# ASSESSING THE IMPACT OF CREDIT RISK MANAGEMENT TOOLS ON FINANCIAL PERFORMANCE IN PALESTINIAN BANKS: A COMPARATIVE STUDY OF ISLAMIC AND COMMERCIAL BANKS

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Title: Assessing the Impact of Credit Risk Management Tools on Financial Performance in Palestinian Banks: A Comparative Study of Islamic and Commercial Banks

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The banking systems serve as mediators that provide financial resources and assets. It is known that banks facilitate moving funds from those who own them to those who need them. Banks face numerous challenges and obstacles that are categorized as risks. They actively strive to mitigate the impacts of these risks. To sustain and expand, banks must enhance their risk management policies and strategies to improve their competitive position and save their assets and liabilities from hazards.

This dissertation aims to explore the impact of credit risk management tools, namely strategic policies and procedures (SPP), credit limits (CL), credit indicators (CI), credit granting process (CGP), and credit control, follow-up, and structuring system (CCFSS), on the financial performance (FP) in the banking sector in Palestine.

A systematic review of relevant literature leads to developing a theoretical model. This model was empirically tested through a structured survey of 195 bank employees in addition to financial data analysis from the bank's annual reports and the publication of the Palestinian Monetary Authority (PMA) for the period from 2018 to 2022 and divided quarterly. The data were analyzed through the Statistical Package for Social Sciences (SPSS).

The results indicate that credit risk management tools especially credit control, follow-up, and structuring systems have the highest significant statistical impact on the financial performance of both the Islamic banks (IBs) and the commercial banks (CBs) in the banking industry in Palestine. These results reveal that strategic policies and procedures, and credit limits

have a negative significant statistical impact on the financial performance of both Islamic banks and commercial banks. While, credit indicators, credit granting processes, and credit control, follow-up, and structuring systems have a positive significant statistical impact on the financial performance of both Islamic banks and commercial banks.

Regarding the financial data analysis, the results indicate that the capital adequacy ratio (CAR) has a significant positive impact on the return on assets (ROA) for both Islamic banks and commercial banks. Moreover, CAR has a significant positive impact on the return on equity (ROE) of Islamic banks. On the other hand, non-performing loans (NPL) have a significant positive impact on the return on assets (ROA) and the return on equity (ROE) of Islamic banks, while a negative impact exists between non-performing loans (NPL) and the return on assets (ROA) of commercial banks. However, there is no statistically significant impact of either CAR or NPL on the return on equity (ROE) for commercial banks.

The findings of this dissertation provide worthy insights for policymakers and bank executives on how credit risk management can protect the banking industry from hazards and enhance the banks' financial performance. This dissertation contributes to the existing literature by consolidating the understanding of credit risk management tools impact on financial performance. Finally, this study suggests areas for future research, including exploring additional credit risk management tools, investigating other financial ratio's impact on return on assets (ROA) and return on equity (ROE), and implementing the same model for other banking systems in similar emerging nations.

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TABLE OF CONTENTS

Chapter Page

Chapter Page

LIST OF TABLES

LIST OF FIGURES

# CHAPTER 1

## INTRODUCTION

The banking sector serves as a pivotal and influential intermediary, responsible for the provision and management of financial resources and assets (Aldahdooh, 2022). Its primary function revolves around facilitating the movement of funds from individuals and entities who possess them to those in need. Undoubtedly, the banking sector is the cornerstone of any economy, functioning as a pivotal financial entity and an essential tool within the broader financial system.

A comprehensive financial system encompasses regulatory bodies, intermediaries, banks, and various financial institutions. However, these financial systems encounter a spectrum of challenges that can significantly impede their fundamental operations. These challenges span from substantial risks such as credit and liquidity risks to more subtle risks arising from human errors (BCBS, 2011). In response to these challenges, financial enterprises formulate and implement many policies and procedures. These measures are meticulously designed to ensure the uninterrupted execution of their responsibilities and activities (Joseph, 2013). By doing so, these firms strive to navigate the intricate landscape of financial intricacies and continue fulfilling their vital roles.

The central role of banks revolves around the core functions of collecting deposits and subsequently converting these funds into investments, often in the shape of loans. In essence, banks receive deposits and undertake the process of transforming them into various investment and lending ventures (Jeucken, 2004; Weber, 2012). In the context of Islamic Banks (IBs), they similarly accept deposits but direct these resources towards banking operations that strictly

adhere to IB regulations, policies, and Shari'ah principles (Al-Jarhi & Iqbal, 2001; Mokni et al., 2014). This delineates the primary activities undertaken by operating banks in Palestine.

The operation of the banking system in Palestine is regulated by the guidelines and protocols set forth by the Palestinian Monetary Authority (PMA), which functions similarly to the central banks of other countries. The establishment of PMA was a result of a political agreement. Notably, PMA operates within the unique context of the Palestinian economy, which lacks a local currency and relies on more than three external currencies. This distinct economic situation contributes to the complexities inherent in PMA's operations (PMA, 2021).

PMA's primary mandate is the regulation of the Palestinian banking sector. It assumes the responsibility of overseeing and managing a spectrum of risks that confront the banking system, prominently credit risk. Furthermore, PMA plays a pivotal role in sustaining a stable economic framework and ensuring robust financial performance (PMA, 2021). Consequently, the definition and management of risks emerge as critical concerns within this operational landscape.

Banks confront numerous challenges and obstacles that are categorized as risks. They actively strive to mitigate the impacts of these risks (Knight, 1921). Toles (2017) defines risk as the proximity to a potential danger, signifying the closeness to a significant adverse event. Additionally, Pyle (1997) categorized risks into three primary forms: market risk, credit risk, and performance risk. Expanding on this, Khan and Ahmad (2001) elucidated that Islamic banks (IBs) face a greater array of risks compared to conventional banks (CBs), and these risks are distinct and innovative. Such risks encompass non-compliance with Shari'ah principles, counterparty risk, process risk, and more. Moreover, Makiyan (2008) expounded that IBs encounter distinctive risks, including managing profitability, the absence of risk-hedging

instruments, and the underdevelopment of money markets and government securities based on profit-loss sharing.

Banks diligently handle the spectrum of risks impacting their operations to achieve stability and bolster their overall performance, with a particular emphasis on financial performance. Bessis (2011) characterized financial performance as a managerial approach rooted in financial data that has a constant presence in the business landscape. Furthermore, Lyman and Carles (1978) explicated financial performance (FP) as the resilience of a company's functions, incorporating elements such as profitability, revenue generation, and diverse financial indicators. These indicators may encompass indicators related to sales, growth, and profitability, as evidenced in financial statements.

## Bank Risks

Numerous obstacles and potential dangers are ingrained within the routine activities of financial institutions. Knight (1921) characterized risk as a state of uncertainty in outcomes. Zhao (2021) emphasized that risks can emerge unpredictably, and addressing and resolving these risks can be resource and time-intensive. Consequently, the risk management process is an ongoing endeavor. In the process of managing risks, it becomes crucial for managers, analysts, and regulators to delineate, analyze, distinguish, and effectively communicate a wide array of potential factors.

Furthermore, Zhao (2021) highlighted the presence of multiple risk categories within the daily operations of banks. The ability to differentiate between these diverse risk types empowers bank executives to analyze, monitor, address, and mitigate risks effectively. Of foremost concern to bank executives are capital, liquidity, operational, and credit risks. In their study of the banking industry in the United Arab Emirates, Al-Tamimi and Al-Mazrooei (2007) provided a

detailed discussion of the wide range of risks that banks may face, including liquidity, foreign exchange, interest rate, credit, and market risk. These risks are commonly encountered in the daily operations of banks.

Conversely, IBs face a unique array of risks during their day-to-day activities. Akkizidis and Khandelwal (2008) emphasized that IBs contend with a broader range of risks compared to conventional banks (CBs), largely due to the specific types of contracts prevalent in Islamic banking. This is because Islamic bank contracts should be compatible with Islamic Shari'ah. Furthermore, Khan and Ahmad (2001) underscored that IBs face an expanded spectrum of risks, surpassing those encountered by CBs, which stem from their unique asset and liability framework. These risks include Shari'ah non-compliance, counterparty risk, process risk, and more. For example, Islamic Shari'ah allows Islamic banks to buy products and resell them to their customer instead of receiving interest on financing commercial transactions.

In summary, financial institutions encounter a multitude of risk types. These encompass liquidity, interest rate, market, credit, foreign exchange, technology and operations, country or sovereign, insolvency, and fintech risk (Saunders et. al, 2012). These risks are succinctly defined and illustrated below in Figure 1.

**Figure 1**

*Risk Definition*

| Risk | Definition |
|---|---|
| Credit Risk | The potential for non-fulfillment of expected cash disbursements stems from credit extensions and financial instruments maintained by financial institutions (Saunders et al., 2012). |

| | |
|---|---|
| Liquidity Risk | The possibility that a financial institution might fail to fulfill its commitments in the event of depositors deciding to withdraw their funds when it is least convenient, which could result in a rapid sale of assets and have adverse implications on the financial performance of the institution (Jenkinson, 2008; Diamond and Rajan 2001; Chaplen et al., 2000). |
| Interest Rate Risk | The likelihood of experiencing financial losses within a bank's capital or revenue due to an imbalance between the durations of its investments and debts triggered by fluctuations in market interest rates (Akan, 2008; Saunders et al., 2012). |
| Market Risk | The exposure to risk associated with trading assets and liabilities arises from fluctuations in interest rates, exchange rates, and other asset valuations such as lands and commodities (Adamowicz, 2018). |
| Off-balance Sheet Risk | The exposure faced by a financial institution due to its engagement with potential assets and liabilities depends on future events (Saunders et al., 2012). |
| Foreign Exchange Risk | The possible implications of fluctuations in exchange rates on financial institutions can have adverse effects on assets and liabilities denominated in foreign currencies (Fabozzi & Jones, 2019). |
| Country or Sovereign Risk | The potential threat arises from the possibility of foreign borrowers facing disruptions in their repayments due to external interference by foreign governments or other political bodies (Saunders et al., 2012). |

| | |
|---|---|
| Technology Risk | The potential danger faced by a financial institution arises when its technological expenditures fail to yield the expected reductions in costs (Saunders et al., 2012). |
| Operational Risk | The risk stems from operational activities and is precipitated by the breakdown of individuals, procedures, or frameworks. Within the array of risks linked to financial institutions, operational risk emerges as the paramount one, permeating throughout the entirety of the organization's operations. This risk category is also all-encompassing, exhibiting numerous dimensions. Instances of operational risk can target financial institutions, leading to substantial disruptions in operations and subsequently tarnishing the institutions' reputations (Srinivasan, 2019). |
| Fintech risk | The potential to hinder both consumer protection and the stability of the financial system. Examples of these risks include undervaluing creditworthiness, failure to comply with market risk regulations, challenges in detecting fraud, and susceptibility to cyber-attacks (Giudici, 2018). |
| Insolvency risk | The potential threat of insufficient capital within a financial institution to mitigate an abrupt decrease in asset value compared to liabilities (Saunders et al., 2012). |

## Credit Risk Definition

Among the various types of risks that financial and banking institutions encounter, credit risk stands out as one of the most crucial as it can significantly impact daily operations. Altintas (2012) provided a definition of credit risk, stating that it pertains to the probability of experiencing a financial loss resulting from a borrower's inability to meet their agreed-upon repayment responsibilities, whether it involves interest payments or the repayment of the principal amount according to the specified timeline. Jorion (2007) reaffirmed that CR is intrinsically linked to the core functions of banks, encompassing both the processes of accepting deposits and granting loans. Banks define CR as the risk of experiencing financial losses due to a counterparty's failure to fulfill their contractual obligations. Additionally, CR pertains to the possibility of borrower or counterparties defaulting on their commitments (BCBS, 2011). Bouteille and Pushner (2021) emphasized that CR signifies the probability of financial detriment arising from the incapacity or reluctance of a debtor or obligated entity to reimburse, rendering it a pivotal element of banking activities.

## Credit Risk Assorting

Numerous prior studies have offered classifications of credit risk. Bessis (2011) classified credit risk into six distinct categories: exposure, default, migration, recovery, concentration, and counterparty risk. Horcher (2011) identified five specific types encompassed by credit risk: legal risk, default risk, sovereign risk, counterparty pre-settlement risk, and counterparty settlement risk. Below, you'll find concise definitions for the prevalent categories of credit risk as discussed by researchers.

The first category is exposure risk. Bessis (2011) elucidated that exposure risk refers to the segment of credit risk stemming from unpredictable future events, encompassing

uncertainties related to repayments. Typically, banks conduct ongoing financial assessments before extending new credit to minimize this risk. The second one is concentration risk. Fabozzi et al. (2003) pointed out that concentration risk, also known as credit spread risk, is associated with the concentration of a credit portfolio. This risk is influenced by credit margins, underscoring the need for proactive monitoring by top management. The third category is default risk. In line with Bessis (2011), default risk materializes when the borrower is unable to meet their credit repayment obligations. This constitutes a significant and pervasive form of credit risk. In cases where the borrower fails to make payments for a period exceeding 90 days, banks might resort to legal procedures to recover the credit. The fourth category is counterparty settlement risk. According to Bouteille and Pushner (2021), counterparty settlement risk is characterized by the incapacity to transfer funds or goods between two parties, even with the presence of international or local guarantee contracts. Furthermore, as highlighted by Aldahdooh (2022), exposure to counterparty settlement risk is frequently associated with specific credit arrangements, particularly common in the realm of global trade commodities. The last one is sovereign risk. it is intricately tied to the specific country where the banks operate. As outlined by Aldahdooh (2022), sovereign risk encompasses the social, economic, and political vulnerabilities that could negatively affect the consistent repayment of credit. Moreover, the country's overall circumstances significantly contribute to the potential incapability of the government or its agencies to fulfill credit obligations, leading to sovereign risk. These risks associated with the government's financial capacity hold more substantial implications compared to the credit default of individual borrowers (Casu et al., 2006).

## Problem Statement

The primary aim of this dissertation is to evaluate the impact of credit risk management (CRM) tools on the financial performance (FP) of banks in Palestine. Moreover, it will analyze the differential impact of these mechanisms on FP in Islamic banks (IBs) and commercial banks (CBs). This study represents the inaugural investigation into comparing the effects of CRM tools on the FP for IBs and CBs. Studies of this nature can serve as valuable resources for banks in Palestine to enhance their internal policies and procedures, thus mitigating the impact of risks and improving profitability. Moreover, policymakers can leverage such research to refine their audit and control processes. The unique contribution of the study is its pioneering effort in conducting a comparative analysis of the utilization of CRM instruments among CBs and IBs within the Palestinian setting.

### Questions of the Study

This dissertation aims to investigate the influence of CRM tools on FP in the Palestinian banking industry. The following questions were developed to fulfill the stated objectives:

Q1: How do CRM financial indicators named capital adequacy ratio (CAR) and non-performing loans (NPL) affect the FP indicators named return on assets (ROA) and return on equity (ROE) of IBs and CBs in the banking industry in Palestine?

Q2: How do the strategic policies and procedures (SPP) of CRM tools impact the FP of IBs and CBs in the Palestinian banking industry?

Q3: How does credit limit (CL) management affect the FP of IBs and CBs in the Palestinian banking industry?

Q4: How do credit indicator (CI) management practices impact the FP of IBs and CBs in the Palestinian banking industry?

Q5: What is the association between credit granting process (CGP) management and the FP of IBs and CBs in the Palestinian banking industry?

Q6: How does the management of the credit control, follow-up, and structuring system (CCFSS) impact the FP of IBs and CBs in the Palestinian banking industry?

**Hypotheses of the Study**

The study aims to evaluate the impact of CRM tools on FP in the Palestinian banking industry and to analyze this impact concerning both CBs and IBs. To answer the questions of this study, the following hypotheses were developed.

The first question will be answered through the hypotheses H1A to H1H, which are:

H1A: CAR has a statistically significant positive influence on the ROA of CBs in Palestine.

H1B: CAR has a statistically significant positive influence on the ROE of CBs in Palestine.

H1C: NPL has a statistically significant positive influence on the ROA of CBs in Palestine.

H1D: NPL has a statistically significant positive influence on the ROE of CBs in Palestine.

H1E: CAR has a statistically significant positive influence on the ROA of IBs in Palestine.

H1F: CAR has a statistically significant positive influence on the ROE of IBs in Palestine.

H1G: NPL has a statistically significant positive influence on the ROA of IBs in Palestine.

H1H: NPL has a statistically significant positive influence on the ROE of IBs in Palestine.

The second question will be answered through the hypotheses H2A and H2B, which are:

H2A: The SPP of CRM has a statistically significant negative influence on the FP of CBs in Palestine.

H2B: The SPP of CRM has a statistically significant negative influence on the FP of IBs in Palestine.

The third question will be answered through the hypotheses H3A and H3B, which are:

H3A: CL has a statistically significant negative influence on the FP of CBs in Palestine.

H3B: CL has a statistically significant negative influence on the FP of IBs in Palestine.

The fourth question will be answered through the hypotheses H4A and H4B, which are:

H4A: CI has a statistically significant positive influence on the FP of CBs in Palestine.

H4B: CI has a statistically significant positive influence on the FP of IBs in Palestine.

The fifth question will be answered through the hypotheses H5A and H5B, which are:

H5A: The CGP has a statistically positive significant influence on the FP of CBs in Palestine.

H5B: The CGP has a statistically positive significant influence on the FP of IBs in Palestine.

The last question will be answered through the hypotheses H6A and H6B, which are:

H6A: CCFSS has a statistically positive significant influence on the FP of CBs in Palestine.

H6B: CCFSS has a statistically positive significant influence on the FP of IBs in Palestine.

These hypotheses have been formulated to capture the relationships outlined by the foundational research model depicted in Figure 2. A comprehensive explanation of this model will be provided in Chapter 3.

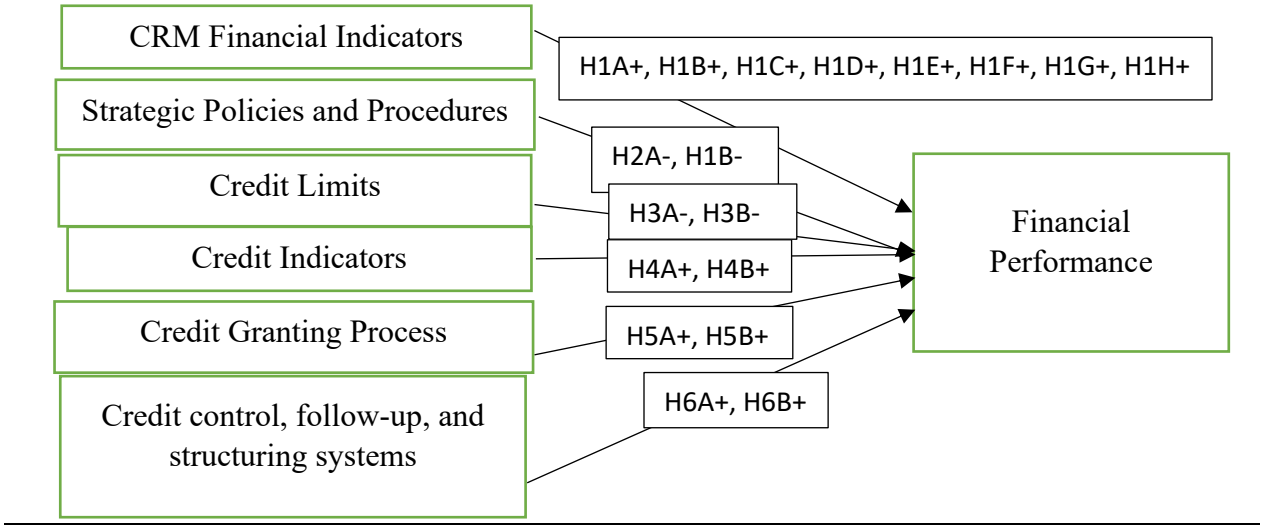
## Significance of the Research

As previously mentioned, studies of this nature can offer Palestinian banks valuable insights for enhancing their internal policies and procedures. Given that FP serves as a pivotal indicator of the aggregate health of the financial manner, this study holds significant relevance. Moreover, the study concentrates on the unique case of the Palestinian banking sector, which means it could have a substantial impact on said sector. Additionally, this dissertation seeks to define the primary drivers of credit defaults within the Palestinian banking sector. It endeavors to evaluate the caliber of managerial choices concerning credit risk while also refining the

information system through updated databases. This augmentation in data could contribute to the enhancement of financial decision-making within the Palestinian banking sector.

**Figure 2**

*Foundational Research Model*




## Chapter Summary

The impact of CRM on FP remains a complex and crucial concern within the global banking landscape. The distinctiveness and exceptional challenges encountered by the banking sector in Palestine emphasize the significance of investigating this financial domain. The study is designed to evaluate how CRM tools affect the FP of operating banks in Palestine. A noteworthy and supplementary aspect of this study involves a comparison analysis between IBs and CBs concerning the research objective.

# CHAPTER 2

# LITERATURE REVIEW

This chapter aims to provide a concise overview of the theoretical foundation and prior research on bank risks, credit management, and financial performance. It commences by discussing the distinctions between commercial banks and Islamic banks. Subsequently, a comprehensive analysis of existing literature related to the management of credit risk, analysis of credit profiles, and evaluation of financial performance is conducted. The chapter is finalized by delving into a discussion regarding the correlation between tools utilized in credit risk management and the financial performance of banks.

## Commercial Banks Versus Islamic Banks

Before delving into this chapter, it is essential to highlight key distinctions between Commercial Banks (CBs) and Islamic Banks (IBs). Al-Jarhi and Iqbal (2001) noted that CBs primarily operate by accumulating deposits or funds borrowed from both individuals and businesses; and subsequently lending these resources to individual and commercial clients. This model positions CBs as financial intermediaries. Conversely, Islamic Banks, or IBs, function as depositary institutions that undertake all recognized banking activities, except for those involving interest-based borrowing and lending.

### Risk Management

In the pursuit of growth and expansion, banks are compelled to develop clearly outlined policies, protocols, and mechanisms to adequately address the increasing risks associated with their activities. These endeavors are consolidated under the umbrella of risk management (RM) programs. Tsaig et al. (2011) provided clarity on risk management (RM) in banks as the approach employed to address hazards, risks, and associated outcomes. This encompasses the

identification and classification of risks, along with the methods utilized by banks to assess, mitigate, monitor, and manage these risks. Furthermore, Berg (2010) described risk management as a proactive system that examines potential risks; establishes procedures, and implements measures to enhance an organization's capacity to prevent or alleviate risk-related processes. Additionally, Macdonald and Koch (2006) defined RM, as encompassing activities such as identifying, assessing, overseeing, and mitigating risks specifically within the realm of financial institutions.

## Credit Risk Management

An essential part of any risk management department in banks and financial institutions is the credit risk management division, which plays a critical role in predicting credit risks surrounding the bank's operations. Thus, Akram and Ur Rahman (2018) proposed that; to maintain competitiveness within the banking industry, banks must give precedence to CRM as a fundamental operational element. But what exactly is CRM?

CRM plays a crucial role in sound banking practices. It empowers banks to understand the associated risks and potential profits, allowing them to make informed decisions about lending and eligibility criteria (Witzany and Witzany, 2017). Brown and Moles (2014) defined CRM as a fundamental approach for assessing the expected outcomes of credit risk. This approach follows a standard risk management process, involving the identification of risk factors, assessment of the presented risk, and the subsequent management of that risk. Furthermore, according to Handrof and Zhu (2005), the magnitude of expected losses in credit provision significantly impacts financial performance. Additionally, as highlighted by Aldahdooh (2022), credit loss provisions play a critical role in safeguarding a bank's credit portfolio.

## Purpose of CRM

CRM holds significant importance in the banking sector as it primarily serves to safeguard and maintain the integrity of credit portfolios. The claim is corroborated by Driga et al. (2010), who underscored the perpetual necessity for financial institutions to continuously improve their methodologies, protocols, initiatives, and assessment mechanisms concerning credit risk management (CRM). The primary objective of CRM is to diligently oversee and safeguard the integrity of the loan portfolio, thus reducing the potential risks linked to a bank's tactics, regulations, and operational procedures.

## CRM Methods

This dissertation focuses on examining the utilization of CRM tools in banks operating in Palestine. Specifically, it conducts a comparative analysis of CRM tools used by IBs and CBs in Palestine. Various CRM methods are employed by banks and financial institutions worldwide to assess risks, and these methods are also in use within the banking sector in Palestine.

First, we have the 5Cs, as outlined by Rosmary (2013) and Credit (2011), these 5Cs are character, conditions, capital, collateral, and capacity. The concept of character pertains to the dedication of the borrower and their inclination to fulfill the obligation of repaying the borrowed funds. It’s about assessing whether the borrower is trustworthy and reliable in fulfilling their debt obligations. Character is a subjective aspect and doesn’t have a precise method of evaluation. Conditions encompass the broader political, financial, and economic environment in which the debtor and the country operate. It’s essential to consider these external factors because they can influence a borrower’s ability to repay. Capital serves as an indicator of the risk associated with the borrower potentially failing to meet their obligations. It includes the cash or assets invested in the business, indicating the financial strength of the borrower. Collateral refers to assets provided

by the borrower as security in case they are unable to repay the debt. These assets act as insurance for the lender against the risk of default. Finally, capacity evaluates the borrower's capacity to fulfill their financial responsibilities, encompassing both principal and interest payments.

Secondly, the Federal Reserve Center (Fed 2004) introduced the 5Ps framework, which consists of payment, purpose, plan, people, and protection. Payment assesses the borrower's ability to return the credit on time, relying on their cash flows. It essentially evaluates whether the borrower has the necessary financial means to make timely payments. Purpose involves understanding the borrower's intent for the loan. The main question asked is, "Will it be used for long-term projects or as working capital?". This helps determine if the loan aligns with the borrower's financial goals. The plan outlines how the bank will monitor the borrower. It includes evaluating the debtor's financial situation and tracking their operations to ensure they remain on track with their repayment commitments. People focus on the borrower's historical behavior, particularly their credit history. It's an important indicator of the borrower's reliability and trustworthiness. Lastly, protection aligns with collateral in the 5Cs framework. It assesses the availability of assets or other resources that can be used to repay the debt in case the borrower defaults.

The third method was introduced by Brown and Moles (2014), they called it the CAMPARI model. This model encompasses seven factors that banks utilize to assess the creditworthiness of their borrowers: First, character: It aligns with the concept of the 5Cs framework, focusing on the borrower's trustworthiness and commitment to repay. Second, ability to pay: Similar to capacity in the 5Cs, this factor evaluates the borrower's capability to meet their financial commitments. Third, margin of finance: This factor considers the level of customer

participation in the asset or project being financed. Banks typically do not provide 100% financing. Fourth, purpose: This factor pertains to the nature of the projects that the loan will finance and includes an evaluation of the associated risks. Fifth, amount: It refers to the loan amount and is contingent on the customer's financial capacity. Sixth, terms of repayment, which refer to the schedule and conditions for repaying the loan. The last factor is insurance: Unlike collateral in the 5Cs, insurance in the CAMPARI model refers to the requirement for long-term financing, such as mortgage loans, to have life insurance.

Fourthly, Benz (1975) introduced the LAPP method for assessing the creditworthiness of large corporate loan applications. LAPP stands for liquidity, activity, profitability, and potential. Here is how these factors are evaluated, according to Benz (1975): Liquidity is assessed using liquidity ratios and quick ratios. It measures a business's ability to cover its short-term financial obligations. Activity is evaluated using various ratios, like the average collection period and asset turnover. These ratios help banks assess the company's operational efficiency and size. Profitability is determined by factors such as gross or margin profit, return on equity (ROE), and return on assets (ROA). It provides insight into the company's overall profitability. Potential considers the company's available resources, including management capabilities, human resources, financial resources, and other strengths. It provides a view of the firm's future prospects and capacity for growth.

Fifthly, alongside the previously mentioned methods, banks in Palestine also employ the Financial Analysis and Experience method (FAPE) to value the credit eligibility of their clients. As outlined by Abu Karsh (2005), this method revolves around the analysis and examination of financial statements, including balance sheets, income statements, and statements of cash flows for large firms.

Banks in Palestine rely on a combination of financial ratios to evaluate their borrowers' financial health. These ratios are assessed in conjunction with an evaluation of the borrower's character and credit score, which is obtained from the Palestinian Monetary Authority (PMA). The ratios used by Palestinian banks for analysis encompass profitability ratios, operational ratios, liquidity ratios, and debt ratios.

Finally, in their paper, Abbadi and Karsh (2013) introduced a novel model for analyzing loan applications in banks. They have drawn upon the most commonly used factors in the evaluation of customer applications within the Palestinian banking context. They term this model PACT, representing Person, Activity, Collateral, and terms. According to their research, these factors amalgamate the key elements drawn from the aforementioned models used by Palestinian banks. Each of these factors contains sub-factors.

Abbadi and Karsh (2013) assigned scores to each factor, as detailed in Table 1. They provide two distinct credit risk management (CRM) tools, one designed for assessing individual applicants and the other tailored for corporate applications. Furthermore, they note that these scores are adaptable and can be adjusted by banks to accommodate specific customer assessments.

In a broader context, banks focus their attention on political, economic, and financial conditions to assess the appropriateness of their credit-granting policies. Consequently, their decisions primarily hinge on the 5Ps of credit analysis, as highlighted by Mattar (2010). Conversely, Alzubaidi (2002) noted that the 5Cs method for credit granting is also extensively utilized. This method relies on five distinct components, all aimed at evaluating the viability of the credit-granting process and mitigating credit risk.

**Table 1**

*PACT Modul*

| Individual credit evaluation | | | Corporate credit evaluation | | |
|---|---|---|---|---|---|
| Variable | Score | Max | Variable | Score | Max |
| Person | | 30 | Person / Business | | 30 |
| Character | | 10 | Management | | 6 |
| Employer | | 10 | Credit Record | | 6 |
| Credit Record | | 10 | Sector | | 6 |
| Activity / Ability | | 20 | Operational Risk | | 6 |
| Income | | 8 | Concentration Risk | | 6 |
| Repayment Term | | 6 | Activity / Ability | | 35 |
| Other Sources | | 6 | Capacity | | 7 |
| Collateral | | 35 | Cash Flow | | 7 |
| Fiscal Assets | | 15 | Liquidity | | 7 |
| Financial Assets | | 10 | Debt Ratio | | 7 |
| Personal Guarantee | | 10 | Profitability | | 7 |
| Terms | | 15 | Collateral | | 20 |
| Payment | | 4 | Fiscal Assets (Protection) | | 10 |
| Purpose (Housing, cars …) | | 4 | Financial Assets | | 5 |
| Amount | | 4 | Personal Guarantee | | 5 |
| Margin | | 3 | Terms | | 15 |
| | | | Facility Type (Direct/Indirect) | | 3 |
| | | | Purpose | | 3 |
| | | | Payments | | 3 |
| | | | Amount | | 3 |
| | | | Margin | | 3 |
| Total | | 100% | Total | | 100% |

*Note*. From Abbadi & Karsh, 2013, p.12.

## Credit Risk Measurement

CR measurement holds a position of great importance within CM operations because of the significant number of customers it involves, the multitude of risks involved, and the challenges posed by incomplete credit histories (Fabozzi, 2012). Aldahdooh (2022) pointed out that banks typically enhance the quality of credit risk measurement through several key aspects, which are presented in the below part.

### Credit Risk Rating

According to Treacy (2000), credit decisions rely heavily on a credit rating framework, which serves as an exposure risk index and plays a crucial role in determining the goodness of credit files. There are two primary types of credit ratings: internal ratings and external ratings. Jacbson et al. (2006) emphasized the significance of internal credit risk, as it is developed and maintained internally by banks without external intervention. These internal ratings are core, effective components of CRM. In contrast, as noted by Gogas et al. (2014), banks may obtain credit risk ratings from such renowned global financial services firms as Moody's, Standard & Poor's, and Fitch. It's worth mentioning that banks in Palestine also access external ratings through the PMA credit rating system.

### Credit Risk Measurement Basics

Aldahdooh (2022) underscored that credit risk measurement primarily revolves around predicting potential credit losses more than any other aspect. Banks tend to focus on assessing the likelihood of unfavorable credit outcomes without always considering the extent of exposure and the magnitude of the risk involved.

Lowe (2002) outlined four fundamental approaches to credit risk measurement: First, the probability of borrowers defaulting: This approach assesses the likelihood that borrowers will

default on their obligations. Second, correlation of borrowers defaulting across borrowers: It examines how the default of one borrower may be correlated with the default of other borrowers, considering factors like economic conditions or industry-specific trends. Third, potential loss in the event of default: This factor evaluates the potential financial loss a lender might face if a borrower defaults. The last fundamental approach is the correlation between borrowers defaulting and potential losses in the event of default. It assesses the relationship between the probability of borrowers defaulting and the potential magnitude of losses in the event of default.

**Credit Scoring System**

According to Dukic et al. (2011), credit scoring serves as a measurement tool to assess the credibility of credit applicants and their likelihood of defaulting. Furthermore, this system enables banks to make predictions about future credit performance based on the historical behavior and past performance of borrowers, as highlighted by Schreiner (2004). In addition, Althman and Sounders (1997) elucidated that banks commonly employ two types of credit scoring systems: The first one is group-based credit scoring: This system relies on standards and variables associated with the group to which the borrower belongs and the industry in which the borrower operates and invests. The other one is comprehensive credit scoring: In contrast, the comprehensive system employs a broader set of variables and standards to assess the borrower's risk level and prospects of default. It encompasses a wider range of criteria to measure the borrower's credit risk and future default potential.

**Credit Risk Modelling**

Banks need credit risk models to effectively monitor the concentration risk within their credit portfolios. Credit risk models encompass credit structuring, estimation, and management, as outlined by Aldahdooh (2022). Moreover, Lopez and Saidenberg (2000) identified four

distinct credit risk models, each with its own set of assumptions and objectives. Numerous prior studies have presented and elucidated these models.

The first model is the macroeconomic model, as explained by Kern and Rudolph (2001). The macroeconomic model relies on historical information, including credit risk rates and borrower default rates, to generate predictions for future credit performance. Avouyi-Dovi et al. (2009) added that this model focuses on assessing and categorizing risks and evaluating the likelihood of default within a credit portfolio. It is particularly useful for conducting macro-stress tests, enabling banks to assess and manage the potential spread of defaults across their credit portfolios.

The structural model is the second model, often indicated as the Merton-based model. Tanthanongsakkun and Treepongkaruna (2008) clarified that the Merton-based model relies on the corporate asset's evaluation, taking into account the equity. According to this model, if a firm's liabilities exceed its total assets, it is categorized as a defaulting firm. Majumder (2006) further explained that the structural model comes in two different forms. The first form estimates the market value of assets while considering risks and fluctuations. Conversely, the other form estimates the market value of assets without taking into account risks and fluctuations.

The third model is the actuarial model. As explained by Gundlach and Lehrbass (2004), this model relies on statistical methods to forecast credit losses and defaults. Additionally, the actuarial model categorizes customers based on factors like geographic region, industry, and other relevant criteria.

The final model is the rating-based model or credit model. According to Aldahdooh (2022), the rating-based model focuses on assessing the risk within a credit portfolio, particularly in relation to fluctuations in credit value based on the financial position of borrowers. Nickell et

al. (2007) highlighted that the rating-based model is built on three key assumptions: The first assumption is the inclusivity of borrower's credit rating; this assumption considers that all borrowers' credit ratings are included in the analysis. The second assumption is clarity of future financial differences; this assumes that the financial differences charged to borrowers in the future are clearly defined. The final assumption pertains to the variability in credit ratings. This model posits that the credit rating fluctuations of retail borrowers are contingent upon correlated latent variables.

Overall, operating banks in Palestine heavily rely on these models to manage the effect of concentration risk on their credit portfolios. Additionally, they choose to combine these models to better review customer credit files. On the other hand, they rely on selecting the primary elements from each model to reduce the efforts required to review customer credit files.

## Off-Balance Sheet Activities and Risks

OBS activities refer to financial transactions that companies, particularly banks, choose to exclude from their balance sheets. Saunders, Cornett, and Erhemjamts (2012) identified various types of off-balance sheet (OBS) products. These encompass not only derivatives securities like forward contracts, future contracts, options, and swaps but also involve loan sales and securitization. Examples of securitization include loan sales, pass-through securities, collateralized mortgage obligations (CMOs), and mortgage-backed bonds (MBBs).

Financial institutions (FIs) strategically employ off-balance sheet activities to mitigate the risks arising from on-balance sheet activities. These on-balance sheet risks are effectively managed through off-balance sheet (OBS) activities, encompassing credit, foreign exchange, interest rate, and liquidity risk, as identified by Saunders, Cornett, and Erhemjamts (2012).

While the definition of OBS risk was discussed earlier, it is essential to explore the effects of these activities. Aktan et al. (2013) suggested that OBS activities are essentially risk-free items. In practical terms, this implies that such activities can reduce expenses for financial institutions (FIs), thereby enhancing their financial performance by lowering the reserves required for on-balance sheet activities. Furthermore, studies by Khasawneh et al. (2012), Ahmad and Misman (2012), and Kim and Kim (2010) emphasized that OBS activities, prevalent in both commercial and Islamic banks, serve as a means to generate additional income and function as instruments for effective risk management.

Furthermore, OBS activities have a significant effect on the bank's capital. Banks boasting a high capital adequacy ratio (CAR), reflective of their capital strength, tend to participate less in OBS activities (Elian, 2012). In essence, banks often increase their engagement in OBS activities for three key reasons. First, OBS provides an opportunity for both Islamic and commercial banks to stabilize their capital by reducing the required reserves, thereby influencing the CAR. Second, OBS is regarded as a free-related item, leading to a reduction in overall expenses for banks. Finally, OBS is considered a factor that can negatively influence risks, such as credit risk.

## Financial Performance

As discussed in the previous chapter, FP is a management approach rooted in financial data and is a constant feature of the business environment (Bessis, 2011). Furthermore, Lyman and Cales (1978) offered a definition of FP as the operational robustness of a firm. It encompasses aspects like profitability, revenue generation, and various financial metrics, including sales indicators, growth, and profitability, as derived from financial statements.

Furthermore, Aktan and Bulut (2008) and Apps et al. (1996) asserted that FP reflects a firm's ability to create novel resources from its daily operations. This is typically assessed by metrics such as cash from operations and net income, encompassing both market-based and classical measures. Banks often evaluate FP using a range of tools, including financial ratios, balance sheet indexes, and benchmarking techniques, as outlined by Avkiran (1994). On the other hand, Hempel et al. (1986) pointed out that some researchers assess banks' performance primarily through operational indicators, while also drawing connections between the estimation of FP, returns, and credit risk levels. Duncan and Elliot (2004) further explained that banks often rely on fundamental financial proportions, such as return on assets (ROA), net interest margin (NIM), and non-performing loans (NPLs), as these ratios are considered sufficient and precise indicators for evaluating financial performance.

According to Aldahdooh (2022), Desta (2016) recommended that banks utilize the CAMELS model to assess their FP and maintain their financial results within specified targets. This model consists of six key components, which are: First, the capital adequacy, this component entails setting aside a portion of financial assets that banks should keep away from credit activities. It serves as a safety cushion and ensures that banks can comfortably meet sudden financial commitments at any time (Miccolis, 2002). Second, asset quality, Aldahdooh (2022) emphasized that lending is a core activity of banks, carrying inherent risks that, while manageable, cannot be eliminated. Credit defaults can negatively impact a bank's cash flow, making it crucial to protect the quality of bank assets to ensure financial stability and efficiency. The third component is management, Wheelock and Wilson (2000) highlighted a confirmed correlation between the goodness of bank management and its FP. Key elements of this relationship include operating expenses, management costs, and the assessment of management

quality through indicators like the cost-income ratio. The fourth component is efficiency, Sadakkadula and Subbaiah (2002) confirmed that financial analysts gauge a bank's financial efficiency by comparing its performance indicators with competitors, industry benchmarks, or the entire industry. Key financial ratios such as net interest margin (NIM) and return on assets (ROA) are employed for this assessment. The fifth component is liquidity. Aldahdooh (2022) stressed the importance of long-term liquidity management strategies over short-term ones. "Banks should ensure that their funding sources can meet liquidity requirements for at least 12 months" (p. 21). Bank executives should also balance profit maximization with risk control, as excessive focus on profits can indirectly increase credit default risk levels by not managing assets and liabilities cash flows effectively. The final component is sensitivity to market risk. Duncan and Elliott (2004) pointed out that sensitivity to market risk assesses how market fluctuations, such as interest rates and inflation rates, impact a bank's cash flow and profitability. Monitoring sensitivity to market risk and diversifying portfolio risk, as highlighted by the 2008 global financial crisis, play significant roles in maintaining financial stability. In conclusion, researchers believe that FP is the fundamental issue that reflects the successful use and allocation of resources toward the continuity of the operations in banks.

## CRM Tools and FP

Researchers globally have conducted thorough research on the correlation between CRM and FP, as demonstrated in investigations carried out by Karim (2019), Serwadda (2018), and Sawafta (2021). These studies have yielded valuable and significant insights. However, there has been limited research that specifically compares this relationship between Islamic banks (IB) and commercial banks (CB). This section intends to present the findings of previous research regarding the connection between CRM and FP. In this section, the reviewed literature will be

divided into two parts to demonstrate the establishment of the hypotheses. The first part will discuss how researchers connect CRM financial indicators with FP and what they utilize in their previous work. The other part will discuss how the CRM tools are linked with FP.

**CRM Financial Indicators**

This part consists of the findings of previous research regarding the connection between CRM financial indicators and FP. Researchers utilized many financial ratios in their studies as CAR (e.g. Zou and Li (2014), Abiola and Olausi (2014)), NPL (e.g. Chin'Anga (2015), liquidity ratio (e.g. Hamza (2017)), bad loans (e.g. Muhamet and Arbana (2016)), and bank size (e.g. Trad et al. (2017)) to explore their influence on FP.

Zou and Li (2014) carried out an investigation utilizing a dataset of 47 prominent financial institutions in Europe during the timeframe of 2007 to 2012. The primary aim of their research was to explore the correlation between CRM practices and the financial performance of the aforementioned banks. Within their study, CRM was operationalized through the utilization of CAR and NPL, whereas the FP aspect was gauged by ROA and ROE. The outcomes of the study revealed several crucial observations. Initially, a positive association was identified between CRM strategies and FP, implying that proficient CRM methodologies could potentially result in increased profitability. Subsequently, the presence of NPLs was found to have a substantial influence on both ROE and ROA, underscoring the critical importance of NPL management for a bank's overall profitability. Lastly, the impact of CAR on ROA and ROE was comparatively moderate. Nevertheless, it is essential to highlight that the relationship among these variables exhibited a higher level of intricacy when the researchers segregated them into distinct categories, indicating a dynamic correlation.

In a study focused on the Iranian CBs, Ahmadyan (2018) employed a panel data methodology to value the impact of CRM on the continuity and profitability of these banks. The data utilized in this investigation was sourced from the financial statements of Iranian banks, spanning the period from 2005 to 2016. Within this research, the banks were categorized into three risk levels: low-risk, medium-risk, and high-risk. Additionally, three categories illustrated credit risks: exposure risk, default risk, and recovery risk. The results of the study provided compelling evidence of a positive correlation between CRM and both the profitability and sustainability of Iranian banks.

Hamza (2017) conducted a study exploring the influence of CRM on the operational efficiency of CBs in Pakistan. The investigation was based on secondary data obtained from 13 commercial banks over the timeframe of 2005-2014. The examination utilized six variables to represent CRM, namely: loan loss provision ratio (LLPR), capital adequacy ratio (CAR), non-performing loan ratio (NPL), liquidity ratio (LR), loans and advances ratio (LAR), and bank size. To evaluate FP, ROA and ROE were utilized. The outcomes of the research disclosed several noteworthy observations: Firstly, a favorable impact on FP was identified for LAR, CAR, and bank size. Secondly, an adverse effect on FP was discerned for NPL, LR, and LLPR.

Trad et al. (2017) carried out a comprehensive study involving 78 IBs spanning 12 different nations. The examination focused on the evaluation of the risk and profitability of these banks over a timeframe ranging from 2004 to 2013. Within this particular study, CR was depicted through the utilization of two metrics: total equity to net loans (EQL) and impaired loans to gross loans (IMLGL), while profitability was gauged using ROE and ROA. The outcomes of this research suggested that the mitigation of CR and the enhancement of profitability and stability within IBs are reliant on factors such as capital and bank size. These

discoveries also propose that there are no noteworthy distinctions between CBs and IBs in this aspect.

In research conducted by Alshatti (2015), an analysis was performed on the influence of CRM on FP within 13 CBs in Jordan. The primary source of data for this investigation was derived from the financial statements of these banks, covering the period from 2005 to 2013. In the context of this examination, CRM was denoted by the CAR, while FP was assessed through the metrics of ROE and ROA. The results of this study demonstrated a significant relationship between CRM and FP, highlighting the critical role of efficient CRM strategies in shaping the FP of CBs in Jordan.

Overall, the previously discussed studies focused on examining the role of several financial indicators, such as CAR, NPL, liquidity ratio (LR), loans and advances ratio (LAR), net profit share, and bank size, on FP, which was represented by financial ratios as ROA and ROE. The fundamental and frequent issues noticed in previous studies are that most researchers utilize CAR as an independent variable representing CRM financial indicators, while they utilize ROA and ROE as FP indicators. Therefore, the following hypotheses were developed:

H1A: CAR has a statistically significant positive influence on the ROA of CBs in Palestine.

H1B: CAR has a statistically significant positive influence on the ROE of CBs in Palestine.

H1E: CAR has a statistically significant positive influence on the ROA of IBs in Palestine.

H1F: CAR has a statistically significant positive influence on the ROE of IBs in Palestine.

On the other hand, the NPL was employed by researchers such as Serwadda (2018), Ijaiya et al. (2021), and Muhamet and Arbana (2016) as an independent variable representing CRM financial indicators. They examine the influence of NPL on ROA and ROE as FP indicators.

In an examination of CBs in Uganda, Serwadda (2018) explored the influence of CRM on the FP of these banks. The investigation made use of panel data covering the period from 2006 to 2015 and encompassing a sample of twenty banks. The study applied a variety of statistical techniques, such as descriptive statistics, correlation analysis, and regression analysis. In this particular investigation, ROE was utilized as a proxy for FP, serving as the dependent variable. The independent variables representing CRM included: loan loss provisions to total loans, expansion in interest earnings, and NPL. The findings of the study have revealed two important insights. Firstly, the study shows that factors such as loan loss provisions to total loans, expansion in interest earnings, and NPL significantly affect the profitability of CBs in Uganda. Secondly, it was observed that NPL, in particular, has a detrimental impact on FP, potentially resulting in financial crises and liquidity issues.

Moreover, a study carried out by Muhamet and Arbana (2016) sought to explore the influence of CRM on the FP of banks. The investigation was centered on four banking institutions in Kosovo and scrutinized data spanning from 2006 to 2015, drawing from time-series information extracted from the financial reports of these banks. In this study, CRM was assessed through two measures: risky assets and bad loans, while profitability was evaluated through ROE. The examination of the data unveiled several noteworthy discoveries. Initially, risky assets exhibited a substantial and adverse effect on profit margins. Subsequently, the NPLs displayed a nuanced relationship with profitability. At first glance, it seemed to have a positive and inherent impact on profitability, yet upon the application of alternative methodologies, the NPLs ratio was determined to have an unfavorable influence on profitability.

Chanaba (2020) researched the influence of CR on profitability ratios within the commercial banking industry of Ecuador. In this study, the author utilized the CAR and NPL as

key metrics for assessing CRM. Moreover, indicators such as ROE and ROA were employed to evaluate bank profitability. The research by Chanaba (2020) involved the application of both a quantitative questionnaire and panel data analysis using the annual financial statements of eight banks spanning from 2007 to 2017. The findings of this investigation revealed that fluctuations in CAR and NPL could not forecast changes in ROE and ROA.

Conversely, Ijaiya et al. (2021) discovered that non-performing Murabaha financing and provisions for impairment related to Murabaha financing had a favorable effect on ROA. These findings stemmed from a study focusing on the Islamic financing instrument known as Murabaha. The study aimed to determine the influence of the CR associated with Murabaha on the FP of African Islamic banks. For their research, Ijaiya et al. (2021) collected and analyzed data from the annual reports of selected IBs in Africa, spanning from 2012 to 2020. As a result of their findings, they recommended that African Islamic banks consider expanding their Murabaha operations as a means to enhance their overall FP.

Furthermore, Saiful and Ayu (2019) performed research to compare the impact of RM on FP between Islamic and conventional banks. Their sample included 11 Islamic banks and 26 conventional banks and covered the period spanning from 2012 to 2016. The study's results demonstrated that CRM financial indicators had a positive effect on FP, as reflected by ROA and ROE.

Mokni et al. (2014) performed research to explore the perceptions of RM among IBs in the MENA region. The study involved 23 IBs and utilized a self-administered questionnaire as the primary research tool. Their findings revealed variations in risk perceptions, particularly concerning funding procedures within the banks. Interestingly, the study also highlighted that Islamic banks often employ conventional instruments when dealing with various types of risks.

In a study by Maitah et al. (2014), the NPL determinants were investigated in CBs operating in Palestine. The study's sample consisted of credit analysts and managers from these banks, and data gathering was conducted through an administrative survey. The results of this study unveiled several key determinants of non-performing loans, which are: environmental conditions and circumstances in the surrounding area; low-income levels; high unemployment rates; deficiencies in credit policies; weaknesses in control and follow-up mechanisms; and inadequate delegated authority to branch managers. These findings suggest that commercial banks in Palestine may face challenges in controlling expected levels of liquidity and profitability due to these factors influencing NPL.

Overall, the previously discussed studies focused on examining the role of NPL as CRM financial indicators on FP, which was represented by financial ratios as ROA and ROE. The fundamental and frequent issues noticed in previous studies are that most researchers utilize NPL as independent variables representing CRM financial indicators, while they utilize ROA and ROE as FP indicators. Therefore, the following hypotheses were developed:

H1C: NPL has a statistically significant positive influence on the ROA of CBs in Palestine.

H1D: NPL has a statistically significant positive influence on the ROE of CBs in Palestine.

H1G: NPL has a statistically significant positive influence on the ROA of IBs in Palestine.

H1H: NPL has a statistically significant positive influence on the ROE of IBs in Palestine.

**CRM Tools**

This part consists of the findings of previous research regarding the connection between CRM tools and FP. CRM tools used by researchers consist of CRM strategies (Karim (2019)), risk monitoring procedures (Mogga et al. (2018)), credit indicators (Aldahdooh (2022)), and credit control, follow-up, and structuring systems (Aldahdooh (2022)). They utilized them to

examine their influence on FP. Moreover, the Basel Committee on Banking Supervision (BCBS) established CRM assessment principles for banks in 2011 to effectively manage and control their portfolios of loans and facilities. These principles should be integrated into the bank's internal operating systems.

***Standards for CRM Assessment***

To ensure that banks manage their credit portfolios efficiently, they should adhere to many standards. Therefore, the Basel Committee on Banking Supervision (BCBS) in 2011 presented four key principles for evaluating CRM. These principles emphasize that banks should assess and place value on their internal strategies, policies, and procedures.

The first principle according to BCBS (2011) involves establishing a conducive (CRM) environment, which encompasses three critical aspects: First, the bank's executive directors must formally endorse and periodically review the CRM strategy and policy. This should include defining the tolerance levels for credit risk and setting expectations for FP. Second, top-level management is responsible for implementing the CRM strategy and policy. They should also identify specific monitoring and control measures, encompassing all credit activities across customer segments and portfolios. Third, bank executives are tasked with defining and managing credit risk associated with all programs and products. They must ensure that these risks adhere to the control standards approved by the Board of Directors.

BCBS (2011) that the second principle revolves around operating within a robust credit granting process, which comprises four critical components: First, the bank should adhere to a set of standardized procedures for credit granting. This includes defining various aspects of the credit-granting process, such as credit structure, target customer segments, and repayment sources. Second, the bank must establish rules and regulations that incorporate credit limits

grounded in sound banking principles. Third, the bank should establish uniform credit rules that serve as a basis for both the granting of loans and the restructuring of existing loans. Fourth, the bank must ensure that commercial activities related to personal and business credit processes are safeguarded; and that any exceptions in credit granting are controlled within specified regulations and rules.

Moreover, the third principle that BCBS (2011) presented, involves maintaining an effective credit management, measurement, and monitoring process, encompassing six key elements: First, banks should establish managerial systems aimed at preserving the quality of all credit portfolios. Second, banks are required to implement a credit monitoring system and closely oversee the reserves and allocations within credit portfolios. Third, they are encouraged to devise a CR assessment framework that is customized to the magnitude and characteristics of their banking activities as well as their diverse credit portfolios. Fourth, banks are advised to depend on a credit analysis data framework that is interconnected with management information. This system should cover all facets of credit activities, enabling banks to assess various credit risks across all portfolios. Fifth, banks must maintain an internal monitoring system to assess the formation and quality of diverse credit portfolios. Sixth, banks should enhance their information systems capable of evaluating and measuring potential fluctuations in financial and economic conditions, enabling them to formulate contingency plans and crisis response strategies.

The final principle according to BCBS (2011) focuses on ensuring adequate controls over credit risk and comprises three crucial elements: First, banks are required to develop a structured information system that evaluates the procedure for managing CR and guarantees that these assessments are effectively conveyed to senior executives. Second, banks should verify the correct implementation of the credit-granting process following internal guidelines and

preventive principles. Furthermore, they should promptly inform top management of any exceptional decisions made beyond established instructions and procedures. Third, banks must have a system in place to measure the likelihood of borrowers' inability or unwillingness to meet their obligations. This system should include early detection of customer defaults and procedures for restructuring defaulted credit.

In general, BCBS (2011) required banks to have formal written guidelines and plans in their internal policies regarding CRM tools. These tools include strategic policies and procedures (SPP) of CRM, credit limits (CL), credit indicators (CI), credit granting process (CGP), and credit control, follow-up, and structuring systems (CCFSS).

In parallel with the directions of BCBs (2011), many scholars have employed these CRM tools as independent variables and examined their influence on the FP. In his study, Chin'Anga (2015) investigated the impact of CRM on FP in the four largest banks in South Africa. This research relied on the financial data of these banks, spanning from 2002 to 2013. It adopted a quantitative approach and employed panel regression analysis to examine the data. Within this study, two key indicators represented CRM, which are NPL and CAR. FP was assessed using ROE. The study's results revealed three significant insights. First, the impact of CRM on profitability was a significant discovery. Nevertheless, it was observed that various other factors, such as economic growth, bank size, and operating expenses, played a role in influencing profitability. Secondly, to boost profitability within the banking industry, it was advised in the research to establish robust procedures and policies in CRM while also considering aspects like leverage ratio, credit default provisions, and non-performing loan ratio. Lastly, the research put forth the idea of maintaining heightened levels of control and oversight in credit operations as a means to reduce credit defaults and enhance competitiveness. Moreover, Ariffin and Kassim

(2011) conducted an examination of the Islamic banking sector in Malaysia, exploring the correlation between existing RM strategies and financial outcomes. The research involved the utilization of primary data (in the form of a structured questionnaire) and secondary data obtained from financial indicators covering the years 2006 to 2008. The results of the investigation revealed that IBs in Malaysia predominantly utilized RM methodologies such as credit assessment, gap analysis, and earnings at risk. Despite these methodologies being relatively less sophisticated, the IBs in Malaysia managed to attain commendable levels of ROA and ROE. This observation implies a favorable association between RM approaches and FP. Consequently, based on their discoveries, Ariffin and Kassim (2011) advocated for the implementation of novel and more advanced RM strategies by IBs to further improve their financial standing.

In his study, Karim (2019) carried out a comparison analysis of the banking sectors in the United Kingdom and the United Arab Emirates. Karim employed qualitative and quantitative research methods, including interviews and scientific surveys. This study incorporated 18 variables, categorizing them into three key areas: profitability, CRM strategies, and factors influencing CRM. The results of the study affirmed that the UAE banking system outperformed the UK banking system. In the UAE, CRM was linked to the attainment of elevated ROE by employing internal rating mechanisms and conducting thorough creditworthiness assessments. In contrast, the UK banking system emphasized exposure limits and stress testing. In summary, this study emphasized a notable correlation between credit ratings, assessment of creditworthiness, and FP, along with the connection between risk exposure thresholds and FP.

Lastly, Aldahdooh (2022) conducted a research study to prove the influence of CRM on FP within the CBs in Palestine. To achieve this objective, Aldahdooh relied on quantitative data

from the financial reports of 10 CBs for the period from 2016 to 2020, in addition to a structured survey. The results of this research indicated a positive and significant influence of CRM tools named CI, CGP, and CCFSS on FP in the CBs in Palestine. However, the result of Aldahdooh failed to indicate the effect of CRM tools named SPP and CL on FP.

Overall, the researchers mentioned above did not agree on the influence of SPP and CL on the FP. Therefore, based on the BCBS (2011) principles 1 and 4, the following hypotheses were developed:

H2A: The SPP of CRM has a statistically significant negative influence on the FP of CBs in Palestine.

H2B: The SPP of CRM has a statistically significant negative influence on the FP of IBs in Palestine.

H3A: CL has a statistically significant negative influence on the FP of CBs in Palestine.

H3B: CL has a statistically significant negative influence on the FP of IBs in Palestine.

In addition to the finding of Aldahdooh (2022) regarding the influence of CI, CGP, and CCFSS on FP and the results of Karim's (2019) study regarding the relationship between assessment of creditworthiness and FP. Akram and Ur Rahman (2018), in their investigation concentrating on the banking industry in Pakistan, executed a comparison examination involving IBs and CBs. The study depended on secondary data derived from the annual financial statements of chosen sample banks, spanning the timeframe from 2004 to 2016. The researchers applied various statistical techniques, such as descriptive analysis, correlation, and multiple regression, to scrutinize this dataset. Akram and Ur Rahman (2018) delved into the association between loan quality (LQ) and asset quality (AQ) in the context of CRM. This examination was carried out utilizing 16 financial ratios and a binary variable indicative of the financial crisis.

In his research, Sawafta (2021) conducted a comparative analysis to assess the influence of CRM on expected asset return, asset volatility, and asset drift rate among two IBs and five CBs in Palestine. To test his hypotheses, the researcher applied the Merton model and used logistic probability distributions to conclude the default probability from the default distance. The study results exposed that IBs exhibited higher levels of CR compared to CBs. Consequently, the researcher recommended that Palestinian banks should focus on enhancing the skills, systems, and operations of their credit risk officers and divisions to mitigate credit risk. This, in turn, should lead to an improvement in expected asset returns and, consequently, higher profitability.

In another study, Sawafta (2012) investigated the Palestinian banking sector and discovered that local banks, including both commercial and Islamic banks, exhibited lower levels of default risk compared to foreign banks. This lower default risk had a favorable effect on FP. The study attributed these results to local banks' effective lending practices, strong management skills, and efficient operational systems. The study's recommendations included: expanding training and research efforts in the field of RM; implementing periodic reviews of credit portfolios; and considering mergers between banks as a strategy to enhance profitability and stability; while simultaneously reducing risks, particularly credit risk.

Incekara and Cetinkaya (2019) performed an investigation regarding CRM within IBs in Turkey. Their research relied on utilizing secondary data extracted from quarterly financial reports covering the years 2014 to 2017. The outcomes of their analysis revealed a direct correlation between net profit share and CR, as well as between the expansion of IBs and CR.

Mogga et al. (2018) conducted an investigation into the effects of CRM on the FP of CBs situated in Juba City, South Sudan. The primary focus of the study was to examine the impact of

risk identification, risk monitoring procedures, risk assessment, and analysis utilized by commercial banks in Juba City on their FP. The research sample consisted of 80 credit analysts from six banks operating within Juba City. Data collection involved the use of a structured survey, and the gathered data were analyzed utilizing the Statistical Package for Social Science (SPSS). The outcomes of the study revealed three main findings. Initially, the influence of risk identification risk analysis, and appraisal on FP was deemed to be insignificant. Secondly, in contrast, risk monitoring was found to have a significant impact on FP. Lastly, the process of credit approval was identified as a crucial factor influencing FP.

Overall, these studies indicated that FP is affected by CRM tools, procedures, and policies such as credit indicators, credit granting processes, and after-granting procedures. The researchers used many factors and tools of CRM as independent variables, and they used the FP as the dependent variable Therefore, based on the BCBS (2011) principles 1 to 4, the following hypotheses were developed:

H4A: CI has a statistically significant positive influence on the FP of CBs in Palestine.

H4B: CI has a statistically significant positive influence on the FP of IBs in Palestine.

H5A: The CGP has a statistically significant positive influence on the FP of CBs in Palestine.

H5B: The CGP has a statistically significant positive influence on the FP of IBs in Palestine.

H6A: CCFSS has a statistically significant positive influence on the FP of CBs in Palestine.

H6B: CCFSS has a statistically significant positive influence on the FP of IBs in Palestine.

## Chapter Summary

In this chapter, an extensive review of the pertinent literature has been conducted, revealing that a multitude of studies have delved into the correlation between CRM and FP. Scholars have predominantly utilized panel data sourced from financial records to scrutinize the

effects of CRM tools on FP. Key metrics such as the NPL and CAR have been commonly utilized. Moreover, FP has often been gauged through ROA and ROE.

Additionally, certain scholars have employed a combination of methodologies to evaluate the effect of CRM tools on FP. They have integrated structured questionnaires with data gleaned from the financial statements of banks. Significantly, the literature review emphasizes that Islamic banks frequently employ comparable tools to commercial banks for managing credit risk. In our forthcoming research endeavor, a mixed-methods approach will be adopted to analyze the impact of CRM tools on FP. Furthermore, a comparison assessment between IBs and CBs will be conducted to offer a more comprehensive insight into the banking landscape of Palestine.

# CHAPTER 3

# METHODOLOGY

The purpose of this chapter is to provide a clear understanding of the study methodology. It commences by delineating the research design. Subsequently, it delves into elucidating the population and sample under consideration, followed by an inclusive overview of the data collection method. The subsequent part will explain the model employed in this study. Finally, this chapter culminates by offering a detailed discussion of the variables involved in the research.

## Research Design

This study has a dual objective. First, to assess how CRM tools influence the FP within the Palestinian banking industry. Second, to discern any disparities in the impact of these tools between Islamic and commercial banks. To achieve these aims, the research employs a three-fold methodology comprising a review of existing literature, the development of a structural and objective questionnaire, and the analysis of financial data from banks.

For the questionnaire, we will adopt the one devised by Aldahdooh in 2002, which was constructed in alignment with the principles outlined by BCBS in 2011. Additionally, we will include specific statements tailored to differentiate between commercial and Islamic banks. This multifaceted approach will provide an inclusive examination of CRM practices and their effects on FP, shedding light on potential distinctions between the two banking sectors in Palestine.

## Population and Sample

The study's target population encompasses employees working within the banking sector in Palestine, totaling over 6,000 individuals distributed across the 13 active banks in the region. These banks are detailed in Table 2, comprising 10 commercial banks and 3 Islamic banks. The commercial banks are further categorized into 6 expatriate banks and 4 local banks. Together,

these financial institutions maintain a network of 378 branches across the Gaza Strip and the West Bank, which includes East Jerusalem, as reported in the PMA annual report for the year 2022.

**Table 2**

*Operating Banks in Palestine*

| Commercial banks | Islamic banks |
|---|---|
| Bank of Palestine | Palestine Islamic Bank |
| Arab Bank | Arab Islamic Bank |
| The National Bank | Safa Bank |
| Quds Bank | |
| Cario Amman Bank | |
| Housing Bank for Trade and Finance | |
| Bank of Jordan | |
| Palestine Investment Bank | |
| Jordan Ahli Bank | |
| Egyptian Arab Land Bank | |

*Note*. Sourced from PMA (2021).

As for the study's sample, it will specifically encompass credit risk analysts situated within the credit divisions of both bank headquarters and branches, along with risk officers stationed at the bank's main offices. This comprehensive approach is expected to involve more than 350 respondents, ensuring a representative sample for a robust analysis of CRM tools in the Palestinian banking industry.

## Research Model

The research builds upon the model introduced in Chapter 1, which is comprised of two distinct parts represented in Figures 3 and 4.

For calculation purposes, the following equations will represent the relations presented in Figure 3:

$$ROA = \beta_0 + \beta_1 CAR + \beta_2 NPL + \varepsilon \quad (1)$$

$$ROE = \beta_0 + \beta_1 CAR + \beta_2 NPL + \varepsilon \quad (2)$$

Where:

ROA = Return on assets

ROE = Return on equity

$\beta_0$ = Constant

$\beta_1 + \beta_2$ = Coefficients of independent variables

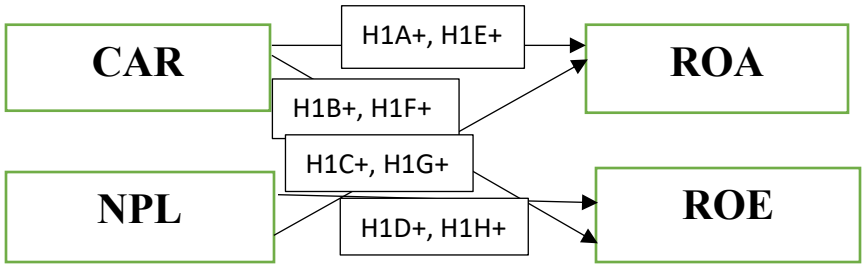
CAR = Capital adequacy ratio.

NPL = Non-performing loans.

$\varepsilon$ = Standard error

**Figure 3**

*CRM Financial Indicators and FP*




For calculation purposes, the following equations will represent the relations presented in Figure 4:

$$FP = \beta_0 + \beta_1 SPP + \beta_2 CL + \beta_3 CI + \beta_4 SPG + \beta_5 CCFSS + \varepsilon \quad (3)$$

Where:

FP = Financial performance

$\beta_0$ = Constant

$\beta_1$ - $\beta_5$ = Coefficients of independent variables

SPP = Strategic policies and procedures

CL = Credit limits

CI = Credit indicators

CGP = Credit granting process

CCFSS = Credit control, follow-up, and structuring process

$\varepsilon$ = Standard error

**Figure 4**

*CRM Tools and FP*

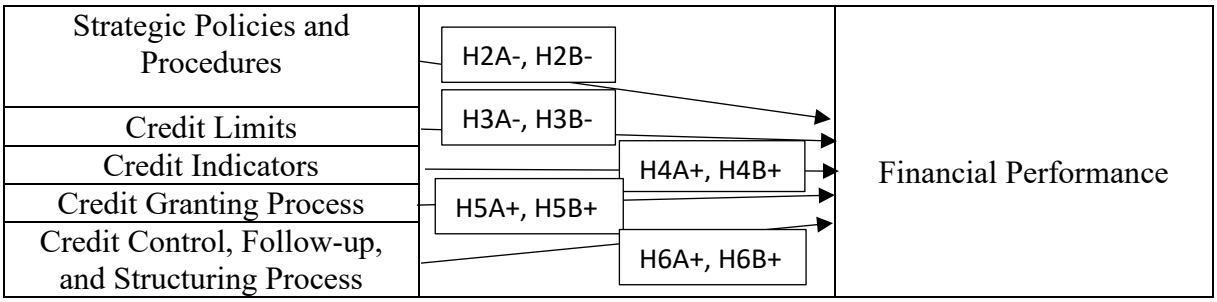



Figure 3 elucidates the relationship between CRM financial indicators and FP, providing a visual representation of their interrelation. Meanwhile, Figure 4 outlines the correlation between CRM tools and FP, offering a graphical representation of how these tools impact overall FP. These visual aids will serve to reinforce the understanding of the study model and its components.

## Research Variables

Figure 3 illustrates the intricate relationship between two key financial indicators in the context of CRM and two critical FP indicators. Specifically, it showcases the connections between CAR and NPL, which represent CRM financial indicators, and ROA and ROE, which are representative of FP.

CAR quantifies the degree to which a bank's financial assets can cover its financial obligations at any given time, essentially reflecting its financial safety (Aldahdooh, 2022). It is computed by dividing a bank's capital by its total risk-weighted assets.

NPL represents the proportion of outstanding loans that have not been repaid by borrowers according to the agreed credit schedule. This is computed by dividing the total value of NPL by the bank's entire credit portfolio (Boateng et al., 2019; Chanaba, 2020). These definitions clarify the critical components of Figure 3 and the indicators it depicts.

ROA serves as a gauge of an organization's profitability in relation to its assets. Essentially, it quantifies how effectively an organization is utilizing its assets to generate profits (Liao, 2018).

ROE is calculated by dividing the net income by the total shareholder equity (Chanaba, 2020). In simpler terms, ROE can also be understood as net income divided by net assets. Net assets, in turn, are determined by subtracting total debt from total assets. This calculation offers insight into how effectively a company generates returns for its shareholders relative to its overall financial structure.

Figure 4 visually illustrates the correlation between CRM tools and FP. In this representation, the left side of the figure corresponds to CRM tools, which serve as the independent variables (IV). Conversely, the right side of Figure 4 represents the dependent

variable (DV), which is FP. This diagram clarifies the distinct role of these variables in the research model, highlighting credit risk management tools as the factors influencing financial performance. Table 3 displays a summary of both dependent and independent variables.

**Table 3**

*Summary of Independent and Dependent Variables*

| Variable | Variable description | Source of measurement |
|---|---|---|
| Capital Adequacy Ratio (CAR) | IV | Hamza (2017); Aldahdooh (2022) |
| Non-performing Loans (NPL) | IV | Serwadda (2018) |
| Strategic Policies and Procedures (SPP) | IV | Aldahdooh (2022); Mogga et al. (2018) |
| Credit Limits (CL) | IV | Aldahdooh (2022) |
| Credit Indicators (CI) | IV | Aldahdooh (2022); Karim (2019) |
| Credit Granting Process (CGP) | IV | Aldahdooh (2022) |
| Credit Control, Follow-up, and Structuring Process (CCFSS) | IV | Aldahdooh (2022) |
| Financial Performance (FP) | DV | Aldahdooh (2022) |
| Return on Assets (ROA) | DV | Abiola and Olausi (2014); Serwadda (2018) |
| Return on Equity (ROE) | DV | Alshatti (2015); Abiola and Olausi (2014) |

"The study incorporates several independent variables, which include strategic policies and procedures of CRM, credit limits, credit indicators (prior to the granting process), the credit granting process itself, and the credit control, follow-up, and structuring system (after the granting process)" (Aldahdooh, 2022, p. 32). These independent variables will be evaluated using a Likert scale comprising seven statements. Conversely, the dependent variable, which is financial performance, will also be assessed through seven Likert statements.

Finally, a crucial component of the demographic information collected pertains to the respondent's workplace. This part of the survey offers two choices: commercial banks and Islamic banks. It plays a pivotal role in the research as it forms the cornerstone for comparing results between commercial and Islamic banks, aligning with the primary objective of this study.

## Data Analysis

This research relies on a combination of primary and secondary data sources. Several statistical techniques will be applied to analyze this data comprehensively. The primary financial data will be subjected to panel regression analysis. This approach is particularly effective for assessing the relationship between variables over time and across different entities, making it suitable for the financial data gathered in this study.

Additionally, the data obtained from the questionnaires will undergo multiple regression analyses to test the influence hypotheses. Exploratory Factor Analysis (EFA) is to be utilized to reveal the latent factor arrangement of the questionnaire and evaluate its internal consistency. The reliability of the questionnaire will be further assessed using Cronbach's alpha. A multicollinearity test will be conducted to identify any multicollinearity issues among the dimensions of the independent variables. Measures such as means will gauge the level of agreement among respondents, the standard deviation will assess the degree of dispersion in the

questionnaire responses, and frequencies will provide insights into central tendencies. To perform these analyses, IBM SPSS will be the software of choice, enabling a thorough and systematic examination of the data from various angles.

## Chapter Summary

The chapter offers a comprehensive review of the methodology utilized in the present study. Commencing with delineating the research design, the initial section sets the foundation. Subsequently, the succeeding section elaborates on the demographic and sample characteristics. The subsequent segment of this chapter explores the research framework implemented. The fourth section is devoted to elucidating and deliberating on the research variables. The chapter wraps up by providing a thorough elucidation of the statistical methods that will be utilized in this research.

# CHAPTER 4

# ANALYSIS AND RESULTS

This chapter aims to outline the statistical techniques utilized in the dissertation. These methods encompass descriptive statistics, frequency analysis, reliability assessment, examination of multicollinearity, as well as simple and multiple regression analyses. The selection of these statistical techniques was based on their relevance to the research questions, emphasizing their role in data analysis, result interpretation, and reporting.

## Population and Sample

The banking sector in Palestine consists of about 6000 employees who are working in the 13 operating banks in Palestine. The population of this study consists of bank employees, namely branch managers, risk management officers, and credit officers, totaling 392 individuals according to the PMA annual report for the year 2022.

## Response Rate and Sampling Approach

The questionnaire was distributed to 392 bank employees across the West Bank of Palestine, including branches in East Jerusalem. We received 195 completed questionnaires without any incomplete responses, resulting in a response rate of 50%. Table 4 illustrates the number of discarded questionnaires or instances where the targeted bank employees did not respond.

In this study, the representativeness of the population was assessed using scientific principles of probability sampling, employing the systematic random sampling method. The Thomas Thomson equation was utilized, with the margin of error set at 5% and statistical significance at the 95% level.

**Table 4**

*Response Rate*

| Sample | Total | % |
|---|---|---|
| Original Sample | 392 | 100 |
| Non-Responses | 197 | 50 |
| Final Sample | 195 | 50 |

To ensure sufficient representation of the population in the sample, as previously mentioned, we employed the Thomas Thomson equation. This equation is as follows:

$$n = \frac{N\,P\,(1-P)}{(N-1)\left(\frac{d}{Z_{1-\alpha/2}}\right)^2 + P(1-P)}$$

Where:

n = sample size

N = population size

d = % of error, which equals 5%

$Z_{(1-a/2)}$ = the critical value of the standard normal distribution is at a level of statistical significance

p = % that denotes neutrality, and is equal to 50%

## Sample Description

This segment presents an overview of the data sample, encompassing demographic details concerning the respondents including gender, age, academic achievements, occupational position, length of experience, and employer. These data are displayed in Table 5.

**Sample Characteristics**

Table 5 presents the findings pertaining to the demographic data of the participants. The findings show that the majority of the sample population consists of males, comprising 63.1% of the total, while females constitute the remaining 36.9%. Regarding age distribution, the largest proportion falls within the 30 to less than 40 years old category, making up 38.5% of the total, followed by the age group of 40 to less than 50 years old, accounting for 35.9%. In terms of educational background, the majority hold a Bachelor's degree, representing 68.7% of the total, followed by individuals with a Master's degree at 26.7%. The sample encompasses various professional statuses, with the highest proportion being Credit Management professionals, comprising 34.9% of the total. Regarding years of experience, a significant portion of the sample population has over 15 years of experience, constituting 43.6% of the total. In terms of employment, the majority of the sample works in Commercial Banks, accounting for 67.7% of the total, while 32.3% are employed in Islamic Banks.

**Table 5**

*Respondents Profile*

| Variable | Frequency | % |
|---|---|---|
| Gender | | |
| Male | 123 | 63.1% |
| Female | 72 | 36.9% |
| Total | 195 | 100.0% |
| Age | | |
| 22 to less than 30 years old. | 39 | 20.0% |

| | | |
|---|---|---|
| 30 to less than 40 years old. | 75 | 38.5% |
| 40 to less than 50 years old. | 70 | 35.9% |
| More than 50 years old. | 11 | 5.6% |
| Total | 195 | 100.0% |
| Academic Attainment | | |
| Diploma | 4 | 2.0% |
| Bachelor | 134 | 68.7% |
| Master | 52 | 26.7% |
| PHD | 5 | 2.6% |
| Total | 195 | 100.0% |
| Professional Status | | |
| Risk Officer | 21 | 10.7% |
| Credit Management | 68 | 34.9% |
| Branch Manager | 61 | 31.3% |
| Other | 45 | 23.1% |
| Total | 195 | 100.0% |
| Years Of Experience | | |
| Less than 5 years | 33 | 16.9% |
| 5 – 10 years | 33 | 16.9% |
| 10 – 15 years | 44 | 22.6% |
| More than 15 years | 85 | 43.6% |
| Total | 195 | 100.0% |
| Works For | | |

| | | |
|---|---|---|
| Commercial Bank | 132 | 67.7% |
| Islamic Bank | 63 | 32.3% |
| Total | 195 | 100.0% |

## Research Model Analysis

This section will delve into the analysis of the gathered data. The first part will concentrate on the examination of financial data sourced from the Palestinian Monetary Authority (PMA), while the second part will offer an analysis of the information obtained from the questionnaire.

### Financial Data Analysis

This section aims to explore the relationship between CAR and NPL, which serve as indicators of CRM, and FP metrics of ROA and ROE. The aim of this research is to evaluate the effects of CRM tools on the financial outcomes within the Palestinian Banking industry. The examination will be partitioned into two sections: the first one concentrates on the efficacy of CB, whereas the subsequent section explores IB. Information for the investigation was obtained from the publications of PMA covering the timeframe from 2018 to 2022, divided into quarterly segments.

In this section, the analysis will rely on equations one and two, previously discussed in Chapter Three of this research. The analysis will be divided into three parts: The first one will display the results regarding the coefficient of determination ($R^2$**)** for both CBs and IBs. The second part will present the ANOVA results for CBs and IBs. In the last part, the results of the

coefficients analysis for CBs and IBs will be presented. The results for ROA and ROE will be displayed separately.

***ROA Analysis***

**Coefficient of Determination ($R^2$).** The coefficient of determination, denoted as $R^2$ serves to quantify the level of explanation provided by a model or its effectiveness in predicting outcomes based on the data at hand (Shmueli and Koppius, 2011). This metric is derived by dividing the sum of explained variances attributed to all endogenous variables by the total count of such variables (Rigdon, 2012). The values of $R^2$ fall within the range of 0 to 1, where higher figures indicate a more substantial degree of explanatory capability.

Table 6 presents that the analysis indicates an $R^2$ value of 28%, suggesting that CAR and NPL collectively explain only 28% of the variability in the ROA variable for CBs. Regarding the IBs, Table 6 shows that the findings revealed that the $R^2$ value also attained 28.3%, indicating that CAR and NPL accounted for 28.3% of the fluctuation in ROA.

**Table 6**

*Coefficient of Determination ($R^2$)*

| | Model | R | R square | Adjusted R square | Std. error of the estimate | Durbin-Watson |
|---|---|---|---|---|---|---|
| CBs | 1 | .532 | .283 | .198 | .21224 | .575 |
| IBs | 1 | .532 | .283 | .199 | .16655 | .532 |

*Note.* p-values reflect significance at $p < 0.05$.

**ANOVA.** The analysis of variance (ANOVA) is one of the commonly employed statistical techniques. Its necessity arises from the risk of alpha-level inflation, which elevates the potential of type 1 error (false positive) due to multiple comparisons. ANOVA employs the F statistic, which represents the ratio of between-group and within-group variances. While the primary interest lies in discerning differences among group means, ANOVA is specifically geared toward detecting variations in variances (Kim, 2017).

Table 7 illustrates that the P-value associated with the F test statistic for CBs falls below 0.05. This significant finding provides evidence in favor of rejecting the null hypothesis (under the assumption of parameters being zero), thus affirming the independent variable's statistically noteworthy predictive capacity. Also, Table 7 illustrates that the P-value of the F test statistic for IBs is less than 0.05, thereby presenting strong evidence for the rejection of the null hypothesis (which posits that the parameters are equal to zero) and confirming the significant predictive capacity of the independent variable.

**Coefficients Analysis.** Table 8 illustrates the findings derived from the multiple regression examination, indicating that every coefficient value within the framework holds statistical significance. This indicates a noteworthy association between the reliant variable and the autonomous variables. More precisely for CBs, a favorable correlation exists between ROA and CAR, whereas an opposing correlation is noted between ROA and NPL. In conclusion, Hypotheses H1A and H1C are supported.

As indicated in Table 8, the multiple regression analysis conducted on data from Islamic banks demonstrates statistically significant model coefficients, with P-values below 5%. This indicates a direct correlation between the dependent variable (ROA) and the independent variables

examined in the study, namely CAR and NPL. In conclusion, Hypotheses H1E and H1G are supported.

**Table 7**

*ANOVA Table*

| | Model | Sum of squares | df | Mean square | F | P |
|---|---|---|---|---|---|---|
| CBs Results | Regression | .302 | 2 | .151 | 3.349 | .039 |
| | Residual | .766 | 17 | .045 | | |
| | Total | 1.067 | 19 | | | |
| IBs Results | Regression | .187 | 2 | .093 | 3.362 | .049 |
| | Residual | .472 | 17 | .028 | | |
| | Total | .658 | 19 | | | |

*Note.* p-values reflect significance at $p < 0.05$.

### *ROE Analysis*

**Coefficient of Determination ($R^2$).** Regarding the CBs, Table 9 shows that the analysis results yield a notably weak $R^2$ value, suggesting that the independent variables inadequately explain the dependent variable. Specifically, the $R^2$ value stands at 5%, highlighting the limited explanatory power of the CAR and NPL concerning the observed variable, ROE. On the other hand, Table 9 indicates that the IBs analysis findings unveiled that the $R^2$ value reached 60.6%, suggesting that the CAR and NPL explained 60.6% of the variability in the ROE variable.

**Table 8**

*Coefficients Table*

| | Model | Standardized coefficients Beta | T- value | Significant *P<.05* | Collinearity statistics | | Decision for hypothesis |
|---|---|---|---|---|---|---|---|
| | | | | | Tolerance | VIF | |
| CBs | (Constant) | -3.311 | -.951 | .035 | | | |
| | CAR (%) | .322 | 4.539 | .014 | .956 | 1.046 | H1A Supported |
| | NPL (%) | -.147 | -3.712 | .010 | .956 | 1.046 | H1C Rejected |
| IBs | (Constant) | -2.204 | -1.645 | .118 | | | |
| | CAR (%) | .163 | 2.225 | .040 | .491 | 2.035 | H1E Supported |
| | NPL (%) | .210 | 2.520 | .022 | .491 | 2.035 | H1G Supported |

**Table 9**

*Coefficient of Determination ($R^2$)*

| | Model | R | R Square | Adjusted R square | Std. error of the estimate | Durbin-Watson |
|---|---|---|---|---|---|---|
| CBs | 1 | .240 | .058 | -.053 | 1.90826 | .786 |
| IBs | 1 | .778 | .606 | .560 | 2.10447 | .778 |

*Note*. p-values reflect significance at $p < 0.05$.

**ANOVA.** Table 10 indicates that the P-value associated with the F test statistic is above 0.05, compelling us to accept the null hypothesis (assuming parameters are not equal to zero). This confirms the statistically insignificant predictive capability of the independent variable for CBs. Regarding the IBs, as delineated in Table 10, the P-value associated with the F test statistic descends under 0.05, presenting persuasive grounds for the rejection of the null hypothesis (which posits that the parameters are equivalent to zero) and confirming the statistically significant predictive capability of the independent variable.

**Table 10**

*ANOVA Table*

| | Model | Sum of squares | df | Mean square | F | P |
|---|---|---|---|---|---|---|
| CBs Results | Regression | 3.791 | 2 | 1.895 | .520 | .603 |
| | Residual | 61.905 | 17 | 3.641 | | |
| | Total | 65.695 | 19 | | | |
| IBs Results | Regression | 115.777 | 2 | 57.888 | 13.071 | .000 |
| | Residual | 75.289 | 17 | 4.429 | | |
| | Total | 191.066 | 19 | | | |

*Note.* p-values reflect significance at $p < 0.05$.

**Coefficients Analysis.** Table 11 illustrates that the results of the multiple regression analysis exhibit statistical significance for all coefficient values in this particular model,

suggesting a noteworthy relationship between the dependent variable and the independent variables. More precisely for CBs a positive correlation is observed between ROE and both CAR and NPL but it is not significant (P > 0.05). Regarding IBs, the results indicate a positive significant relationship exists between ROE and both CAR and NPL (P < 0.05). In conclusion, hypotheses H1F and H1H are supported but hypotheses H1B and H1D are rejected.

**Table 11**

*Coefficients Table*

| | Model | Standardized coefficients Beta | T- value | Significant *P<.05* | Collinearity statistics | | Decision for hypothesis |
|---|---|---|---|---|---|---|---|
| | | | | | Tolerance | VIF | |
| CBs | (Constant) | -23.013 | -.735 | .472 | | | |
| | CAR (%) | 1.907 | 1.014 | .325 | .956 | 1.046 | H1B Rejected |
| | NPL (%) | .251 | .324 | .750 | .956 | 1.046 | H1D Rejected |
| IBs | (Constant) | -28.561 | -1.687 | .110 | | | |
| | CAR (%) | 1.605 | 3.736 | .010 | .491 | 2.035 | H1F Supported |
| | NPL (%) | 4.845 | 4.609 | .000 | .491 | 2.035 | H1H Supported |

### *CRM Tools and FP*

In this particular section, an analysis will be presented on the data collected via the questionnaire. The second and third parts of this questionnaire consisted of six parts. Within each

of these parts, bank staff were required to evaluate their stance on various statements by utilizing a five-point Likert scale, which ranged from 1 (indicating strong disagreement) to 5 (indicating strong agreement): strategic policies and procedures (SPP), credit limits (CL), credit indicators (CI), credit granting process (CGP), Credit Control, follow – up and structuring System (CCFSS), and firm performance (FP). Each variable was measured using 7 items. A list of these items is presented in Table 12.

**Table 12**

*Variables Table*

| Variable | Item | Item code |
|---|---|---|
| Strategic Policies and Procedures | The efficacy and robustness of the organizational framework of the credit system. | SPP1 |
| | "The SPP for managing credit portfolio concentration risks, as well as addressing credit defaults and amortization." | SPP2 |
| | "The SPP governs the pricing of credit products and programs." | SPP3 |
| | "The SPP on the documentation and auditing standards within the credit system." | SPP4 |
| | The SPP is derived from the legal framework of Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT). | SPP5 |

| | | |
|---|---|---|
| | The SPP is derived from the regulations and guidelines of the Basel III Committee on Banking Supervision. | SPP6 |
| | The SPP is derived from the regulations and guidelines of the PMA. | SPP7 |
| Credit Limits | The presence of CL is established upon the categorization of sectors and industries. | CL1 |
| | The presence of CL is determined by geographical and regional categorization. | CL2 |
| | The establishment of CL is contingent upon the type of credit product or program. | CL3 |
| | The establishment of CL is predicated on the level of risk associated with the credit product or program. | CL4 |
| | The imposition of CL is influenced by the age demographics of customers. | CL5 |
| | The imposition of CL is influenced by the quality and authenticity of customers' financial statements, particularly solvency indicators. | CL6 |
| | The imposition of CL is guided by the standards set forth by the Basel III Committee on Banking Supervision regarding the liquidity coverage ratio. | CL7 |
| Credit Indicators | “The personality, credibility, and seniority of customers' banking activity records are crucial factors to consider.” | CI1 |

| | | |
|---|---|---|
| | “The purpose or necessity of the credit, the principal amount, the credit term, and the repayment source are important aspects to evaluate.” | CI2 |
| | The assessment of customers' financial statements, particularly solvency indicators, focuses on quality and originality. | CL3 |
| | The in-depth analysis of customers' creditworthiness is conducted utilizing the bank's tailored systems. | CI4 |
| | “The amount of capital invested within the commercial activity for which a credit facility is required.” | CI5 |
| | The evaluation encompasses the overall condition of the business seeking credit, the sector it operates in, and the broader economic environment. | CI6 |
| | “The type and quality of collaterals offered by customers in case of credit default are significant factors to examine.” | CI7 |
| Credit Granting Process | “The dedication to adhering to the rules and regulations of standardized credit programs, particularly focusing on standardizing credit terms for customers.” | CGP1 |
| | “The dedication to analyzing and reviewing the credit profiles of customers as provided by the management of local bank branches, and ensuring their transmission in a proper sequence to higher levels of management.” | CGP2 |

| | | |
|---|---|---|
| | "The dedication to upholding the authority of credit-granting limits within bank branches and the competent credit departments." | CGP3 |
| | The dedication to upholding professional standards in making credit decisions, including denials and approvals, according to the applicable rules and guidelines. | CGP4 |
| | The adherence to an equitable credit policy through the explicit explanation of the intricacies of the credit procedure to customers empowers them to take ownership of the credit determination and its outcomes transparently. | CGP5 |
| | The dedication to balancing the fulfillment of strategic targets set by the bank and credit staff on one side, and the credit requirements of customers on the other, by providing customers with suitable credit products and programs. | CGP6 |
| | The dedication to following the general periodic directives and guidelines issued by the PMA. | CGP7 |
| Credit Control, Follow-Up, and Structuring System | "The presence of a credit control system is essential for evaluating the performance of experts and decision-makers in the realm of credit." | CCFSS1 |
| | The establishment of a credit information system is necessary to assess the integrity of credit regulations and processes. | CCFSS2 |

| | | |
|---|---|---|
| | "The implementation of a credit information system is crucial for evaluating the performance of the active credit portfolio and the efficacy of the restructuring efforts on defaulted portions in comparison to historical data." | CCFSS3 |
| | "The development of a credit information system is vital for appraising the quality of credit rating standards for both existing and potential clients." | CCFSS4 |
| | "The establishment of a credit information system is imperative for evaluating the professionalism in making exceptions to credit decisions and adherence to the authority matrix." | CCFSS5 |
| | The implementation of a credit information system is crucial for the assessment and examination of credit defaults, aiding in their early identification. | CCFSS6 |
| | "The establishment of a credit information system is essential for managing defaulted credit facilities and assessing the efficiency of insurance principles and credit default provisions within the credit portfolio." | CCFSS7 |
| Financial | Attaining an increase in the bank's market share. | FP1 |
| Performance | Attaining an increase in the bank's current ratio (current assets divided by current liabilities). | FP2 |
| | Attaining an increase in the bank's return on equity ratio (net income divided by shareholders' equity). | FP3 |

| | |
|---|---|
| Attaining an increase in the bank's return on assets ratio (net income divided by total average assets). | FP4 |
| Attaining the required percentage of the bank's capital adequacy ratio (capital divided by risk-weighted assets). | FP5 |
| Attaining an increase in the bank's net interest margin ratio (net income divided by average interest-earning assets). | FP6 |
| Attaining a reduction in the bank's non-performing loan ratio (non-performing loans divided by total credit portfolio). | FP7 |

*Note.* Adapted from Aldahdooh, 2022, p. 91.

**Strategic Policies and Procedures.** As mentioned in Table 13, in terms of all determinants discussed in the analysis of Strategic Policies and Procedures, the results are as follows: The mean for all determinants combined is 4.37, indicating a high level of agreement or positive perception. Moreover, the relatively low standard deviation of 0.373 suggests minimal variability in responses overall. For each determinant examined in the analysis of Strategic Policies and Procedures, the outcomes are outlined below.

First, the efficacy and robustness of the organizational framework of the credit system (SPP1): This determinant has a mean score of 4.17, reflecting a relatively high level of agreement or positive perception among respondents. The standard deviation of 0.679 suggests a certain degree of variability in responses; however, it does not attain statistical significance.

Second, “the SPP for managing credit portfolio concentration risks, as well as addressing credit defaults and amortization, and governing the pricing of credit products and programs (SPP2, SPP3)” (Aldahdooh, 2022, p. 91): Both of these determinants have a mean of 4.34, indicating a high level of agreement or positive perception among respondents. The standard deviation of 0.574 indicates a degree of variability in responses, although it is considered to be at a moderate level. Third, “The SPP on the documentation and auditing standards within the credit system (SPP4)” (Aldahdooh, 2022, p.91): This determinant has a mean score of 4.32, indicating a high level of agreement or positive perception among respondents. The standard deviation of 0.519 indicates a certain variability, even if it remains relatively low. Fourth, the SPP based on AML/CFT laws (SPP5): This determinant has the largest mean value of 4.44, indicating the highest level of agreement or positive perception among all determinants. Although the standard deviation of 0.610 suggests some variability in responses, it remains within a moderate range. Fifth, the SPP is based on Basel III standards (SPP6): This determinant has a mean score of 4.27, indicating a high level of agreement or positive perception among respondents. Although, the standard deviation of 0.568 suggests a certain variability in responses it remains at a moderate level. Lastly, the SPP is based on PMA rules and standards (SPP7): This determinant has the highest mean value of 4.68, indicating the highest level of agreement or positive perception among all determinants. Although the standard deviation of 0.511 suggests some variability in responses, it remains relatively low.

**Credit Limits.** As indicated in Table 14, the mean for all determinants combined is 4.09, indicating a generally positive perception regarding the existence of credit limits across various criteria. The standard deviation of 0.47 suggests relatively low variability in responses overall. The analysis of credit limit determinants reveals notable trends in respondents' perceptions. The

presence of CL is established upon the categorization of sectors and industries (CL1) receives the highest mean score of 4.35, indicating widespread agreement or positive perception, although some variability in responses exists, as indicated by a standard deviation of 0.645. Conversely, the presence of CL determined by geographical and regional categorization (CL2) garnered a mean value of 3.67, suggesting an equinoctial level of acceptance or positive perception, with a notably higher standard deviation of 0.966, indicating greater variability in responses compared to other determinants. Other factors such as the establishment of CL is contingent upon the type of credit product or program and the level of risk associated with the credit product or program (CL3, CL4) also receive relatively high mean scores of 4.13 and 4.17, respectively, indicating favorable perceptions. However, these determinants exhibit varying levels of variability in responses, as reflected by their standard deviations.

**Table 13**

*The Mean, Standard Deviation, and Percentage for the Determinants of SPP*

| Determinant | Strongly disagree | Disagree | Neutral | Agree | Strongly agree | Mean | Std. deviation |
|---|---|---|---|---|---|---|---|
| SPP1 | 0.5% | 3.6% | 2.1% | 66.2% | 27.7% | 4.17 | 0.679 |
| SPP2 | 0.5% | 0.0% | 2.1% | 59.5% | 37.9% | 4.34 | 0.574 |
| SPP3 | 0.5% | 0.0% | 3.6% | 56.9% | 39.0% | 4.34 | 0.574 |
| SPP4 | 0.0% | 0.0% | 2.6% | 63.1% | 34.4% | 4.32 | 0.519 |
| SPP5 | 0.0% | 0.0% | 6.2% | 43.6% | 50.3% | 4.44 | 0.610 |
| SPP6 | 0.0% | 0.5% | 4.6% | 62.1% | 32.8% | 4.27 | 0.568 |
| SPP7 | 0.0% | 0.0% | 2.1% | 28.2% | 69.7% | 4.68 | 0.511 |
| All Determinants | 0.2% | 0.6% | 3.3% | 54.2% | 41.7% | 4.37 | 0.373 |

Similarly, the imposition of CL is influenced by the age demographics of customers and by the quality and authenticity of customers' financial statements (CL5, CL6) earn moderate to high mean scores, with accompanying variability in responses denoted by standard deviations. Finally, the imposition of credit limits is guided by the standards set forth by the Basel III Committee on Banking Supervision regarding the liquidity coverage ratio (CL7) also receives a relatively high mean value of 4.15, with a standard deviation denoting variability in responses. Overall, while there is generally positive agreement regarding the effectiveness of credit limits, the degree of variability in perceptions varies across different determinant categories.

**Table 14**

*The Mean, Standard Deviation, and Percentage for the Determinants of CL*

| Determinant | Strongly disagree | Disagree | Neutral | Agree | Strongly agree | Mean | Std. deviation |
|---|---|---|---|---|---|---|---|
| CL1 | 0.0% | 1.5% | 4.6% | 50.8% | 43.1% | 4.35 | 0.645 |
| CL2 | 0.5% | 17.4% | 12.8% | 52.8% | 16.4% | 3.67 | 0.966 |
| CL3 | 0.0% | 2.6% | 4.6% | 69.7% | 23.1% | 4.13 | 0.603 |
| CL4 | 1.0% | 2.1% | 3.1% | 66.7% | 27.2% | 4.17 | 0.671 |
| CL5 | 0.5% | 8.7% | 8.7% | 69.7% | 12.3% | 3.85 | 0.764 |
| CL6 | 0.0% | 3.6% | 4.1% | 51.8% | 40.5% | 4.29 | 0.712 |
| CL7 | 0.0% | 3.1% | 13.3% | 49.2% | 34.4% | 4.15 | 0.762 |
| All Determinants | 0.3% | 5.6% | 7.3% | 58.7% | 28.1% | 4.09 | 0.47 |

**Credit Indicators (Prior-Granting Procedures).** Table 15 presents the analysis results, indicating that the mean for all determinants combined is 4.37, reflecting a generally high level

of agreement or positive perception regarding the CI (prior–granting procedures). Additionally, the standard deviation of 0.402 suggests relatively low variability in responses overall. For each determinant discussed in the analysis of Credit Indicators (Prior – Granting Procedures), the results are as follows:

First, “the personality, credibility, and seniority of customers' banking activity records are crucial factors to consider (CI1)” (Aldahdooh, 2022, p. 93): This determinant has a high mean value of 4.40, indicating a high level of acceptance or positive perception among participants. While the standard deviation of 0.645 suggests certain variability in responses, it is not exceptionally high. Second, “the purpose or necessity of the credit, the principal amount, the credit term, and the repayment source are important aspects to evaluate (CI2)” (Aldahdooh, 2022, p. 93): This determinant has a high mean score of 4.41, indicating a high level of agreement or positive perception among respondents. The standard deviation of 0.503 suggests relatively low variability in responses. Third, the assessment of customers' financial statements, particularly solvency indicators, focuses on quality and originality (CI3): This determinant also has a high mean score of 4.39, indicating a high level of acceptance or positive perception among participants. The standard deviation of 0.741 suggests some variability in responses. Fourth, the in-depth analysis of customers' creditworthiness is conducted utilizing the bank's tailored systems (CI4): This determinant has the largest mean value of 4.48, indicating the highest level of agreement or positive perception among all determinants. Although the standard deviation of 0.577 suggests some variability in responses, it remains within a moderate range. Fifth, “the amount of capital invested within the commercial activity for which a credit facility is required (CI5)” (Aldahdooh, 2022, p.93): This determinant has a relatively high mean score of 4.23, indicating a moderate to high level of agreement or positive perception among respondents. The

standard deviation of 0.595 suggests some fluctuation in responses. Sixth, the evaluation encompasses the overall condition of the business seeking credit, the sector it operates in, and the broader economic environment (CI6): This determinant has a high mean score of 4.36, indicating a high level of agreement or positive perception among respondents. Although the standard deviation of 0.532 suggests a certain variability in responses, it remains within a moderate range. Lastly, "the type and quality of collaterals offered by customers in case of credit default are significant factors to examine (CI7)" (Aldahdooh, 2022, p. 93): This determinant has a relatively high mean score of 4.31, indicating a moderate to high level of agreement or positive perception among respondents. The standard deviation of 0.673 suggests some fluctuation in responses.

**Table 15**

*The Mean, Standard Deviation, and Percentage for the Determinants of CI*

| Determinant | Strongly disagree | Disagree | Neutral | Agree | Strongly agree | Mean | Std. deviation |
|---|---|---|---|---|---|---|---|
| CI1 | 0.0% | 1.0% | 5.6% | 45.6% | 47.7% | 4.40 | 0.645 |
| CI2 | 0.0% | 0.0% | 0.5% | 58.5% | 41.0% | 4.41 | 0.503 |
| CI3 | 0.0% | 4.6% | 1.5% | 44.1% | 49.7% | 4.39 | 0.741 |
| CI4 | 0.0% | 0.5% | 2.6% | 45.1% | 51.8% | 4.48 | 0.577 |
| CI5 | 0.0% | 2.1% | 2.6% | 65.6% | 29.7% | 4.23 | 0.595 |
| CI6 | 0.0% | 0.5% | 1.0% | 60.5% | 37.9% | 4.36 | 0.532 |
| CI7 | 1.5% | 0.0% | 2.6% | 57.4% | 38.5% | 4.31 | 0.673 |
| All Determinants | 0.2% | 1.2% | 2.3% | 53.8% | 42.3% | 4.37 | 0.402 |

**Credit Granting Process.** Table 16 shows that the analysis of the Credit Granting Process indicates a generally positive perception among respondents, with a mean score of 4.32, reflecting a high level of agreement or positive perception. This sentiment is further bolstered by a relatively low standard deviation of 0.503, implying consistency in responses across various determinants. Key factors contributing to this positive perception include commitments to different aspects of credit granting. "The dedication to adhering to the rules and regulations of standardized credit programs, particularly focusing on standardizing credit terms for customers (CGP1)" (Aldahdooh, 2022, p. 94) shows a moderate level of agreement (mean of 4.04), other determinants exhibit higher levels of agreement. Notably, "the dedication to analyzing and reviewing the credit profiles of customers as provided by the management of local bank branches, and ensuring their transmission in a proper sequence to higher levels of management (CGP2)" (Aldahdooh, 2022, p. 94) (mean of 4.39) and "the dedication to upholding the authority of credit-granting limits within bank departments and branches (CGP3)" (Aldahdooh, 2022, p. 94) (mean of 4.38) stand out with particularly strong positive perceptions. Similarly, the dedication to upholding professional standards in making credit decisions, including denials and approvals, according to the applicable rules and guidelines (CGP4) (mean of 4.33) and the adherence to an equitable credit policy through the explicit explanation of the intricacies of the credit procedure to customers empowers them to take ownership of the credit determination and its outcomes transparently (CGP5) (mean of 4.31) also receives high mean scores, indicating strong positive perceptions. However, dedication to balancing the fulfillment of strategic targets set by the bank and credit staff on one side, and the credit requirements of customers on the other, by providing customers with suitable credit products and programs (CGP6) displays a slightly lower mean (4.16) but still indicates a moderate to high level of agreement. The

dedication to following the general periodic directives and guidelines issued by the PMA (CGP7) garners the highest mean value of 4.58, reflecting the highest level of agreement among all determinants. Although there is some variability in responses across determinants, the overall trend suggests a positive view of the CGP among respondents.

**Credit Control, Follow-Up, and Structuring System (Post-Granting Procedures).** As depicted in Table 17, the combined mean for all determinants is 4.16, signaling a generally elevated level of agreement or positive perception regarding the CCFSS. The corresponding standard deviation of 0.527 points out a relatively low variability in the response overall.

**Table 16**

*The Mean, Standard Deviation, and Percentage for the Determinants of CGP*

| Determinant | Strongly disagree | Disagree | Neutral | Agree | Strongly agree | Mean | Std. deviation |
|---|---|---|---|---|---|---|---|
| CGP1 | 1.0% | 6.7% | 9.2% | 53.3% | 29.7% | 4.04 | 0.867 |
| CGP2 | 0.0% | 0.5% | 6.7% | 45.6% | 47.2% | 4.39 | 0.636 |
| CGP3 | 0.5% | 0.0% | 7.2% | 45.1% | 47.2% | 4.38 | 0.666 |
| CGP4 | 1.5% | 0.0% | 4.1% | 52.8% | 41.5% | 4.33 | 0.700 |
| CGP5 | 0.0% | 2.1% | 6.2% | 50.3% | 41.5% | 4.31 | 0.681 |
| CGP6 | 0.0% | 1.0% | 5.6% | 69.2% | 24.1% | 4.16 | 0.560 |
| CGP7 | 0.0% | 0.0% | 2.1% | 37.4% | 60.5% | 4.58 | 0.534 |
| All Determinants | 0.4% | 1.5% | 5.9% | 50.5% | 41.7% | 4.32 | 0.503 |

"The presence of a credit control system is essential for evaluating the performance of experts and decision-makers in the realm of credit (CCFSS1)" (Aldahdooh, 2022, p. 95): This

factor is scored at 4.14, signifying a moderate to elevated degree of approval or favorable outlook among respondents. The standard deviation of 0.718 suggests some variability in responses. The establishment of a credit information system is necessary to assess the integrity of credit regulations and processes (CCFSS2) is associated with a mean score of 4.26, suggesting a substantial consensus or favorable viewpoint among the individuals involved. The standard deviation of 0.708 suggests some variability in responses. “The implementation of a credit information system is crucial for evaluating the performance of the active credit portfolio and the efficacy of the restructuring efforts on defaulted portions in comparison to historical data (CCFSS3)” (Aldahdooh, 2022, p. 95) is a factor that received an average rating of 4.10, suggesting a moderate to a high degree of consensus or favorable perception among the involved parties. The standard deviation of 0.631 suggests some variability in response. “The development of a credit information system is vital for appraising the quality of credit rating standards for both existing and potential clients (CCFSS4)” (Aldahdooh, 2022, p. 95) is a factor that received an average rating of 4.04, suggesting a moderate to a high degree of consensus or favorable perception among the involved parties. The standard deviation of 0.641 suggests some variability in response. “The establishment of a credit information system is imperative for evaluating professionalism in making exceptions to credit decisions and adherence to the authority matrix (CCFSS5)” (Aldahdooh, 2022, p.95). This factor is rated at 4.17 on average, suggesting a moderate to high degree of consensus or favorable viewpoint. The standard deviation of 0.758 suggests some variability in responses. The implementation of a credit information system is crucial for the assessment and examination of credit defaults, aiding in their early identification (CCFSS6), which holds a mean rating of 4.18, suggesting a moderate to high degree of consensus or favorable viewpoint. The standard deviation of 0.631 suggests some variability in

responses. “The establishment of a credit information system is essential for managing defaulted credit facilities and assessing the efficiency of insurance principles and credit default provisions within the credit portfolio (CCFSS7)” (Aldahdooh, 2022, p.95): This factor received an average score of 4.22, suggesting a moderate to high level of agreement or positive perception. The standard deviation of 0.605 suggests some variability in responses.

**Table 17**

*The Mean, Standard Deviation, and Percentage for the Determinants of CCFSS*

| Determinant | Strongly disagree | Disagree | Neutral | Agree | Strongly agree | Mean | Std. deviation |
|---|---|---|---|---|---|---|---|
| CCFSS1 | 0.0% | 4.1% | 7.2% | 59.0% | 29.7% | 4.14 | 0.718 |
| CCFSS2 | 0.0% | 3.1% | 6.2% | 52.8% | 37.9% | 4.26 | 0.708 |
| CCFSS3 | 0.5% | 3.6% | 1.5% | 74.4% | 20.0% | 4.10 | 0.631 |
| CCFSS4 | 0.5% | 2.6% | 7.7% | 70.8% | 18.5% | 4.04 | 0.641 |
| CCFSS5 | 0.5% | 3.6% | 7.7% | 54.9% | 33.3% | 4.17 | 0.758 |
| CCFSS6 | 0.0% | 3.1% | 3.1% | 66.2% | 27.7% | 4.18 | 0.631 |
| CCFSS7 | 0.0% | 2.1% | 3.6% | 65.1% | 29.2% | 4.22 | 0.605 |
| All Determinants | 0.2% | 3.2% | 5.3% | 63.3% | 28.1% | 4.16 | 0.527 |

**Financial Performance.** The analysis of financial performance determinants in Table 18 presents a generally optimistic outlook, with a mean score of 4.22 indicating favorable overall performance. This sentiment is bolstered by a relatively low standard deviation of 0.460, suggesting consistent perceptions across all determinants. Among the key metrics, attaining an increase in the market share (FP1) is perceived positively with a mean score of 4.24, reflecting

favorable perceptions of market share expansion, albeit with some variability in responses. Similarly, attaining an increase in the current ratio (FP2) is positively regarded with a mean score of 4.21, indicating sound liquidity performance, though responses vary moderately. Notably, attaining an increase in ROE (FP3) earns the highest mean score of 4.33, signaling strong profitability performance, albeit with some variability in responses.

**Table 18**

*The Mean, Standard Deviation, and Percentage for the Determinants of FP*

| Determinant | Strongly disagree | Disagree | Neutral | Agree | Strongly agree | Mean | Std. deviation |
|---|---|---|---|---|---|---|---|
| FP1 | 0.0% | 0.0% | 9.7% | 56.4% | 33.8% | 4.24 | 0.616 |
| FP2 | 0.0% | 0.5% | 5.6% | 66.2% | 27.7% | 4.21 | 0.558 |
| FP3 | 0.0% | 1.0% | 4.1% | 55.9% | 39.0% | 4.33 | 0.605 |
| FP4 | 0.5% | 0.0% | 3.6% | 60.0% | 35.9% | 4.31 | 0.590 |
| FP5 | 0.0% | 0.0% | 8.7% | 50.8% | 40.5% | 4.32 | 0.627 |
| FP6 | 0.0% | 0.0% | 9.2% | 72.8% | 17.9% | 4.09 | 0.515 |
| FP7 | 0.0% | 3.6% | 13.8% | 58.5% | 24.1% | 4.03 | 0.724 |
| All Determinants | 0.1% | 0.7% | 7.8% | 60.1% | 31.3% | 4.22 | 0.460 |

Additionally, attaining an increase in the ROA (FP4) suggests favorable asset utilization and profitability, with a mean score of 4.31 and moderate variability in responses. Meeting the required percentage of CAR (FP5) also indicates positive performance, with a mean score of 4.32, though responses exhibit some variability. Conversely, attaining an increase in the NIM ratio (FP6), while still positive with a mean score of 4.09, displays more variability in responses.

Finally, attaining a reduction in the NPL (FP7), with a mean score of 4.03, indicates positive credit quality performance, albeit with higher variability in responses compared to other determinants. Overall, while the financial performance is generally positive, minimizing variability in responses, particularly regarding non-performing loans, could further enhance the bank's overall performance.

**Analysis of the Research Model.** This section, as mentioned earlier, is constructed to inspect the impact of CRM tools on FP. The analysis represents equation three, which was previously discussed in Chapter Three. To achieve the purpose of this research, this section will present the results for both CBs and IBs.

***The Coefficient of Determination ($R^2$).*** Table 19 displays the linear regression analysis for CBs and IBs and demonstrates that CCFSS, CI, SPP, CGP, and CL collectively contribute to 59.2% of the variability in FP, as indicated by the attained $R^2$ value of 59.2% for CBs. While, CCFSS, CI, SPP, CGP, and CL collectively contribute to 57.3% of the variability in FP, as indicated by the attained $R^2$ value of 57.3% for IBs. These results show that these factors are convergent in their explanation power of variability FP for both CBs and IBs.

***ANOVA.*** As mentioned in Table 20, the F-test statistic's P-value is below 0.05, providing compelling evidence to discard the null hypothesis (that the parameters are equal to zero) and affirming that the independent variable possesses statistically significant predictive capability for both CBs and IBs.

***Coefficients Analysis.*** Table 21 presents the coefficients from the linear regression analysis conducted on both CBs and IBs, revealing the following relationships: First, a negative (inverse) association exists between FP and SSP. Specifically, a 1% increase in SSP corresponds to a decrease in FP by 0.173%. Second, a negative (inverse) correlation exists between FP and

CL. In other words, a 1% increase in CL results in a decrease in FP by 0.318%. Third, a positive (direct) correlation is observed between FP and CI. Meaning, that a 1% increase in CI leads to an excess in FP by 0.320%. Fourth, a positive (direct) correlation exists between FP and CGP. This implies that a 1% increase in CGP corresponds to a rise in FP by 0.351%. Finally, a positive (direct) relationship exists between FP and CCFSS. Thus, a 1% increase in CCFSS results in a rise in FP by 0.459%.

**Table 19**

*Coefficient of Determination ($R^2$)*

| | Model | R | R square | Adjusted R square | Std. error of the estimate | Durbin-Watson |
|---|---|---|---|---|---|---|
| CBs | 1 | .770 | .592 | .576 | .29994 | 1.992 |
| IBs | 1 | .757 | .573 | .536 | .29184 | 1.537 |

*Note*. p-values reflect Significance at $p < 0.05$.

Moreover, Table 21 presents the coefficients from the linear regression analysis conducted on IBs, revealing the following relationships: First, a negative (inverse) association exists between FP and SPP. Specifically, a 1% increase in SPP corresponds to a decrease in FP by 0.212%. Second, a negative (inverse) correlation exists between FP and CL. In other words, a 1% increase in CL results in a decrease in FP by 0.270%. Third, a positive (direct) correlation is observed between FP and CI. Meaning, that a 1% increase in CI leads to a rise in FP by 0.395%.

Fourth, a positive (direct) relationship exists between FP and CGP. This implies that a 1% increase in the CGP corresponds to a rise in FP by 0.490%. Finally, a positive (direct) relationship exists between FP and CCFSS. Thus, a 1% increase in CCFSS results in a rise in FP by 0.511%.

**Table 20**

*ANOVA Table*

| | Model | Sum of squares | df | Mean Square | F | P |
|---|---|---|---|---|---|---|
| CBs Results | Regression | 16.474 | 5 | 3.295 | 36.623 | .000 |
| | Residual | 11.335 | 126 | .090 | | |
| | Total | 27.809 | 131 | | | |
| IBs Results | Regression | 6.528 | 5 | 1.306 | 15.328 | .000 |
| | Residual | 4.855 | 57 | .085 | | |
| | Total | 11.383 | 62 | | | |

*Note*. p-values reflect Significance at $p < 0.05$.

All in all, Table 21 indicates that SPP and CL have a significant negative influence on FP for both CBs and IBs. Conversely, CI, CGP, and CCFSS have a significant positive influence on FP for both CBs and IBs. Additionally, CCFSS has the largest influence on FP for both CBs and IBs.

**Table 21**

*Coefficients Table*

| | Model | Standardized coefficients | T- value | Significant *P<.05* | Collinearity statistics | | Decision for hypothesis |
|---|---|---|---|---|---|---|---|
| | | Beta | | | Tolerance | VIF | |
| CBs | (Constant) | 1.425 | 4.467 | .000 | | | |
| | SPP | -.173 | -1.762 | .040 | .478 | 2.090 | H2A Supported |
| | CL | -.318 | -3.719 | .000 | .398 | 2.513 | H3A Supported |
| | CI | .320 | 3.113 | .002 | .374 | 2.676 | H4A Supported |
| | CGP | .351 | 4.611 | .000 | .408 | 2.451 | H5A Supported |
| | CCFSS | .459 | 6.982 | .000 | .552 | 1.810 | H6A Supported |
| IBs | (Constant) | .304 | 1.529 | .529 | | | |
| | SPP | -.212 | -1.109 | .022 | .356 | 2.807 | H2B Supported |
| | CL | -.270 | -2.005 | .040 | .421 | 2.376 | H3B Supported |
| | CI | .395 | 2.468 | .017 | .449 | 2.226 | H4B Supported |
| | CGP | .490 | 3.532 | .001 | .497 | 2.012 | H5B Supported |
| | CCFSS | .511 | 5.489 | .000 | .628 | 1.592 | H6B Supported |

## Durbin-Watson Results

The Durbin-Watson test examines serial correlation between errors in regression equations. In other words, it checks if close residuals are correlated. The test values are ranged between 0 and 4, with a value of 2 indicating that there is no correlation between residuals. Values less than 2 suggest that there is a positive correlation between close residuals. While values greater than 2 suggest that there is a negative correlation (Field, 2018). The results from the regression model for the financial data in Table 6 indicate that there is a positive correlation

between residuals for both CBs and IBs (.575 and .532 respectively). Furthermore, the results from the regression model for the influence of CRM tools on FP in Table 19 show a Durbin-Watson value for CBs is 1.992, which is close to 2, suggesting that no correlation issue exists. Conversely, the Durbin-Watson value for IBs is 1.537, indicating a positive correlation exists between close residuals.

## Correlation Matrix

The correlation matrix presented in Table 22 illustrates the associations between variables through the display of correlations among all potential pairs of values in a matrix structure. Pearson's correlation coefficient, commonly known as Pearson's R, is the most widely used measure for this purpose. Pearson's correlation evaluates the magnitude of the association between variables by producing values ranging from -1 to 1. The findings from the correlation matrix, utilizing Pearson correlation coefficients (r), reveal a robust relationship among the variables examined along each axis of the study.

**Table 22**

*Correlation Matrix, Utilizing Pearson Correlation Coefficients (r)*

| | SPP | CL | CI | CGP | CCFSS | FP |
|---|---|---|---|---|---|---|
| SPP1 | 0.643 | 0.464 | 0.463 | 0.393 | 0.594 | 0.325 |
| SPP2 | 0.681 | 0.456 | 0.361 | 0.406 | 0.386 | 0.426 |
| SPP3 | 0.643 | 0.510 | 0.450 | 0.301 | 0.374 | 0.560 |
| SPP4 | 0.623 | 0.487 | 0.321 | 0.340 | 0.396 | 0.184 |
| SPP5 | 0.762 | 0.379 | 0.436 | 0.375 | 0.380 | 0.373 |
| SPP6 | 0.504 | 0.377 | 0.349 | 0.343 | 0.156 | 0.570 |

| | | | | | | |
|---|---|---|---|---|---|---|
| SPP7 | 0.666 | 0.383 | 0.439 | 0.523 | 0.388 | 0.407 |
| CL1 | 0.484 | 0.613 | 0.437 | 0.454 | 0.294 | 0.346 |
| CL2 | 0.494 | 0.618 | 0.313 | 0.322 | 0.227 | 0.390 |
| CL3 | 0.453 | 0.661 | 0.431 | 0.400 | 0.443 | 0.380 |
| CL4 | 0.445 | 0.640 | 0.507 | 0.373 | 0.328 | 0.376 |
| CL5 | 0.484 | 0.660 | 0.358 | 0.388 | 0.302 | 0.481 |
| CL6 | 0.568 | 0.701 | 0.653 | 0.541 | 0.329 | 0.448 |
| CL7 | 0.517 | 0.604 | 0.483 | 0.461 | 0.318 | 0.385 |
| CI1 | 0.416 | 0.387 | 0.635 | 0.453 | 0.395 | 0.328 |
| CI2 | 0.445 | 0.463 | 0.667 | 0.430 | 0.665 | 0.289 |
| CI3 | 0.405 | 0.541 | 0.714 | 0.455 | 0.485 | 0.342 |
| CI4 | 0.536 | 0.601 | 0.759 | 0.589 | 0.319 | 0.471 |
| CI5 | 0.317 | 0.389 | 0.655 | 0.329 | 0.492 | 0.354 |
| CI6 | 0.343 | 0.354 | 0.580 | 0.381 | 0.326 | 0.311 |
| CI7 | 0.430 | 0.467 | 0.605 | 0.490 | 0.384 | 0.276 |
| CGP1 | 0.345 | 0.509 | 0.385 | 0.724 | 0.274 | 0.402 |
| CGP2 | 0.485 | 0.544 | 0.619 | 0.842 | 0.414 | 0.553 |
| CGP3 | 0.499 | 0.442 | 0.578 | 0.656 | 0.407 | 0.504 |
| CGP4 | 0.409 | 0.493 | 0.541 | 0.776 | 0.324 | 0.379 |
| CGP5 | 0.448 | 0.492 | 0.555 | 0.846 | 0.368 | 0.478 |
| CGP6 | 0.412 | 0.520 | 0.521 | 0.758 | 0.506 | 0.447 |
| CGP7 | 0.450 | 0.426 | 0.428 | 0.700 | 0.559 | 0.562 |
| CCFSS1 | 0.523 | 0.400 | 0.354 | 0.404 | 0.864 | 0.581 |

| | | | | | | |
|---|---|---|---|---|---|---|
| CCFSS2 | 0.537 | 0.411 | 0.352 | 0.477 | 0.850 | 0.613 |
| CCFSS3 | 0.414 | 0.352 | 0.476 | 0.372 | 0.673 | 0.318 |
| CCFSS4 | 0.386 | 0.358 | 0.358 | 0.447 | 0.711 | 0.409 |
| CCFSS5 | 0.524 | 0.401 | 0.362 | 0.472 | 0.825 | 0.604 |
| CCFSS6 | 0.393 | 0.278 | 0.386 | 0.375 | 0.781 | 0.447 |
| CCFSS7 | 0.422 | 0.343 | 0.450 | 0.398 | 0.775 | 0.532 |
| FP1 | 0.335 | 0.247 | 0.385 | 0.516 | 0.560 | 0.799 |
| FP2 | 0.360 | 0.385 | 0.312 | 0.479 | 0.432 | 0.808 |
| FP3 | 0.372 | 0.360 | 0.411 | 0.539 | 0.508 | 0.854 |
| FP4 | 0.271 | 0.280 | 0.416 | 0.475 | 0.463 | 0.805 |
| FP5 | 0.390 | 0.250 | 0.415 | 0.577 | 0.511 | 0.829 |
| FP6 | 0.319 | 0.294 | 0.405 | 0.496 | 0.478 | 0.715 |
| FP7 | 0.307 | 0.365 | 0.487 | 0.352 | 0.467 | 0.548 |

## Scale Reliability

The reliability of the scale was evaluated through the utilization of Cronbach's alpha coefficient. To guarantee reliability, all 42 components of the scale were incorporated into the examination. The results showed that the Cronbach’s alfa values were between 0.752 and 0.896. Additionally, the overall Cronbach’s Alfa coefficient for all variables was 0.946, demonstrating high internal consistency. All measured values exceeded the threshold value of 0.70, as recommended by (Field, 2013; Hair et al., 2019; and Cronbach (1951)). The Reliability test results are presented in Table 23.

**Table 23**

*Cronbach's Alfa Coefficients*

| Variable | Number of items | Cronbach Alpha coefficient |
|---|---|---|
| SPP | 7 | 0.766 |
| CL | 7 | 0.752 |
| CI | 7 | 0.778 |
| CGP | 7 | 0.869 |
| CCFSS | 7 | 0.896 |
| FP | 7 | 0.875 |
| All Variables | 42 | 0.946 |

## Collinearity Issues

Multicollinearity denotes a strong correlation existing among the independent variables, typically signifying significance when the variance inflation factor (VIF) coefficient surpasses 5.0. The identification of multicollinearity relies on the VIF, which represents the inverse of the tolerance coefficient when the tolerance descends under 0.250 (Hair et al., 2011). Various studies propose alternative thresholds of 5.0 or 10.0; nonetheless, a universally accepted cutoff point for determining problematic VIF values remains absent (Craney & Surles, 2002; Hair et al., 1995). Upon scrutinizing both the structural and the measurement model (Tables 8, 11, 14, 17, 26, and 29), it is evident that the VIF values of all indicators remain below 5.0. Consequently, no issues of collinearity have been identified within either the structural or the measurement model.

## Chapter Summary

Chapter 4 delineated the statistical analysis performed on the dataset utilized in this study. The exposition of the sample was provided. Employing SPSS, the dataset was subjected to analysis. The findings from the examination of the gathered data indicated that the scale reliability, assessed through Cronbach's Alpha, is satisfactory given that all test outcomes exceed 0.75. Pearson's correlation coefficient was employed to explore the correlation matrix. The outcomes of the correlation matrix unveiled a strong association among the variables. Furthermore, the dispersion in the dependent variables, resulting from the independent variables, was gauged by the coefficient of determination ($R^2$). The findings from the assessments of the three models suggested that the independent variables contribute to variations in the dependent variables to differing extents ranging from 28% to 61%. The VIF was utilized to ascertain the presence of multicollinearity among the independent variables. The outcomes of the tests indicated the absence of any collinearity concerns within both the measurement and structural models.

The results of hypothesis testing for the CBs show that there is a positive association between CAR and both ROA and ROE. Conversely, NPL has a significant negative correlation with ROA and a positive correlation with ROE. Moreover, the model of the CRM tools showed that SPP as well as CL have a negative association with FP. While, a positive relationship exists between CI, CGP, and CCFSS with FP.

The outcomes of hypothesis testing concerning IBs indicate a direct correlation between CAR and NPL with both ROA and ROE. Furthermore, the analysis of the CRM framework demonstrates that SPP, along with CL, exhibits an inverse association with FP. Conversely, a favorable relationship is observed between CI, CGP, and CCFSS with FP.

# CHAPTER 5

# DISCUSSION, RECOMMENDATIONS, AND CONCLUSION

This study aimed to assess the influence of various CRM mechanisms, specifically SPP, CL, CI, CGP, and CCFSS, on the FP of both IBs and CBs operating within the Palestinian banking sector. The objective of this chapter is to address the inquiries raised in chapter one and to fulfill the objectives of this study, which involve the evaluation of the effects of CRM tools on the FP of banks in Palestine. Furthermore, it seeks to compare the influence of these tools on the FP of IBs and CBs.

The financial data utilized in this research was sourced from the PMA reports and the financial statements of banks operating in Palestine, in addition to the questionnaire that was distributed to explore the pertinent variables. This questionnaire encompassed demographic information about the participants, along with inquiries derived from existing literature concerning CRM tools and FP. The findings of this study indicated statistically significant correlations among the variables, which will be expounded upon in the ensuing sections.

## Demographic Characteristics of Respondents

Demographic information involved gender, age, academic attainment, professional status, years of experience, and the type of bank where the respondents work. When reviewing the demographics of the respondents, the finding displayed that of the 195 respondents, 63.1% were males and 36.9% were females. These findings indicate that the majority of bank employees are males.

The predominant age brackets fall within the range of 30 to under 40 years old and 40 to under 50 years old (38.5% and 35.9% correspondingly). This observation is in alignment with the larger portion of participants possessing over 15 years of professional experience,

constituting 43.6%. Concerning educational achievements, most respondents possess a bachelor's degree, followed by a master's degree (68.7%, and 26.7% respectively). This finding indicates that bank employees depend on working experience over higher academic education. Moreover, the most common professional statuses are credit management and branch managers accounting for 34.9% and 31.3% respectively. This finding points out that the credit management and branch managers bear more responsibility in handling customer credit applications. Finally, the results showed that 67.7% of the respondents work for commercial banks and 32.3% of them work for Islamic banks. This shows that CBs represent the majority of the operating banks in Palestine.

**Financial Data Analysis**

This section aims to elucidate the correlation between CAR and NPL with both ROA and ROE. Concerning CBs, the findings revealed a positive association between CAR and both ROA and ROE ($\beta$= 0.322, t= 4.539; p<.05, $\beta$= 1.907, t= 1.014; p>.05). However, the outcomes established the significant influence of CAR on ROA but disapproved of this relationship on ROE due to its lack of significance (P>0.05). Furthermore, the analysis affirmed that NPL exhibited a negative and significant effect on the ROA OF CBs ($\beta$= -0.147, t= -3.712; p<.05). It dismissed the influence of NPL on the ROE of CBs, citing its lack of significance (P>0.05). This observation highlighted that both CAR and NPL had a minimal influence on ROE.

The findings regarding IBs indicated that CAR and NPL had a significant positive influence on ROA ($\beta$= 0.163, t= 2.225; p<.05, $\beta$= .210, t= 2.520; p<.05). Moreover, these results indicated that CAR and NPL had an important positive influence on ROE ($\beta$= 1.605, t= 3.736; p<.05, $\beta$= 4.845, t= 4.609; p<.05). This fact indicated that CAR and NPL had a fundamental effect on both ROA and ROE.

All in all, the previously mentioned results indicated that CRM tools have a statistically significant influence on the FP of both CBs and IBs, which supported hypotheses H1A, H1C, H1E, H1F, H1G, and H1H respectively. Conversely, the results pointed out that hypotheses H1B and H1D were rejected due to the lack of significance (P>0.5).

**The Impact of CRM Tools on FP**

Regarding the impact of CRM tools on FP, this relationship is presented in H2A, H2B, H3A, H3B, H4A, H4B, H5A, H5B, H6A, and H6B hypotheses. To attain the aim of this dissertation, the discussion will be segmented into two parts. The first part will discuss the results for CBs, and the second part will discuss the results for the IBs.

Concerning the CBs, the results indicated that CCFSS had the greatest considerable positive impact (β= 0.459, t= 6.982; p<.05) on FP. This result supports hypothesis H6A, indicating that CCFSS in CBs is an efficient side in enhancing FP. This fact showed that CCFSS plays a fundamental role in improving FP in the CBs in the Palestinian banking industry.

The second CRM tool that has a highly important influence on FP is CGP (β= 0.351, t= 4.611; p<.05), which supports hypothesis H5A. Regarding CI, it was the third CRM tool that had a respectable positive impact on FP (β= 0.320, t= 3.113; p<.05), which supports hypothesis H4A. In addition, CL and SPP have a negative impact on FP (β= -0.318, t= -3.719; p<.05, β= -0.173, t= -1.762; p<.05), which supports hypotheses H3A and H2A respectively.

Regarding the IBs, CCFSS had the highest favorable significant impact on FP (β= 0.511, t= 5.589; p<.05), which supports hypothesis H6B. This fact also showed that CCFSS plays an essential role in improving FP in the IBs in Palestine. Moreover, the results showed that CGP and CI had also a significant positive influence on FP (β= 0.490, t= 3.532; p<.05, β= 0.395, t= 2.468; p<.05), which supported H5B and H4B respectively. While, CL and SPP had a significant

inverse impact on FP (β= -0.270, t= -2.005; p<.05, β= -0.212, t= -1.109; p<.05), which supported H3B and H2B respectively.

**Table 24**

*The Impact of CRM Tools on FP-Results of Hypotheses Testing*

| Hypothesis | $\beta$ -value | T- value | Significant *P<.05* | Decision |
|---|---|---|---|---|
| H1A: CAR has a statistically significant positive influence on the ROA of CBs in Palestine. | 0.322 | 4.539 | 0.014 | Supported |
| H1B: CAR has a statistically significant positive influence on the ROE of CBs in Palestine. | 1.907 | 1.014 | 0.325 | Rejected |
| H1C: NPL has a statistically significant positive influence on the ROA of CBs in Palestine. | -.147 | -3.712 | 0.010 | Rejected |
| H1D: NPL has a statistically significant positive influence on the ROE of CBs in Palestine. | 0.251 | 0.324 | 0.750 | Rejected |
| H1E: CAR has a statistically significant positive influence on the ROA of IBs in Palestine. | 0.163 | 2.225 | 0.040 | Supported |

| | | | | |
|---|---|---|---|---|
| H1F: CAR has a statistically significant positive influence on the ROE of IBs in Palestine. | 1.605 | 3.736 | 0.010 | Supported |
| H1G: NPL has a statistically significant positive influence on the ROA of IBs in Palestine. | 0.210 | 2.520 | 0.022 | Supported |
| H1H: NPL has a statistically significant positive influence on the ROE of IBs in Palestine. | 4.845 | 4.609 | 0.000 | Supported |
| H2A: SPP of CRM has a statistically significant negative effect on the FP of CBs in Palestine. | -0.173 | -1.762 | 0.040 | Supported |
| H2B: SPP of CRM has a statistically significant negative effect on the FP of IBs in Palestine. | -0.212 | -1.109 | 0.022 | Supported |
| H3A: CL has a statistically significant negative effect on the FP of CBs in Palestine. | -0.318 | -3.719 | 0.000 | Supported |
| H3B: CL has a statistically significant negative effect on the FP of IBs in Palestine. | -0.270 | -2.005 | 0.040 | Supported |

| | | | | |
|---|---|---|---|---|
| H4A: CI has a statistically significant positive effect on the FP of CBs in Palestine. | 0.320 | 3.113 | 0.002 | Supported |
| H4B: CI has a statistically significant positive effect on the FP of IBs in Palestine. | 0.395 | 2.468 | 0.017 | Supported |
| H5A: CGP has a statistically significant positive impact on the FP of CBs in Palestine. | 0.351 | 4.611 | 0.000 | Supported |
| H5B: CGP has a statistically significant positive impact on the FP of IBs in Palestine. | 0.490 | 3.532 | 0.001 | Supported |
| H6A: CCFSS has a statistically significant positive effect on the FP of CBs in Palestine. | 0.459 | 6.982 | 0.000 | Supported |
| H6B: CCFSS have a statistically significant positive effect on the FP of IBs in Palestine. | 0.511 | 5.489 | 0.000 | Supported |

## Implication of the Study

Several research works have explored the correlation between the CAR and NPL with ROA and ROE. Nevertheless, a limited number of studies delve into the influence of CRM

instruments on FP. The majority of these inquiries have concentrated on nations with robust political and economic frameworks, whereas investigations concerning nations with volatile political and economic environments are scarce.

**Theoretical Implication**

It is a fundamental issue for any bank to enhance its FP to sustain and enlarge its operation and continue expanding. Therefore, CRM tools are a primary matter that should be deemed by banks as well. This dissertation suggests a magnitude of research paths that have the scope to expand the investigation of CRM and FP. This study can serve as a foundational resource for scholars in the field of CRM. The presented model can be embraced by researchers, who can then adapt it to data from other countries. The result was added to CRM and FP literature. This research fills a considerable gap in the banking industry literature in Palestine by exploring the impact of CRM tools on FB. Moreover, the model of this research will participate in developing the knowledge of management and the board of directors of the banks to enhance CRM and FP.

**Practical Implication**

Many studies highlighted the important role of CRM. However, bank executives keep facing challenges in executing CRM tools. The study results suggest that banks in Palestine have the ability to leverage CRM tools to consolidate their profitability. Operating banks in Palestine can improve their competitive position by enhancing their strategic policies and procedures (SPP) and strengthening their credit control, follow-up, and structuring system (CCFSS). Moreover, they can derive additional benefits from this research by expanding their credit indicator (CI) frameworks and revising their credit granting processes (CGP).

Also, the results of this research can be employed by other sectors such as the insurance sector. In addition, policymakers can utilize the results of this research to develop their policies due to the increasing risks associated with financial and banking services. Thus, they can increase the immunity of the investors and depositors.

## Limitations

This study encounters the following limitations: First, due to the situation in Palestine, accessing branches of banks in the Gaza Strip posed challenges. Second, the generalizability of the study's findings might be uncertain due to the distinct size and characteristics of the Palestinian banking sector. Finally, the survey data are confined to the information outlined in the literature review.

## Conclusion

This dissertation was conducted in the banking sector in Palestine, with an appropriate sample size of respondents. The primary objective of this research is to examine the impact of CRM tools on FP in the banking system in Palestine.

In the first chapter, the researcher delineated six inquiries aiming to be addressed. The initial query pertains to the impact of SPP of CRM tools on the FP of IBs and CBs within the Palestinian banking sector. The results revealed a notable inverse correlation between SPP and the FP of both CBs and IBs in the Palestinian banking sector. The second query examines the influence of CL management on the FP of IBs and CBs in the Palestinian banking sector. The outcomes demonstrated a significant inverse effect of CL on the FP of both CBs and IBs in the banking industry in Palestine. Moving on to the third question which explores the impact of CI management practices on the FP of IBs and CBs in the Palestinian banking industry. The findings suggested a substantial positive influence of CI on the FP of both CBs and IBs in the banking

sector in Palestine. The fourth question delves into the connection between CGP management and the FP of IBs and CBs in the Palestinian banking industry. The results indicated that credit CGP exerts a significant positive impact on the FP of both CBs and IBs in the banking sector in Palestine. Next, the fifth question examines how the administration of CCFSS affects the FP of IBs and CBs in the Palestinian banking industry. The findings uncovered a noteworthy positive influence of CCFSS on the FP of both CBs and IBs in the banking industry in Palestine. Lastly, the principal research question addresses how CRM tools impact the FP of IBs and CBs in the banking industry in Palestine. As per the findings of this study, CAR demonstrates a significant positive effect on the ROA of both CBs and IBs. Additionally, CAR exerts a considerable positive influence on the ROE of IBs, while showing negligible impact on the ROE of CBs.

Moreover, the study results indicated that NPL has a negative significant impact on the ROA of CBs and a positive important influence on the ROA of the IBs. However, NPL has a positive significant influence on the ROE of IBs, it has no significant effect on the ROE of the CBs.

## Recommendations and Future Studies

Credit risk management (CRM) tools are issues that are increasingly recognized as critical, yet remain not fully investigated. The results of this research release the effort to many areas for future research. Suggestions for additional future studies are mentioned in the following paragraph.

First, this study investigated five credit risk management tools that impact financial performance, researchers can explore if any other tools can affect financial performance such as bank employee's knowledge of economic sectors and the future of the financed industry. Second, researchers can employ the same model in other sectors such as the insurance sector. Third,

another financial ratio impact on ROA and ROE can be investigated in the Palestinian banking sector as cost of loans, bank size, liquidity ratio, and loan loss provision ratio. Fourth, researchers can implement the same model for other banking systems in similar emerging countries. Lastly, researchers can conduct advanced studies to investigate each bank in the banking sector in Palestine individually.

## Chapter Summary

The purpose of this dissertation is to investigate the influence of five CRM tools on FP in the Palestinian banking industry. The study involves a comparison analysis between IBs and CBs regarding this objective. The findings reveal that CI, CGP, and CCFSS have a significant positive influence on the FP of both CBs and IBs. Conversely, SSP and CL have a significant negative influence on the FP of both types of banks. Additionally, the study indicates that the CAR has a significant positive influence on the ROA of both CBs and IBs and the ROE of IBs. Furthermore, NPL has a significant negative influence on the ROA of CBs and a significant positive influence on both the ROA and ROE of IBs. Lastly, both CAR and NPL show no respectable influence on the ROE of CBs.

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Appendix A

List of Abbreviations

| | |
|---|---|
| IBs | Islamic Banks |
| CBs | Commercial Banks |
| PMA | Palestinian Monetary Authority |
| FP | Financial Performance |
| CR | Credit Risk |
| RM | Risk Management |
| CRM | Credit Risk Management |
| CAR | Capital Adequacy Ratio |
| NPL | Non-Performing Loans |
| ROA | Return on Assets |
| ROE | Return on Equity |
| SPP | Strategic Policies and Procedures |
| CL | Credit Limits |
| CI | Credit Indicators |
| CGP | Credit Granting Process |
| CCFSS | Credit Control, Follow-up, and Structuring System |
| BCBS | Basel Committee on Banking Supervision |
| OBS | Off-Balance Sheet |
| LLPR | Loan Loss Provision Ratio |
| LR | Liquidity Ratio |
| LAR | Loans and Advances Ratio |

| | |
|---|---|
| LQ | Loan Quality |
| AQ | Asset Quality |
| EQL | Total Equity to Net Loans |
| IMLGL | Impaired Loans to Gross Loans |
| IV | Independent Variable |
| DV | Dependent Variable |
| 5Cs | Character, Conditions, Capital, Collateral, and Capacity |
| 5Ps | Payment, Purpose, Plan, People, and Protection |
| CAMPARI | Character, Ability to Pay, Margin of Finance, Purpose, Amount, Terms of Repayment, and Insurance. |
| LAPP | Liquidity, Activity, Profitability, and Potential |

Appendix B

Letter of Invitation to Participate in the Study

Email Title: Doctoral Research on the Credit Risk Management Tools Impact on Financial Performance in the Banking Sector in Palestine: A Comparative Study of Islamic Banks and Commercial Banks

**Dears,**

You are invited to participate in a research study. The purpose of this study is to learn more about credit risk management tools and their impact on financial performance in the banking sector in Palestine (a comparative study of Islamic banks and Commercial banks). The following information is provided so you can decide whether or not you want to participate. You were chosen to participate in this research study because you are connected to risk and credit management in the banking sector in Palestine.

If you decide to participate, you will complete an online survey. The survey takes most people about 10 – 15 minutes to complete. The questions on this survey ask about credit risk management tool impact on financial performance within your bank. Moreover, the survey contains some general questions about you (e.g., age, education, academic attainment). To complete the survey, you'll simply read the questions and click radio buttons to answer the questions.

Your participation in this survey is voluntary and there is no penalty if you decide not to participate. If you start taking the survey and decide you want to stop, simply exit your internet browser. Once you submit your survey, we won't be able to withdraw your data since we will not know which set of responses is yours. There are no known risks for your participation in this research. There are no direct benefits to you if you choose to take the survey. The main benefit of this study is to the research community that wants to learn more about credit risk management tools impact on financial performance with the banking sector in Palestine.

Your responses to the survey will be anonymous. You will not be asked to give any identifying information. THIS PROJECT HAS BEEN APPROVED BY THE INDIANA UNIVERSITY OF PENNSYLVANIA INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS (PHONE 724- 357-7730).

If you have any questions about the project, you can contact me using the information below.
Project Supervisor: Professor Mukesh Chaudhry, Indiana University of Pennsylvania, Indiana, PA 15705
Phone: 724- 357-7730 Email address: chaudhry@iup.edu
Project Director: Salama De'ebis, Indiana University of Pennsylvania, Indiana, PA 15705
Phone: 00970597333700; Email address: msjbc@iup.edu

If you are willing to take the survey, please click the link below. Your consent is implied by completing the survey. Clicking on the link will take you to the first page of the online survey.

**Thank you in Advance**

Appendix C

The Questionnaire

- **Section One: Demographic Information**

Please specify the answer for each determinant in the space provided.

1. Gender:
   - Male
   - Female

2. Age:
   - From 22 to less than 30 years old.
   - From 30 to less than 40 years old.
   - From 40 to less than 50 years old.
   - More than 50 years old.

3. Academic Attainment:
   - Diploma.
   - Bachelor
   - Master
   - PHD
   - Other

4. Professional Status:
   - Risk Officer
   - Credit Management
   - Branch Manager
   - Other

5. Years Of Experience:
   - Less than 5 years
   - 5 – 10 years
   - 10 – 15 years
   - More than 15 years

6. Works For:
   - Commercial Bank
   - Islamic Bank

- **Section Two: Credit Risk Management**

Please indicate whether you 1. Strongly Disagree --- 5. Strongly agree in the space with the impact of each determinant of credit risk management on the financial performance within your bank.

1. **Strategic Policies and Procedures**

| | Determinant | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | The efficacy and robustness of the organizational framework of the credit system. | | | | | |
| 2 | The strategic policies and procedures for managing credit portfolio concentration risks, as well as addressing credit defaults and amortization. | | | | | |
| 3 | The strategic policies and procedures govern the pricing of credit products and programs. | | | | | |
| 4 | The strategic policies and procedures on the documentation and auditing standards within the credit system. | | | | | |
| 5 | The strategic policies and procedures are derived from the legal framework of Anti-Money Laundering and Combating the Financing of Terrorism (AML/CFT). | | | | | |
| 6 | The strategic policies and procedures are derived from the regulations and guidelines of the Basel III Committee on Banking Supervision. | | | | | |
| 7 | The strategic policies and procedures are derived from the regulations and guidelines of the PMA. | | | | | |

## 2. Credit Limits

| | Determinant | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | The presence of credit limits is established upon the categorization of sectors and industries. | | | | | |
| 2 | The presence of credit limits is determined by geographical and regional categorization. | | | | | |
| 3 | The establishment of credit limits is contingent upon the type of credit product or program. | | | | | |
| 4 | The establishment of credit limits is predicated on the level of risk associated with the credit product or program. | | | | | |
| 5 | The imposition of credit limits is influenced by the age demographics of customers. | | | | | |
| 6 | The imposition of credit limits is influenced by the quality and authenticity of customers' financial statements, particularly solvency indicators. | | | | | |
| 7 | The imposition of credit limits is guided by the standards set forth by the Basel III Committee on Banking Supervision regarding the liquidity coverage ratio. | | | | | |

### 3. Credit Indicators (Prior – Granting Procedures)

| | Determinant | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | The personality, credibility, and seniority of customers' banking activity records are crucial factors to consider. | | | | | |
| 2 | The purpose or necessity of the credit, the principal amount, the credit term, and the repayment source are important aspects to evaluate. | | | | | |
| 3 | The assessment of customers' financial statements, particularly solvency indicators, focuses on quality and originality. | | | | | |
| 4 | The in-depth analysis of customers' creditworthiness is conducted utilizing the bank's tailored systems. | | | | | |
| 5 | The amount of capital invested within the commercial activity for which a credit facility is required. | | | | | |
| 6 | The evaluation encompasses the overall condition of the business seeking credit, the sector it operates in, and the broader economic environment. | | | | | |
| 7 | The type and quality of collaterals offered by customers in case of credit default are significant factors to examine. | | | | | |

**4. Credit Granting Process**

| | Determinant | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | The dedication to adhering to the rules and regulations of standardized credit programs, particularly focusing on standardizing credit terms for customers. | | | | | |
| 2 | The dedication to analyzing and reviewing the credit profiles of customers as provided by the management of local bank branches, and ensuring their transmission in a proper sequence to higher levels of management | | | | | |
| 3 | The dedication to upholding the authority of credit-granting limits within bank branches and the competent credit departments. | | | | | |
| 4 | The dedication to upholding professional standards in making credit decisions, including denials and approvals, according to the applicable rules and guidelines. | | | | | |
| 5 | The adherence to an equitable credit policy through the explicit explanation of the intricacies of the credit procedure to customers empowers them to take ownership of the credit determination and its outcomes transparently. | | | | | |
| 6 | The dedication to balancing the fulfillment of strategic targets set by the bank and credit staff on one side, and the credit requirements of customers on the other, by providing customers with suitable credit products and programs. | | | | | |
| 7 | The dedication to following the general periodic directives and guidelines issued by the PMA. | | | | | |

**5. Credit Control, follow-up, and structuring System (Post – Granting Procedures)**

| | Determinant | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | The presence of a credit control system is essential for evaluating the performance of experts and decision-makers in the realm of credit. | | | | | |
| 2 | The establishment of a credit information system is necessary to assess the integrity of credit regulations and processes. | | | | | |
| 3 | The implementation of a credit information system is crucial for evaluating the performance of the active credit portfolio and the efficacy of the restructuring efforts on defaulted portions in comparison to historical data. | | | | | |
| 4 | The development of a credit information system is vital for appraising the quality of credit rating standards for both existing and potential clients. | | | | | |
| 5 | The establishment of a credit information system is imperative for evaluating the professionalism in making exceptions to credit decisions and adherence to the authority matrix. | | | | | |
| 6 | The implementation of a credit information system is crucial for the assessment and examination of credit defaults, aiding in their early identification. | | | | | |
| 7 | The establishment of a credit information system is essential for managing defaulted credit facilities and assessing the efficiency of insurance principles and credit default provisions within the credit portfolio. | | | | | |

- **Section Three: Financial Performance**

Please indicate whether you 1. Strongly Disagree --- 5. Strongly agree in the space the existence of each determinant of financial performance within your bank.

| | Determinant | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 1 | Attaining an increase in the bank's market share. | | | | | |
| 2 | Attaining an increase in the bank's current ratio (current assets divided by current liabilities). | | | | | |
| 3 | Attaining an increase in the bank's return on equity ratio (net income divided by shareholders' equity). | | | | | |
| 4 | Attaining an increase in the bank's return on assets ratio (net income divided by total average assets). | | | | | |
| 5 | Attaining the required percentage of the bank's capital adequacy ratio (capital divided by risk-weighted assets). | | | | | |
| 6 | Attaining an increase in the bank's net interest margin ratio (net income divided by average interest-earning assets). | | | | | |
| 7 | Attaining a reduction in the bank's non-performing loan ratio (non-performing loans divided by total credit portfolio). | | | | | |

Thank you for your time and cooperation.