at Universiti Tunku Abdul Rahman (UTAR). The title of this study is "Determinants of Green Financing Adoption Among Small and Medium-Sized Enterprises (SMEs) in Malaysia."

The purpose of this study is to examine the key factors that influence the adoption of green financing among SMEs in Malaysia. The independent variables include government support, financing information, technology, environmental commitment, corporate governance, production, and company size. The dependent variable is SME green financing adoption. This topic was chosen due to the increasing importance of sustainable finance and the significant role SMEs play in the country's economic and environmental development.

Through this project, we gained a deeper understanding of green financing and its relevance to small and medium-sized enterprises in Malaysia.

ABSTRACT

Small and medium-sized enterprises (SMEs) play an important role in Malaysia's economic development, but their use of green financing remains restricted, despite rising awareness of climate change and sustainability. Previous research has mostly focused on the impediments to green finance adoption, but there is little understanding of the factors influencing SMEs' financing decisions. As a result, the purpose of this research is to look at the factors that influence Malaysian SMEs' adoption of green finance. The independent factors are government support, financing information, technology, environmental commitment, corporate governance, production, and company size. Primary data were gathered using an online questionnaire distributed to 413 SME financial decision-makers in Malaysia. The data were analysed using descriptive statistics, reliability and multicollinearity tests, and logistic regression with the Likelihood Ratio Test and Wald Test. The findings reveal that financing information, environmental commitment, and company size all have a substantial impact on SMEs' adoption of green financing, however government support, technology, corporate governance, and production do not. These findings emphasize the need of excellent financial communication and strong environmental values in guiding SMEs toward sustainable financing practices. This paper provides significant insights for policymakers, financial institutions, SMEs and academics by outlining measures for increasing green finance adoption and supporting Malaysia's transition to a low-carbon economy.

Keywords: small and medium-sized enterprises (SMEs); green financing; sustainability; financing adoption; Malaysia

Subject Area: HG1641 – 1643 Bank loans. Bank credit. Commercial loans

TABLE OF CONTENTS

LIST OF TABLES

Page

LIST OF FIGURES

LIST OF ABBREVIATIONS

AI	Artificial Intelligence
ASEAN	The Association of Southeast Asian Nations
BNM	Bank Negara Malaysia
CO_2	Carbon Dioxide
CSR	Corporate Social Responsibility
ESG	Environment, Social and Governance
FinTech	Financial Technology
GBGs	Green Bank Guidelines
GFI	Green Finance Initiatives
GFTS	Green Technology Financing Scheme
GFSG	Green Financial System Guidelines
GGFI	Global Green Finance Index
GITA	Green Investment Tax Allowance
GITE	Green Income Tax Exemption
Logit	Logistic Regression
MCCG	Malaysian Code on Corporate Governance
MICG	Malaysian Institute of Corporate Governance
ML	Machine Learning
MSMEs	Micro, Small, and Medium Enterprises
OECD	Organisation for Economic Co-operation and Development

PCA	Principal Component Analysis
PLS	Partial Least Square
SBP	State Bank of Pakistan
SCP	Sustainable Consumption and Production
SDGs	Sustainability Development Goals
SEM	Structural Equation Modelling
SFP	Sustainable Financing Program
SMBs	Small and Medium-Sized Businesses
SME	Small and Medium-sized Enterprise
SPSS	Statistical Package for the Social Sciences
SRI	Sustainable and Responsible Investment
TOL	Tolerance
UNEP	United Nations Environment Program
VIF	Variance Inflation Factor

LIST OF APPENDICES

CHAPTER 1: RESEARCH OVERVIEW

1.1 Introduction

The first chapter of this research presents a foundational overview of the project, focusing on the examination of green finance and small and medium-sized enterprises (SMEs). The document comprises multiple sections intended to clarify the research background, identify relevant concerns, and define research objectives and questions. Furthermore, the chapter explores the importance of the research and emphasizes the benefits and its implications. Finally, a chapter layout and summary are included at the conclusion of the chapter.

1.2 Research Background

1.2.1 Green Financing

The concept of "green financing" includes a range of financial tools and strategies aimed at promoting environmentally sustainable projects. These may encompass financial instruments such as green loans, bonds, grants, or venture capital (Adegbite & Nakpodia, 2020, as cited in Enejo & Ojabo, 2023). Besides that, green financing refers to the allocation of funds to projects and activities that provide environmental advantages. The financing can be sourced from several entities, including

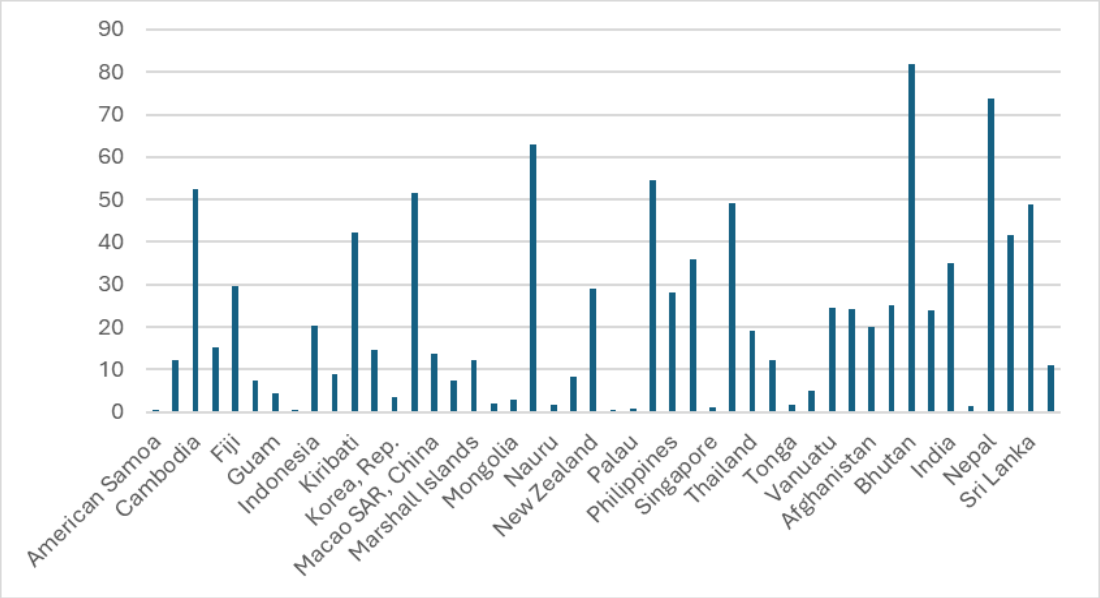
governmental agencies, financial institutions, and venture capital firms (Sinha et al., 2021).

The primary goal of green financing is to foster the growth of the green economy through the funding of programs focused on lowering carbon dioxide (CO_2) emissions, enhancing energy efficiency, and promoting the adoption of renewable energy sources (Onubi et al., 2020, as cited in Raji, 2024). The United Nations Environment Program (UNEP) recently released a report that said green finance is never more essential for achieving the Sustainable Development Goals (SDG)s and putting the 2030 Agenda into action. This is especially true for Goals that deal with climate change, sustainable energy use, and creating sustainable urban environments. The ramifications of global warming intensify concerns about sustainable management (Raji, 2024).

Green financing is gaining prominence in contemporary discourse as society attempts to achieve an environmentally friendly future, therefore it is very important (Sun et al., 2023). According to Rasoulinezhad & Taghizadeh-Hesary (2022), the advancement of green financing can significantly enhance the growth of green energy initiatives. In this study, Tolliver et al. (2020) indicated that the use of green bonds as an instrument for green financing can help to reduce the risk of investment, raise the return on investment, and encourage investors from all over the world to undertake renewable energy initiatives. Furthermore, Zhang and Wang (2019) and Polzin and Sanders (2020) found that green financing might draw in individual investors and create state-private sector synergy to assist nations build sustainable renewable energy. The research conducted by Sarangi (2018) on various elements of green energy finance in India revealed that the expansion of the green energy financing market increases the quality of green projects, which ultimately results in a greater substantial contribution of green energy to India's overall energy basket.

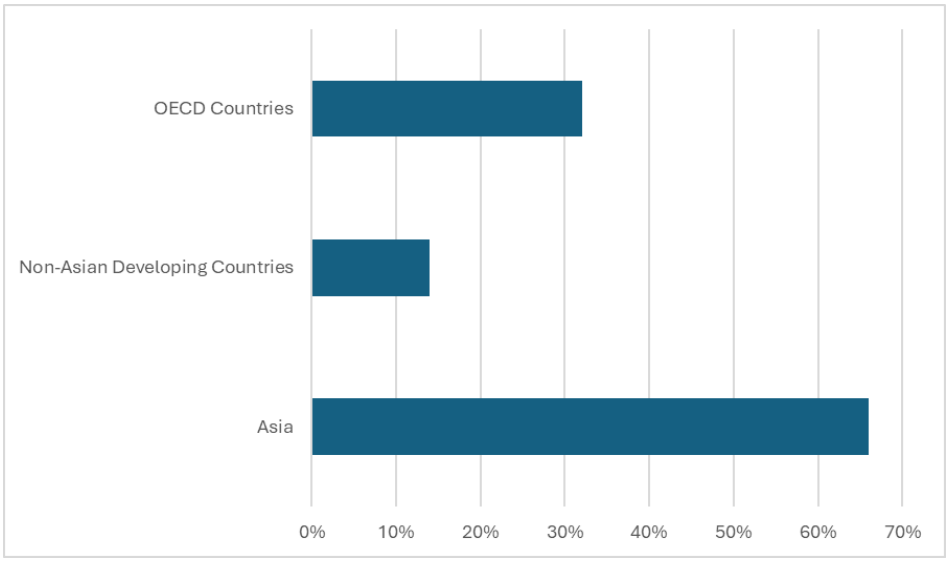
In the research of Raji (2024), the author said that green finance is a crucial instrument for addressing environmental issues, as it aims to invest in technologies and initiatives that alleviate environmental deterioration and preserve natural resources. Green bonds play a crucial role in financing initiatives such as wind energy, solar energy, and sustainable agriculture. These financial tools are not just promoting innovation but also contribute to reducing the ecological impact of certain sectors. In addition, Wen et al. (2021) found that green financing offers benefits for long-term development. It may readily compensate for deficiencies in public services amid congestion and attain superior economic growth (Muganyi et al., 2021). Besides that, Sun et al. (2023) also indicated that actively support renewable energy initiatives and the transition towards sustainable energy sources can help to minimize the nation's carbon footprint.

Nowadays, people are becoming more cognizant of the financial repercussions that might result from ignoring environmental issues as sustainable economies become more prominent across the world (Shobande and Enemona, 2021, as cited in Raji, 2024). Investors and lending institutions recognize that companies that do not employ sustainable practices might face the risk of sanctions, reputational damage, and exclusion from markets (Raji, 2024). Furthermore, fossil fuels are not considered “green”. According to Sachs et al. (2019), the temperature of the earth is predicted to increase by 4-6 degrees Celsius beyond its prehistoric level if the present trend of consumption of fossil fuels persists. The rise in temperature would have devastating consequences to produce food, health of humans, and biological diversity; in fact, in numerous regions, it jeopardizes even the survival of societies. The researchers also indicated that developing Asia depends significantly on coal for electricity production. This presents considerable issues for the environment at the local as well as global levels because it generates substantial greenhouse gas emissions and pollutants upon combustion. In conclusion, it is essential for nations to encourage green financing since if this is not done, it will have a significant influence on the environment in the long term.



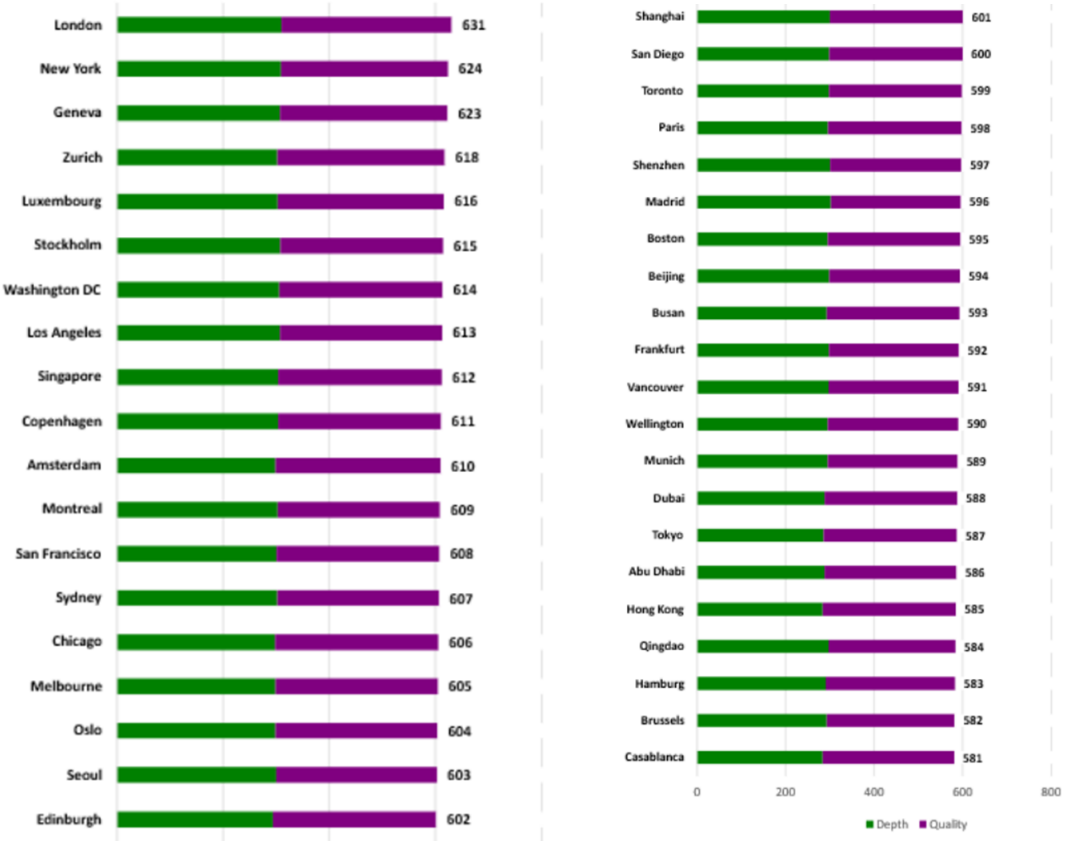
Source: World Bank Development Indicators

Figure 1.1 illustrates the renewable energy consumption in East Asia and Pacific for the year 2021. In general, a higher use of renewable energy is better since it results in a decreased dependence on fossil fuels, a reduction in carbon emissions, and a greener energy future. Bhutan has consumed the highest renewable energy among the other countries.



Source: World Bank's World Development as cited in Sachs et al. (2019)

Figure 1.2 shows that in 2013, Asian developing countries got 66% of their electricity from coal sources, while non-Asian developing countries got only 14% and Organisation for Economic Co-operation and Development (OECD) countries got 32%.



Source: Global Green Finance Index 12 (Wardle et al., 2023).

Figure 1.3 shows the contribution of the dimensions to the overall rating for the top 40 centres in the Global Green Finance Index (GFFI). According to Wardle et al. (2023), financial centres concentrating on green finance must possess excellent quality and depth within their green markets to achieve success. Consequently, it is imperative for each nation to intensify its commitment to green financing.

1.2.2 Green Financing and SMEs

Over the course of the last several years, the importance of sustainability has grown dramatically more apparent throughout the economic landscapes of the whole world (Ogunyele, 2021, as cited in Enejo & Ojabo, 2023). In the study of Bharati and Patra (2022), the authors indicated that a green economy could revolutionize the operational dynamics of the Indian economy. It is the one factor that may facilitate the sustained growth of the nation. Green financing is essential for transitioning to a green economy. SMEs must implement Green Finance Initiatives (GFIs) to render their operations environmentally sustainable. Furthermore, Raji (2024) also stated that green finance has become a crucial component of sustainable development, particularly in growing markets like Nigeria and other African nations, where SMEs play a significant role in the economy.

The relationship between green financing and SMEs is significant, as green financing supplies the essential capital for SMEs to implement sustainable practices. SMEs are essential in fostering economic development, generating employment opportunities, and promoting innovation (Garg & Bansal, 2018 as cited in Enejo & Ojabo, 2023). Nonetheless, numerous individuals encounter financial limitations when attempting to adopt sustainable practices. Green financing could address this gap by providing customized financial solutions that assist SMEs in moving towards sustainable operations. Besides that, green financing also presents a strategic framework for harmonising economic development with environmental stewardship, providing SMEs with an avenue to embrace sustainable practices (World Bank, 2019, as cited in Enejo & Ojabo, 2023).

According to Wang (2024), green financing offers SMEs essential financial assistance to surmount the substantial costs associated with creating innovative technologies and executing green initiatives. SMEs may more readily invest in energy efficiency, emissions reduction, and sustainable development initiatives through the process of acquisition of green loans, investments, or subsidies, which in turn help to mitigate the

business risk and expenses. Additionally, SMEs can improve their reputations and market performance by implementing environmentally conscious practices and projects. This is because investors and customers are becoming more concerned about a company's ecological duty and sustainability. Consequently, SMEs may establish their green credentials, draw in greater consumers and collaborators by using green financing.

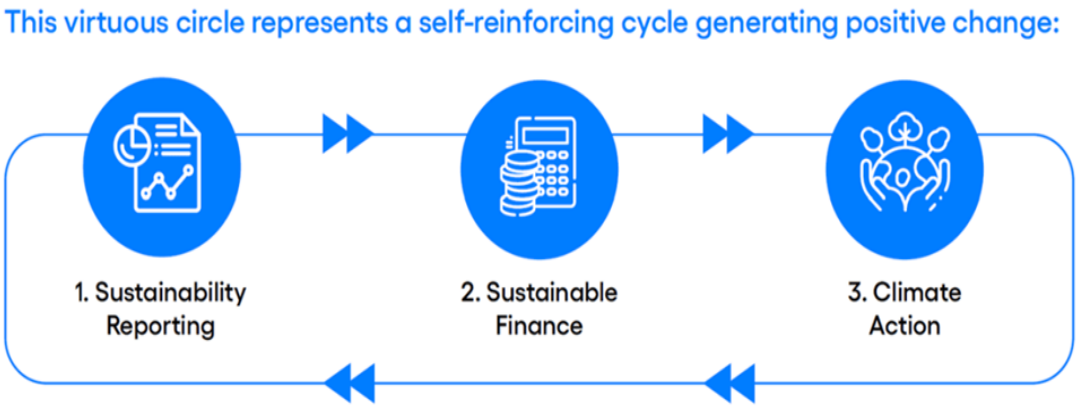
In the study of Raji (2024), The U.S. Small Business Administration reports that small businesses make up 99.9% of the nation's businesses and provide 1.5 million employments yearly (Chikwelu et al., 2018). These industries tend to be more agile and have stronger contacts with consumers and suppliers, making SMEs more suited to implement sustainable practices than large companies. Wang (2024) also indicated that SMEs can enhance productivity, minimize resource usage and environmental effect through the development and integration of innovative green technologies, thereby maintaining a competitive edge in a challenging market landscape. Moreover, the importance of SMEs on sustainability extends beyond production to include consumer impact. SMEs could initiate ripple effects that inspire consumers to emulate similar practices when they incorporate sustainability into their business models (Chege & Wang, 2019, as cited in Raji, 2024).

Environmental and sustainability are being mandated by a growing number of laws and regulations throughout the world. SMEs are better able to respond to these legislative shifts, meet their social and environmental obligations, and protect themselves from possible lawsuits and bankruptcies with the support of green financing (Wang, 2024). Besides, green financing may assist SMEs in obtaining green energy goods, such as solar energy and effective technologies, to reduce greenhouse gas emissions and expenses (Raimi et al., 2021, as cited in Raji, 2024). SMEs can also effectively mitigate the effects of climate change and its detrimental impacts on the environment by investing in waste reduction projects, implementing water conservation programs, and generating renewable energy (Raji, 2024). In summary, green financing is crucial for

SMEs because it allows them to incorporate sustainable practices while still being financially stable and competitive.

According to ICC (2024), SMEs are central to our economies and societies, significantly contributing to the attainment of global climate objectives. They account for more than 90% of businesses and contribute to 50% of global greenhouse gas emissions. SMEs are becoming aware of the significance of climate action; however, the obstacles that prevent them from taking effective action are also growing. A prompt response is required to address this expanding disparity. The findings show that approximately $30.3 trillion is presently allocated to sustainable assets worldwide, with $789 billion specifically recognized to be the green finance chance for SMEs. The results also reveal that 73% of both public and private financial institutions currently provide green finance options for SMEs, yet merely 2.8% of SMEs have applied for this funding in the last three years.

Furthermore, the data also indicated a "virtuous circle" among sustainability reporting, sustainable financing, and climate action. SMEs that disclose their effect are more likely to get financing for sustainability initiatives, hence facilitating more progress towards net-zero emissions.



Source: International Chamber of Commerce (2024)

Figure 1.4.

Sustainability reporting: SMEs assess and record their environmental effects, acquiring understanding of their operations, carbon emissions, and opportunities for reducing emissions.

Sustainable finance: Enhanced reporting boosts the credibility of SMEs among investors and lenders, thereby expanding their availability of green financing opportunities.

Climate action: A better pathway to finance enables SMEs to adopt more significant sustainable practices, including investments in energy-efficient machinery and the development of low-carbon goods and services.

1.2.3 Green Financing in Malaysia

SMEs in Malaysia are defined by two primary criteria, which include sales turnover and the number of full-time employees (SME Corp, 2020). An enterprise will be classified as an SME if it satisfies either one of the two mentioned qualifying requirements, whichever is lower (SME Association of Malaysia, 2020). In the manufacturing sector, SMEs are defined as businesses with a sales turnover of not more than RM50 million or a workforce of not more than 200 full-time employees. On the other hand, for the service and other sectors, SMEs are classified as firms with sales turnover not more than RM20 million or number of full-time employees not more than 75 (SME Corp, 2020).

As Malaysia transitions to a greener economy, green finance is crucial to its sustainability efforts, as stated by Afroz et al. (2021). Malaysia's biggest challenge in adopting green growth is raising funds for green initiatives, particularly in renewable energy. Green finance is limited in spite of the Renewable Energy Act of 2011, the Green Technology Financing Scheme (GTFS), and other tax benefits. Solar energy

makes up 67% of Malaysia's renewable energy capacity; however, the industry still struggles financially (Afroz et al., 2021). Besides, the main reason is that renewable energy solutions cost more and yield less than fossil fuel-based electricity. The government proposes green procurement laws and revolving funding to address these issues. The GTFS, which provides up to RM 100 million for green technology enterprises and RM 10 million for consumers, has paved the way for green technology adoption in Malaysia. The country still struggles with investor confidence, green venture finance competence, and municipal backing for green entrepreneurship.

Moreover, the Sustainable Green Biz Financing (SGBF) program was launched by Malaysian Industrial Development Finance Berhad (MIDF) to help firms embrace green technologies and improve energy efficiency. It offers financing ranging from RM 100,000 to RM 10 million, with appealing features such as low annual interest rates of 2% for SMEs, coverage of up to 100% of project expenditures, and repayment terms of 25 years (Ministry of Finance Malaysia, 2025; MIDF, 2025). This government-backed project encourages firms to invest in sustainable practices, boosting competitiveness while fulfilling Malaysia's climate pledges and the SDGs (Ministry of Finance Malaysia, 2025; MIDF, 2025).

According to Capital Markets Malaysia (n.d.), Sustainable and Responsible Investment (SRI) sukuk in Malaysia has helped to increase attention on sustainable development. Issuances increased to RM27.61 billion in 2023, from RM10.58 billion in 2022. The total value of sukuk issued through the SRI Sukuk Framework has reached RM18.92 billion, with RM25.27 billion meeting the Association of Southeast Asian Nations' (ASEAN) Green, Social, and Sustainability Standards. The Securities Commission Malaysia encourages this expansion with the SRI Sukuk and Bond Grant Scheme, which pays 90% of external review expenditures, and tax breaks are available to qualifying issuers until 2025. The SRI-Linked Sukuk Framework, set to start in 2022, will provide even more options for financing sustainability initiatives. Furthermore, green financing in Malaysia is quickly developing, particularly through green sukuk

issuances by UiTM Solar Power Sdn. Bhd. (USPSB). According to Muhamat et al. (2024), USPSB issued green sukuk to fund solar power projects that meet Malaysia's 2025 renewable energy target of 20%. This strategy capitalised on rising demand for sustainable investments and was aided by the Malaysian government's large-scale solar programs, such as the Large-Scale Solar (LSS) initiative. The USPSB's accomplishment in getting contracts for 50-MW solar projects demonstrates the advancements in green financing. Green sukuk issuances are expected to increase with continued government support through initiatives such as the GTFS, especially as more institutions, including universities, invest in green initiatives, reinforcing Malaysia's role in regional green finance (Capital Markets Malaysia, n.d.; Muhamat et al., 2024).

Furthermore, Domestic Investment Accelerator Fund (DIAF) is a matching grant introduced to support Malaysian-owned SMEs and Mid-Tier Companies (MTCs) in adopting environmentally sustainable practices. According to the Malaysian Investment Development Authority (2024), the grant assists companies in the manufacturing and selected services sectors by funding Environment, Social and Governance (ESG) related activities such as validation, certification, disclosures, and the adoption of systems for tracking environmental data. Depending on the project, the grant is offered on a 50:50 or 70:30 matching basis, with a maximum reimbursable amount of RM500,000 per company, subject to fund availability (MIDA, 2024). This initiative aims to help local businesses stay competitive in the global supply chain, participate in sustainable investment ecosystems, and improve their access to ESG-focused funding from financial institutions and investors.

Finally, as businesses from numerous industries implement green banking methods, green finance is becoming more relevant in Malaysia. A survey of 200 industry professionals found that 70% of organisations consider green banking when investing (Pek et al., 2019). Many companies are seeking green loans, with 40% hoping to do so soon, yet despite this information, only three have sought green finance (Pek et al., 2019). Green loans are underutilized due to lengthy application processes, low

awareness of available goods, and businesses' self-sufficiency in funding green projects. Experts suggest that banks improve the green loan application process, reduce documentation, and increase marketing to businesses about green finance. Banks, industry, and the government must work together to promote sustainable initiatives and green loans. Moreover, green banking and lending will expand as businesses recognise the long-term financial and environmental advantages of green practices, which benefit both the environment and the Malaysian economy.

1.3 Problem Statement

Climate change is referred to as a prolonged alteration of average weather patterns that define climates on local, regional, and global scales. Human activities, particularly fossil fuel consumption, release greenhouse gases into the atmosphere, trapping heat and causing a gradual increase in Earth's surface temperature (NASA Science, 2024). In response, the United Nations introduced 17 SDGs to promote global sustainability. The United Nations Brundtland Commission defines sustainability as “Meeting the needs of the present without compromising the ability of future generations to meet their own needs.” (United Nations, n.d.). The Malaysian government, as a member of the United Nations, embraced the principle by promoting ESG practices into the business landscape. ESG reporting has been mandated for listed companies to enhance transparency and accountability since 2016 (Elite Asia Marketing, 2024).

ESG serves as a valuable framework for stakeholders such as investors, customers and the public to evaluate how an organisation manages sustainability-related risks while seizing growth opportunities (Peterdy, 2023). The growing interest in ESG has extended to SMEs as companies that actively reduce their environmental footprint, foster positive relationships with stakeholders, adopt sustainable governance practices, and ESG-compliant increasingly emerge as the preferred choice for stakeholders (Elite

Asia Marketing, 2024; MIDA, 2023). Thus, engagement of SMEs in climate change spikes. SMEs, which make up 90% of enterprises worldwide, are the foundation of the economy and play a major role in job creation and economic expansion. In 2024, 72% of SMEs believe they can contribute to combating climate change, and 86% consider sustainability essential to their operations. However, SMEs face significant challenges in implementing sustainable practices, primarily due to limited access to financing (CIMB, 2023; MIDA, 2023). Expanding SMEs' access to green finance provides financial support and enables them to adopt more sustainable practices. For example, green financing such as green bonds, sustainability-linked loans, green loans, and specialised credit lines for renewable energy projects or energy-efficient equipment. These products are especially appealing to SMEs who want to invest in sustainability since they often provide favourable terms, like reduced interest rates or more flexible repayment plans (Caroline, 2024).

Malaysia government has introduced GFTS, subsidised loans offered through all banks. This green financing option is targeted at companies from six sectors (i.e. Energy, Water, Building, Transport, Waste and Manufacturing sectors) to encourage sustainable technology adoption (MyGreenlight, n.d.). Additionally, green incentives such as Green Investment Tax Allowance (GITA), which support companies that acquire or implement qualifying green technology assets or projects, and Green Income Tax Exemption (GITE) for green technology service providers (MGTC, n.d.). Nevertheless, SME awareness of these initiatives remains low, and many businesses are uncertain about their eligibility, which limits adoption. Furthermore, bureaucratic challenges, unclear application processes, and the absence of capacity-building programs further hinder participation. The government must actively engage SME owners to understand their challenges and refine green financing initiatives accordingly to improve accessibility.

Recognizing the rising demand for sustainable financing, commercial banks have introduced various initiatives. Namely, RHB Bank launched the Sustainable Financing

Program (SFP), which includes awareness campaigns, advisory services, and tailored financial products, while Maybank finances green building projects, electric vehicles, and innovative green technologies (Yap, 2023). Despite these efforts, many SME owners remain unaware of the available financing options, and it is unclear whether bankers interacting with SME owners possess the expertise to comprehensively and accurately communicate this information. Furthermore, complex application processes may discourage SME owners from adopting sustainable practices. Streamlining these processes could play a pivotal role in enhancing SMEs' willingness to invest in sustainability and contribute to addressing climate change.

The transition to a greener economy also requires integrating financial technology (fintech) and sustainability (*The Star*, 2024a). The application of artificial intelligence (AI) in sustainability is anticipated to expand significantly, particularly in optimizing ESG data management, resource allocation, and energy efficiency. However, SMEs often struggle with limited technological literacy, low trust in digital platforms, and difficulties incorporating fintech tools into their operations. Despite the transformative potential of fintech and AI to revolutionize sustainability to simplify reporting and improve resource management, these barriers prevent SMEs from fully leveraging digital solutions. Overcoming these technological challenges is essential for empowering SMEs to access green financing and supporting their sustainability efforts.

Companies often claim environmental commitment to attract conscious consumers, as demand for environmentally friendly products increases. However, it remains uncertain whether these companies are genuinely dedicated to addressing climate change, or engaging in greenwashing, misleading practices that create a false impression of environmental responsibility (*The Star*, 2024b). Greenwashing undermines trust and transparency, making it difficult for genuinely sustainable SMEs to differentiate themselves. Since continuous sustainability improvements require substantial financial resources, ensuring SME access to green financing is essential in enabling long-term commitment to environmental goals.

Sustainability is set to emerge as a significant trend in many nations worldwide, with many industries becoming increasingly conscious of the pace and magnitude of environmental harm brought on by economic activity. It is now a major worldwide force behind change and transformation, influencing almost every aspect of society and economic activity, from economic growth to the protection of vulnerable populations, from production and consumption to governance and employee culture. Thus, it is crucial to reveal sustainability practices early on in a company's development to ensure that it is ready and able to continue operating in a difficult economic climate, particularly when it enters the capital market. The Chairman of the Malaysian Institute of Corporate Governance (MICG) stressed the importance of applying ESG and good governance to all businesses, including SMEs, regardless of their size or market capitalisation, considering the difficult economic climate that all businesses are currently facing (Shari et al., 2024). SMEs with a stronger corporate governance framework are likely to adopt green financing incorporated into sustainable strategic planning.

In recent years, there has been a notable shift in corporate practices around the world towards sustainability. An increasing number of organisations are realising how important it is to balance economic growth with environmental responsibility. This change is driven by several factors, including growing consumer awareness of environmental issues, shifting consumer preferences, evolving regulatory frameworks, customer demands, and competitive pressures. However, the unique characteristics of SMEs, such as limited resources and operational scale, may present particular challenges when it comes to implementing innovative techniques. Green production practices are broad category of methods intended to lessen the environmental damage that manufacturing processes create. These could include using sustainable materials, implementing waste reduction plans, integrating energy-efficient technologies, and carrying out ecologically friendly production methods (Krishnan et al., 2024). Customers are demanding more sustainable products and procedures in an attempt to

increase awareness of environmental issues. Green production techniques may benefit the environment, but they can also be challenging for SMEs with little funding because of perceived complexity and opposition. Because of the significant financial outlays required and the potential disruption to regular production processes, environmentally friendly practice trial runs may be judged unfeasible. SMEs can adopt green financing to implement their production change and move to more environmental methods.

SMEs can be green performers, meaning they aim to maximise their operational efficiency. This is accomplished by increasing business competitiveness through resource efficiency and environmentally responsible methods. SMEs may have fewer financial resources and less expertise to achieve sustainable practices in their business. An SME's capacity to successfully execute sustainability measures is influenced by the size of its operations. Financial institutions' strategies to help SMEs go green must also be mainstreamed in order to ensure a fair and orderly economic transition where companies of all sizes prosper and help create a more sustainable and long-term corporate future. SMEs should use the toolkits and solutions offered by the financial sector to execute green projects and sustainable practices (Bank Negara Malaysia, 2024).

1.4 Research Objective

1.4.1 General Objective

The general objective of this research is to examine the factors affecting the adoption of green financing among SMEs in Malaysia.

1.4.2 Specific Objectives

The following specific objectives are established in order to achieve the general objective.

i. To investigate the effect of government support on green financing adoption by SMEs in Malaysia.

ii. To assess the effect of financing information on green financing adoption by SMEs in Malaysia.

iii. To ascertain the effect of technology on green financing adoption by SMEs in Malaysia.

iv. To examine the effect of environmental commitment on green financing adoption by SMEs in Malaysia.

v. To investigate the effect of corporate governance on green financing adoption by SMEs in Malaysia.

vi. To examine the effect of production on green financing adoption by SMEs in Malaysia.

vii. To ascertain the effect of company size on green financing adoption by SMEs in Malaysia.

1.5 Research Questions

The following research questions have been developed to further the discussion on the topic.

i. Does government support affect the adoption of green financing by SMEs in Malaysia?

ii. Does financing information affect the adoption of green financing by SMEs in Malaysia?

iii. Does technology affect the adoption of green financing by SMEs in Malaysia?

iv. Does environmental commitment affect the adoption of green financing by SMEs in Malaysia?

v. Does corporate governance affect the adoption of green financing by SMEs in Malaysia?

vi. Does production affect the adoption of green financing by SMEs in Malaysia?

vii. Does company size affect the adoption of green financing by SMEs in Malaysia?

1.6 Significance of Study

This research examines the factors influencing the adoption of green financing among SMEs in Malaysia. Investigating factors such as government support, financing information, technology, environmental commitment, corporate governance, company size, and production enables researchers to understand the determinants of green finance in small and medium enterprises. Analysing the interplay among these factors can establish a basis for subsequent research on the determinants of green financing adoption in SMEs.

The findings of this study apply to several industries, particularly SMEs. For instance, numerous sectors in Malaysia might utilise this study to gain knowledge about the

determinants influencing their implementation of green finance. Consequently, SMEs can have a clearer comprehension of the challenges they will face in implementing green finance, allowing them to more effectively tackle these concerns. When SMEs possess a comprehensive understanding of green financing and the challenges they may face, they can enhance their competitive advantages relative to large firms.

This study is also advantageous to the financial sector and government. The surge in environmental consciousness has led both SMEs as well as large corporations to incorporate sustainability into their operations, establishing it as a standard practice. The banking sector or government can enhance policies based on these factors to better fulfil the needs of SMEs to more readily get green finance, as SMEs will have significant challenges in this area.

Finally, this research assists academics in gaining a more comprehensive comprehension of the determinants of the adoption of green financing among SMEs in Malaysia. They can acquire knowledge and generate fresh investigation ideas.

1.7 Chapter Layout

This research is structured into five (5) chapters. Chapter 1 introduces the research topic, providing an overview of green financing and the Malaysian SMEs environment. It outlines the research objectives and highlights the significance of the study. Chapter 2 presents a review of relevant literature, discussing previous studies related to the variables under investigation. It also introduces the theoretical framework that supports the research. Chapter 3 explains the research methodology employed in the study. It details the research design, data collection procedures, sampling techniques, and measurement methods used. Chapter 4 analyse the collected data, examining the impact

of the independent variables on the dependent variable. It includes statistical analyses and interprets the results. Chapter 5 discusses the key findings of the study in relation to the research objectives and literature reviewed. It concludes the research and provides recommendations for future studies.

1.8 Summary

In conclusion, green financing supports corporations, businesses, and governments in transitioning to sustainable practices. This research finds a strong link between green financing and SMEs, as it provides resources to implement eco-friendly practices and increase competitive advantage. As key drivers of Malaysia's economy, SMEs play a vital role in adopting this sustainable finance. Furthermore, this research provides valuable guidance for SMEs, governments, financial institutions, and academia with an interest in gaining more insights about this topic. This research identifies the main issues and reasons to influence SMEs to adopt green financing based on seven key factors, which will be presented in the following chapters.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The first section of Chapter Two is a comprehensive review of the literature on the dependent variable, which is Small and Medium Sized Enterprise (SME) green financing adoption. Secondly, the relationship between the dependent variable and the independent variables, which are government support, financing information, technology, environmental commitment, corporate governance, production, and company size, will be explained. The third part identifies the research gap as highlighted in the literature review. The following is a discussion on the theoretical review. Subsequently, the proposed theoretical framework is described. Then, the following section focuses on hypothesis development to forecast the relationships. Lastly, a summary is provided at the end of the chapter.

2.2 Review of the Literature

2.2.1 SME Green Financing Adoption

According to Kariuki (2023), green financing refers to the financial investments that are being made into environmentally friendly goods, sustainable development projects and initiatives, and policies that stimulate the creation of an economy that is more

sustainable. The research objective in this study was to evaluate how and the extent to which SMEs in Nairobi, Kenya, have implemented green financing. Furthermore, this study also identified the determinants that affect the adoption of green financing among SMEs within the manufacturing sector in Nairobi, Kenya. The study variables are organisational characteristics, technology, government support, and financing information. To investigate the relationship between the green financing adoption and its determinants, the researcher administered a questionnaire survey to 134 SMEs; however, only 117 respondents completed. The findings indicate that organisational characteristics do not greatly influence the adoption of green finance, since enterprises lacking profitability have challenges in acquiring such funding. Banks also consider the company's size when deciding whether to offer SMEs green financing options. On the contrary, the findings state that the use of superior technology by SMEs might facilitate a greater adoption of green practices. The respondents reveal that their companies use ecologically sustainable technologies in their operations, and the technology they adopt also aligns with that of green financiers. Additionally, it proves that enhanced government support will result in improved adoption of green financing. This is because the cooperative efforts of the government and international lenders have a chance to increase the accessibility of green finance. The findings also demonstrate that there is a substantial relationship between financing information and SME green financing adoption because there is a significant number of respondents who have already participated in green financing training programs, it would be potentially increased the adoption.

Research that was carried out by Kumar et al. (2022) focused on studying the barriers faced by SMEs in adopting green financing, as well as the difficulties faced by financial institutions when attempting to provide green financing to SMEs in Pakistan. The researchers conducted interviews with over 20 individuals, including SME business owners, government agencies, and banking personnel, in order to investigate green banking, SME financing, and the challenges on both demand and supply affecting environmentally friendly manufacturing in the leather and textile industries. They mentioned that textile and leather processing activities use significant water resources

and substantially contribute to noise, air, and water pollution, carbon dioxide emissions, and industrial debris that negatively impacts the environment. The operations within these sectors also involve the addition of various hazardous chemicals, resulting in substantial waste and liquid industrial pollution, and jeopardizes the safety and health of both humans and animals. The results also indicate that a significant hurdle in green financing adoption is the absence of evaluation frameworks for green sustainable consumption and production technologies and investments by small and medium-sized enterprises in the textile and leather sectors. Besides, human capital and skills were identified as the primary obstacle that requires urgent attention by all parties. This is because the findings suggest that numerous SMEs exhibit insufficient financial literacy, limited knowledge in finance, accounting, and planning, thereby presenting challenges in their adoption of green finance. Banks also lack a comprehensive understanding and definition of "green finance".

The study conducted by Wang et al. (2023) examined the relationship between corporate governance, green finance, and sustainable performance in China's SMEs. This research also investigates the role of Corporate Social Responsibility (CSR) in mediating the relationship between corporate governance, green financing, and sustainable performance in Chinese SMEs. A total of 314 responses were collected. Based on the findings of the study, effective corporate governance procedures may assist SMEs in China in defining explicit sustainability objectives and enhancing their social and environmental efficacy. The authors state that commercial banks will provide preferential credit treatment and assistance for those green environmentally enterprises, so these SMEs will be easier access to capital and expenses they want for green financing. Thus, there is a positive relationship between corporate governance and adoption of green financing. In addition, environmental commitment is also important to the adoption of green financing. Green funding is an effective tool for promoting sustainable development and addressing environmental challenges. The findings show that SMEs may achieve their sustainability goals and improve their public reputation if they are adopting green finance into their CSR strategy. SMEs are more likely to adopt green financing with greater ease than others when they exhibit a

strong commitment to environmental responsibility and possess a high level of environmental awareness. Therefore, there is a significant relationship between environmental commitment and green finance. Furthermore, the findings also indicate that they have to concentrate on establishing robust relationships with investors and stakeholders via a sustainability framework to enhance their financial performance and image. SMEs must draw in more loyal customers, and harmonise the interests of stakeholders to support environmentally friendly growth.

In the research of PAGE (2021), which aimed to evaluate the extent to which environmental sustainability capabilities are integrated into the financing of SMEs. This study focused on Mauritius and intended to assess the present situation of green finance frameworks, practices and structures that are pertinent to the financial service industry, in order to provide access to green financing choices for SMEs. This study's methodology included interviews with SMEs owners, banks and other commercial lenders, government officials, and development partners, totalling more than 40 participants. According to the study's findings, the majority of SMEs in Mauritius do not possess the necessary knowledge and skill to carry out green projects. There have 55% of those who participated in the survey mentioned a lack of knowledge about green financing as the most significant obstacle. Furthermore, green projects are more costly due to its classification as innovative. Since green financing is a new technology, they also perceived that it posed a higher risk. Therefore, due to high initial capital expenses, which reduce the financial feasibility of the projects, 50% of SMEs found it difficult to initiate and implement green initiatives. Additionally, the findings indicate that the financial markets in Mauritius lack sufficient governance and regulations that specifically promote green finance for SMEs. There have 48% of the respondents pointed out that green financing-based government and institutional plans and efforts are not geared toward SMEs. Although some businesses have implemented green efforts, these advancements are sometimes overlooked. This will inhibit SMEs from adopting green financing. Then, the results show that production will also affect the adoption of green financing. Innovation and the implementation of green business practices often call for management, operational, and technical expertise; however,

SMEs do not possess these. If the compensation is high, the specialized labour may be diverted to large corporations. Consequently, 8% of the SMEs, mainly engaged in green energy production, report a deficiency in access to critical components of production, including land and labour. On the other hand, the findings suggest that many commercial lenders see medium-sized businesses as either too big to be eligible for micro-enterprise financing or too tiny to be eligible for large enterprise financing when they begin to review loan applications. The expansion of SMEs in green financing has been hindered due to the scarcity of specialized initiatives from banks to support them.

The study undertaken by Khan et al. (2022) centred to identify the barriers to the adoption of a sustainable green finance system in developing countries such as Pakistan. They also aimed to explore the interrelationships among these identified factors. The research methodology involved conducting both telephonic and face-to-face interviews, resulting in a total of 21 respondents being collected. All interviewees possess substantial expertise in their respective fields and demonstrate an extensive understanding of economic, financial, and environmental policies. The researchers stated that the green finance system encounters a diverse array of obstacles throughout the adoption procedure. Considering the poor rate of return and the considerable risk that are involved with the green project, the private sector does not have any interest in contributing to it. Besides, the findings suggest that employees lack interest in the green financing training programs because of the inadequate skills and expertise, along with limited resources. The researchers also mention that the technology necessary for facilitating green financing practices is intricate and demands a sophisticated organisational framework and specialized knowledge for its implementation. This is a significant challenge for SMEs because of the requisite high costs and the need for a competent workforce. Additionally, due to the government's lack of interest in green finance, so the government also has not set up incubation courses on green finance for the public. The study has indicated that the government support system is insufficient because of the political and economic volatility, which subsequently hinders the implementation of a green financing. All barriers exhibit significant interdependence

and influence. Therefore, policymakers must concentrate on these factors to enhance the adoption of green financing among SMEs.

2.2.2 Government Support

Government support refers to government economic inducement such as tax and mandatory contribution reduction, grants, government-backed loans, guarantees, trusts, or insurance. These incentives may be provided to organisations, whether they are managed wholly or partially by a private entity (Kariuki, 2023). Kariuki (2023) conducted a study to find out the determinants of green financing adoption by SMEs in Nairobi, Kenya's manufacturing sector. A total of 117 responses were collected. The findings show that there is a significant relationship between government support and SMEs' green financing adoption. The respondents agreed that government policies and collaboration with international lenders have made it easier for SMEs to secure green financing. Additionally, regulations are encouraging green practices in SMEs. There are tax-based incentives provided for green financing. However, the local government did not introduce many programs to promote the adoption of green technology in SMEs.

In the research of Kumar et al. (2022), which aimed to investigate barriers of adopting green financing from the point of view of SMEs, the government and banking operators in the form of supply and demand side. The research was conducted in Pakistan and focused on one of its key industries, the textile and leather sector. The methodology in this research is interviewing SME owners, government and banking representatives, which totalled more than 20 people. Government authorities have expressed that the State Bank of Pakistan (SBP) published the Green Bank Guidelines (GBGs) in 2017 for implementation by early 2018 and has been monitoring the progress of each bank. They have also launched government schemes to help SMEs develop credit reports and collateral, demonstrating the profitability of SME lending and establishing standard

reporting requirements. Nevertheless, stakeholders in SMEs green financing stated that regulations and legal frameworks are not clearly stated and vary across different levels of government (i.e. federal and provincial), leading to insufficient monitoring and verification of the energy-related project. Banks also lack clear guidance on how to develop green financing products. Lack of clear definitions and thorough analysis has led to the extent of the overlap between current product offerings and green financing being largely unknown, as some banks indicate that they are already financing investments that could be considered "green". The study shows that the government has a strong relationship with the commercial banks, which are key providers of assistance and green financing for SMEs; therefore, government support is essential in promoting SMEs' access to green financing (Kumar et al., 2022).

OECD (2019) posted a paper on the access of SMEs in Georgia to green finance. It studies the development and implementation of environmental credit lines in Georgia SMEs. They discussed a few perspectives, including the role of the banking sector, the macroeconomic and policy environment. It then identifies the challenges and success factors of sustainable lending by reviewing the experience of three major banks in Georgia. The study states that the business policy and environment in Georgia are supportive to SMEs. The government has streamlined regulations, lowered taxes, tackled corruption, encouraged free trade, and advanced privatization. Additionally, various policies and institutions have been established to support lending and borrowing. Nevertheless, the study indicated challenges from the demand side, the SMEs, including a lack of awareness and incomplete strategic and regulatory frameworks. Georgia government subsidies for fossil fuels reduce the cost of traditional energy sources. As a result, SMEs might not see the economic need to switch to green alternatives. One of the recommendations for the regulator to support green finance is to strengthen environmental policy and regulation by implementing pending legislation on energy efficiency and renewable energy, establish strong sub-regulations for buildings and appliances, enhance enforcement, tighten environmental standards, and phase out fossil-fuel subsidies to drive market incentives. Moreover, the government should define the role of SMEs in the green transition and integrate SME participation

into national climate policies. This shows that the government plays a vital role in promoting green financing in SMEs.

The study conducted by Khan et al. (2022) examined the barriers of green finance system adoption. The study was carried out in Pakistan. It started with reviewing literature to reveal 20 common barriers. Then, the researchers interviewed 21 experts in the fields of financial management, economics and environmental science through telephone calls and in person to get their opinion of other unexplored new barriers. Three aggregate dimensions of barriers are concluded from the interviews, absence of a regulatory body, insufficient research on the topic and high switching cost. Interviewees stated that there are regulatory compliance violations, as there is no governing body to monitor green practices in the lack of a regulator dimension. Moreover, the interviewees expressed the need for green legislation such as having a penal code regarding green policy violation. The government lacks interest in green finance and there are no promotion programs for green finance are commented by the respondents. The researchers then combined the data they collected from literature and interviews, and separated it into three levels, which are level 1, individual and organisational; level 2, country; level 3, global. The authors (Khan et al., 2022) pronounced that at level 2, political and economic instability has hindered government support, creating significant challenges in establishing a green finance system.

Debrah et al. (2024) assessed the drivers for the green finance adoption in green buildings in developing countries. The study is in the context of green building in Ghana. The researchers studied through the literature and categorized the drivers into four categories, including regulatory, financial, organisational, environmental and social. Further, they distributed a Fuzzy Delphi questionnaire survey to 12 experts to get their opinion on the predetermined drivers, and subsequently investigated the relationships between these factors. The findings show that regulatory incentives for green finance are not a prominent driver but have a moderate relationship with preferential capital requirements for low-carbon assets. Financial institutions will be

more willing to finance when a regulator gives preferential capital treatment to green projects, such as treating green financing as a low-risk-weighted asset and requiring lower capital. In fact, the study of Tolliver et al. (2020, as cited in Debrah et al., 2024) expressed that there is a government practising it, which sets higher capital requirements for high-carbon assets and lower capital requirements for low-carbon assets to meet climate goals. In addition, the authors (Debrah et al., 2024) also found that regulatory incentive is weakly associated reducing financial and business risk and increasing awareness of green financing.

2.2.3 Financing Information

PAGE (2021) has undertaken a study on improving SME access to green finance in Mauritius. The study aims to evaluate the current degree of integration of environmental sustainability in SME financing in Mauritius and discover the potential to expand green financing for SMEs. Additionally, the study identifies existing gaps and proposes a roadmap and action plan to enhance access to green finance opportunities for SMEs in Mauritius. The methodologies used are reviewing existing literature and interviewing SMEs, commercial lenders. Government and development partners. 40 SMEs are being interviewed. From the interview conducted, 55% of the SMEs pronounced that the greatest barrier to accessing green finance is a lack of awareness of it. The local development bank also stated that many microfinance institutions and the development bank, though well-equipped to support SMEs, lack the necessary knowledge and business expertise to provide information and guidance on financing green projects. These financial institutions have a limited understanding of SMEs' specific needs. Hence, it presents a major challenge for SMEs seeking financing for green projects, as they may struggle to access relevant information. In order to solve this problem, PAGE (2021) suggest that SMEs should receive assistance, education, and capacity building to enhance their understanding of green business

development and green financing options. This will help them integrate sustainability into their operations and improve access to green funding. Additionally, financial institutions should train loan officers on green financing and proposal implementation. This practical knowledge will support the transition to an inclusive green economy across both private and public sectors.

A similar viewpoint is stated in the study of Kumar et al. (2022) on the rationale of green finance in textile and leather SMEs in Pakistan. Three vital barriers for Pakistan Textile and Leather SMEs to adopt green are pronounced. One of them is that SMEs often lack the financial knowledge and capacity to generate bankable feasibility reports and investment plans, limiting their ability to access green financing. This challenge is further intensified by seasonal production and cash flow fluctuations, particularly peaking during the Eid festival. There is also limited access to specialized business advisory services and funding for Sustainable Consumption and Production (SCP) education and investment. SMEs struggle to find suitable financial products and capacity-building support to assess and invest in SCP initiatives. These barriers make it difficult for SMEs to secure green investments and fully adopt green financing. The researchers suggest that financiers should gain insights into the textile and leather industry, and design tailored financial products. Additionally, improving financing information through awareness programs, specialized advisory services, targeted capacity-building programs and financing for SCP education can help bridge this gap and facilitate SME adoption of green finance.

Kariuki (2023) has researched the factors influencing the uptake of green financing by small and medium-sized enterprises in Nairobi, Kenya. The 117 questionnaires collected show that access to financing information is an important factor and has a positive relation that affects the uptake of green finance. As such, the respondents agreed that green financing awareness has been growing recently in Kenya. Most of them attended workshops or training sessions on green financing. SMEs' management is aware of particular financial institutions or organisations that offer green financing

and green finance products that are available. Besides, the study found that SMEs generally found it easy to obtain information on green finance, however, it varies among respondents. The author then concludes, as there is better access to financing information, the uptake of green financing increases. The author recommends management to sponsor employees to attend trainings and talks on green financing to increase awareness of available opportunities for SMEs.

Enejo and Ojabo (2023) have investigated the role of green financing in promoting sustainable practices within SMEs in Northern Nigeria. A survey is conducted and receives 400 responses. The researchers surveyed the challenges faced by Nigerian SMEs in integrating sustainable practices. Limited awareness or understanding is identified as the second most significant challenge, reported by 25% of the respondents, after the issue of lack of access to financing. Out of the 400 respondents, half indicated familiarity with green financing, yet only 30% reported actually utilizing it. This indicates that while surface-level familiarity exists, deeper understanding and practical knowledge may be lacking, contributing to low uptake. The gap between awareness and utilization may stem from limited access to actionable information, uncertainty about financing procedures, or misconceptions about eligibility. The researchers then suggest that promotions for green financing options should be diversified and conducted more often to raise SMEs' attention, and customizing financial products and advisory services can help close this gap and drive greater SME adoption.

A study of the effects of green finance on the development of SMEs is conducted by Wang (2024). The author discussed a few benefits that green finance brought to SMEs, such as financial support and risk mitigation, market competitiveness improvement, innovation drive and technological upgrading, and policy compliance and social responsibility. Moreover, significant challenges encountered by SMEs are also being discussed. SMEs find it difficult to secure financing for their green projects. This is because SMEs often struggle to demonstrate the potential and sustainability of their projects, making it difficult for financial institutions to assess their viability and extend

green financing. Furthermore, SMEs hardly put green finance policies and practices on the ground. Delays or confusion in how policies are communicated and implemented can make it hard for SMEs to fully understand or access the benefits of green finance. Additionally, the policies are often complex, and without proper guidance, SMEs may struggle to meet the requirements or take full advantage of the support available.

2.2.4 Technology

According to Saeedi and Ashraf (2024), the researchers investigate the role of technology in promoting green finance, with an emphasis on new technologies including artificial intelligence (AI), machine learning (ML), blockchain, and regulatory technologies. Their research conducts a thorough analysis of the available literature and finds major issues in green finance, such as risk management, a lack of creative green financial products, and regulatory compliance. The review includes 800 publications that were screened and analysed from databases such as Scopus and Google Scholar, including research published between 2013 and 2024. The findings show that technology has a significant impact on Green Finance adoption by indicating that AI and machine learning can improve risk assessment for green projects, while FinTech platforms make it easier to design new green financial products. RegTech can also assist businesses comply with difficult regulations. The report also discusses the environmental impact of cryptocurrencies, which is a developing topic in the technology-green finance nexus. Saeedi and Ashraf's concept emphasizes the role of technology in tackling these difficulties, emphasising that technological advancements improve green finance by increasing efficiency, transparency, and accessibility. However, they warn that there is still a study void, particularly in terms of the environmental impact of technologies like cryptocurrencies, which could jeopardize green finance's sustainability goals. The paper recommends that future research focus on creating comprehensive datasets to better understand the direct influence of

technologies on green finance outcomes such as green investment volume and loan portfolios. The work is essential because it clarifies how technology may promote green finance and indicates future possibilities for research in this critical field.

Anwar et al. (2024) undertook an empirical study to assess the impact of FinTech on carbon neutrality in Australia between 2000 and 2022, with a focus on green finance as a mediating variable. The study used quarterly time series data to investigate the relationship between FinTech adoption (measured by ATMs and internet server density), green funding, and carbon dioxide (CO_2) emissions in Australia. The findings demonstrate a direct relationship between FinTech adoption and carbon emissions, showing that the advancement of digital financial technologies contributes to the reduction of the carbon footprint. The study concluded that Fintech has a significant impact on green finance by demonstrating FinTech's engagement in increasing green finance, which promotes carbon neutrality goals. This highlights the complementary role of technological and financial advancements in achieving environmental sustainability. The report recommends that policymakers foster the expansion of FinTech and green finance to achieve national and global carbon neutrality goals. Australia's dedication to sustainable development, as well as the expanding importance of its FinTech industry in promoting environmental improvement, make it an especially appropriate setting for the study.

Muganyi et al. (2021), the researchers investigated the influence of green finance legislation and the role of fintech in supporting environmental protection in China. The study used text analysis and panel data from 290 cities from 2011 to 2018, as well as the Semi-parametric Difference-in-Differences (SDID) approach. Their findings reveal a significant relationship between fintech development and the adoption of green finance by SMEs. Fintech efforts, such as Ant Group's Ant Forest, highlight how technology may assist SMEs in incorporating sustainable practices into their operations by increasing access to green finance products and resolving information asymmetry. According to the study, as fintech grows in China, its beneficial influence on SME

green finance adoption is projected to increase, notably by improving access to green loans and financial resources that promote environmental protection. In contrast, the study emphasizes the need for authorities to regulate the risks connected with fintech while encouraging its participation in environmental protection initiatives. This implies a significant and beneficial correlation between fintech development and green finance adoption, underscoring technology's critical role in advancing sustainability in SMEs.

The study by Huang et al. (2024) investigated how financial technology (fintech) affects the green bond market. The study evaluated data from 337 cities, yielding 2,153 bond-city-year observations. Fintech development was tracked using a city-level fintech index that considered factors such as the breadth, depth, and level of digitalization in financial services. Huang et al. (2024) demonstrate that fintech growth greatly increases green bond issuance, which plays an important role in facilitating green finance. The study concludes that fintech improves the intermediary market and raises environmental awareness, resulting in increased demand for green bonds. As people become more mindful of the environment, there is a greater demand for green initiatives and related financial products like green bonds. This growth in green bond issuance makes the atmosphere more conducive to the use of green finance, as green bonds are an important instrument for funding sustainable initiatives. Fintech's involvement in simplifying the issuing of green bonds indirectly contributes to the wider adoption of green finance by increasing the supply and demand for green financial products.

A paper report by Appiah-Kubi et al. (2024), the study looked into the impact of green finance on sustainability reporting in SMEs, focusing on the mediation function of pro-environmental behaviour and the moderation role of digitization. There are 352 SMEs from 16 districts in Ghana participated in the study between May and June 2024 which used a standardized questionnaire. The study's findings help SMEs integrate digitization into their operations and might be used to promote green financing policies among SMEs, governments, and non-governmental organisations. The study's findings

aim to guide and stimulate future research into the promising relationship between digitization and sustainability reporting in the context of SMEs in emerging nations. It discovered that digitalization, as part of technical improvements inside SMEs, contributes to the efficiency and accuracy of sustainability reporting. The incorporation of digital tools, such as blockchain and other digital platforms, allows SMEs to better manage and report on their environmental practices, making it easier for them to get green financing. Technology lowers the expenses of sustainability reporting and removes several constraints, such as limited accounting staff, which might impede green finance implementation. The study suggests that SMEs who embrace technology are more likely to engage in green finance, as these technologies improve transparency, reporting capabilities, and general efficiency in managing green investments.

2.2.5 Environment Commitment

Per Appiah-Kubi et al. (2024), the study examined the impact of green finance on sustainability reporting in SMEs, focusing on the mediation function of pro-environmental behaviour and the moderation role of digitization. Between May and June 2024, 352 SMEs from 16 districts in Ghana participated in the study, which used a standardized questionnaire. It also emphasizes the role of environmental commitment in encouraging SMEs to utilize green finance. The study found that SMEs with a strong commitment to environmental sustainability are more likely to use green finance solutions which indicates that environmental commitment has a significant impact on SME green finance adoption. This commitment to sustainability encourages SMEs to invest in environmentally friendly measures, hence increasing their efforts to report on these practices transparently. Green financing helps this commitment by providing the resources needed to carry out sustainable projects, reinforcing the link between an SME's environmental commitment and its use of green finance. According to the report, the more committed a SME is to the environment, the more likely it is to use green

finance to fund its sustainability projects. This highlights the importance of internal environmental values in influencing SMEs' decisions to seek and use green finance resources.

According to Mohd and Kaushal (2018), the study explores the role of green finance in promoting sustainable development, particularly in India. The researchers focused on the global challenges of environmental change, energy limitations, and financial crises, and identified green finance as a solution to balance economic development with environmental sustainability. The study draws on secondary data and literature, examining the existing scope and potential for green finance, including the increasing demand for green bonds and structured green funds. They emphasize that financial institutions, through their environmental commitment, play a crucial role in driving the adoption of green finance by expanding the use of environmental data in credit and investment decisions. The paper notes that businesses with a higher carbon footprint are increasingly seen as risky, prompting financial institutions to prioritize funding for sustainable, low-carbon projects. This shift in investment focus supports the broader adoption of green finance, facilitating the financing of energy-efficient technologies and green infrastructure. The authors further note that the future growth of green finance, particularly through instruments like green bonds, is closely tied to the increased environmental awareness and commitment of financial institutions. Thus, environmental commitment significantly influences the adoption of green finance by aligning financial decision-making with sustainability goals, which in turn accelerates the transition to a low-carbon economy.

In the study by Wang et al. (2023), the researchers surveyed 314 employees from Chinese SMEs to investigate the impact of environmental commitment on green financing adoption. The findings show a strong link between environmental commitment, as manifested in CSR policies, and the use of green finance. SMEs with a strong environmental commitment are more likely to receive green finance, improving their sustainability performance. The study concludes that CSR mediates the

association between green finance and long-term performance, implying that CSR initiatives promote environmentally friendly investments and enhance access to financial resources. This study demonstrates that SMEs can use environmental commitment to obtain green financing, resulting in improved financial and environmental outcomes, reinforcing the relevance of sustainability in corporate operations. The study adds to the literature by showing that CSR and environmental commitment are critical for SMEs to implement green finance and improve their long-term sustainability.

Based on Rahman et al. (2024), their study investigates the relationship between CSR and green finance practices, focusing on the tourism industry in Bangladesh. The findings show that SMEs that demonstrate high environmental commitment through CSR activities are more likely to use green funding. Adoption of CSR, particularly when focused on environmentally conscious projects, is crucial in strengthening enterprises' ecological footprints and improving their overall environmental performance. This multidimensional strategy not only improves organisational sustainability but also serves as a catalyst for national-scale sustainable development (Guang-Wen & Siddik, 2022). Furthermore, the study demonstrates how SMEs who integrate their CSR efforts with green finance initiatives obtain access to critical funds, hence facilitating their participation in sustainable projects. This commitment to sustainability enables SMEs to obtain green finance and encourages long-term growth. Rahman et al. (2024) underline that environmental commitment, as shown through CSR, has a direct influence on SMEs' decision to utilize green finance, highlighting the significant link between CSR activities and green finance adoption for achieving sustainable outcomes.

Following the findings of Alay et al. (2024), the relationship between environmental commitment (as expressed by green business ethics) and green financing adoption has been thoroughly explored in Turkey. The study sought to investigate how green business ethics and green finance affect CSR and sustainable business performance.

The study employed a cross-sectional survey method, with 427 white-collar professionals from leading Turkish institutions chosen through a convenience sampling procedure. The survey data were analysed using the AMOS 24 statistical software. The findings revealed that green business ethics, motivated by an environmental commitment, have a considerable impact on the adoption of green financing technologies, which in turn improves sustainable company performance. It was also noticed that CSR plays an important mediating function in this relationship, improving the alignment of green business ethics and achieving sustainability goals. These findings highlight the necessity of incorporating environmental commitment into company operations, implying that companies that prioritize CSR and green financing are more likely to achieve long-term, sustainable success. This study adds to the expanding body of literature underlining the necessity for firms to implement green policies for both environmental and societal benefits, which are increasingly viewed as vital for sustainable growth in the global market.

2.2.6 Corporate Governance

According to Wang et al. (2023), the researchers studied the connection between green corporate governance, green finance, and sustainable performance. They carried out a questionnaire survey and collected data from 314 employees working for SMEs operating in China. The findings show a strong correlation between green corporate governance and green finance and corporate social responsibility, which in turn has a favourable effect on sustainable performance. Sustainable practices have become increasingly important in today's corporate environment, and companies are seeing the benefits of incorporating sustainability into their operations. Business failures are becoming more common, organisations worldwide are under immense pressure to create efficient corporate governance procedures. Accessing financing is another major obstacle that SMEs face. Consequently, the purpose of green finance enables

businesses to make investments in sustainable projects that benefit the environment and enhance their long-term financial results. They found that green finance has a major positive impact on the company's sustainable growth by lowering their environmental effect and improving their overall sustainable performance. Green finance can help businesses perform better by encouraging sustainable practices that save money, use less energy and resources, promote brand recognition, and make funding more accessible. These advantages can help businesses succeed in the long run by allowing them to stay ahead of the competition, stimulate innovation, and comply with regulations.

The study conducted by Khababa and Jalingo (2023) examined the significance of green finance, green investment, technological innovation, CSR, and corporate governance in influencing sustainable outcomes within SMEs in Saudi Arabia. The data was collected from 250 employees, employing a quantitative research methodology. The results of Partial Least Square (PLS)-Structural Equation Modelling (SEM) show that green technology, green investment, and green finance have a positive and statistically significant effect on sustainability in Saudi Arabian SMEs. It has been determined that corporate governance is a significant moderator that shapes how CSR initiatives are translated into sustainable practices. This emphasises how crucial it is to match internal organisational processes with CSR initiatives in order to maximise sustainability results. This research also mentioned that sustainability is the cornerstone that enables businesses to thrive in the current competitive environment in an ethical manner, strategically innovate, and ensure long-term success in the rapidly changing global landscape. Consequently, green technology, green investment, and green finance are seen as transformative tools that are essential to advancing sustainable business practices. These programs' effectiveness depends on corporate governance's organisational structure, which is seen to be a key factor in determining how CSR and sustainability interact. Effective governance strengthens the link between CSR pledges and tangible sustainability effects by bringing CSR initiatives into line with stakeholder interests and society's welfare. Based on the PLS SEM analysis, there is a positive and statistically significant correlation between sustainability and green finance. The Saudi

Arabia Green Initiative placed a strong focus on cutting carbon emissions by funding eco-friendly projects, demonstrating the commitment to sustainability. The results of this study highlight the potential advantages of applying green finance concepts to Saudi Arabian businesses, especially those that prioritise the country's sustainability goals, in order to support broader sustainability projects.

A study undertaken by Zhao and Xing (2024) used time series analysis to evaluate how business management and green finance affected China's sustainable development index between 1990 and 2020. According to the results, a 1% rise in the green financial market results in a short-term improvement of 0.31% and a long-term improvement of 0.69% in China's sustainable development index. Similarly, a 1% improvement in the corporate governance index leads to short-term and long-term increases of 0.16% and 0.29%, respectively. Additionally, the development of the green finance market and strong corporate governance may raise public awareness of environmental risks and the necessity of supporting clean energy projects. The broader objectives of sustainable development are advanced when greater participation in eco-friendly initiatives is made possible by raising the level of sustainable literacy in society. Effective business management and the growth of the green financial market also stimulate the generation of sustainable electricity in society. The businesses use electricity to power production lines and industrial gadgets, the advantages of sustainable electricity are becoming more apparent as the green fiscal market develops, and corporate management improves. Businesses are more inclined to use the green financial resources they have obtained from the green financial market to invest in eco-electricity-generating projects.

According to Dzomonda (2022), corporate governance is the process of establishing and putting into place procedures to protect stakeholders' rights and interests by making sure managers behave responsibly and openly. Since more SMEs are structured in this way, implementing good corporate governance standards increases the likelihood that their environmental initiatives will be successful. Therefore, a company's transparency in its operations is a hallmark of good corporate governance,

which gives stakeholders a favourable impression of the company. In essence, firms that succeed in corporate governance principles are better able to build enduring relationships with important stakeholders like banks, consumers, investors, and shareholders. This can assist SMEs with limited resources in gaining access to resources from their main stakeholders. Through the findings, it was found out that small businesses with strong corporate governance practices, such as implementing efficient operational procedures and systems, independent board members, and so on, are more likely to be able to obtain outside funding than those with poor corporate governance practices. Countries all over the world are adopting sustainable finance to support green-orientated businesses, with the United Nations and the European Union being two prominent international organisations that place a strong emphasis on green-orientated business practices and adopted the concept of funding ethical small enterprises.

The research conducted by Qian and Yu (2023) investigates the impact of the green finance policy on ESG performance using a difference-in-differences design and the framework of China's Green Financial System Guidelines (GFSG). The strong ESG performance can reduce information asymmetry between businesses and stakeholders. This involves reimagining the corporate image and fostering stakeholder confidence in the green development of businesses. The investors' sensitivity to unfavourable developments leads to substantially polluting businesses that must consider internal incentives while implementing GFSG. Managers can adopt green and sustainable corporate governance schemes, engage in strategic planning and decision-making, produce goods that are greener and more differentiated than those of their rivals, and expand their market share with the help of solid internal incentive systems. The findings showed that businesses with stronger internal governance may be more inclined to enhance their ESG performance following the adoption of the green finance legislation, sending a positive message to society at large.

2.2.7 Production

According to Long et al. (2022), the researchers examine the interrelationship among SMEs, green financing, the textile and leather sectors, government entities, and financial institutions. They investigate this subject in Pakistan. Their findings indicate that SME owners lack the technical and managerial abilities necessary to make their enterprises environmentally sustainable. Certain SMEs lack the requisite knowledge and technical expertise, and face resource limitations and time constraints in identifying and implementing SCP enhancements. Numerous SMEs encounter restricted access to the financing necessary for supporting SCP investments due to various factors, including the reliance of textile and leather SMEs in Pakistan on personal or familial capital and the absence of customised financing options that include suitable collateral and other requisite conditions for SCP investments.

According to Wang (2024), the researchers examine the obstacles encountered by SMEs in obtaining green finance and propose ways to address these obstacles. They implement an interview-based process and gather data from more than 20 respondents. The participants are SME operators, government officials, and banking personnel engaged in green finance. Their findings indicate that the advancement of SMEs driven by green finance faces obstacles related to access to technology and knowledge. Although numerous SMEs are enthusiastic about using green technology and practices to enhance their sustainability and market competitiveness, they frequently encounter limitations in access to and proficiency in sophisticated green technologies and associated expertise. This not only constrains their capacity for product and service innovation but also impairs their ability to leverage green finance for effective transformation. Small and medium-sized enterprises frequently lack adequate resources to engage in extensive research and development initiatives or to form collaborations with universities and research organisations, hence restricting their ability to access innovative green solutions. A deficiency in comprehensive knowledge

of green market trends and customer preferences may impede the growth and innovation of SMEs benefiting from green finance.

According to Luo et al. (2024), this study aims to analyse the effects of green finance on small and micro enterprises (SMEs). This study will evaluate the impact of green finance on the performance and sustainability of small and micro enterprises. The findings indicate a lack of green recognition standards for small and micro businesses. Additionally, it is observed that the lack of clarity in the green standards applicable to small and micro enterprises restricts their ability to obtain green credit, even for those within the solar electricity sector that fundamentally possess "green genes." This issue affects both small and micro enterprises and their associated dealers in the upstream and downstream sectors. It is essential to advance the development and implementation of small and micro green standards across various sectors, aiming to provide more inclusive and sustainable services for small and micro enterprises in diverse industries.

According to Patra (2022), the researcher is to examine the obstacles in the implementation of Green Finance Initiatives (GFIs) within SMEs. The lack of skilled labour in SMEs poses a challenge to their capacity to access and implement green finance initiatives effectively. The survey is conducted using a questionnaire to gather data. The sample was drawn from SMEs in Haryana, covering sectors including food and beverage, textiles, and electrical and electronics. The participants consisted of senior professionals from the department, primarily representing manufacturing SMEs. The adoption of green finance initiatives necessitated the presence of skilled labourers. The implementation of the green finance programme necessitates the employment of specialised personnel, thereby elevating costs for small and medium-sized enterprises. Training is essential for skill development within the workforce, which faces additional costs. The expenses linked with adopting the green financing initiative are substantial, with further costs incurred for certification and due diligence. This imposes a financial burden on SMEs due to environmental responsibilities. The implementation of the green finance project necessitated qualified personnel; however, the expense associated

with skilled labour was a challenge for these SMEs due to the higher costs of training and skill development.

According to Raji (2024), the researchers aim to investigate the role of green financing in advancing sustainable development for SMEs in Nigeria and Africa. This study seeks to identify effective practices, challenges, and potential solutions to enhance access to green financial products and sustainable financing mechanisms. This research examines Nigeria and its implications for the wider African region. The findings indicate that green financing represents a promising avenue for small and medium-sized businesses (SMBs) in Nigeria and Africa, serving as a valuable source of funding for sustainability initiatives and enhancing the sustainability of their operations. Nonetheless, similar to other tools, green financing presents both disadvantages and opportunities for implementation in developing countries. Access to such funds may be limited primarily due to insufficient information regarding the types of available funds and the eligibility criteria for financing. There are many small business owners who likely lack adequate knowledge regarding green financing and its accessibility. Securing green financing continues to pose a significant challenge for small businesses and startups in Nigeria and Africa. The issues arise from insufficient awareness and understanding of available financing, complicated application procedures, economic pressures, and market conditions that adversely affect the financial health of small enterprises.

2.2.8 Company Size

According to Rashid and Uddin (2018), the study aims to examine the roles of banks and nonbank financial institutions in green finance within the Bangladesh economy. One of the objectives is to examine the difficulties that prevent the development of green finance. The assessment identified elevated transaction costs linked to green

projects, especially for small-scale local companies. These types of projects frequently necessitate substantial upfront capital, which can be challenging for small businesses to get. The constraints are made harder by insufficient experience in green investment and the difficulty in demonstrating the viability of large-scale green initiatives. Moreover, banks and financial institutions encounter challenges when assessing green finance applications from small firms, especially when the requisite documentation is inadequately maintained. Substantial transaction costs occur due to the delayed visibility of the long-term advantages of green initiatives, including environmental benefits and cost reductions, complicating the justification for investment by financial institutions.

According to Ozili (2022), this study investigates green finance, emphasising strategies, difficulties, and solutions to enhance green investments and facilitate climate change mitigation. Identify further obstacles to green finance in the findings. Finance inadequately addressing the requirements of small-scale investments. Moreover, there exist obstacles and corresponding solutions for advancing green financing in Singapore. Moreover, SMEs lack access to the issuance of green bonds due to their limited scale and inability to undertake projects eligible for green bond financing.

According to Zhang (2024), the study investigates the influence of environmentally responsible activities on the utilisation of internal finances, equity, various forms of debt financing, and government subsidies, while also assessing whether these effects vary according to firm size. The study examines a worldwide sample of companies from 27 nations. Larger enterprises possess greater access to green finance. Big enterprises typically possess enhanced access to diverse financing sources, including alternatives for green finance. Larger enterprises typically possess better resources, enhanced reputations, and more stable financial profiles, proving them appealing to green investors and financial institutions that support sustainable activities. Moreover, larger enterprises are typically perceived as more stable and less risky, enhancing their capacity to obtain financing for environmental initiatives. Subsequently, smaller

enterprises encounter greater obstacles. Smaller enterprises frequently face disadvantages in embracing green finance due to insufficient financial resources or expertise to access these specialised financial instruments. Moreover, small enterprises may lack the relational networks with financial institutions that larger corporations enjoy, so constraining their capacity to secure green funding alternatives.

According to Kariuki (2023), the primary purpose was to examine how organisational characteristics influence the adoption of green financing by SMEs in Nairobi. The study's target demographic consisted of 134 SMEs situated in Nairobi, Kenya. The use of qualitative data acquired via semi-structured interviews with a designated set of SMEs. The data indicated that the majority of banks take into account the size of the SME prior to providing green financing options. The results indicate that SMEs operating for over three years have greater access to green finance. The findings indicated that banks necessitate audited financial statements prior to providing green funding. The research findings reveal that SMEs targeting investment in sustainable initiatives exhibit a greater capacity to secure green funding. The correlation and regression analyses reveal a slight and statistically insignificant positive association between organisational factors and the adoption of green funding. This study finds that organisational features do not significantly contribute to the adoption of green funding.

According to Li and Lin (2024), the purpose of the study is to analyse the relationship between green finance and company financial capability using the GMM Model. This study examines publicly traded green enterprises, with a database covering from 2012 to 2022. The analysis indicates that larger enterprises typically have more accessible options to green finance. This is due to their more established reputations, superior resources, and advanced financial infrastructures, rendering them more attractive to investors and lenders offering green financial products; smaller companies encounter greater difficulties in securing green finance. These enterprises may have difficulties owing to their restricted resources, underdeveloped market credibility, and limited financial capacities. Consequently, smaller enterprises may struggle to fully leverage

the advantages of green finance, thus affecting their financial performance relative to larger organisations.

2.3 Research Gap

SMEs are the main drivers of economic growth in many nations. In Malaysia, SMEs account for 97% of all business establishments and provide around 48% of employment in the Malaysian workforce. SMEs are crucial to achieving an orderly transition for Malaysia to a low-carbon economy as early as in 2050. They can take the opportunity to adopt sustainable practices and green initiatives in their business by integrating contributions to environmental sustainability and benefit from the financial sector's and Bank Negara Malaysia's (BNM) support in adopting green financing.

However, some previous studies by Kamal et al. (2024) and Afroz et al. (2021) examine the barriers of SMEs implementing green practices in Malaysia because of inconsistency in the definitions of what constitutes a lack of standardisation of green financing products and inconsistent regulatory and policy frameworks to support. This will make the SMEs erode confidence and limit the ability of financial institutions and other stakeholders to develop and implement green finance policies and practices.

In contrast, Musa and Chinniah (2016) inferred that adopting green practices may help SMEs survive in the long run by practicing environmentally friendly practices to enhance business competitiveness. Despite this, there is a noticeable gap in the literature regarding the determinants influencing SMEs' adoption of green financing in Malaysia. To address this research gap, our study aimed to examine seven key factors, which are government support, financial information, technology, environmental commitment, corporate governance, production, and company size. This research seeks

to provide a more profound understanding of how SMEs in Malaysia can better integrate green financing into their business models, ultimately contributing to a more sustainable and resilient economy.

2.4 Review of Theory

Stakeholder theory is commonly used in business management. According to Parmar et al. (2010) stakeholder theory suggests that by focusing on the relationships between a business and the individuals or groups that influence or are influenced by it, aids in maximizing shareholders' wealth. Collaboration with stakeholders, such as customers, suppliers, employees, financiers, communities, and managers, businesses can create and distribute value more effectively. Managers play a crucial role in nurturing these relationships, ensuring value maximization, and overseeing its equitable distribution.

In the context of green finance, stakeholder theory provides a useful framework for understanding its adoption. Green finance integrates environmental concerns with financial decision-making, prioritizing sustainability while maintaining resource efficiency (Lv et al., 2021 as cited in Debrah et al., 2024). It aligns business objectives with the interests of governments and the public by promoting both environmental conservation and economic growth (Debrah et al., 2024). This perspective suggests that businesses, including SMEs, can generate long-term stakeholder value by integrating green finance into their operations.

In Malaysia, the Micro, Small, and Medium Enterprises (MSMEs) sector significantly contributes to the national economy, accounting for 39.1% of GDP (RM613.1 billion) in 2023, with SMEs comprising 98.2% of this sector (SME Corp, 2023). Given their economic significance, SMEs play a major role in sustainability efforts. However, their

activities often have environmental and social impacts, necessitating a shift toward sustainable practices. SMEs can mitigate these effects and redefine stakeholder interests to create value for both primary and secondary stakeholders by adopting a sustainability-focused approach (Debrah et al., 2024). The adoption of green finance among SMEs aligns with stakeholder theory by addressing environmental concerns while ensuring business sustainability.

2.5 Proposed Theoretical Framework

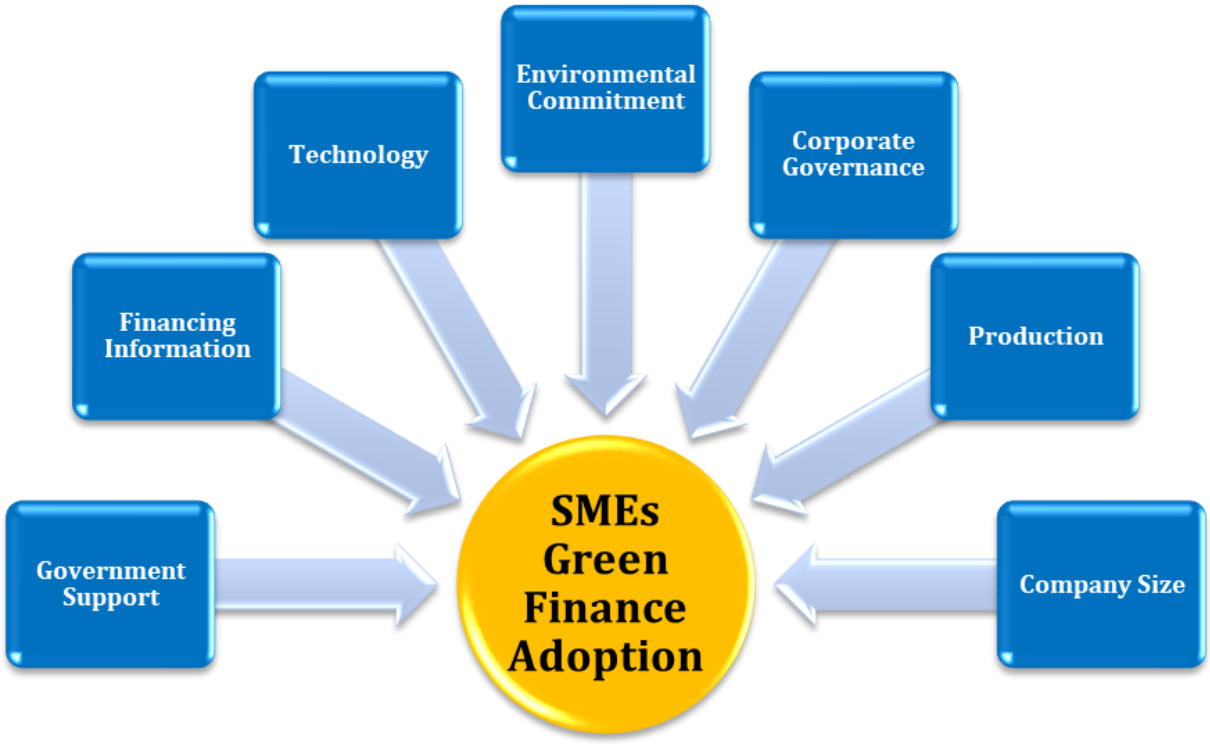


Figure 2.1. The above theoretical framework shows the investigation of how the independent variables, government support, financial information, technology, environmental commitment, corporate governance, production, and company size

influence SMEs green financing adoption. By utilising this framework, seven hypotheses are developed to assess the accuracy of the inferences.

2.6 Hypothesis Development

2.6.1 Government Support

Government support has a significant impact on SMEs green financing adoption. According to Kariuki (2023), green finance will become more accessible to SMEs because of government initiatives and partnerships with foreign lenders. Besides that, the findings indicate that government-backed incentives such as tax reductions will be able to encourage green financing in SMEs. OECD (2019) suggests that the gradual elimination of fossil fuel subsidies and the reduction of green loan costs would enhance the adoption of SMEs. It also emphasised that the government should collaborate with banks to reduce interest rates and collateral requirements, therefore enhancing borrowing conditions to encourage SME involvement in green financing.

Certain studies have shown that governmental support is crucial for enhancing the adoption of green finance. The research conducted by Kumar et al. (2022) and Khan et al. (2022) indicates that ambiguous legislation and legal frameworks adversely impact the implementation of green finance by SMEs. Additionally, Debrah et al. (2024) propose that financial institutions would exhibit increased willingness to provide green financing for SMEs when regulators provide preferential capital treatment to green projects. Hence, the first hypothesis produced by the study is as follows:

H_1: There is a significant relationship between government support and SMEs green financing adoption.

2.6.2 Financing Information

Financing information may have a substantial impact on the adoption of green finance by SMEs. Previous research has demonstrated that the lack of awareness among SMEs regarding green finance constitutes a significant barrier to its adoption. In the research of PAGE (2021), 55% of SMEs reported a lack of knowledge about green financing. On the other hand, Enejo and Ojabo (2023) noted a gap between awareness and implementation, revealing that only 30% of Nigerian SMEs engage with green finance, despite 50% being aware of its existence. Kariuki (2023) suggests that SMEs had a better chance of securing green finance if they had access to training sessions. This is because improved access to financing information could substantially enhance the uptake of green finance among SMEs.

According to Wang (2024), information asymmetry also makes it challenging for SMEs to obtain financing for their green projects. Despite banks having access to extensive green finance information, they do not disseminate it to SMEs, resulting in a lack of understanding among SMEs on green funding and the procedures for obtaining it. Furthermore, in the study conducted by Kumar et al. (2022), the researchers indicate that SMEs frequently do not possess the financial expertise and skills to create investment plans and bankable feasibility assessments, which restricts their ability to acquire green financing. Thus, the following hypothesis is:

H_2: There is a significant relationship between financing information and SMEs green financing adoption.

2.6.3 Technology

Technology can also significantly influence the adoption of green financing among SMEs. Saeedi and Ashraf (2024) suggest that technology breakthroughs, including AI, ML, blockchain, and regulatory technologies, may enhance green finance by strengthening efficiency, transparency, and accessibility. These new technologies will assist in tackling significant concerns such as risk management and regulatory compliance. They also mention that FinTech platforms facilitate the development of green financial products. According to Anwar et al. (2024), the study indicates that Fintech plays a crucial role in enhancing green finance, thereby supporting the objectives of carbon neutrality. This is because the implementation of digital financial technology could help to reduce the carbon impact.

In the research conducted by Muganyi et al. (2021), the authors emphasize that technology has the potential to help SMEs in integrating sustainable practices into their operations by enhancing access to green finance products and addressing information asymmetry. Huang et al. (2024) indicate that fintech enhances the intermediary market and elevates environmental consciousness, leading to a higher demand for green bonds. The increase in green bond issuance creates a more favourable environment for the adoption of green finance, as these bonds serve as a crucial tool for financing sustainable projects. Appiah-Kubi et al. (2024) state that the integration of digital technologies, including blockchain and other digital platforms, enables SMEs to enhance the management and reporting of their environmental practices, hence facilitating access to green financing. Therefore, the next hypothesis is as follows:

H_3: There is a significant relationship between technology and SMEs green financing adoption.

2.6.4 Environmental Commitment

Previous research has examined that environmental commitment may also have a significant impact on SMEs green financing adoption. For example, Appiah-Kubi et al. (2024) discovered that SMEs demonstrating a robust commitment to environmental sustainability may be more inclined to use green financing. Green financing will provide the resources required to complete sustainable initiatives, strengthening the relationship between a SME's environmental commitment and green finance. Mohd and Kaushal (2018) emphasised that financial institutions which show a strong environmental commitment always prioritize the allocation of funds towards sustainable projects, thereby motivating SMEs to pursue low-carbon projects and adopt green financing.

The research found that CSR programs boost environmentally friendly investments and financing access, mediating the relationship between green finance and long-term achievement. This is due to the fact that SMEs can leverage environmental commitment to get green finance in order to improve financial and environmental outcomes (Wang et al., 2023). Rahman et al. (2024) also indicate that the commitment to sustainability also allows SMEs to secure green finance easily and promotes sustained growth over the long term. Furthermore, Alay et al. (2024) demonstrate how important it is for SMEs to include environmental responsibility into their day-to-day operations. They show that SMEs who place a priority on CSR and green financing will be more probably to accomplish long-term success that is sustainable. Hence, the fourth hypothesis is:

H_4: There is a significant relationship between environmental commitment and SMEs green financing adoption.

2.6.5 Corporate Governance

Corporate governance has a significant influence on SMEs green financing adoption. Wang et al. (2023) observed that the significance of sustainable practices has grown in the current corporate environment. SMEs may benefit from green financing in several ways, including the promotion of sustainable practices that reduce energy and resource use, increase brand awareness, and ease of access to capital. In the long run, these benefits can help businesses do well by keeping them ahead of the competition and following the rules. In the study conducted by Khababa and Jalingo (2023), the authors found that corporate governance acts an essential role in influencing the translation of CSR initiatives into sustainable practices. This highlights the importance of aligning internal organisational processes with CSR initiatives to optimize sustainability.

Zhao and Xing (2024) propose that the advancement of the green finance market alongside powerful corporate governance could enhance public consciousness regarding environmental risks and the importance of backing clean energy initiatives. Additionally, Dzomonda (2022) shows that companies with strong governance frameworks will have a greater opportunity to adopt green finance initiatives. This is because transparency and accountability may enhance the trust of stakeholders and give them an upbeat impression. Qian and Yu (2023) indicate that companies exhibiting strong internal governance are likely to improve their ESG performance after the adoption of green finance regulations, conveying a favourable message to the broader community. Thus, the following hypothesis is:

H_5: There is a significant relationship between corporate governance and SMEs green financing adoption.

2.6.6 Production

Production may also have a significant impact on SMEs green financing adoption. Long et al. (2022) suggest that SMEs lack the necessary knowledge and technical proficiency and have resource restrictions and time constraints in identifying and executing SCP improvements, hence hindering their capacity to adopt green finance. Wang (2024) also mention that many SMEs want to use green technology and practices to improve their sustainability and market competitiveness, but they often lack access to and knowledge in advanced green technologies. This already limits their product and service innovation and green financing use for transformation.

In the study of Luo et al. (2024), the findings demonstrate that the ambiguity in green recognition standards for small and micro businesses limits their capacity to get green credit. Patra (2022) shows that the execution of the green finance program requires the hiring of specialized employees, which increases costs for small and medium-sized enterprises, complicating their ability to adopt sustainability initiatives. In the findings of Raji (2024), the researcher suggests that obtaining green financing remains a major obstacle for SMEs. Economic pressures, market circumstances, difficult application processes, and a lack of knowledge about green finance are the main causes of the problem. Therefore, the hypothesis is as follows:

H_6: There is a significant relationship between production and SMEs green financing adoption.

2.6.7 Company Size

Previous studies also have indicated that company size can significantly influence the adoption of green financing by SMEs. Rashid and Uddin (2018) suggest that green projects require significant initial capital, posing challenges for small businesses in securing funding. Banks and financial institutions have difficulties in evaluating green financing applications from small enterprises owing to insufficiently kept paperwork. Ozili (2022) states that the needs of small-scale investments are not effectively addressed by green finance currently. Furthermore, the author also notes that owing to their smaller size and incapacity to engage in projects that qualify for green bond funding, SMEs are unable to get green bonds.

According to Zhang (2024), bigger firms are often viewed as more stable and less hazardous, improving their potential to adopt green financing. However, it could be difficult for small businesses to get green financing since they don't have the same personal relationships with banks as bigger companies. In addition, Kariuki (2023) indicates that most banks will consider the size of the SMEs before offering green financing options. In the research conducted by Li and Lin (2024), the findings show that bigger companies usually have easier access to green financing choices. This is because investors and lenders providing green financial products are more drawn to these institutions because of their better resources, more developed financial infrastructures, and excellent reputations. Hence, the last hypothesis is:

H_7: There is a significant relationship between company size and SMEs green financing adoption.

2.7 Summary

In conclusion, this chapter has presented a comprehensive review of the available research on SME green financing uptake, with an emphasis on the important dependent and independent variables. It looked at the factors that influence green financing adoption, such as government backing, financing information, technology, environmental commitment, corporate governance, production, and company size. The linkages between these variables were examined to better understand their impact on SME green financing adoption. Additionally, numerous theoretical approaches were investigated, laying the groundwork for hypothesis building. This evaluation also highlighted some research gaps, identifying areas for future investigation. The following chapter will describe the research methodology used in this study, including the strategy to data collecting and analysis, as well as the justification for the methodologies used.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

Examining the factors affecting the adoption of green financing among small and medium-sized enterprises (SMEs) in Malaysia is the main objective of this research. Thus, a well-structured research methodology is essential to achieve the research objective. The chapter starts by explaining the research design, followed by a discussion of the data collection method employed. Next, the sampling design is specified, along with a description of the research instrument. Then, the subsequent section discussed data analysis used in the study. Lastly, the chapter ends with a summary of the key points covered.

3.2 Research Design

Research design is a thorough strategy or framework for data collection, measurement, and analysis. It provides a procedural framework for researchers to discover solutions to their research problems (Cooper & Schindler, 2014, as cited in Kariuki, 2023). Besides, Creswell (2009) stated that research design is a strategy and process for doing research that includes everything from general hypothesis to specific techniques for gathering and analysing data. The kind of problem or topic being studied, the backgrounds of the researchers, and the study's target audience are all taken into consideration when choosing a research design.

3.2.1 Primary Data

Primary data was selected to gather the data for this research. Primary data is statistics that are obtained for the first time from personal experiences or proof, usually for study purposes. It is sometimes referred to as unprocessed information or personal knowledge (BYJUS, n.d.). In addition, Persaud (2010) indicated that primary data is one in which the researcher collects the data directly for a particular study objective or project. Researchers may get accurate and customized information by using a variety of methods to collect this kind of data, including questionnaires, surveys, experiments, personal interviews, and observations (Stewart, 2025).

Primary data is more reliable than secondary data. It directly addresses the problems or hypothesis being studied because it is gathered with the goals and enquiries of the study in mind. Therefore, this direct relationship improves both the reliability and precision of the study results as there is no dilution or omission of crucial information pertinent to the research issue. It also provides novel insights that are directly relevant to the current study question (Stewart, 2025). Besides that, primary data is current data, whereas secondary data is historical data (Ajayi, 2023). It always offers the most up-to-date information. This feature makes it particularly useful and important in rapidly changing sectors or research that need real-time information. Green financing is a growing field. Primary data collection can guarantee that the results are up to date and represent current facts and perspectives among SME stakeholders. However, secondary data could potentially be out of date or might not correspond to current trends. Therefore, researchers may make innovative discoveries and reach novel conclusions through investigating primary data, which greatly advances their area of study (Stewart, 2025).

3.2.2 Quantitative Research

Quantitative research is a method of study that uses natural science techniques to generate statistical data and objective truths. It seeks to demonstrate the causal connection among two variables by mathematical, computational, and analytical tools. It is also referred to as empirical research due to its capacity for reliable and accurate measurement. The information gathered can be categorized, ranked, or measured using various components of measurement. It also facilitates the construction of tables and charts from raw data, hence simplifying the analysis of findings for the researcher (Ahmad et al., 2019). Besides, researchers will elucidate the relationships between variables and articulate them in the form of hypothesis or questions in quantitative research (Creswell & Creswell, 2003).

In this study, quantitative research is more appropriate for determining the factors affecting the adoption of green financing among SMEs, in contrast to qualitative research. This is because it could facilitate the methodical gathering and analysing of mathematical information to recognize trends and correlations among variables. Additionally, it utilizes instruments such as questionnaires, observations, and surveys (Ahmad et al., 2019). Therefore, researchers can collect data from a substantial number of SMEs through these tools in order to enhance the accuracy of the results. Moreover, this method also enables statistical testing of hypothesis and the assessment of the significance and relevance of numerous variables that could impact the adoption of green financing by SMEs in Malaysia. It also facilitates the comparison of adoption behaviour throughout several sectors, geographic regions, or company scales.

3.3 Data Collection Method

The collecting of data is a crucial phase in any research activities. It was significant due to the potential for generating explanations and the ways in which the information collected is applied. (Paradis et al., 2016). For this study, we selected to use the primary data in order to meet the research purpose.

3.3.1 Questionnaire

This study used the questionnaire method. This data collection method is common in large surveys. This strategy is utilised by researchers, individuals, corporate and public enterprises, and governmental entities. A questionnaire is a prearranged collection of enquiries presented to a group of respondents. This instrument is effective at gathering information from numerous individuals. It enables researchers to gather standardised data in an organised and methodical way, which is essential for guaranteeing response comparability. Questionnaires are suitable for obtaining information from individuals located across the country and difficult to reach in person. A questionnaire must have a concise description of the research topic (Mazhar et al, 2021). This kind of clarity aids participants in comprehending the background and goal of the research, potentially improving the standard of their answers. Additionally, this study will collect data from responders via the internet. This is due to its capacity to ensure an extremely short period for response gathering, saving both time and costs. Online distribution also makes it easier for people to access, since they can reply whenever it is convenient for them using any digital device. According to Lefever et al (2006), online data collecting safeguards against data loss and facilitates the transmission of data into a database for analysis. Moreover, digital collection techniques diminish the probability of human entry inaccuracies, thereby enhancing the overall reliability of the information. Certain studies believe that using a web survey ensures a possibly superior response rate. This can be linked to the convenience of participation and the less intrusive characteristics of online formats in comparison to in-person or telephone surveys.

3.4 Sampling Design

3.4.1 Target Population

The target population is the precise group of people that a researcher wants to investigate and from which they draw a conclusion. Findings from a sample are only valid for this specific group, and expanding them outside the target population without suitable sampling processes is scientifically invalid (Banerjee & Chaudhury, 2010). In summary, results apply only to the community from which the sample was obtained, not to everyone (Banerjee & Chaudhury, 2010).

The purpose of this study is to evaluate the determinants that affect Malaysian SMEs' use of green financing. SME owners, financial managers, financial decision-makers, and finance personnel are frequently the primary actors in financial decision-making inside their organisations. They are directly responsible for assessing funding options, including the examination of green finance programs. Because of their responsibilities, they have extensive knowledge of their organisation's financial goals and priorities. Furthermore, they are likely to have a practical awareness of how financial decisions interact with operational goals and environmental obligations, making them valuable participants in our study. According to official records (refer Appendix 1), there are 334,304 SMEs in Malaysia. Therefore, the target population of this study is completely made up of all Malaysian SME owners, financial managers, financial decision-makers, and finance staff.

3.4.2 Sampling Location

The sample site is the location where data was collected. Because the target demographic consists of Malaysian SMEs owners, financial managers, financial decision-makers, and finance staff, the sampling was conducted across Malaysia to represent the national SME population.

3.4.3 Sampling Technique

Sampling is the process of selecting a representative subset of a larger population for research purposes. It enhances a study's accuracy and efficiency while also impacting how well the findings may be generalised (Showkat & Parveen, 2017). Sampling is classified into two types which are probability sampling and non-probability sampling. In probability sampling, each individual in the population has a known and equal chance of being chosen, increasing the probability that the sample represents the population (Showkat & Parveen, 2017). In contrast, non-probability sampling relies on non-random methods, where participants are chosen based on convenience or the researcher's judgment (Showkat & Parveen, 2017).

The data used in this study was collected using questionnaires designed to investigate the significance factors that will influence SMEs green finance adoption decisions. In this study, owners, financial managers, financial decision-makers, and finance staff of Malaysian SMEs were picked using the Targeted Sampling. Targeted sampling is a non-probability strategy in which researchers focus on certain places or groups based on prior knowledge, such as known infection sites (Mayfield et al., 2024). This strategy varies from random sampling in that it focuses attention on areas where difficulties are

already known to exist, so it may be a more efficient and cost-effective technique, allowing for faster detection of infected individuals and hotspots. Furthermore, it provides useful information that might help to build more targeted and successful interventions (Mayfield et al., 2024).

In summary, this study used targeted sampling to reach persons directly involved in financial decision-making within Malaysian SMEs. This technique not only improved the relevance and quality of the data obtained, but also allowed for a more focused investigation of the factors impacting green finance adoption. By exploiting prior knowledge to drive participant selection, the study provides useful insights that might inform more effective methods and interventions for encouraging sustainable financial behaviours.

3.4.4 Sampling Size

The sample size is determined using the table from Krejcie and Morgan (1970) study, which is based on the "Table for Determining Sample Size from a Given Population" (refer to Appendix 2). According to Appendix 1 there are 334,304 SMEs in Malaysia, which means our target population will be 334,304 respondents who have the responsibility for Malaysian SMEs financial goals and decisions. Based on the table, a minimum of 384 responders are required as the sample size.

3.5 Research Instrument

3.5.1 Scale of Measurement

Measurement scales are crucial in data analysis as they function as the foundation for statistical evaluation. Statistical analysis, whether descriptive or inferential, depends on measurement scales. Consequently, recognizing the various scales of measurement and their uses is the foundational aspect of quantitative coding and data analysis (Idika et al., 2023).

3.5.1.1 Nominal Scale

Nominal scales apply numerical values to categorize observations or events based on a shared or common qualitative characteristic (Idika et al., 2023). The nominal scale uses numbers randomly in contrast to other scales that employ numbers more quantitatively. Other than that, variables that cannot be sorted in either ascending or descending order are labelled using a nominal scale. Nominal scales, like gender, have two or more categories, but there is no inherent arrangement among them (Shukla, 2023).

Nominal scale examples in this study:

Gender:
( ) Male ( ) Female

3.5.1.2 Likert scale

According to Kusmaryono et al. (2022), Likert scale as a method for data collection aimed at measuring qualitative data. This questionnaire uses the Likert scale method for the survey. The Likert scale is straightforward to construct and is likely to provide a highly reliable measurement tool. Additionally, from the respondents perspective, it is simple to read and complete. 5-point rating scales reduce confusion and enhance response rates (Taherdoost, 2019). According to Østerås et al. (2008), a five-point scale enhances respondents' psychometric effectiveness and patient acceptability. Consequently, it is anticipated that the Likert scale will enhance the accuracy and reliability of the data gathered for this study.

Likert scale examples in this study:

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
SMEs plan to expand their use of green financing in future projects.	1	2	3	4	5

3.5.2 Questionnaire Design

Designing a questionnaire is an important stage in the effective development of any survey. In order to ensure that the correct information is gathered from respondents, that the data obtained is of high quality, and that all subsequent parts of the survey may proceed as easily as possible, it is crucial to have a well-designed questionnaire (Gourlay et al., 2021).

Table 3.1:

Summary of Measures used for Present Study

Variables	Method	No. of Statements	Statement description
Dependent Variable: **SMEs Green Financing Adoption**	Adapted from Kariuki (2023)	1 Statement	Q1e. The cost of adopting green finance is affordable.
	Self-designed	4 Statements	Q1a. SMEs actively seek opportunities to invest in environmentally sustainable projects. Q1b. Current green financing products are effective in meeting SMEs' needs. Q1c. SMEs are aware of the financial benefits of adopting green practices. Q1d. SMEs plan to expand their use of green financing in future projects.
Independent Variable 1: **Government Support**	Adapted from Kariuki (2023)	4 Statements	Q2a. Government policies support SMEs access to green financing. Q2b. Government regulations encourage green practices within SMEs. Q2c. Government programs provide sufficient resources to facilitate SMEs adopt green financing.

			Q2d. Government has offered several incentives to facilitate SMEs adopt green financing.
	Self-designed	1 Statement	Q2e. Government policies for green financing are clearly defined.
Independent Variable 2: **Financing Information**	Adapted from Kariuki (2023)	2 Statements	Q3a. SMEs have increased their awareness of green financing opportunities. Q3b. SMEs have access to sufficient workshops or training on green financing.
	Self-designed	3 Statements	Q3c. SMEs know where to access advisory services for green financing guidance. Q3d. SMEs have received direct communication from relevant institutions about green financing. Q3e. SMEs have a clear understanding of the eligibility criteria and documentation required to apply green financing.
Independent Variable 3: **Technology**	Adapted from Appiah-Kubi et al. (2024)	1 Statement	Q3d. Technology has been utilized by SMEs to improve the transparency and efficiency of sustainability reporting and green finance activities.

	Self-designed	4 Statements	Q3a. SMEs have adopted various digital tools, such as analytics, to support more informed financial decision-making in green finance. Q3b. Emerging technologies like AI, blockchain, or others have been explored and implemented by SMEs to enhance sustainability initiatives. Q3c. SMEs have provided training opportunities to employees to strengthen their ability to apply advanced technologies in green finance. Q3e. SMEs make use of digital platforms to monitor and manage their green finance products.
Independent Variable 4: **Environmental commitment**	Adapted from Appiah-Kubi et al. (2024)	1 Statement	Q5b. SMEs regularly implement sustainability practices as part of their efforts to adopt green finance.
	Self-designed	4 Statements	Q5a. SMEs demonstrate a strong commitment to developing and delivering environmentally sustainable products or services.

			Q5c. SMEs consistently track their carbon footprint and take steps to reduce it in line with environmental goals for green finance adoption. Q5d. In daily operations, SMEs prioritize environmentally friendly materials and resources to support sustainability goals through green finance. Q5e. SMEs' corporate social responsibility frameworks align with efforts to enhance access to green finance.
Independent Variable 5: **Corporate Governance**	Adapted from Ye and Dela (2023)	1 statement	Q6b. SMEs consider environmental preservation in green investment decisions.
	Adapted from Khababa and Jalingo (2023)	1 statement	Q6d. SMEs tend to grow sustainability such as incrementing energy efficiency and diminishing environmental impacts.
	Self-designed	3 statements	Q6a. Green corporate governance positively influences SMEs' access to green finance. Q6c.SMEs adopt green finance to support corporate social responsibility (CSR) efforts.

			Q6e.Strong corporate governance has a significant influence on SMEs' ability to achieve sustainability goals.
Independent Variable 6: **Production**	Self-designed	3 statements	Q7a. SMEs's production processes influence the decision to seek green financing, as these are closely tied to sustainability goals. Q7c. Improving production sustainability is crucial for SMEs to qualify for green financing. Q7e. SMEs's production challenges heavily influence the decision to pursue green financing.
Independent Variable 7: **Company Size**	Self-designed	4 statements	Q8a. SMEs feel that smaller size limits ability to access funding or financing options for green projects. Q8b. SMEs are less likely to apply for green finance due to limited resources or information, which is closely related to their company size Q8c. SMEs often lack dedicated personnel to manage or apply for green financing. Q8d. It is important for SMEs' size to be considered by financial institutions when applying for green financing

3.6 Data Analysis

Data analysis is the step where the data collected is converted into information. There are a variety of techniques to analyse data to get the information, such as the trends and relationships. A conclusion can be drawn based on the information extracted (Start, 2006, as cited in Taherdoost, 2020). This research uses quantitative data analysis. Thus, numbers, graphs, equations, and statistics will be generated and interpreted (Alem, 2020). Activities such as descriptive analysis, reliability test, multicollinearity and inferential analysis are conducted.

3.6.1 Descriptive Analysis

Descriptive analysis is a fundamental method for analysing and presenting data. It summarizes and describes the key features of a dataset. This analysis is generally divided into two categories: measures of central tendency and measures of spread. Mean is used to represent the central tendency and indicates the average of a dataset. Besides, standard deviation as the measure of spread, is used to indicate the level of variability in the data (Alem, 2020; Taherdoost, 2020). Respondents' data, which is collected from Section A of the questionnaire, will be interpreted using descriptive analysis.

3.6.2 Reliability Test

In each research project, estimating reliability is a critical component. The term reliability refers to the consistency of a research study or assessment tool. According to Kennedy (2022), research findings are reliable if they can be replicated consistently. On the other hand, a significant positive correlation between the same test outcomes indicates reliability. The reliability test consists of two distinct meanings, which are stability over time and internal consistency (Kline, 2004).

3.6.2.1 Pilot Test

According to Hassan et al. (2006), a pilot study is characterised as a small study to test research protocols, data collection instruments, sample recruitment strategies, and other research techniques in preparation for a larger study. A pilot study is a crucial phase in a research project that is carried out to find possible issues and flaws in the protocol and research tools before they are used in the main study. Consequently, pilot studies do not address a particular research problem but are mostly conducted to avoid researchers starting a large-scale study before they have sufficient understanding of the proposed method. A trial study is conducted prior to finalising a research design in order to help define the research issue or to evaluate the viability, validity, and reliability of the suggested study design. If the pilot research shows that the methods and procedures are effective, they will be tested on a wider scale (Thabane et al., 2010).

3.6.2.2 Cronbach's alpha

According to Bonett and Wright (2014), Cronbach's alpha reliability is one of the most popular reliability metrics in the social and organisational sciences. Cronbach's alpha is a measure of internal consistency reliability when the measurements represent

several questionnaire/test items, which is the most common application. In addition, it uses a standardised 0 to 1 scale to quantify the degree of agreement (Frost, n.d.). Greater agreement between items is indicated by higher values. The reliability analysis process in SPSS Statistics can be used to calculate Cronbach's alpha. The following table 3.2 shows Cronbach's alpha rule of thumb.

Table 3.2:

Cronbach's alpha rule of thumb

Cronbach's Alpha	**Internal Consistency**
$0.9 \leq \alpha$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.50$	Unacceptable

Source: Rungsinanont (2024)

According to the study by Rungsinanont (2024), the reliability level has been presented in Table 3.2 above. The value of Cronbach's alpha is less than 0.5, indicating unacceptable internal consistency from the study. The scale with 0.7 is normally a benchmark value for Cronbach's alpha and will be acceptable internal consistency. Furthermore, Cronbach's alpha value between 0.8 and 0.9 reflects good reliability. Thus, the scale of Cronbach's alpha value exceeding 0.9 indicates excellent reliability in the study.

3.6.3 Multicollinearity Test

Multicollinearity refers to the high intercorrelation between two or more independent variables in a multiple regression model. In a statistical model, multicollinearity can produce distorted or misleading results when a researcher or analyst attempts to determine how well each independent variable can be utilised to predict or explain the dependent variable (Hayes, 2024). According to Chan et al. (2022), there are four main signs of multicollinearity. The first one is a high coefficient standard error. A variable coefficient's sign may thus deviate from the theory. There will be an inaccurate or deceptive description of how the variable affects the output. Furthermore, the outcome and predictor variables will have a strong association, but the associated parameter is not statistically significant. The final sign indicates that some predictor variables correlation coefficients are high when compared to the equation's overall explanatory power, or R^2.

On the other hand, the most widely used indicator to detect multicollinearity is the Variance Inflation Factor (VIF) or Tolerance (TOL). VIF indicates the extent to which multicollinearity is inflating the variance of the coefficient estimate. According to Daoud (2017), a VIF value equal to 1 indicates not correlated. When VIF is greater than 1 and less than 5, it reflects moderate correlation. Hence, a VIF greater than 5 is considered highly correlated. Besides, Ahmad et al. (2006) advised examining the greatest VIF value. Frequently, a number larger than 10 indicates a multicollinearity issue.

In addition, VIF is the reciprocal of TOL. According to Senaviratna and Cooray (2019), a tolerance value around zero implies that multicollinearity can be a hazard, whereas a tolerance value near one indicates that multicollinearity is minimal. There is no defined cutoff value to employ with tolerance to determine the presence of multicollinearity. As a rule of thumb, a tolerance of 0.1 or less should raise concern.

3.6.4 Inferential Analysis

Inferential statistics is used to make inferences about a population based on data collected from a sample (Zulfiqar & Bala, 2016). The sample responses of SMEs are generalised to estimate the population's opinion on whether and how the independent variables influence the dependent variable in this study.

3.6.4.1 Logistic Regression (Logit)

Regression is commonly used in research to examine the relationship between a dependent variable and one or more independent variables. It is important to clearly define the objective before selecting an appropriate analytical method. Logit is suitable for research involving binary outcomes (Hosmer et al., 2013). The logit model is applied in this research to assess the likelihood (probability within 0 to 1) of SMEs adopting green financing, based on the influence of several independent variables.

The following Logit model is used in this study:

$$\ln\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_1 Govt_i + \beta_2 Fin_i + \beta_3 Tech_i + \beta_4 Env_i + \beta_5 CG_i + \beta_6 Pro_i + \beta_7 Com_i + \mu_i$$

Where p_i = SME Green Finance Adoption

$Govt_i$ = Government Support

Fin_i = Financing Information

$Tech_i$ = Technology

Env_i = Environmental Commitment

CG_i = Corporate Governance

Pro_i = Productivity

Com_i = Company Size

μ_i = error term

The logit model includes the dependent variable and all the independent variables to examine how each factor influences the likelihood of SMEs adopting green financing.

3.6.4.2 Likelihood Ratio Test

The Likelihood-Ratio Test is a hypothesis test used to compare two models and determine which better fits the data. It contrasts a full (more complex) model with a reduced (simpler) model. The null hypothesis states that the reduced model is sufficient, while the alternative hypothesis asserts that the full model provides a significantly better fit (Statistics How To, n.d.). This test assesses the overall significance of the model (serves a similar purpose to the F-test in multiple linear regression). The test is used in this study to evaluate whether the inclusion of independent variables significantly improves the model predicting SMEs' adoption of green financing.

3.6.4.3 Wald Test

The Wald test is used to evaluate the significance of individual parameters in a regression model, particularly the coefficients that represent the relationship between

the dependent and independent variables (Fathurahman et al., 2019). This approach is particularly valuable in logistic regression, where it is used to model a binary outcome by relating the probability of an event occurring (coded as 1) or not occurring (coded as 0) to the predictor variables. A significant result supports the alternative hypothesis that the coefficient differs from zero, suggesting that the corresponding variable has a notable influence on the likelihood of the outcome (Ribeiro, 2022). The test is used in this study to examine whether an individual independent variable significantly influences SMEs' adoption of green financing.

3.7 Summary

In summary, this chapter provides an overview of quantitative methodology in the study. We primarily collected data using a structured questionnaire. Furthermore, we also discussed sampling design, including the target population, sampling location, sampling technique, and sample size. The collected data will be analysed using both descriptive and inferential analysis.

CHAPTER 4: RESEARCH RESULTS

4.1 Introduction

This chapter analyses 413 completed survey responses from individuals responsible for financial decision-making in Malaysian Small and Medium-Sized Enterprises (SMEs). According to Krejcie and Morgan (1970) sample size table, 384 is a sufficient sample for the target population of 334,304 SMEs. Sampling was carried out throughout Malaysia to ensure that SME owners, financial managers, finance executives, and finance staff were represented nationally. Descriptive analysis was used to summarise the dataset's important attributes, and a pilot test was done to evaluate the study methodology before it was fully deployed. Cronbach's alpha was used to test the reliability of the measurement scales. A multicollinearity test was used as part of the preliminary screening to find any substantial intercorrelations between independent variables. Finally, inferential analysis was performed using logistic regression (logit), which was supported by the Likelihood Ratio Test to assess model significance and the Wald Test to evaluate individual predictors.

4.2 Data Description

This section provides a descriptive overview of the collected data. Tables and charts are used to summarize the key findings, making it easier to understand the characteristics and patterns within the dataset.

4.2.1 Respondents' Demographic Profile

Table 4.1:

Descriptive Analysis for Gender

Gender	Frequency	Percent (%)	Cumulative Frequency	Cumulative Percent (%)
Male	223	54	223	54
Female	190	46	413	100

According to Table 4.1, a total of 413 respondents participated in the survey. The findings show that males comprise 54% or 223 respondents, while females comprise 46% or 190 respondents. Consequently, the analysis indicates that the survey had a higher number of male participants than female participants.

Table 4.2:

Descriptive Analysis for Position

Position	Frequency	Percent (%)	Cumulative Frequency	Cumulative Percentage (%)
Owner	7	2	7	2
Financial Decision Maker	25	6	32	8

Finance Manager	147	36	179	43
Finance Staff	234	57	413	100

This table shows 4 positions which are owner, financial decision maker, finance manager, and finance staff. The results show that 2% (7 out of 413) respondents are owners, 6% (25 out of 413) respondents are financial decision makers, 36% (147 out of 413) respondents are finance managers, and 57% (234 out of 413) are finance staff.

Table 4.3:

Descriptive Analysis for Company Adopt Green Financing

Company adopt green financing	Frequency	Percent (%)	Cumulative Frequency	Cumulative Percent (%)
Yes	86	21	86	21
No	327	79	413	100

Tables as well as figures show that the majority of companies, 79% (327 out of 413) do not adopt green financing while 21% (86 out of 413) of the companies adopt green financing.

4.2.2 Central tendencies and Dispersion Measurement of Constructs

Table 4.4:

Central Tendencies Measurement of SMEs Green Financing Adoption

DV: SMEs Green Financing Adoption					
Question	**Sample Size, N**	**Mean**	**Mean Ranking**	**Standard Deviation**	**Standard Deviation Ranking**
Q1a	413	2.220	4	1.325	2
Q1b	413	2.368	2	1.292	3
Q1c	413	2.145	5	1.275	4
Q1d	413	2.588	1	1.147	5
Q1e	413	2.225	3	1.333	1

Question related to SMEs green financing adoption was examined. Referring to table 4.4, Q1d experiences the highest mean at 2.588 with the lowest standard deviation at 1.147. Next, Q1b has the second highest mean at 2.368 with the third highest standard deviation at 1.292. Furthermore, Q1c has the lowest mean at 2.145 with the fourth-ranked standard deviation at 1.275.

Table 4.5:

Central Tendencies Measurement of Government Support Towards GF Adoption

IV1: Government support					
Question	**Sample Size, N**	**Mean**	**Mean Ranking**	**Standard Deviation**	**Standard Deviation Ranking**
Q2a	413	2.373	4	1.387	1
Q2b	413	2.419	3	1.183	3
Q2c	413	2.489	1	1.161	4

Q2d	413	2.310	5	1.307	2
Q2e	413	2.487	2	1.144	5

According to Table 4.5, Government support-related questions were assessed. The highest mean was Q2c at 2.489, followed by Q2e at 2.487 whereas Q2d had the lowest mean at 2.310. Q2a had the highest standard deviation at 1.387, while Q2e had the lowest at 1.144.

Table 4.6:

Central Tendencies Measurement of Financing Information Towards GF Adoption

IV2: Financing Information					
Question	**Sample Size, N**	**Mean**	**Mean Ranking**	**Standard Deviation**	**Standard Deviation Ranking**
Q3a	413	2.344	3	1.226	4
Q3b	413	2.363	2	1.284	3
Q3c	413	2.213	4	1.381	2
Q3d	413	2.576	1	0.986	5
Q3e	413	2.191	5	1.397	1

Table 4.6 presents the respondents' views on financing information. Q3b had the second-highest mean at 2.363, and Q3d had the highest at 2.576. In Q3e, the mean was the lowest at 2.191. Regarding dispersion, Q3d had the lowest standard deviation (0.986) and Q3e the greatest (1.397).

Table 4.7:

Central Tendencies Measurement of Technology Towards GF Adoption

IV3: Technology					
Question	**Sample Size, N**	**Mean**	**Mean Ranking**	**Standard Deviation**	**Standard Deviation Ranking**
Q4a	413	2.288	5	1.361	1
Q4b	413	2.291	4	1.317	2
Q4c	413	2.574	2	1.118	5
Q4d	413	2.390	3	1.283	3
Q4e	413	2.622	1	1.186	4

Based on the data in Table 4.7, Q4e had the highest mean (2.622) among the technology-related responses, followed by Q4c (2.574). The lowest mean was Q4a at 2.288. The highest standard deviation was seen in Q4a at 1.361, while the lowest was in Q4c at 1.118.

Table 4.8:

Central Tendencies Measurement of Environment Commitment Towards GF Adoption

IV4: Environment Commitment					
Question	**Sample Size, N**	**Mean**	**Mean Ranking**	**Standard Deviation**	**Standard Deviation Ranking**
Q5a	413	2.479	2	1.163	4
Q5b	413	2.554	1	1.132	5
Q5c	413	2.327	5	1.189	2
Q5d	413	2.433	3	1.180	3

Q5e	413	2.407	4	1.265	1

According to Table 4.8, environmental commitment responses show that Q5b had the highest mean (2.554), followed by Q5a (2.479). Q5c's mean of 2.327 was the lowest. The Q5e standard deviation was the highest at 1.265, while the Q5b standard deviation was the lowest at 1.132.

Table 4.9:

Central Tendencies Measurement of Corporate Governance Towards GF Adoption

IV5: Corporate Governance					
Question	**Sample Size, N**	**Mean**	**Mean Ranking**	**Standard Deviation**	**Standard Deviation Ranking**
Q6a	413	2.310	4	1.364	1
Q6b	413	2.642	1	0.972	5
Q6c	413	2.303	5	1.295	2
Q6d	413	2.332	3	1.273	3
Q6e	413	2.448	2	1.185	4

Questions related to corporate governance follow. Table 4.9 shows Q6b has the highest mean at 2.642, Q6e has the second highest mean at 2.448, Q6c has the lowest mean at 2.303. The lowest standard deviation was seen in Q6b at 0.972, while Q6a was the highest at 1.364.

Table 4.10:

Central Tendencies Measurement of Production Towards GF Adoption

IV6: Production					
Question	**Sample Size, N**	**Mean**	**Mean Ranking**	**Standard Deviation**	**Standard Deviation Ranking**
Q7a	413	3.823	3	1.189	1
Q7c	413	4.162	2	1.027	2
Q7e	413	4.223	1	1.002	3

Based on Table 4.10, Q7e has the highest mean at 4.223 with the third-ranked standard deviation at 1.002. After that, Q7a has the lowest mean at 3.823 with the highest standard deviation at 1.189. Furthermore, the mean and standard deviation of Q7c is second-ranked, which are 4.162 and 1.027.

Table 4.11:

Central Tendencies Measurement of Company Size Towards GF Adoption

IV7: Company Size					
Question	**Sample Size, N**	**Mean**	**Mean Ranking**	**Standard Deviation**	**Standard Deviation Ranking**
Q8a	413	3.990	1	1.252	1
Q8b	413	3.775	3	1.189	3
Q8c	413	3.845	2	1.170	4
Q8d	413	3.676	4	1.199	2

As demonstrated on Table 4.11, Q8a has the highest mean (3.990), followed by Q8c (3.845). The lowest mean among the production is Q8d (3.676). The highest standard deviation is Q8a (1.252), and the lowest is Q8c (1.170).

4.3 Data Analysis

Data analysis is the essential component of research that increases the effectiveness of the study's findings. It involves gathering, converting, cleansing, and modelling data in order to get the necessary information. It helps the researcher come to a conclusion in a study. Therefore, it would be an understatement to say that data analysis is crucial to research. Hence, data analysis is essential to this process since it gives important judgements a solid foundation and aids in the creation of a comprehensive dissertation proposal (Alem, 2020). SPSS software is employed for a variety of data analytics, including descriptive analysis, reliability test, multicollinearity test, and inferential analysis.

4.3.1 Pilot Test Analysis

In this study, a pilot test is conducted with the first 30 responses collected from Google Form. The pilot test is conducted with one dependent variable and seven independent variables using SPSS's reliability analysis. Table 4.12 shows the pilot test's reliability analysis.

Table 4.12:

Result of Pilot Test

Number of Variables	Number of Items	Cronbach's Alpha	Reliability Test

8	37	0.963	Excellent

According to Table 4.12, the overall Cronbach's Alpha is greater than 0.9, showing that the eight variables provide excellent reliability test results. It signifies that all data is reliable and passes the pilot test.

4.3.2 Reliability Test Analysis

Reliability test is used to ensure the research study is consistent and reliable. Cronbach's Alpha rule of thumb is followed to identify the reliability level. 30 respondents were selected to run the test by using SPSS's reliability analysis.

Table 4.13:

Summary of Reliability Analysis of Dependent and Independent Variables

Name of the Variables	Number of Items	Cronbach's Alpha	Reliability Test
SMEs Green Financing Adoption	5	0.944	Excellent
Government Support	5	0.953	Excellent
Financing Information	5	0.902	Excellent
Technology	5	0.949	Excellent
Environmental Commitment	5	0.937	Excellent
Corporate Governance	5	0.961	Excellent

Production	3	0.872	Good
Company Size	4	0.781	Acceptable

From Table 4.13, the dependent variable shows excellent reliability, with a Cronbach's alpha of 0.961, which is greater than 0.9. In addition, the independent variables of government support, financing information, technology, environmental commitment, and corporate governance also indicated excellent reliability, which is over 0.9. Besides, the independent variables of production and company size demonstrate good and acceptable reliability, since their Cronbach's Alpha is less than 0.9 and 0.8, respectively. All of the variables are generally considered dependable because their values are greater than 0.7.

4.3.3 Multicollinearity Test

A multiculturality test is carried out to determine if there is a high correlation between two or more independent variables in the regression model (Kariuki, 2023). The presence of multicollinearity among independent variables can lead to diminished reliability in statistical inferences (Hayes, 2024). The Variance Inflation Factor (VIF) and Tolerance (TOL) are often used to identify multicollinearity problems. A VIF value of 1 means that there is no correlation between two independent variables. If VIF is between 1 and 5, it suggests a moderate level of correlation. A VIF exceeding 5 indicates a high correlation. Hence, a VIF value of 10 signifies the existence of a multicollinearity issue. Besides that, if the tolerance value is less than 0.1 or near 0, multicollinearity is present (Daoud, 2017).

Table 4.14.:

Result of Multicollinearity Test

Independent Variable	Collinearity Statistics	
	VIF	Tolerance
Government Support	9.476	0.106
Financing Information	9.691	0.103
Technology	9.354	0.107
Environmental Commitment	8.549	0.117
Corporate Governance	7.868	0.127
Production	1.703	0.587
Company Size	2.751	0.363

According to Table 4.14, the VIF values for the variables of government support, financing information, technology, environmental commitment, corporate governance, production, and company size are 9.476, 9.691, 9.354, 8.549, 7.868, 1.703, and 2.751 respectively. On the other hand, the tolerance values for the independent variables are 0.106, 0.103, 0.107, 0.117, 0.127, 0.587, and 0.363 respectively. The VIF value of all independent variables is less than 10, while the tolerance value of all independent variables is greater than 0.1. As a result, there is no serious multicollinearity problem that occurs in this study.

4.3.4 Logistic Regression (Logit)

This research uses a binary logit model to express how the independent variables (i.e. government support, financing information, technology, environment commitment, corporate governance, production and company size) influence the likelihood that Malaysia SMEs will adopt green finance.

Table 4.15:

Result of Logistic Regression

Independent Variable	Logistic coefficient (β)	Standard Error	Odds Ratios (Exp (B))
Government Support	0.474	0.368	1.606
Financing Information	0.852	0.355	2.345
Technology	0.114	0.378	1.121
Environmental Commitment	0.891	0.353	2.438
Corporate Governance	0.171	0.358	1.186
Production	-0.419	0.268	0.658
Company Size	-0.731	0.269	0.481
Constant	-4.706	1.784	0.009

The following Logit model is the estimated based on the SPSS results from the survey data:

$$ln\left(\frac{p_i}{1-p_i}\right) = -4.706 + 0.474Govt_i + 0.852Fin_i + 0.114Tech_i + 0.891Env_i + 0.171CG_i - 0.419Pro_i - 0.731Com_i + \mu_i$$

Where p_i = SMEs Green Financing Adoption

$Govt_i$ = Government Support

Fin_i = Financing Information

$Tech_i$ = Technology

Env_i = Environmental Commitment

CG_i = Corporate Governance

Pro_i = Productivity

Com_i = Company Size

μ_i = error term

Based on Table 4.15, five independent variables show a positive ln-odds ratio in relation to SMEs green finance adoption, which are government support, financing information, technology, environment commitment and corporate governance. Each 1-point increase in government support increases the ln-odd ratio of an SME adopting green finance by 0.474, which is equivalent to an increase in the odds by 1.606 times. Similarly, a one-point increase in financing information raises the log-odds by 0.852, or 2.345 times the odds. Technology, Environmental Commitment, and Corporate Governance, each one-point increase leads to ln-odds increases of 0.114, 0.891, and 0.171 respectively, translating to odds increases of 1.121, 2.438, and 1.186 times.

Despite that, productivity and company size are having negative ln-odd ratio to green financing adoption among Malaysia SMEs. A 1-point increase in productivity reduces the log-odds of green finance adoption by 0.419, which is equivalent to a decrease in the odds by a factor of 0.658. Besides, 1-point increase in Company size reduces 0.731 ln-odd ratio or increases 0.481 odds of green finance adoption.

4.3.5 Likelihood Ratio Test

The Likelihood ratio test is used to assess the overall significance of the estimated logit model. It assesses whether the included independent variables significantly enhance the model's ability to predict the adoption of green finance among SMEs.

Table 4.16:

Result of Likelihood Ratio

	Chi-square	**df**	**Significance**
Model	257.162	7	< 0.001

The null hypothesis for likelihood ratio is that the simpler model can well predict the dependent variable rather than a full model (Statistics How To, n.d.). A model is said to be overall significant when it is able to reject its null hypothesis with p-value smaller than the significance level, 0.05. Based on Table 4.16, the p-value (< 0.001) is smaller than the significance level, thus the estimated logit model is significant to explain the adoption of green finance among SMEs.

4.3.6 Wald Test

Wald test examines the significance of individual coefficients within a regression model, particularly in logistic regression for binary outcomes (Fathurahman et al., 2019). A significant result suggests that a predictor variable substantially affects the probability of the event occurring (Ribeiro, 2022). Therefore, the Wald test is used in this research to ascertain the significant impact of each independent variable on SMEs' adoption of green finance.

Table 4.17:

Result of Wald Test

Independent Variable	**P-value**

Government Support	0.198
Financing Information	0.016
Technology	0.762
Environmental Commitment	0.012
Corporate Governance	0.634
Production	0.118
Company Size	0.007

A significant independent variable has a p-value lower than the significance level, 0.05. Based on Table 4.17, the p-value for government support, technology, corporate governance and production have a p-value of 0.198, 0.762, 0.634 and 0.118. These p-values are greater than the significance level. Thus, it suggests that government support, technology, corporate governance and production do not substantially influence the adoption of green finance among SMEs.

In contrast, financing information, environmental commitment and company size are regarded as significant predictors of green financing adoption, as their p-value, 0.016, 0.012 and 0.007 respectively, are lesser than the significance level.

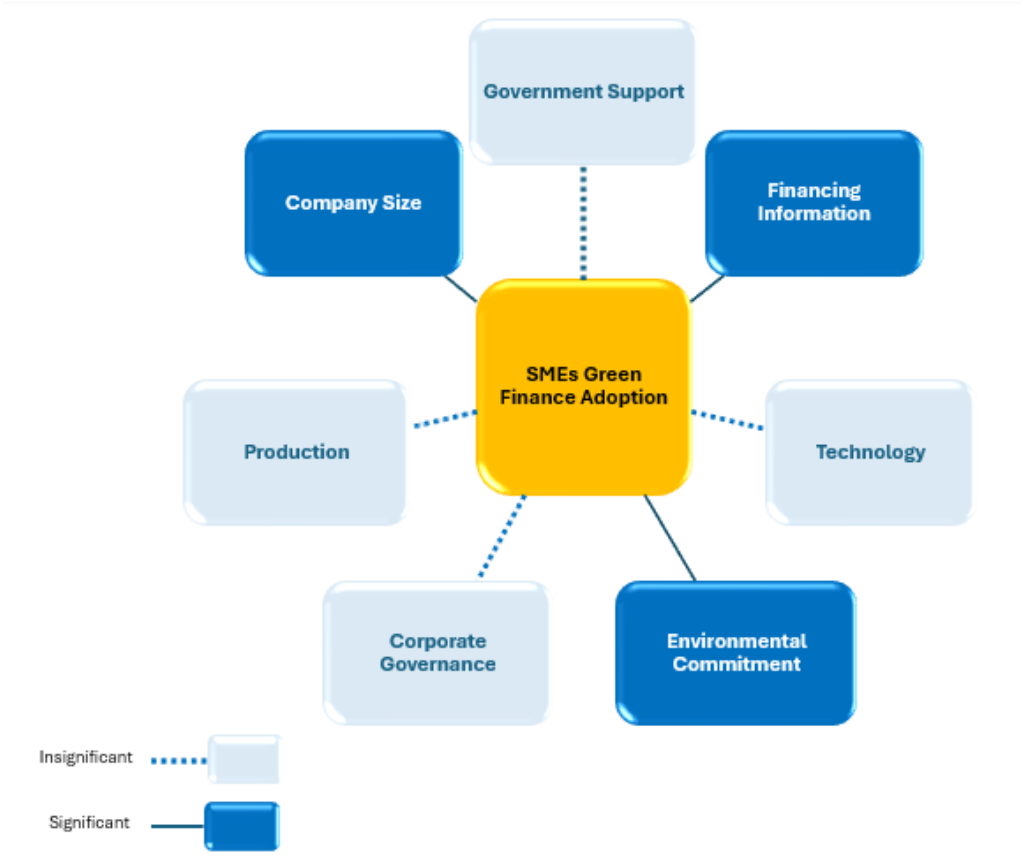


Figure 4.1. The diagram shows the relationship between dependent variable and independent variables.

4.4 Summary

In summary, the scores of the questionnaire are reliable. There is no severe problem of multicollinearity. The logit model is formed. Wald test shows that only three independent variables –financing information, environmental commitment, and company size are significantly linked to green finance adoption. Government support, technology, corporate governance, and production are insignificantly related to green finance adoption. A detailed discussion will be presented in Chapter 5.

CHAPTER 5: DISCUSSION AND CONCLUSION

5.1 Introduction

In this chapter, the research results will be explored and analysed. The first section of chapter 5 discusses the major findings for all independent variables. Next, the implications and limitations of the study are addressed. Furthermore, the recommendations for future research are provided in the subsequent section. Lastly, the chapter ends with a summary of the study.

5.2 Discussion on Major Findings

Dependent Variable	**Independent variable**	**Result**	**Conclusion**
Green Finance Adoption among SMEs in Malaysia	**IV1:** Government Support	Positive & Insignificant	**Reject H_1**: There is no significant relationship between government support and SMEs green financing adoption.
	IV2: Financing Information	Positive & Significant	**H_2**: There is a significant relationship between financing information and SMEs green financing adoption.

	IV3: Technology	Positive & Insignificant	**Reject H_3**: There is no significant relationship between technology and SMEs green financing adoption.
	IV4: Environmental Commitment	Positive & Significant	**H_4**: There is a significant relationship between environmental commitment and SMEs green financing adoption.
	IV5: Corporate Governance	Positive & Insignificant	**Reject H_5**: There is no significant relationship between corporate governance and SMEs green financing adoption.
	IV6: Production	Negative & Insignificant	**Reject H_6**: There is no significant relationship between production and SMEs green financing adoption.
	IV7: Company Size	Negative & Significant	**H_7**: There is a significant relationship between company size and SMEs green financing adoption.

Financing information, environmental commitment and company size are significant in affecting Malaysia Small and Medium Sized Enterprises (SMEs) green financing information, while government support, technology, corporate governance and production are insignificant in determining the adoption.

5.2.1 Government Support

Government support denotes the government initiatives that encourage SMEs to adopt green financing. It includes regulations, policies and incentives set by the government on both the economic and environmental sides (Kariuki, 2023). The Malaysia government's support for green financing including the Renewable Energy Act 2011, Green Technology Financing Scheme (GTFS) and Green Investment Tax Allowance (GITA).

This research exhibits that government support has a positive but insignificant relationship with influencing Malaysian SMEs to adopt green financing. It is consistent with Debrah et al. (2024), which states that regulatory incentives are not the principal force of green finance adoption. Nevertheless, it is inconsistent with Kariuki (2023), Kumar et al. (2022), OECD (2019) and Khan et al. (2022) studies, which suggest that government efforts critically shape the adoption.

Owing to the fact that Malaysia faces a funding shortfall, the effectiveness of government support in driving green finance adoption remains limited. According to MGTC (2020), Fraziali Ismail, Assistant Governor of the Central Bank of Malaysia, said one of the most critical issues is the mismatch between funding demand and supply, as well as information asymmetry. While there is now a stronger demand for green financing, it is not matched by the supply side. For instance, the RM2 billion to RM5 billion allocated under the GTFS for the renewable energy sector falls far below the estimated RM33.5 billion needed by 2025 (MGTC, 2020). This significant funding gap underscores the limitations of public financing in addressing the scale of investment required, especially for SMEs. Consequently, although government initiatives are in place, their constrained scale and limited accessibility have diminished their effectiveness in promoting widespread adoption of green finance among SMEs. Thus,

the government must collaborate with the financial sector to mobilize private funding, align investment priorities, and close the existing financing gap.

5.2.2 Financing Information

Financing information refers to SMEs' awareness and access to green finance, along with their financial preparedness, which depends on whether SMEs receive sufficient information and guidance from financial institutions.

This study found that financing information has a positive and significant relationship with green financing adoption among SMEs in Malaysia. It is consistent with PAGE (2021), Kumar et al. (2022), Kariuki (2023), Enejo and Ojabo (2023) and Wang (2024) studies which expressing the importance of financing information from supply and demand side.

Many SMEs are increasingly aware of environmental issues and are committed to support Malaysia's Net Zero ambition. However, despite their intentions, most face significant challenges in securing the funds needed to acquire green technologies and assets. This financial constraint often stems not only from limited access to capital but also from a lack of clear and reliable information about available financing options. Accessing to sufficient and accurate financing information is essential to empower SMEs to make informed decisions. Receiving tailored guidance from financial institutions is particularly crucial, as green finance typically involves technical terminology, complex eligibility requirements, and extensive documentation that can be overwhelming for smaller businesses to navigate without expert support (Kumar et al., 2022). Clear and effective information conveyed from banks and financial institutions builds trust, enhances transparency, and reduces uncertainty, thereby increasing SMEs' confidence to engage in green finance.

5.2.3 Technology

Technology encompasses the utilisation of digital tools, systems, and innovations, including artificial intelligence, data analytics, and cloud computing, to enhance operational efficiency, inform strategic decision-making, and achieve sustainability objectives.

This study's findings indicate that technology does not significantly influence the adoption of green financing among SMEs in Malaysia. This result contrasts with Saeedi and Ashraf (2024), Anwar et al. (2024), Muganyi et al. (2021), Huang et al. (2024), Appiah-Kubi et al. (2024) that highlighted technology as a crucial facilitator of sustainable business practices. Nonetheless, the negligible outcome in this context may indicate the persistent difficulties that Malaysian SMEs encounter in adopting and employing technology specifically for green finance objectives.

Kamaruddin et al. (2024) observed that the adoption of technology among Malaysian SMEs is comparatively low, with merely 10 to 15 percent of firms actively employing advanced technological solutions like Industry 4.0. Numerous SMEs persist in encountering challenges such as financial limitations, insufficient technical proficiency, and inadequate digital infrastructure, especially in rural regions. These constraints impede their capacity to utilise technology efficiently for green finance initiatives, including sustainability reporting, monitoring environmental performance, or obtaining environmentally related funding. Jaish et al. (2023) observed that while certain SMEs have initiated the digitalisation of their operations, numerous entities face challenges such as elevated costs, inadequate planning, and a lack of skilled personnel, hindering the incorporation of digital tools into green finance decision-making.

Although technology's capacity to enhance green financing through increased transparency, improved data management, and facilitation of compliance with

sustainability standards, the existing digital readiness of Malaysian SMEs may elucidate the negligible relationship identified in this study. The absence of accessible digital infrastructure and capabilities hinders numerous SMEs from utilising technology for financial sustainability. To advance, it may be essential to intensify efforts to improve digital skills, broaden internet accessibility, and offer specialised support and training for technology to significantly influence the adoption of green finance among SMEs in Malaysia.

5.2.4 Environmental Commitment

Environmental commitment denotes an organisation's dedication to integrating environmental considerations into its decision-making processes, operations, and long-term objectives.

This study identifies environmental commitment as positively and significantly influencing the adoption of green financing among SMEs in Malaysia which consistent with Appiah-Kubi et al. (2024), Mohd and Kaushal (2018), Wang et al. (2023), Rahman et al. (2024), Alay (2024) that highlight the impact of sustainability values on corporate financing behaviour. When SMEs prioritise eco-friendly practices and integrate them into their daily operations, they are more inclined to pursue financial solutions that align with their environmental goals. Appiah-Kubi et al. (2024) assert that SMEs demonstrating robust environmental commitment are more likely to embrace green finance to support eco-friendly initiatives and improve transparency in sustainability reporting.

This relationship is corroborated by Wang et al. (2023), who discovered that SMEs with explicit environmental objectives, frequently manifested through Corporate Social Responsibility (CSR) initiatives, are more adept at obtaining green financial resources. These companies typically synchronise their business strategies with environmental

goals, enhancing their attractiveness to financiers prioritising sustainability. Rahman et al. (2024) asserted that environmentally orientated CSR practices enhance environmental performance and facilitate SMEs' access to vital green funding. Mohd and Kaushal (2018) asserted that environmental commitment increasingly influences financial decision-making, as firms with substantial carbon footprints are perceived as higher risk, leading financial institutions to prefer sustainable and low-carbon initiatives.

Alay et al. (2024) discovered that green business ethics, influenced by environmental values, substantially promote the adoption of green finance among SMEs. Their research demonstrated that companies aligning their CSR initiatives and ethical standards with environmental objectives are more effectively positioned for long-term sustainability. This study demonstrates that SMEs exhibiting a robust environmental commitment are more inclined to embrace green financing, as it signifies their proactive approach to sustainability and enhances their financial credibility. Enhancing environmental values in SMEs can therefore act as a pivotal strategy for facilitating access to green finance and promoting sustainable business development.

5.2.5 Corporate Governance

Corporate governance refers to the internal organisational structure of the company. Effective corporate governance guides the development of the business and translates strategic objectives into sustainable practice. Corporate governance also strengthens the link between CSR commitments and sustainable development.

This study demonstrates that corporate governance has a positive but insignificant relationship with influencing SMEs to adopt green financing in Malaysia. It is inconsistent with Wang et al. (2023), Khababa and Jalingo (2023), Zhao and Xing (2024), Dzomonda (2022), and Qian and Yu (2023) studies, which highlight the need

for efficient corporate governance practices to achieve sustainable businesses and maximise shareholder wealth. Thus, strong corporate governance encourages companies to adopt green financing that aligns their CSR project with sustainability goals and delivers long-term business benefits to stakeholders.

According to Musa (2024), a wide range of stakeholders are involved in corporate governance in SMEs, including shareholders, management, suppliers, customers, financiers, government, and the general public. Good governance fosters an environment of accountability, equity, and transparency by ensuring that a company's strategic direction aligns with its values and goals. However, SMEs frequently face particular difficulties in implementing governance practices due to their fewer resources and less formalised structures compared to larger corporations. One of the main obstacles is the lack of clear distinction between management and ownership. Many SME owners also serve as managers; there may be conflicts of interest and insufficient checks and balances. This circumstance frequently leads to decisions that put immediate profits ahead of sustainability over the long run. The Malaysian Code on Corporate Governance (MCCG) 2021 emphasised many SMEs still find it difficult to implement these governance standards, despite notable advancements made by larger publicly traded companies. Besides, instead of seeing corporate governance as a competitive advantage, SMEs frequently see it as a regulatory burden. This view must shift since strong governance can boost an SME's resilience and competitiveness, particularly in uncertain economic times.

Furthermore, Universiti Malaysia Sabah (2024) examine the importance of corporate governance in promoting accountability, transparency, and long-term company viability, which is becoming more widely acknowledged. The result highlighted that some SMEs have substantial gaps in corporate governance awareness, a lack of formal governance structure, and little transparency of governance procedures. In conclusion, due to a lack of awareness of corporate governance practices, it has no measurable impact on Malaysian SMEs adopting green financing.

5.2.6 Production

Production denotes the SME's ability to implement environmentally sustainable product processes. This is closely related to their capacity to secure green financing, as sustainable production typically necessitates initial investment. SMEs encounter significant obstacles in adopting environmentally friendly manufacturing methods, including restricted access to funding, and elevated expenses associated with sustainable technology.

This study found a negative but insignificant relationship between production and SMEs' adoption of green financing in Malaysia. This is inconsistent with the findings of Long et al. (2022), Wang (2024), Luo et al. (2024), Patra (2022), and Raji (2024). In their studies, they found that production had a positive impact on SMEs' adoption of green financing.

Considering the initial investment, risks, and returns of using renewable energy in production or a project is an ordinary evaluation process for all companies (Afroz et al., 2021). A mass production SME, especially, carefully assesses the usage of green technology. This is because if they decide to invest and incorporate green practices at any stage of production, they often need to allocate a larger amount of capital compared to lower production SMEs. They will require substantial funding, yet the green financing amount provided by banks might not always be sufficient for the project. This is due to the fact that banks are relatively conservative in green project financing, as the investment horizon and returns are more uncertain. Furthermore, if such SMEs intend to shift their inputs to green materials, they will need to search for new suppliers. The situation becomes more complex as the quality of green materials, the quantity that can be supplied, and the overall cost compared to conventional inputs remain uncertain.

Hence, even if mass production SMEs adopt green finance, it may still be inadequate to fully support their green production needs.

The theory of planned behaviour is essential in elucidating the reasons SMEs opt for sustainable finance options. It establishes a framework for identifying the attitudes, subjective norms, and perceived behavioural control that affect SME decision-making about sustainable finance (Chuong, Geetha, & Ayub, 2024). While it may appear that SMEs with greater levels of production face additional barriers to adoption, these challenges alone do not significantly determine financing decisions. Instead, factors such as perceived benefits, industry pressure, and managerial capability play a stronger role in shaping green finance adoption. By analysing these aspects, researchers and policymakers can enhance their comprehension and forecasting of SMEs' tendencies regarding the adoption of green financing, thereby facilitating the development of more effective policies and educational resources.

5.2.7 Company Size

Company size is usually shown by the number of workers, the annual turnover, or its total assets. In turn, this can affect a company's ability to run its business, obtain funds, and carry out environmental projects.

This study found that company size has a negative and significant relationship with green financing adoption among SMEs in Malaysia. It is consistent with Rashid and Uddin (2018), Ozili (2022), Zhang (2024), Kariuki (2023), Li and Lin (2024).

Srivastava et al. (2024) indicate that larger SMEs typically favour utilizing internal cash reserves over obtaining external loans for project financing. This finding, while not specifically addressing green financing, highlights a broader financing behaviour in which larger firms tend to rely on self-funding, attributable to their stronger financial

positions and increased autonomy. Larger SMEs generally possess adequate cash flows and reserves, enabling them to circumvent the extra costs, administrative challenges, and time delays frequently linked to the application and management of external loans, whether traditional or green. This preference may result in reduced engagement with external financing options, such as green financing schemes, as these firms might perceive no immediate necessity to pursue external funds for their environmental initiatives. In Malaysia, this behaviour may elucidate why larger SMEs are less inclined to adopt green financing compared to smaller firms, which frequently lack adequate internal funds and are thus more driven to seek external green loans or subsidies for sustainable projects.

Smaller SMEs often operate with a flat organisational hierarchy and minimal bureaucratic procedures, which foster faster and more flexible decision-making. This streamlined structure allows owners or key decision-makers to be directly involved in daily operations and financial planning, enabling them to quickly seize new opportunities such as green financing schemes. Unlike larger SMEs, which may face multiple layers of approval and formalized processes when adopting new financing strategies, smaller firms can make swift decisions with fewer internal barriers. Furthermore, their organisational agility makes them eager to pursue new funding opportunities, as they can readily recognize and capitalize on innovative financial solutions that support their sustainability goals. This combination of flexibility and proactiveness likely contributes to smaller SMEs' greater propensity to adopt green financing, as they can more effectively navigate application requirements and implement environmentally focused initiatives in a timely manner.

5.3 Implications of Study

This research presents various implications for SMEs, government, financial sector, and academics. Through this study, these parties will have a better understanding of

the initiatives and actions necessary to promote and enhance the adoption of green financing by SMEs in Malaysia.

This research will provide the government with clearer insights into how to strengthen SMEs' adoption of green financing. For example, the government needs to make it a top priority to close the financial shortfall by diversifying and broadening green financing programs above the current GTFS allocations. Besides, the government should provide tax breaks to SMEs that implement environmentally friendly policies and procedures or speed up the authorization procedure for green projects, thereby encouraging more participation in sustainable activities. The government must collaborate with financial institutions to organize seminars or campaigns aimed at improving SMEs' understanding of green financing, customizing these programs by industry and geographical area, and using attainable language and concrete examples to enhance engagement and comprehension among SME proprietors. Furthermore, they need to enhance technology infrastructure in rural regions to guarantee that SMEs possess dependable access to internet connection, and cloud computing services to enable them to track information about green financing immediately. The government should formulate green finance programs with segmented criteria according to the company size, thereby enabling the smaller SMEs to meet the qualifications necessary for adopting green finance.

Through this research, financial institutions also gain a clearer understanding of how to drive higher adoption of green financing among SMEs. The banking industry must provide SMEs with customized advice on green finance to improve their comprehension. This may include explicitly delineating the benefits of adopting green finance and providing informative resources in several languages, so guaranteeing that people from all backgrounds and communities can understand the content easily. The financial institutions might also create specialized service counters or online platforms to provide SMEs with extensive information on the application of green finance. If SMEs have enquiries about the adoption process and required documentation, financial

institutions may provide immediate assistance via in-person discussions or virtual platforms to resolve their problems efficiently. The interest of SMEs in green finance would be enhanced with banks providing precise and dependable financing information, hence facilitating their adoption. In addition, the financial institutions can organize workshops to educate the public on the importance of strong corporate governance in lowering lender risk and enhancing the long-term sustainability of SMEs, thereby making it easier for SMEs to access green financing when needed. They also should provide specialist green financing offerings for SMEs based on their cash flow situations and payback capabilities, while also minimizing collateral requirements to motivate their adoption in green finance projects. Banks understanding on SMEs concerns through communication and tailoring the products helps matching the requirement from demand and supply side; thus increase adoption.

Furthermore, this study will help SMEs have a comprehensive understanding of the determinants of green financing adoption and its associated benefits, thereby encouraging them to take proactive measures to adopt green financing. Through this study, SMEs will recognize the significance of acquiring knowledge regarding financing information, prompting them to actively pursue relevant insights by participating in government-supported initiatives, training, and info sessions conducted by the financial sector to enhance their proficiency in managing environmental investments and building greater awareness. Besides that, SMEs realising corporate governance as a competitive advantage will link their processes with their environmental and CSR objectives. This will make sure that sustainability concerns are included in both managerial and tactical alternatives and then assist them to adopt green finance easily. For instance, they should focus on affordable, and high forces green initiatives like reducing production waste to incrementally construct up their green financing preparedness. SMEs will also recognize the importance of engaging skilled professionals with expertise in venture planning, auditing processes, and green finance accreditation, as these professionals can assist the company in managing green projects more effectively.

Lastly, academics will be able to gain valuable knowledge from this research, enabling them to generate new ideas for future investigations. It is possible for academics to highlight study on SMEs in Malaysia who have successfully adopted green finance to draw in other SMEs and increase the adoption rate. Additionally, academics might conduct studies on green finance strategies for small SMEs to determine appropriate funding methods for small-scale enterprises. For example, they could examine accessible and cost-effective sustainable production techniques relevant to SMEs across various sectors in Malaysia, enabling SMEs to comprehend and implement these strategies inside their enterprises. Besides, they could also perform study on the technology capabilities and tools requirements for adopting green finance, tailored to various industrial sectors, to assist SMEs in improving their knowledge and preventing monetary waste.

5.4 Limitations of Study

This study has several limitations that should be acknowledged. First of all, conducting interviews was not feasible due to the large sample size and time constraints. The use of Google Form surveys as the primary data collection method might cause limitations such as sampling and self-selection bias. This is because participation was restricted to respondents with internet access and digital literacy, mostly urban SMEs, and SMEs that are interested in green finance might be more likely to fill out the survey. This can skew results as it does not reflect the general SME population's opinion. Additionally, the lack of personal interaction limited the chance to clarify survey questions, potentially affecting response accuracy, and the depth of insight into respondents' opinions.

Moreover, this study has taken multicollinearity into consideration. The result of the multicollinearity test (refer to Table 4.14) shows VIF values for the variables of government support, financing information, and technology are close to 10, which signifies the existence of multicollinearity concerns. This indicates that these three variables have intercorrelation. A certain amount of overlap may persist despite efforts to reduce multicollinearity among independent variables, which would affect the precision of regression estimations.

Owing to the constrained semester, we were instructed to conclude the research within a limited timeframe. The time constraint hindered our ability to perform a more comprehensive and detailed research, perhaps influencing the study's outcomes. Furthermore, we could not comprehensively research additional factors influencing SMEs' adoption of green financing, including cultural background, market mechanisms, and other possible variables. In addition, we depended on scarce research and were constrained by insufficient time to validate and integrate with practical application.

5.5 Recommendation

Based on the limitations mentioned in the previous section, recommendations are given accordingly.

First of all, future studies may consider using a mixed-methods approach that combines online surveys with follow-up interviews, while also grouping SMEs according to sectors. This approach allows for a more comprehensive understanding of the conditions within each sector, as interviews can provide richer insights that go beyond the limitations of structured survey responses. Researchers can explore context-specific factors, and uncover underlying motivations or barriers to green finance adoption by engaging directly with respondents. Moreover, since SMEs across different sectors

may encounter distinct challenges, such as industry-specific regulations, resource availability, or environmental pressures, segmenting the sample by sector enables a more tailored analysis. It is also important to reach out to rural SMEs who may be excluded from online surveys due to limited internet connection. Conducting interviews with these underrepresented groups would improve the inclusiveness and accuracy of the study, ensuring that the identified drivers and barriers truly reflect the diversity of SMEs across industries.

Second, future research on the factors influencing Malaysian SMEs' adoption of green financing should consider removing or combining highly correlated variables to reduce the multicollinearity problem. We also recommend using Principal Component Analysis (PCA). PCA reduces a large set of correlated variables to a smaller set of uncorrelated variables, thereby minimizing multicollinearity in regression analysis. Besides, increasing the sample size can also reduce the model's sensitivity to multicollinearity and stabilize coefficient estimations. A larger dataset increases the statistical analysis's robustness by enabling the model to more accurately analyse the impacts of correlated variables.

Thirdly, considering the constraints of the academic calendar, future studies may be undertaken as a component of a multi-phase or longitudinal study. This would enable researchers to expand upon existing findings over multiple semesters or research phases, progressively integrating additional variables such as cultural influences, market mechanisms, or practical validation. Moreover, collaborations with other research teams or institutions can facilitate workload distribution and enhance the scope without surpassing individual time limitations. By approaching this subject as a dynamic research agenda instead of a singular project, subsequent investigations can yield more thorough and applicable insights over time.

5.6 Summary

In conclusion, this chapter has comprehensively discussed the major findings of the study. It summarizes the implications of study for SMEs, government, financial sector, and academics. Besides that, the limitations of the research were thoroughly examined to ensure that future study does not encounter the same issues. Lastly, recommendations were provided to aid future researchers in executing relevant studies more efficiently.

REFERENCES

Afroz, R., Puspa, M., Morshed, M. N., Kassim, S., Yusof, R. B. M., & Muhamat, A. A. (2021). Green financing for Environmental sustainability: Analysing the trends with Barriers and Challenges in the context Malaysia. w*ww.jscimedcentral.com*. https://doi.org/10.47739/1075

Ahmad, M. H., Adnan, R., & Adnan, N. (2006). A comparative study on some methods for handling multicollinearity problems. *Mathematika*, *22*, 109–119. https://doi.org/10.11113/matematika.v22.n.179

Ahmad, S., Wasim, S., Irfan, S., Gogoi, S., Srivastava, A., & Farheen, Z. (2019). Qualitative v/s. quantitative research - a summarized review. *Population, 1*(2), 2828-2832. https://journals.indexcopernicus.com/api/file/viewByFileId/916903.pdf

Ajayi, V. O. (2023). A review on primary sources of data and secondary sources of data. *Universal Journal of Arts, Humanities, Science and Technology Education Research, 2*(3). https://doi.org/10.5281/zenodo.16739602

Alay, H. K., Keskin, A., Deveciyan, M. T., Şen, G., Kayalıdereden, D., & Berber, Ş. (2024). The impact of green business ethics and green financing on sustainable business performance of industries in Turkey: The mediating role of corporate social responsibility. *Sustainability, 16*(17), 7868. https://doi.org/10.3390/su16177868

Alem, D.D. (2020). An overview of data analysis and interpretations in research. *International Journal of Academic Research in Education and Review, 8*(1), 1-27. DOI: 10.14662/IJARER2020.015

Anwar, H., Waheed, R., & Aziz, G. (2024). Importance of fintech and green finance to achieve the carbon neutrality targets: A study of Australian perspective. *Environmental Research Communications, 6*(11), 115007. https://doi.org/10.1088/2515-7620/ad853d

Appiah-Kubi, E., Koranteng, F. O., Dura, C. C., Mihăilă, A. A., Drigă, I., & Preda, A. (2024). Green Financing and Sustainability Reporting among SMEs: The role

of Pro-environmental Behaviour and Digitization. *Journal of Cleaner Production*, *478*, 143939. https://doi.org/10.1016/j.jclepro.2024.143939

Banerjee, A., & Chaudhury, S. (2010). Statistics without tears: Populations and samples. *Industrial Psychiatry Journal*, *19*(1), 60. https://doi.org/10.4103/0972-6748.77642

Bank Negara Malaysia. (2024). *Box Article 8: Enhancing Operational Resilience in the Financial Sector*. In *Annual Report 2023*. https://www.bnm.gov.my/documents/20124/12142010/ar2023_en_box8.pdf

Bharati, & Patra, D. G. (2022). The challenges for SMEs in green finance initiatives adoption. *Journal of Positive School Psychology*, *6*(25), 313-325. https://ssrn.com/abstract=4232126

Bonett, D. G., & Wright, T. A. (2014). Cronbach's alpha reliability: Interval estimation, hypothesis testing, and sample size planning. *Journal of Organisational Behaviour*, *36*(1), 3–15. https://doi.org/10.1002/job.1960

BYJUS. (n.d.). *Difference between primary data and secondary data.* https://byjus.com/commerce/difference-between-primary-data-and-secondary-data/

Capital Markets Malaysia. (n.d.). *SRI Sukuk.* https://www.capitalmarketsmalaysia.com/public-sri-sukuk/

Caroline. (2024, November 16). *Unlocking sustainable finance for SMEs - ICC - International Chamber of Commerce*. ICC - International Chamber of Commerce. https://iccwbo.org/news-publications/policies-reports/unlocking-sustainable-finance-for-smes/#top

Chan, J. Y., Leow, S. M. H., Bea, K. T., Cheng, W. K., Phoong, S. W., Hong, Z., & Chen, Y. (2022). Mitigating the multicollinearity Problem and its machine Learning Approach: A review. *Mathematics*, *10*(8), 1283. https://doi.org/10.3390/math10081283

Chikwelu, M., Shyam, H. S., & Chakrabarti, M. (2018). Comparative analysis of managerial and entrepreneurial firms of Nigeria using entrepreneurship and knowledge capital. *International Journal of Entrepreneurship and Small Business, 34*(2), 233. https://dx.doi.org/10.1504/IJESB.2018.092028

Chuong Shing, C., Geetha, C., & Hj Ayub, M. S. (2024). Uncovering the factors driving MSMEs to embrace green finance: A study in Sabah, Malaysia. *Malaysian Journal of Business and Economics (MJBE) Special Edition*, *11*(1), 68–78. https://10.51200/mjbe.v11i1.5637

CIMB. (2023, June 6). Maximise Your Business Potential through ESG: A Guide for SME. https://www.cimb.com.my/en/business/business-insights/sustainable-business-insights/esg-for-sme-sustainable-business.html#:~:text=In%20Malaysia%2C%20there%20are%20a%20number%20of%20tax,Malaysia%20transition%20to%20a%20more%20sustainable%2C%20low-carbon%20economy.

Creswell, J. W. (2009). Research design: Quantitative, qualitative, and mixed methods approaches (3rd ed.). *Sage Publications.* https://www.ucg.ac.me/skladiste/blog_609332/objava_105202/fajlovi/Creswell.pdf

Creswell, J. W., & Creswell, J. (2003). Research design: Quantitative, qualitative, and mixed methods approaches (2nd ed.). *Sage publications.* https://cumming.ucalgary.ca/sites/default/files/teams/82/communications/Creswell%202003%20-%20Research%20Design%20-%20Qualitative,%20Quantitative%20and%20Mixed%20Methods.pdf

Daoud, J. I. (2017). Multicollinearity and regression analysis. *Journal of Physics Conference Series*, *949*, 012009. https://doi.org/10.1088/1742-6596/949/1/012009

Debrah, C., Chan, A. P. C., Darko, A., Ries, R. J., Ohene, E., & Tetteh, M. O. (2024). Driving factors for the adoption of green finance in green building for sustainable development in developing countries: The case of Ghana. *Sustainable Development*. https://doi.org/10.1002/sd.3022

Dzomonda, O. (2022). Environmental sustainability commitment and access to finance by small and medium enterprises: the role of financial performance

and corporate governance. *Sustainability*, *14*(14), 8863. https://doi.org/10.3390/su14148863

Elite Asia Marketing. (2024). *A business guide to ESG regulations in Malaysia*. Elite Asia. https://www.eliteasia.co/a-business-guide-to-esg-regulations-in-malaysia-what-companies-need-to-know/#:~:text=Since%202016%2C%20ESG%20reporting%20has%20been%20compulsory%20for,mandate%20has%20quickly%20evolved%20into%20an%20investor%20priority.

Enejo, O.W. & Ojabo, A.P. (2023). Role of green financing in fostering sustainable practices within Small and Medium Enterprises (SMEs) in northern Nigeria. *Conference Paper.* *h*ttps://www.academia.edu/120051293/ROLE_OF_GREEN_FINANCING_IN_FOSTERING_SUSTAINABLE_PRACTICES_WITHIN_SMALL_AND_MEDIUM_ENTERPRISES_SMES_IN_NORTHERN_NIGERIA_DR_OGUCHE_WISDOM_ENEJO

Fathurahman, M., Purhadi, Sutikno, Ratnasari, V. (2019). Hypothesis testing of geographically weighted bivariate logistic regression. *Journal of Physics Conference Series, 1417(1)*. doi:10.1088/1742-6596/1417/1/012008

Frost, J. (n.d.). *Cronbach's Alpha: Definition, Calculations & Example*. Statistics By Jim. https://statisticsbyjim.com/basics/cronbachs-alpha/

Gourlay, S., Kilic, T., Martuscelli, A., Wollburg, P., & Zezza, A. (2021). Viewpoint: High-frequency phone surveys on COVID-19: Good practices, open questions. *Food Policy, 105*, 102153. https://doi.org/10.1016/j.foodpol.2021.102153

Guang-Wen, Z., & Siddik, A. B. (2022). Do corporate social responsibility practices and green finance dimensions determine environmental performance? An Empirical study on Bangladeshi banking institutions. *Frontiers in Environmental Science, 10*. https://doi.org/10.3389/fenvs.2022.890096

Hassan, Z. A., Schattner, P., & Mazza, D. (2006). Doing a pilot study: Why is it essential? *DOAJ (DOAJ: Directory of Open Access Journals)*, *1*(2–3), 70–73. https://doaj.org/article/38b83fb6ae404889b9b3207a521eb3f2

Hayes, A. (2024, May 26). *Multicollinearity: Meaning, examples, and FAQs*. Investopedia. https://www.investopedia.com/terms/m/multicollinearity.asp

Hosmer Jr, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). *Applied logistic regression*. John Wiley & Sons. https://www.researchgate.net/profile/Andrew-Cucchiara/publication/261659875_Applied_Logistic_Regression/links/542c7eff0cf277d58e8c811e/Applied-Logistic-Regression.pdf

Huang, J., Liu, R., Wang, W., Wang, Z., Wang, C., & Jin, Y. (2024). Unleashing Fintech's potential: A catalyst for green bonds issuance. *Journal of International Financial Markets Institutions and Money*, *93*, 102009. https://doi.org/10.1016/j.intfin.2024.102009

ICC. (2024). *Unlocking sustainable finance for SMEs*. International Chamber of Commerce. https://iccwbo.org/wp-content/uploads/sites/3/2024/11/2024-ICC-Sage-Unlocking-sustainable-finance-for-SMEs_1eecec.pdf

Idika, D. O., Owan, V. J., & Agama, V. U. (2023). The application of the nominal scale of measurement in research data analysis. *Prestige Journal of Education*, *6*(1), 190–198. https://doi.org/10.5555/pje.2023.6.1.190

Jaish, A. A., Murdipi, R., Razak, D. A., & Alwi, N. M. (2023). The effect of digitalization on the sustainability of Malaysian SMEs. *International Journal of Academic Research in Business and Social Sciences*, *13*(1). https://doi.org/10.6007/ijarbss/v13-i1/15994

Kamal, N. Y., Adnan, Y. M., Foudzy, N. M., & Razali, M. N. (2024). EXPLORING GREEN FINANCING AND ITS CHALLENGES IN MALAYSIAN REAL ESTATE PROJECT. *Journal of Surveying Construction & Property*, *15*(2), 54–66. https://doi.org/10.22452/jscp.vol15no2.5

Kamaruddin, K., Marzuki, I. S. M., Ali, N. M., Salleh, S. M., Setia, R. H., Borhanuddin, R. I., Harahap, A. Z. M. K., & Mokhlas, H. (2024). Unveiling Technology Integration in Small Medium Enterprises (SME): A phenomenological inquiry. *International Journal of Academic Research in Economics and Management Sciences*, *13*(3). https://doi.org/10.6007/ijarems/v13-i3/22365

Kariuki, J. M. (2023). Determinants Of Green Financing Adoption by Small and Medium Sized Enterprises in Manufacturing Sector at Nairobi City County, Kenya. *KCA University Library*. https://repository.kcau.ac.ke/handle/123456789/1528

Kennedy, I. (2022). Sample Size Determination in Test-Retest and Cronbach Alpha Reliability Estimates. *British Journal of Contemporary Education*, *2*(1), 17–29. https://doi.org/10.52589/bjce-fy266hk9

Khababa, N., Jalingo, M. U. (2023). Impact of Green Finance, Green Investment, Green Technology on SME's Sustainability: Role of Corporate Social Responsibility and Corporate Governance. *International Journal of Economics and Finance Studies, 15*(03), 438-461. doi: 10.34109/ijefs.202315321

Khan, K. I., Mata, M. N., Martins, J. M., Nasir, A., Dantas, R. M., Correia, A. B., & Saghir, M. U. (2022). Impediments of Green Finance Adoption System: Linking economy and environment. *Emerging Science Journal*, *6*(2), 217–237. https://doi.org/10.28991/esj-2022-06-02-02

Kline, R. B. (2004). Beyond significance testing: Reforming data analysis methods in behavioural research. In *American Psychological Association eBooks*. https://doi.org/10.1037/10693-000

Krejcie, R., & Morgan, D. (1970). Determining sample size for research activities. *Educational and psychological measurement, 30*(3), 607-610.

Krishnan, V., Jayabalan, N., Prebakarran, P. N., Pentang, J. T., & Zedan, L. (2024). Unlocking Profitability: Exploring green production adoption and financial performance in Malaysian SME manufacturing. *Journal of Ecohumanism*, *3*(8). https://doi.org/10.62754/joe.v3i8.5092

Kumar, L., Nadeem, F., Sloan, M., Restle-Steinert, J., Deitch, M. J., Naqvi, S. A., Kumar, A., & Sassanelli, C. (2022). Fostering green finance for sustainable Development: a focus on textile and leather small medium enterprises in Pakistan. *Sustainability 2022*, *14*(19), 11908. https://doi.org/10.3390/su141911908

Kusmaryono, I., Wijayanti, D., & Maharani, H. R. (2022). Number of Response Options, Reliability, Validity, and Potential Bias in the Use of the Likert Scale Education and Social Science Research: A Literature Review. *International Journal of Educational Methodology*, *8*(4), 625-637. https://doi.org/10.12973/ijem.8.4.625

Lefever, S., Dal, M., & Matthíasdóttir, Á. (2006). Online data collection in academic research: advantages and limitations. *British journal of educational technology*, *38*(4), 574-582. https://doi:10.1111/j.1467-8535.2006.00638.x

Li, Y., & Lin, A. (2024). Assessing the impact of green finance on financial performance in Chinese eco-friendly enterprise. *Heliyon*, 10(7). https://www.sciencedirect.com/science/article/pii/S2405844024051065

Long, J., Zhong, C., Ahmad, B., Irfan, M., & Nazir, R. (2022). How do green financing and green logistics affect the circular economy in the pandemic situation: key mediating role of sustainable production. *Economic research-Ekonomska istraživanja*, 35(1), 3836-3856. https://doi.org/10.1080/1331677X.2021.2004437

Luo, Z., Zhao, J., Liu, J., & Liu, X. (2024). The Impact of Green Finance on Small and Micro-enterprises. *Advances in Economics, Management and Political Sciences.* https://doi: 10.54254/2754-1169/92/20231236

Malaysia Investment Development Authority - MIDA. (2023, May 3). *Crucial for SMEs to be ESG-compliant*. https://www.mida.gov.my/mida-news/crucial-for-smes-to-be-esg-compliant/

Malaysian Investment Development Authority (MIDA). (2024, October 9). *Guidelines and procedures for the application of the Domestic Investment Accelerator Fund (DIAF) – ESG Adoption*. https://www.mida.gov.my/wp-content/uploads/2024/10/Guidelines_DIAF-ESG_as_at_09.10.2024.pdf

Mayfield, H. J., Sartorius, B., McLure, A., Curtis, S. J., Martin, B. M., Sheridan, S., Thomsen, R., Tofaeono-Pifeleti, R., Viali, S., Graves, P. M., & Lau, C. L. (2024). Benefit of targeted sampling for Lymphatic Filariasis surveillance in Samoa depends on antigen prevalence. *medRxiv (Cold Spring Harbor Laboratory)*. https://doi.org/10.1101/2024.10.11.24315286

Mazhar, S. A., Anjum, R., Anwar, A. I., & Khan, A. A. (2021). Methods of data collection: A fundamental tool of research. *Journal of Integrated Community Health, 10*(1), 6–10. https://doi.org/10.24321/2319.9113.202101

MGTC. (2020, October 20). Fraziali Ismail: Climate action in the Malaysian financial sector. https://www.mgtc.gov.my/ms/2020/10/fraziali-ismail-climate-action-in-the-malaysian-financial-sector/

MGTC. (n.d.). *Green Investment Tax Allowance (GITA) & Green Income Tax Exemption (GITE) – Malaysian Green Technology and Climate Change Corporation*. https://www.mgtc.gov.my/what-we-do/green-incentives/green-investment-tax-incentives-gita-gite/#:~:text=The%20Green%20Income%20Tax%20Exemption%20%28GITE%29%20is%20available,the%20MyHIJAU%20Directory.%20Visit%20www.myhijau.my%2Fgreen-incentives%20to%20learn%20more.

MIDF. (2025). *Sustainable Green Biz Financing (SGBF)*. Malaysian Industrial Development Finance Berhad. https://www.growyourbusiness.com.my/financing/green-financing

Ministry of Finance Malaysia. (2025). *Skim Pembiayaan Perniagaan Kelestarian dan Hijau (SGBF)*. Portal Manfaat. https://manfaat.mof.gov.my/b2025/perniagaan/midf-kelestarian-hijau

Mohd, S., & Kaushal, V. K. (2018). Green Finance: A Step towards Sustainable Development. *MUDRA Journal of Finance and Accounting*, *5*(01). https://doi.org/10.17492/mudra.v5i01.13036

Muganyi, T., Yan, L., & Sun, H. (2021). Green finance, fintech and environmental protection: Evidence from China. *Environmental Science and Ecotechnology*, *7*, 100107. https://doi.org/10.1016/j.ese.2021.100107

Muhamat, A. A., Nizar, N. U. R. H. U. D. A., Senawi, A. R., Karim, N. A., Kassim, S. A. L. I. N. A., & Ismail, H. R. (2024). Green Sukuk Issuance: A Case Study of Public University in Malaysia. *Journal of Sustainability Science and Management, 19*(11), 210-222. http://doi.org/10.46754/jssm.2024.11.013

Musa, H., & Chinniah, M. (2016). Malaysian SMES development: future and challenges on Going green. *Procedia - Social and Behavioral Sciences*, *224*, 254–262. https://doi.org/10.1016/j.sbspro.2016.05.457

Musa, S. Z. B. S. (2024). *Strengthening corporate governance: The role of ethics and integrity in Malaysian SMEs during economic uncertainty*. ResearchGate. https://www.researchgate.net/publication/382651552_Strengthening_Corporate_Governance_The_Role_of_Ethics_and_Integrity_in_Malaysian_SMEs_During_Economic_Uncertainty

MyGreenlight. (n.d.). *ESG grants and financing for Malaysian businesses.* https://www.mygreenlight.com.my/post/esg-grants-and-financing-for-malaysian-businesses

NASA Science. (2024). *What is climate change?* https://science.nasa.gov/climate-change/what-is-climate-change/

OECD. (2019). Access to Green Finance for SMEs in Georgia, Green Finance and Investment. *OECD Publishing, Paris.* https://doi.org/10.1787/dc98f97b-en

Ozili, P. K. (2022). Green finance research around the world: a review of literature. *International Journal of Green Economics*, 16(1), 56-75. https://mpra.ub.uni-muenchen.de/114899/1/MPRA_paper_114899.pdf

Østerås, N., Gulbrandsen, P., Garratt, A., Benth, J. Š., Natvig, B., & Brage, S. (2008).
A randomised comparison of a four- and a five-point scale version of the Norwegian Function Assessment Scale. *Health and Quality of Life Outcomes,*
6(14). https://doi:10.1186/1477-7525-6-14

PAGE -Partnership for Action on Green Economy. (2021). *Greening the SMEs: Improving SME Access to Green Finance in Mauritius.* https://www.unepfi.org/wordpress/wp-content/uploads/2021/11/Greening-the-SMEs-Improving-SME-Access-to-Green-Finance-in-Mauritius.pdf

Paradis, E., O'Brien, B., Nimmon, L., Bandiera, G., & Martimianakis, M. A. (2016). Design: Selection of data collection methods. *Journal of graduate medical education*, *8*(2), 263-264. https://doi.org/10.4300/JGME-D-16-00098.1

Parmar, B. L., Freeman, R. E., Harrison, J. S., Wicks, A. C., Purnell, L., & De Colle, S. (2010). Stakeholder Theory:The state of the art. *Academy of Management Annals*, *4*(1), 403–445. https://doi.org/10.5465/19416520.2010.495581

Patra, D. G. (2022). The Challenges For SMEs In Green Finance Initiatives Adoption. *Journal of Positive School Psychology*, 6(2s), 313-325. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4232126

Pek, C. K., Tan, H. B., Kim, R. C., & Ang, P. M. M. (2019). Industry lessons for green banking in Malaysia. *International Journal of Green Economics*, *13*(3/4), 167. https://doi.org/10.1504/ijge.2019.104506

Persaud, N. (2010). Primary data source. *Encyclopedia of Research Design.* https://doi.org/10.4135/9781412961288.n333

Peterdy, K. (2023). *ESG (Environmental, Social, & Governance)*. Corporate Finance Institute. https://corporatefinanceinstitute.com/resources/esg/esg-environmental-social-governance/

Polzin, F., & Sanders, M. (2020). How to finance the transition to low-carbon energy
in Europe? *Energy Policy*, *147*,
111863. https://doi.org/10.1016/j.enpol.2020.111863.

Qian, S., & Yu, W. (2023). Green finance and environmental, social, and governance performance. *International Review of Economics & Finance*, *89*, 1185–1202. https://doi.org/10.1016/j.iref.2023.08.017

Rahman, M. H., Tanchangya, T., Rahman, J., Aktar, M. A., & Majumder, S. C. (2024). Corporate social responsibility and green financing behaviour in Bangladesh: Towards sustainable tourism. *Innovation and Green Development*, *3*(3), 100133. https://doi.org/10.1016/j.igd.2024.100133

Raji, B. A. (2024). Empowering SMEs Through Green Financing: Case Studies and Best Practices for Sustainable Development in Nigeria and Africa. *Business and Economics in Developing Countries (BEDC)* 2(1) (2024) 44-51. https://bedc.com.my/paper/1bedc2024/1bedc2024-44-51.pdf

Rashid, M. H. U., & Uddin, M. M. (2018). Green financing for sustainability: analysing the trends with challenges and prospects in the context of Bangladesh. I*nternational Journal of Green Economics,* 12(3-4), 192-208. https://www.researchgate.net/publication/331271085_Green_financing_for_sustainability_analysing_the_trends_with_challenges_and_prospects_in_the_context_of_Bangladesh

Rasoulinezhad, E., & Taghizadeh-Hesary, F. (2022). Role of green finance in improving energy efficiency and renewable energy development. *Energy Efficiency*, *15*(2). https://doi.org/10.1007/s12053-022-10021-4

Ribeiro, D. (2022). *Wald Test: Hypothesis Testing in Regression Analysis*. Data Science. https://diogoribeiro7.github.io/statistics/wald_test_hypothesis_testing_regression_analysis/

Rungsinanont, S. (2024). Factors and Problems Affecting English Listening Comprehension Skills of Eic Undergraduate Students at Rmutl Tak, Thailand. *Revista De Gestão Social EAmbiental*, *18*(5), e05203. https://doi.org/10.24857/rgsa.v18n5-043

Sachs, J. D., W. T. Woo, N. Yoshino, & F. Taghizadeh-Hesary. (2019). Why is green finance important? *Asian Development Bank Institute*. https://www.adb.org/publications/why-green-finance-important

Saeedi, M., & Ashraf, B. N. (2024). The role of Technology in Promoting Green Finance: A systematic literature survey and the development of a framework. *Journal of Risk and Financial Management*, *17*(10), 472. https://doi.org/10.3390/jrfm17100472

Sarangi, G. K. (2018). Green energy finance in India: Challenges and solutions. *Asian Development Bank Institute*. https://www.adb.org/publications/green-energy-finance-india-challenges-and-solutions

Senaviratna, N. a. M. R., & Cooray, T. M. J. A. (2019). Diagnosing multicollinearity of logistic regression model. *Asian Journal of Probability and Statistics*, 1–9. https://doi.org/10.9734/ajpas/2019/v5i230132

Shari, W., Hassan, M. H. A., Ezanee, A. a. M., Wahab, N. M. A., & Wahab, N. A. (2024). Ways to promote sustainable practices among Malaysian SMEs from the viewpoints of experts. *Journal of Asian Scientific Research*, *14*(4), 597–611. https://doi.org/10.55493/5003.v14i4.5179

Showkat, N., & Parveen, H. (2017). *Non-probability and probability sampling*. e-PG Pathshala. https://www.researchgate.net/publication/319066480_Non-Probability and Probability Sampling

Shukla, D. (2023). A narrative review on types of data and scales of measurement: An initial step in the statistical analysis of medical data. *Cancer Research, Statistics, and Treatment*, *6*(2), 279-283. https://doi.org/10.4103/crst.crst_1_23

Sinha, A., Mishra, S., Sharif, A., & Yarovaya, L. (2021). Does green financing help to improve environmental & social responsibility? Designing SDG framework through advanced quantile modelling. *Journal of Environmental Management*, *292*, 112751. https://mpra.ub.uni-muenchen.de/108150/

SME Association of Malaysia. (2020). *SME definition.* https://smemalaysia.org/sme-definition/

SME Corp. (2020). *SME definitions*. https://smecorp.gov.my/index.php/en/policies/2020-02-11-08-01-24/sme-definition

SME Corp. (2023). *MSME Statistics*. https://smecorp.gov.my/index.php/en/policies/2020-02-11-08-01-24/sme-statistics

Srivastava, P., Bloom, N., Bunn, P., Mizen, P., Thwaites, G., & Yotzov, I. (2024). *Firm climate investment: A glass half-full* (Staff Working Paper No. 1,095). Bank of England. https://www.bankofengland.co.uk/-

/media/boe/files/working-paper/2024/firm-climate-investment-a-glass-half-full.pdf

Statistics How To. (n.d.) Likelihood-Ratio Tests (Probability and Mathematical Statistics). https://www.statisticshowto.com/likelihood-ratio-tests/

Stewart, L. (2025, February 11). *Primary data: Definition, examples & collection methods*. ATLAS.ti. https://atlasti.com/research-hub/primary-data

Sun, G., Li, G., Dilanchiev, A., & Kazimova, A. (2023). Promotion of green financing: Role of renewable energy and energy transition in China. *Renewable Energy, 210,* 769–775. https://doi.org/10.1016/j.renene.2023.04.044

Taherdoost, H. (2019). What is the best response scale for survey and questionnaire design: Review of different lengths of rating scale / attitude scale / Likert scale. *International Journal of Academic Research in Management, 8*(1), 1–10. https://hal.science/hal-02557308v1/file/What%20is%20the%20Best%20Response%20Scale%20for%20Survey%20and%20Questionnaire%20Design%3B%20Review%20of%20Different%20Lengths%20of%20Rating%20Scale%20%20Attitude%20Scale%20%20Likert%20Scale.pdf

Taherdoost, H. (2020). Different Types of Data Analysis: Data Analysis Methods and Techniques in Research Projects. *International Journal of Academic Research in Management 9*(1), 1-9. https://www.researchgate.net/publication/356263959_Different_Types_of_Data_Analysis_Data_Analysis_Methods_and_Techniques_in_Research_Projects

Thabane, L., Ma, J., Chu, R., Cheng, J., Ismaila, A., Rios, L. P., Robson, R., Thabane, M., Giangregorio, L., & Goldsmith, C. H. (2010). A tutorial on pilot studies: the what, why and how. *BMC Medical Research Methodology, 10*(1). https://doi.org/10.1186/1471-2288-10-1

The Star. (2024a, February 28). Five trends in 2024 for Malaysia as mandatory ESG reporting becomes global norm. https://www.thestar.com.my/news/nation/2024/02/28/five-trends-in-2024-for-malaysia-as-mandatory-esg-reporting-becomes-global-norm

The Star. (2024b, March 14). Tough for Malaysians to detect greenwashing, say experts. https://www.thestar.com.my/news/nation/2024/03/14/tough-for-malaysians-to-detect-greenwashing-say-experts

Tolliver, C., Keeley, A., & Managi, S. (2020). Policy targets behind green bonds for renewable energy: Do climate commitments matter? T*echnological Forecasting and Social Change, 157*, 120051. https://doi.org/10.1016/j.techfore.2020.120051

United Nations. (n.d.). *Sustainability*. https://www.un.org/en/academic-impact/sustainability

Universiti Malaysia Sabah. (2024). *Borneo International Accounting Conference (BIAC 2024) proceedings: Accounting towards new perspectives*. Accounting Centre, Faculty of Business, Economics & Accountancy, Universiti Malaysia Sabah. https://drive.usercontent.google.com/download?id=1YjA3xKgUKe1Wnfjs03wAztMlrQF0nzKR&authuser=0&acrobatPromotionSource=GoogleDriveNativeViewNDV

Wang, L., Ur Rehman, A., Xu, Z., Amjad, F., & Ur Rehman, S. (2023). Green corporate governance, green finance, and sustainable performance nexus in Chinese SMEs: A mediation moderation model. *Sustainability*. https://doi.org/10.3390/su15139914

Wang, M. (2024). Reflections on green finance for the development of small and medium-sized enterprises. *Academic Journal of Business & Management*, *6*(4). https://doi.org/10.25236/ajbm.2024.060421

Wardle, M., Mills, S., & Mainelli, P. M. (2023). The Global Green Finance Index 12. https://www.longfinance.net/media/documents/GGFI_12_Report_2023.10.26_v1.pdf

Wen, S., Zhang, L., & Liu, X. (2021). Why do we need green finance? Global empirical facts and theoretical explanations in an economic growth framework. *Journal of Financial Research, 498*(12), 20-37. https://dx.doi.org/10.2139/ssrn.4476089

Yap, K.L. (2023, August 10). Demand for green financing on the rise. *The Star*. https://www.thestar.com.my/news/nation/2023/08/10/demand-for-green-financing-on-the-rise#:~:text=Under%20the%20five%20green%20financing%20schemes%2C%20SMEs%20are,construction%2C%20commercial%20property%2C%20working%20capital%20and%20capital%20expenditure.

Ye, J., & Dela, E. (2023). The effect of green investment and green financing on sustainable business performance of foreign chemical industries operating in Indonesia: The mediating role of corporate social responsibility. *Sustainability*, *15*(14), 11218. https://doi.org/10.3390/su151411218

Zhang, B., & Wang, Y. (2019). The effect of green finance on energy sustainable development: A case study in China. *Emerging Markets Finance and Trade*, *57*(12), 3435-3454. https://doi.org/10.1080/1540496X.2019.1695595

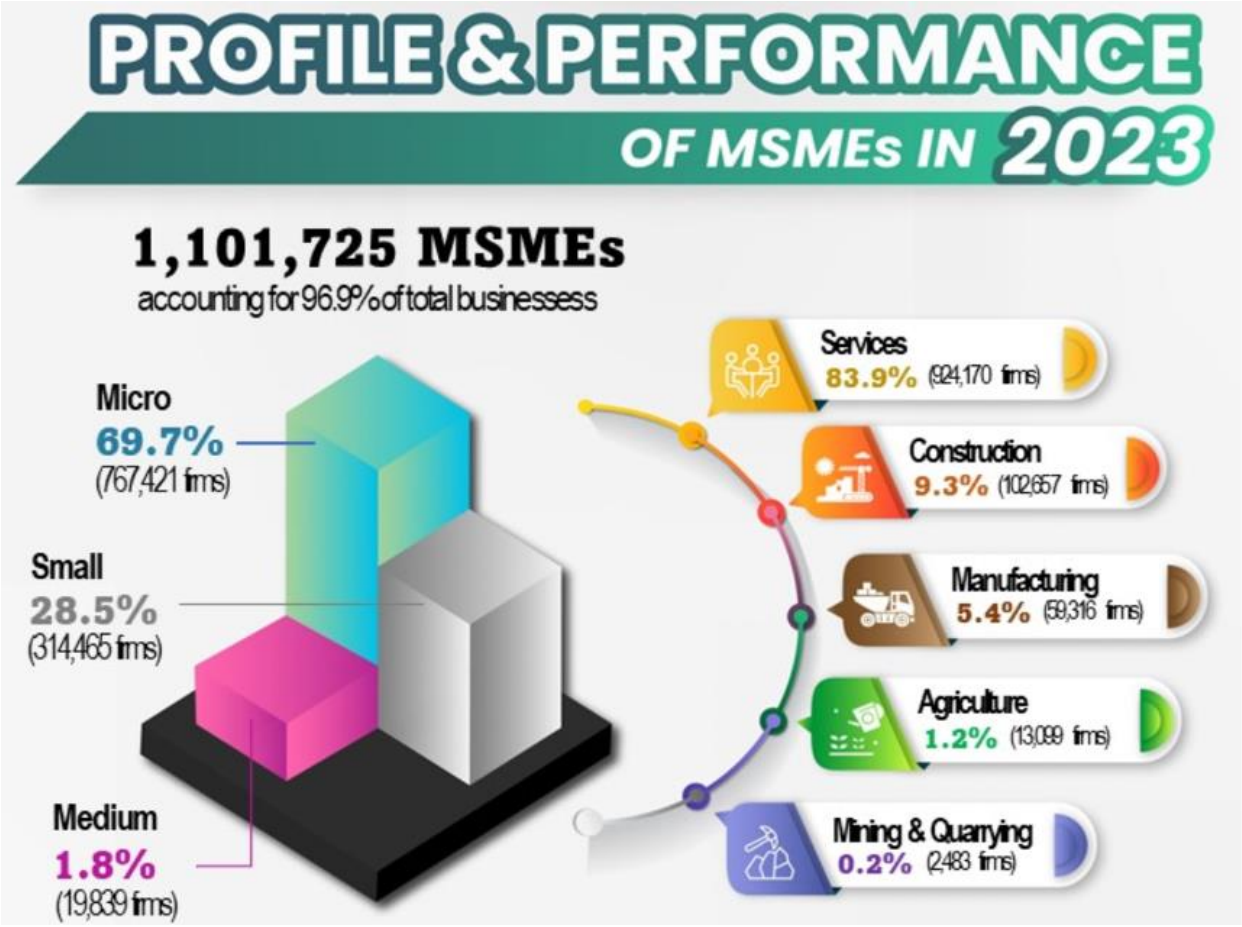
Zhang, D. (2024). Corporate environmental responsibility and financing patterns: Does firm size matter? *Journal of Small Business Management, 62*(5), 2482–2522. https://doi.org/10.1080/00472778.2023.2241128

Zhao, Z., & Xing, Z. (2024). Corporate management, green finance, and sustainability. *Humanities and Social Sciences Communications*, *11*(1). https://doi.org/10.1057/s41599-023-02490-4

Zulfiqar, A. & Bala, B.S. (2016). Basic statistical tools in research and data analysis. *Indian Journal of Anaesthesia*, *60*(9), 662. https://doi.org/10.4103/0019-5049.190623

APPENDICES

Appendix 1: Data of Small and Medium Sized Enterprise (SME) Population in Malaysia



Appendix 2: Table for Determining Sample Size from a Given Population

TABLE 1
Table for Determining Sample Size from a Given Population

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size.
S is sample size.

Appendix 3: Survey Questionnaire

Survey on Determinants of Green Financing Adoption Among Small and Medium-Sized Enterprises (SMEs) in Malaysia

Dear respondents,

We are students of Bachelor of Business Administration (Hons) in Banking and Finance from Faculty of Business and Finance (FBF) in Universiti Tunku Abdul Rahman (UTAR). The purpose of this study is to examine the determinants of green financing adoption among small and medium-sized enterprises (SMEs) in Malaysia for our UBFZ3026 RESEARCH PROJECT. We hope you will be able to assist us in completing this survey.

There are ten (10) sections in this questionnaire. Section A is on demographics. Section B onward cover all of the 9 variables in this study. Please read the instructions carefully before answering the questions. Please answer ALL questions in ALL sections. Completion of this questionnaire will take you approximately 10 minutes.

Your participation in this study is entirely voluntary. There will be no disadvantage if you decide not to complete the attached anonymous questionnaire. You can withdraw at any time without any penalty. You can refuse to answer any question at any time if you feel uncomfortable.

The information collected from you will be kept strictly private and confidential. All responses and findings will be used solely for academic purpose.

Your assistance in completing this questionnaire is very much appreciated. Thank you for your participation. If you have any question regarding to this questionnaire, you may contact us at na2103970@1utar.my or jiawei0121@1utar.my.

If you decide to complete this attached anonymous questionnaire, this will be taken as you voluntarily agree and formal consent to participate in this study. Thank you very much for your cooperation and willingness to participate in this study.

Yours sincerely,
Lee Min Ern
Lim Hooi Xing
Lim Jia Wei

Na Siow Han
Yee Puo Xin

PERSONAL DATA PROTECTION NOTICE

Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

Notice:

1. The purposes for which your personal data may be used are inclusive but not limited to:-
    a) For assessment of any application to UTAR
    b) For processing any benefits and services
    c) For communication purposes
    d) For advertorial and news
    e) For general administration and record purposes
    f) For enhancing the value of education
    g) For educational and related purposes consequential to UTAR
    h) For the purpose of our corporate governance
    i) For consideration as a guarantor for UTAR staff/ student applying for his/her scholarship/ study loan
2. Your personal data may be transferred and/or disclosed to third party and/or UTAR collaborative partners including but not limited to the respective and appointed outsourcing agents for purpose of fulfilling our obligations to you in respect of the purposes and all such other purposes that are related to the purposes and also in providing integrated services, maintaining and storing records. Your data may be shared when required by laws and when disclosure is necessary to comply with applicable laws.
3. Any personal information retained by UTAR shall be destroyed and/or deleted in accordance with our retention policy applicable for us in the event such information is no longer required.
4. UTAR is committed in ensuring the confidentiality, protection, security and accuracy of your personal information made available to us and it has been our ongoing strict policy to ensure that your personal information is accurate, complete, not misleading and updated. UTAR would also ensure that your personal data shall not be used for political and commercial purposes.

Consent:

1. By submitting this form you hereby authorise and consent to us processing (including disclosing) your personal data and any updates of your information, for the purposes and/or for any other purposes related to the purpose.
2. If you do not consent or subsequently withdraw your consent to the processing and

disclosure of your personal data, UTAR will not be able to fulfill our obligations or to contact you or to assist you in respect of the purposes and/or for any other purposes related to the purpose.

3. You may access and update your personal data by writing to us at na21039701utar.my or jiawei0121@1utar.my.

Acknowledgement

- ◯ I have been notified by you and that I hereby understood, consented and agreed per UTAR above notice.
- ◯ I disagree, my personal data will not be processed.

Section A: Demographic Profile

1. Name

_____

2. Gender

- ◯ Male
- ◯ Female

3. Company Name

_____

4. Position

- ◯ Owner
- ◯ Financial Decision Maker
- ◯ Finance Manager
- ◯ Finance Staff

5. Did your company adopt green financing? *

YES

NO

Section B: Study on variables

DV: SMEs Green Financing Adoption

Please indicate your level of agreement with each statement below by selecting a number from **1 to 5**, where:

1 = **Strongly Disagree**

2 = **Disagree**

3 = **Neutral**

4 = **Agree**

5 = **Strongly Agree**

	1	2	3	4	5
Q1a. SMEs actively seek opportunities to invest in environmentally sustainable projects.					
Q1b. Current green financing products are effective in meeting SMEs' needs.					
Q1c. SMEs are aware of the financial benefits of adopting green practices.					
Q1d. SMEs plan to expand their use of green financing in future projects.					
Q1e. The cost of adopting green finance is affordable.					

Section B: Study on variables

Factor 1: Government Support

Please indicate your level of agreement with each statement below by selecting a number from **1 to 5**, where:

1 = **Strongly Disagree**

2 = **Disagree**

3 = **Neutral**

4 = **Agree**

5 = **Strongly Agree**

	1	2	3	4	5
Q2a. Government policies support SMEs access to green financing.					
Q2b. Government regulations encourage green practices within SMEs.					
Q2c. Government programs provide sufficient resources to facilitate SMEs adopt green financing.					
Q2d. Government has offered several incentives to facilitate SMEs adopt green financing.					
Q2e. Government policies for green financing are clearly defined.					

Section B: Study on variables

Factor 2: Financing Information

Please indicate your level of agreement with each statement below by selecting a number from **1 to 5**, where:

1 = **Strongly Disagree**

2 = **Disagree**

3 = **Neutral**

4 = **Agree**

5 = **Strongly Agree**

	1	2	3	4	5
Q3a. SMEs have increased their awareness of green financing opportunities.					
Q3b. SMEs have access to sufficient workshops or training on green financing.					
Q3c. SMEs know where to access advisory services for green financing guidance.					
Q3d. SMEs have received direct communication from relevant institutions about green financing.					

Q3e. SMEs have a clear understanding of the eligibility criteria and documentation required to apply green financing.					

Section B: Study on variables

Factor 3: Technology
Please indicate your level of agreement with each statement below by selecting a number from **1 to 5**, where:

1 = **Strongly Disagree**

2 = **Disagree**

3 = **Neutral**

4 = **Agree**

5 = **Strongly Agree**

	1	2	3	4	5
Q4a. SMEs have adopted various digital tools to support more informed financial decision-making in green finance.					
Q4b. Emerging technologies like AI, blockchain, or others have been explored and implemented by SMEs to enhance sustainability initiatives.					
Q4c. SMEs provide adequate training opportunities to employees to enhance their ability to apply advanced technologies in green finance.					
Q4d. Technology has been utilized by SMEs to improve the transparency and efficiency of sustainability reporting and green finance activities.					
Q4e. SMEs make use of digital platforms to monitor and manage their green finance products.					

Section B: Study on variables

Factor 4: Environmental Commitment
Please indicate your level of agreement with each statement below by selecting a number

from **1 to 5**, where:

1 = **Strongly Disagree**

2 = **Disagree**

3 = **Neutral**

4 = **Agree**

5 = **Strongly Agree**

	1	2	3	4	5
Q5a. SMEs demonstrate a strong commitment to developing and delivering environmentally sustainable products or services.	⬭	⬭	⬭	⬭	⬭
Q5b. SMEs regularly implement sustainability practices as part of their efforts to adopt green finance.	⬭	⬭	⬭	⬭	⬭
Q5c. SMEs consistently track their carbon footprint and take steps to reduce it in line with environmental goals for green finance adoption.	⬭	⬭	⬭	⬭	⬭
Q5d. In daily operations, SMEs prioritize environmentally friendly materials and resources to support sustainability goals through green finance.	⬭	⬭	⬭	⬭	⬭
Q5e. The corporate social responsibility (CSR) frameworks of SMEs are aligned with efforts to enhance access to green finance.	⬭	⬭	⬭	⬭	⬭

Section B: Study on variables

Factor 5: Corporate Governance

Please indicate your level of agreement with each statement below by selecting a number from **1 to 5**, where:

1 = **Strongly Disagree**

2 = **Disagree**

3 = **Neutral**

4 = **Agree**

5 = **Strongly Agree**

	1	2	3	4	5
Q6a. Green corporate governance positively influences SMEs' access to green finance.					
Q6b. SMEs consider environmental preservation in green investment decisions.					
Q6c. SMEs adopt green finance to support corporate social responsibility (CSR) efforts.					
Q6d. SMEs tend to grow sustainability such as incrementing energy efficiency and diminishing environmental impacts.					
Q6e. Strong corporate governance has a significant influence on SMEs' ability to achieve sustainability goals.					

Section B: Study on variables

Factor 6: Production

Please indicate your level of agreement with each statement below by selecting a number from **1 to 5**, where:

1 = **Strongly Disagree**

2 = **Disagree**

3 = **Neutral**

4 = **Agree**

5 = **Strongly Agree**

	1	2	3	4	5
Q7a. SMEs's production processes influence the decision to seek green financing, as these are closely tied to sustainability goals.					
Q7c. Improving production sustainability is crucial for SMEs to qualify for green financing.					
Q7e. SMEs’s production challenges heavily influence the decision to pursue green financing.					

Section B: Study on variables

Factor 7: Company Size

Please indicate your level of agreement with each statement below by selecting a number from **1 to 5**, where:

1 = **Strongly Disagree**

2 = **Disagree**

3 = **Neutral**

4 = **Agree**

5 = **Strongly Agree**

	1	2	3	4	5
Q8a. SMEs feel that smaller size limits ability to access funding or financing options for green projects	○	○	○	○	○
Q8b. SMEs are less likely to apply for green finance due to limited resources or information, which is closely related to their company size	○	○	○	○	○
Q8c. SMEs often lack dedicated personnel to manage or apply for green financing.	○	○	○	○	○
Q8d. It is important for SMEs' size to be considered by financial institutions when applying for green financing.	○	○	○	○	○

Thank you for your participation

Appendix 4: Pilot Test

Reliability Statistics

Cronbach's Alpha	N of Items
.963	37

Appendix 5: Reliability Test

DV: SMEs Green Financing Adoption

Reliability Statistics

Cronbach's Alpha	N of Items
.944	5

IV 1: Government Support

Reliability Statistics

Cronbach's Alpha	N of Items
.953	5

IV 2: Financing Information

Reliability Statistics

Cronbach's Alpha	N of Items
.902	5

IV 3: Technology

Reliability Statistics

Cronbach's Alpha	N of Items
.949	5

IV 4: Environmental Commitment

Reliability Statistics

Cronbach's Alpha	N of Items
.937	5

IV 5: Corporate Governance

Reliability Statistics

Cronbach's Alpha	N of Items
.961	5

IV 6: Production

Reliability Statistics

Cronbach's Alpha	N of Items
.872	3

IV 7: Company Size

Reliability Statistics

Cronbach's Alpha	N of Items
.781	4

Appendix 6: Multicollinearity Test

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.021	.250		.083	.934		
	GOV	.066	.068	.062	.977	.329	.106	9.476
	FIN	.498	.067	.478	7.474	<.001	.103	9.691
	TECH	.256	.066	.244	3.878	<.001	.107	9.354
	ENV	.073	.068	.065	1.074	.283	.117	8.549
	CG	.104	.063	.096	1.665	.097	.127	7.868
	PRO	-.070	.037	-.051	-1.886	.060	.587	1.703
	COM	.052	.038	.046	1.361	.174	.363	2.751

a. Dependent Variable: DV_AVG

Appendix 7: Logistic Regression

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	GOV	.474	.368	1.658	1	.198	1.606
	FIN	.852	.355	5.776	1	.016	2.345
	TECH	.114	.378	.092	1	.762	1.121
	ENV	.891	.353	6.365	1	.012	2.438
	CG	.171	.358	.227	1	.634	1.186
	PRO	-.419	.268	2.444	1	.118	.658
	COM	-.731	.269	7.403	1	.007	.481
	Constant	-4.706	1.784	6.958	1	.008	.009

a. Variable(s) entered on step 1: GOV, FIN, TECH, ENV, CG, PRO, COM.

Appendix 8: Likelihood Ratio

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	257.162	7	<.001
	Block	257.162	7	<.001
	Model	257.162	7	<.001

Appendix 9: Wald Test

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	GOV	.474	.368	1.658	1	.198	1.606
	FIN	.852	.355	5.776	1	.016	2.345
	TECH	.114	.378	.092	1	.762	1.121
	ENV	.891	.353	6.365	1	.012	2.438
	CG	.171	.358	.227	1	.634	1.186
	PRO	-.419	.268	2.444	1	.118	.658
	COM	-.731	.269	7.403	1	.007	.481
	Constant	-4.706	1.784	6.958	1	.008	.009

a. Variable(s) entered on step 1: GOV, FIN, TECH, ENV, CG, PRO, COM.