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Risk Management in Islamic and Commercial Palestinian Banks: A Comparative Study

Dalal Ali Salim Abusamra

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Risk Management in Islamic and Commercial Palestinian Banks: A Comparison Study

Prepared by:

Dalal Ali Salim Abusamra

B. Sc.: Finance and Banking Science – Al-Quds University – Palestine

Supervisor: Dr. Oroubah A. R. Mahmoud

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Prepared by: Dalal Ali Salim Abusamra **Registration No.**: 21810363
Supervisor: Dr. Oroubah A. R. Mahmoud

Master thesis submitted and accepted on 14/04/2022

The names and signatures of examining committee members are as follows:

1. Head of committee: Dr. Oroubah Mahmoud Signature .....
2. Internal Examiner: Dr.Tareq Darabie Signature .....
3. External Examiner: Dr. Majeed Mansour Signature .....

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Dedication

My dedication goes to my great parents as well as to my lovely husband, and to my little angel Maryam

Declaration

I Certify that this thesis submitted for the degree of Master, is the result of my own research, except where otherwise acknowledged, and that this study (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signed 

Dalal Ali Salim Abusamra

Date: 23/05/2022

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Abstract

Risk management in the banking sector is one of the most vital subjects for bank performance as well as for economies as a result of its contribution to a country's economic growth. Risk is inevitable and as long as there are developments and innovation of banking financial products, new risks will emerge, so the need for risk management is continuous and risk management tools and assessment needs to be continuously developed.

The study aims to find the difference in risk management between Islamic and commercial banks in Palestine using the Altman Z score model in order to predict financial distress. The study is quantitative; secondary data were obtained from audited financial reports of banks for the period (2017-2020). The study consisted of the seven national banks, the sample study is intentionally selected. The study used the panel data. The results concluded that there is a difference between Palestinian Islamic and commercial banks in risk management. Also, the results showed that commercial banks are in the distress zone while Islamic banks are in safe zone. The study recommended banks management and investors to use the Altman model as an assessment tool in risk management.

Key words: risk management, Islamic banks, commercial banks, Altman z score, financial distress.

إدارة المخاطر في البنوك الإسلامية والتجارية الفلسطينية
دراسة مقارنة
إعداد: دلال علي سليم أبوسمره
إشراف: د.عروبة محمود

ملخص

إدارة المخاطر في البنوك واحدة من المواضيع الأكثر أهمية لأداء البنك وللاقتصاديات ككل، بسبب مساهمتها في النمو الاقتصادي للدولة. الخطر هو شيء حتمي وطالما يوجد تطورات وابتكارات في المنتجات المالية البنكية، فستظهر مخاطر جديدة، لذلك فإن الحاجة لإدارة المخاطر عملية مستمرة وكذلك هناك حاجة للقيام بتطوير وتحديث أدوات إدارة المخاطر وتقييمها.
هدفت الدراسة إلى إيجاد الفرق في إدارة المخاطر فيما بين البنوك الإسلامية والتجارية في فلسطين باستخدام نموذج التمان للتنبؤ بالضائقة المالية. اتبعت الدراسة الأسلوب الكمي، تم الحصول على البيانات الثانوية من التقارير المالية المدققة للبنوك للفترة الزمنية ما بين (2020-2017) . تكونت عينة الدراسة والتي اختيرت بشكل قصدي من البنوك المحلية الفلسطينية وعددها سبعة. تم استخدام البيانات المقطعية الزمنية في الدراسة. توصلت الدراسة إلى وجود فروق بين البنوك الإسلامية والتجارية في إدراة المخاطر.وكذلك أظهرت النتائج أن البنوك التجارية توجد في منطقة الضائقة المالية بينما توجد البنوك الإسلامية في منطقة الأمان. أوصت الدراسة البنوك والمستثمرين باستخدام نموذج التمان كأداة تقييم لإدارة المخاطر.

الكلمات المفتاحية: إدارة المخاطر، البنوك الإسلامية، البنوك التجارية، نموذج التمان ، ضائقة مالية.

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Chapter 1: Introduction

1.1 Introduction

The financial sector with its various components represents an important part of the economy, it affects the economy and contributes to achieving economic growth, and as long as the banking sector is one of the financial sector's components it also affects the economy. In general, banks play an intermediation role by transferring funds from surplus units to shortage units, which leads to increase investments and products which improve the economy (Palestine Monetary Authority, 2017).

Significantly, the subject of risk management and governance have been spread out widely after the financial crisis in 2008, since lacking both was the main cause of the crisis. In general, the regular practices and procedures of risk management aim to define, control, and mitigate the risk that might face businesses. On the other hand, the governance concept is related to systems control business and its operations to achieve the objectives as well as the balance between risk and return. Further, implementing governance principles and mechanisms aims to enhance banking operations, provide solidity and transparency, moreover give a good image and lead to improving the confidence of the business.

Given the importance and significance of risk management and governance, subsequently, their impact and critical role in the economic growth of any country in its various sectors, this study seeks to explore the reality of risk management and governance in Palestinian banks through a comparison between commercial and Islamic banks in Palestine using Altman Z score model, which is a prediction model of financial distress.

1.2 Problem Statement

The Palestinian economy is characterized by independency, as it is affected by the Israeli occupation and its practices that restrict economic activity and put many obstacles that make the business environment in Palestine difficult and exposure to more risks, in addition to typical types of risk associated with any business activity or work environment. Furthermore, banking sector is very important for the economy and contributes to economic growth, for this reason it is very important to a country to ensure the appropriate financial situation and risk management at its banking sector.

Based on the above mentioned, the problem of the study lies in the following question:

Is there a difference between Islamic and commercial banks in risk management?

1.3 Objectives of the study

The main objective:

- Knowing whether there are differences between Islamic and commercial banks in risk management in Palestine.

The sub-objectives from:

A. Knowing the probability of financial distress for Islamic and commercial banks.

B. Comparing the financial distress prediction results between commercial and Islamic banks in Palestine.

1.4 Importance of the study

- The study discusses a very critical and essential subject for business survival.
- The study examines a very important sector of the economy.
- The study provides an important tool for assessing risk, for:

-Investors: it helps investors take decisions.

-Banks management: it may help the bank management in formulating their policies, in facing and managing the risk.

-Supervising and controlling the banking sector in Palestine, such as the Palestinian Monetary Authority.

1.5 Research Questions

Through the foregoing, the study attempts to answer the following main question:

- Is there a difference between Islamic and commercial banks in risk management?

The following sub-questions emerge from the main question:

A. What is the probability of financial distress for Islamic and commercial banks in Palestine?
B. What are the implications of risk management on the stability of Islamic and commercial banks in Palestine?

1.6 Research Hypothesis

Based on the study problem, its questions, and the available information from previous studies, and to achieve the study's objectives, the following hypotheses were designed:

H01: There are no high risks faced by Palestinian banks when $Z > 2.6$.

H01.1: There are no high risks faced by Arab Islamic Bank when $Z > 2.6$

H01.2: There are no high risks faced by Palestine Islamic Bank when $Z > 2.6$

H01.3: There are no high risks faced by Safa Bank when $Z > 2.6$

H01.4: There are no high risks faced by The National Bank when $Z > 2.6$

H01.5: There are no high risks faced by the Bank of Palestine when $Z > 2.6$

H01.6: There are no high risks faced by Al-Quds bank when $Z > 2.6Z > 2.6$

H01.7: There are no high risks faced by Palestine investment Bank when $Z > 2.6$

H02: There are no high risks faced by Palestinian commercial Banks when $Z > 2.6$.

H03: There are no high risks faced by Palestinian Islamic Banks when $Z > 2.6$.

H04: There are no differences between Islamic banks and commercial banks in risk management.

Chapter 2 : Literature Review

2.1 Introduction

2.1.1 Palestinian Banking Sector

Palestinian banking sector is still suffering from Israeli occupation since 1967, initially a military order was issued to close all banks and lending institutions in Palestine. Later, it was allowed for Israeli banks to open branches in the west bank and Gaza strip and provide traditional services of banks, but they didn't make any development role in the Palestinian economy, they abstained from funding development projects and they were very restricted in providing credit, so they support occupation in ruining the Palestinian economy and preventing the establishment of national Palestinian banks. After the Madrid conference and the signing Oslo Document, the Palestinian banking sector has witnessed a transformation as a monetary authority was established and allowed to start its work in licensing and supervising banks (Palestine Monetary Authority, 2013)

The banking sector in Palestine is the basic provider of financial services for different economic sectors and social segments, in addition to being the fundamental source of for financing private and public sectors. Furthermore, it contributes to enhancing economic growth, since there is a strong positive correlation between granting credit and national production, and so national productivity. Mainly, the banking sector affects the economy by being: a provider of liquidity, a money supplier, and a collector of savings, also through its role in the financial market (Palestine Monetary Authority, 2011).

The Palestinian banking sector consists of Palestine Monetary Authority (PMA) and the operating banks in Palestine. In Palestine, there are 14 operating banks, divided into 7 local banks and 7 foreign banks, 11 of them are commercial and three are Islamic banks. The national commercial banks are four: Bank of Palestine, The National Bank, Quds Bank, and Palestine Investment Bank.

While the national Islamic banks are: Arab Islamic Bank, Palestine Islamic Bank, Safa Bank (Association of Banks in Palestine, 2020).

Table (2.1): List of banks operating in Palestine

Bank	Type of bank	Nationality	Operating year
Bank of Palestine	Commercial	Palestine	**1960**
Arab Bank	Commercial	Jordan	**1994**
The National Bank	Commercial	Palestine	**2012**
Quds bank	Commercial	Palestine	**1995**
Arab Islamic Bank	Islamic	Palestine	**1995**
Palestine Islamic Bank	Islamic	Palestine	**1995**
Cairo Amman Bank	Commercial	Jordan	**1986**
Bank of Jordan	Commercial	Jordan	**1994**
Palestine investment Bank	Commercial	Palestine	**1994**
Housing Bank for Trade & Finance	Commercial	Jordan	**1994**
Jordan Ahli Bank	Commercial	Jordan	**1995**
Egyptian Arab Land Bank	Commercial	Egypt	**1994**
Safa Bank	Islamic	Palestine	**2016**
Total	**13**	**13**	**13**

2.1.2 Palestine Monetary Authority

PMA is an independent public institution established in 1994 by presidential decree number (184), it represents the supervisory body of the Palestinian financial system with its different sectors, it reinforces the confidence of the Palestinian banking sector, encourages the development of the

banking sector, enact instructions, manage and control the work of banks and other financial institutions to prevent crimes, save rights, and ensure safety (Palestine Monetary Authority, 2022). PMA seeks to support banks through achieving best governance practices toward meeting Basel Committee requirements and international standards. It gives banks instructions to help manage risks and define responsibilities and roles and also promotes the supervisory role of the board of directors while ensuring having the eligibility and qualifications to perform the required responsibilities (Palestine Monetary Authority, 2017).

2.1.3 Higher Sharia Supervisory Board (HSSB)

HSSB is the supervisory board for the Palestinian Islamic financial institutions (banking and non-banking), it represents an advisor for PMA on Islamic financial business based on Sharia opinion. HSSB was established by a decision of PMA board of directors to ensure applying the best international practices and standards of Islamic financial institutions, to develop the Palestinian Islamic financial system. The board includes seven members; five members specialized in transactional jurisprudence, in addition to a financial expert specializing in the Islamic banks and a financial expert specializing in the Islamic insurance companies (Palestine Monetary Authority, website).

2.2 Theoretical Background

2.2.1 Bank Concept

Bank can be defined as a financial institution that serves as an intermediary between depositors and borrowers, it accepts money from depositors who can withdraw it on order and lend money to borrowers upon request (Ishtiaq, 2015). According to (Nowara, 2018) Bank is a financial institution that intermediates between the surplus party and the shortage party, it transfers money from surplus individuals and economic sectors in the community to shortage individuals and

economic sectors.

2.2.2 Commercial banks vice versa Islamic banks

According to (AL-Jerjawi, 2016) commercial bank is a financial institution that seeks profit, accepts funds from depositors who deposit money in a safe place, and transmits it to others who need money as a form of loans. The core characteristic of commercial banks is dealing with an interest rate in their transactions, While Islamic banks comply with Islamic sharia principles, which mainly prohibit interest rate, work with profit and loss sharing, and endeavors to achieve economic and social stability (Nowara, 2018).

Both types of banks are intermediaries and take deposits from savers, at Islamic banks deposits are treated on the principle of sharing profit and loss. Furthermore, the bank and the depositor are considered partners, on the other hand regarding offering services and financing the economy, Islamic and commercial banks are the same, but commercial banks fix the interest rate that will be paid to the depositors. In Islamic banks interest rate is forbidden and haram, and so determining the interest rate on deposits in advance, in general, Islamic banks deal with the customer as a partner so they share profit and losses, unlike commercial banks which serve only as borrowers and lenders (Moin, 2008)**.**

Differences between commercial and Islamic banks can be summarized in the below table: (Aljughaiman, 2019)

Table (2.2): Commercial Banks vice versa Islamic Banks

Commercial banks	Islamic banks
Pay pre-determined interest rate to the customer	The bank and the depositor share profit and loss and interest rate is forbidden and considered haram in

	Islam
Existence of short-term less than one year market tools	The absence of significant money market
High risk management activities	Risk management activities still developing
Concentrate on the efficiency of financial operations	Interested in social dimensions in parallel with financial efficiency

2.2.3 Risk and Banking Risk Concepts

Risk is part of our life if we live we take the risk and we face it, the risk of dying, failing an exam, losing our job, and not achieving our goals. In general, all banking business is about taking the risk, the bank who do not take risk is not considered a bank, banks face many risks: the risk that borrowers do not pay back loans, the risk that interest rate will rise causing devaluation in assets prices, risk of failing to meet obligations, a market risk that cannot be avoided by diversification, political risk, and economic risk resulted from fluctuation in economy. Uncertainty is closely related to risk, it reduces banks' ability to accurately predict the volatility in an interest rate that may cause huge losses in the income statement and balance sheet.

Theorists have defined risk in various definitions. According to (Eid, 2011) risk is an event that is possible to happen and leads to negative effects for business. The risk may lead to a decrease in revenue, reduction of business reputation, failure in achieving goals, and loss of opportunities. Also, the risk is defined as the probability of uncertainty happening and is typically undesirable

because of its adverse consequences (Abdullah, 2014).

On the other hand, some have defined banking as a possible chance of deviation in the banking activities from what was planned, which is hard to predict and can cause a fluctuation in the market value of the bank (Taheer, 2017). While (Mowaji & Dokhan, 2017) sees that banking risk is fluctuation in return which affects its value and proportion of invested capital, and is caused by uncertainty related to future predictions.

2.2.4 Risk Management Concept

The concept of risk management can be described as a dynamic, strategic, and cohesive process that involves measuring, controlling, and minimizing risk, aiming to maximize the value of a bank, and reduce the probability of bankruptcy. It involves formulating a framework to identify, measure, and analyze risk and then implement procedures to control risk or reduce it (Ishtiaq, 2015). (Muhammad & Nugraheni, 2019)

Furthermore, it can be defined as a scientific method to deal with risk by expecting probable losses and designing procedures to eliminate the probability of these losses or the financial effect of the losses to the minimum level.

2.2.5 Risk Management in Islamic Banks

The emergence of Islamic banking was a result of a successful experiment in a small Egyptian town in 1963, later on in the 1970s Islamic banks came into existence on a small scale in Arabic and Asian countries, where most of these countries are Islamic (Moin, 2008).

After the financial crisis, it was widely spread that Islamic banks are more resilient than commercial ones, they would be slightly affected and would be able to pass the crisis, but in practice, that was not completely true. On the contrary, the crisis revealed several aspects of Islamic banking that need to be addressed. Despite that risk management in Islamic banks is the

most subject that is controversial, it is still under-researched. To build a more resilient Islamic financial system, effective risk management should be paid more attention, and the industry has to develop its genuine risk management structure. Thus, the study of risk management in the Islamic banking industry is a substantial but complex area (Eid, 2011).

Islamic banks face difficulties in performing Islamic risk management. Among the difficulties are lacking institutes to carry out the risk management functions. Furthermore, Islamic banks still have lack of transparency and solid standards of financial reporting, and this affects the ability to gain effective risk management. Islamic banks can be more subject to risk since hedging instruments cannot be applied in Islamic banks, since they are not Sharia-compliant (Abdullah, 2014) .

However, the process of risk management in Islamic banks passes through four stages:

1- identify risks faced by Islamic banking, measure risks continuously using appropriate information systems.
2- Measuring risk continuously using appropriate information systems.
3- select the acceptable level of risks which can be capital affordable.
4- control risks and measure them with proper standards and take action in time; subsequently, profits can be maximized and risk mitigated (Oskort & Bo hamham, 2018).

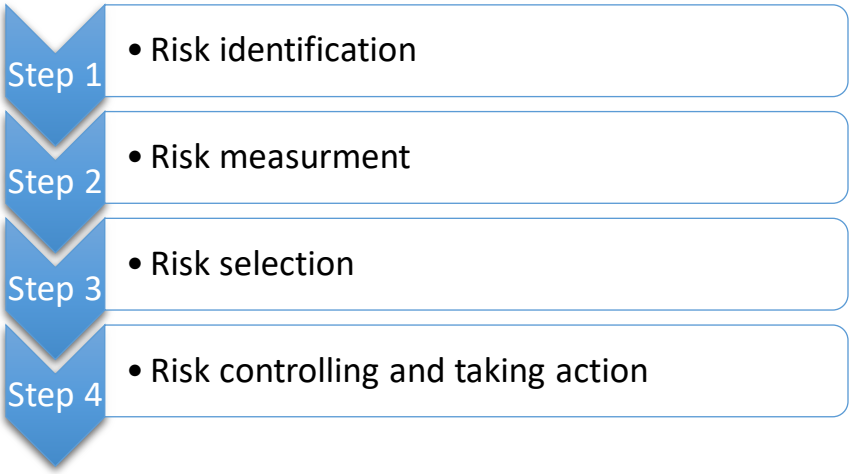

Figure (2.1) : Risk management process at Islamic banks

2.2.6 Risk Management in Commercial Banks

Financial Crisis affects economies and financial systems mostly through banks and other financial institutions. Essentially, financial institutions are accused that they are not fulfilling the requirements needed in working upon corporate governance rules (responsibilities, accountability, and transparency by disclosing financial reports, also financial institutions were accused of lacking developed practices in managing risks.

Additionally, the process of risk management not only defines risks but also analyzes their effects to take action to avoid or lower them, besides that it is a continuous process consisting of defining, analyzing, and reporting risks (Khairah, 2016).

In conclusion, the risk management process passes through a logical sequence of steps:

1- Goals definition of the risk management system and set a detailed plan for it;
2- Risks identification that might face the banking industry, thus to be aware of them;
3- A risk assessment by measuring the size of the potential loss;
4- Substitutes study and select the method of dealing with risks;
5- Decision execution by implementing the selected substitute to ensure taking the right procedures (Khairah, 2016) .

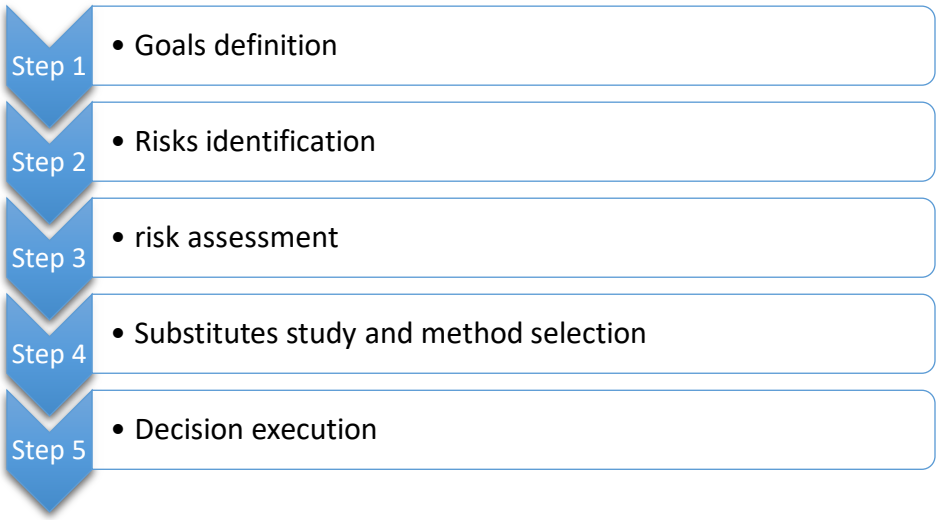

Figure (2.2): Risk management process at commercial banks

2.2.7 Types of Risk

As much as there are many definitions of risk, it has also many variations in terms of risk classifications. According to (Greuning & Bratanovic, 2020), risks could be classified as financial, operational, and environmental risks. Where financial risk is the possibility of losing money and it increases the bank's overall risk profile. While operational risk is related to business operations such as bank policies and procedures, internal systems and technology, information security, and measures against mismanagement and fraud. Further, environmental risk is related to the environment the bank operates in, for instance, macroeconomic and policy concerns, legal and regulatory factors, and the overall financial sector infrastructure.

Another categorization for risk is the financial risk and non-financial risk. Financial risk caused by a business transaction leads to potential loss. While non-financial risk is a risk that may influence business progress, and the marketability of products and services.

Financial risk is categorized into Credit risk and Market risk

- Credit Risk is the possibility that a borrower may fail to meet the obligations on contracted terms.

- Market Risk Market: may be defined as the possibility of loss to a bank caused by the changes in the market variables. It is classified to:

  a) Liquidity Risk: Bank Deposits generally have a much shorter contractual maturity than loans and liquidity management needs to provide cash to cover anticipated deposit withdrawals.

  b) Interest Rate Risk: originated as a result of volatility in the rates of interest which reflects the fluctuations in the economy that affect negatively the interest income. Interest rate volatility not just affects the net income of financial institutions and their profits but also their net worth (assets value, liabilities value off-balance-sheet topics, and cash flow.

  c) Foreign exchange risk is the risk originated when financial institutions deal with more than one currency (foreign exchange risk) which causes big losses in the bank's financial statements as a result of unpredictable movements in the rate of exchange between currencies especially in the open position.

  d) Country Risk faced by financial institutions when it has transactions in many countries as a result of globalization, international transactions exposed the banks to big risks more than local transactions that arise due to cross border transactions that are growing dramatically in the recent years owing to economic liberalization and globalization.

.

Financial institutions face a wide range of risks rather than financial risk as a business risk when the bank doesn't have enough customers for its products and services may be for failing in making good offers to customers that encourage them to treat with this banks, another risk faced by bank causing its failure in making profits is strategic risk managers sometimes couldn't formulate suitable policies that enable them to compete other banks. In addition to the unsystematic risk faced by the bank, we should take into consideration systematic risk affected

by political risk. Systematic risk needs big attention and analysis and follows up by managers, even though its non-predictable, all banks are exposed to it (KANCHU & KUMAR, 2013).

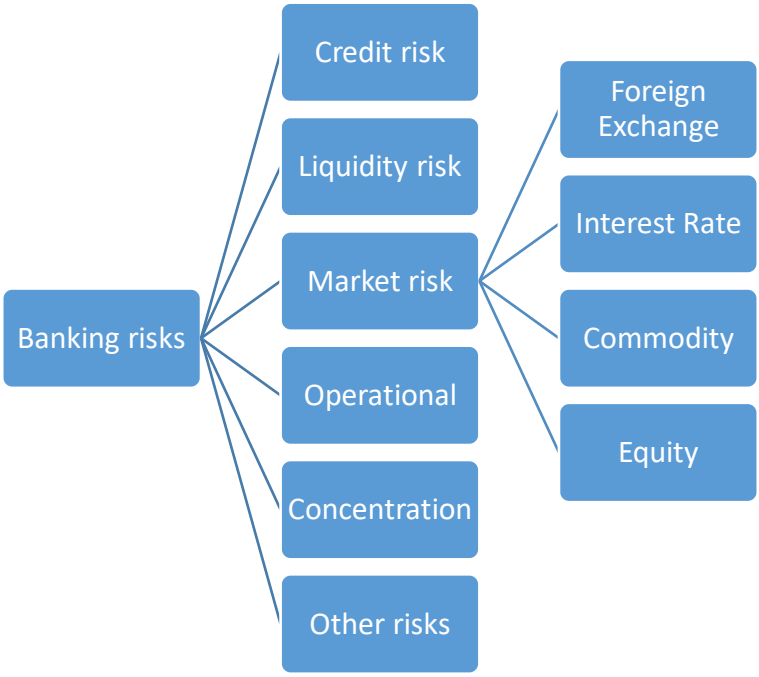

Figure (2.3) : Types of banking risk (Jasienė, Martinavičius, & Jasevičienė, 2012)

2.2.8 Basel Committee

Basel committee on banking supervision (BCBS) is based in Basel city Switzerland, it was established at the end of 1974 by the governors of the central banks of the ten great countries under the supervision of the Bank for International Settlements, and as a result of the disturbance in the international financial market. BCBS is concerned with creating guidelines and standards for banks' regulations and supervision to achieve monetary and financial stability (Bank for International Settelments, 2014).

The committee aimed to set international banking supervision regulations to manage credit, market, operational and liquidity risks, as well as ensure that banks have enough cash to meet

obligations and survive. Basel regulations are developed over years through publishing three accords: Basel I in 1988, Basel II in 2004, and Basel III in 2010, each accord agreements are concerned with three main pillars. Under the first pillar banks measure and report minimum regulatory capital requirements. While second pillar is concerned with supervisory review through enforce risk management and governance practices. Finally, the third pillar supports market discipline through public disclosure (Županović, 2014).

2.2.9 Motivation and Rationale for Risk Management

The importance of risk management in banks is represented by: helping in formulating a clear vision for the future on which procedures and plans are built, developing the bank's competitive advantage by controlling current and future costs, estimating and hedging against risk to protect the bank's profits, helping in pricing decision, developing portfolio's management by diversification so balancing between risk and profit can be enhanced, and helping banks determine capital adequacy ratio according to Basel committee (Oskort & Bo hamham, 2018).

Ultimately risk management decrease the loss leading to an increase in the value of the firm and creating wealth for shareholders when the manager identifies the risk faced by the institutions they can predict how much capital needed to raise by issuing new stocks or borrowing or attracting more deposit, for the bank enable raise more capital by more debt or more equity when banks have adequate capital they can avoid risks. For example, when banks' assets devaluated the bank can't meet its obligations toward depositors, debtors, or shareholders. The bank becomes insolvent, the insolvency leads to bankruptcy unless the bank has enough capital which considered as a buffer against shocks (Abdullah, 2014).

2.2.10 Corporate Governance Concept

Corporate governance has been described as a system of control that organizes the operations toward achieving the bank's goals. It ensures discipline for the performance of the bank by putting clear standards through three pillars: the first pillar contains identifying and specifying the responsibilities of each employee, the second pillar states that each employee is accountable for his responsibilities (accountability), and the third pillar of corporate governance requires the bank to be transparent in all its practice. Well-developed reporting system enables the bank to disclose its reports to all stakeholders.

PMA has defined governance as a set of regulations, principles, and procedures that prudently ensures managing banks and achieving stakeholder's interests and bank development in accordance with regulations and instructions that direct the work in the banking sector (Palestine Monetary Authority, 2017).

Corporate governance has been considered a solution for agency problems arising from the separation of management and ownership when owners assign managers to manage the bank on their behalf, and then a conflict of interest appears between management and owners, so the bank should comply with corporate governance policy in which everything will be very clear, the responsibilities for managers, for example, is to maximize the value of the bank to create wealth for shareholders by making decisions that increase the stock price (Greuning & Bratanovic, 2020).

2.2.11 Z Altman Model

Altman z score model is a mathematical formula used to forecast the likelihood of bankruptcy. The Z-score model was established by an American economics professor called Edward Altman to measure the stability and health of firms. The original model which was introduced in 1968 was

designed for public manufacturing companies. later on, Altman developed additional two models in 1983; one for private companies and the other for non-manufacturing companies. (Corporate Finance Institute, 2015)

The formula of Z score of emerging markets which is used in the study is:

Z = 6.56 * X1+ 3.26 * X2+ 6.72 * X3 + 1.05 * X4 + 3.26

Z-score is based on four financial ratios, which are extracted from the balance sheet. The first ratio is X1 which equals working capital divided by total assets, whereas working capital is the difference between the current assets of a company and its current liabilities. The second one is X2 which equals retained earnings divided by total assets. The third one is X3 which equals earnings before interest and tax divided by total assets. The fourth one is X4 which equals the market value of equity divided by total liabilities

Each ratio in the model can be interpreted as follows: (Manousaridis, 2017)

Table (2.3): Z Altman model's ratios

Ratio	Interpretation
X1= Working Capital / Total assets	It measures the firm's liquidity
X2= Retained Earnings / Total assets	It represents the cumulative profitability
X3= Earnings Before Interest and Tax / Total Assets	It shows productivity in managing risk and indicates profitability
X4= Market Value of Equity/ Total Liabilities	It shows companies' resilience in facing financial crises also it is a financial leverage index

2.3 Previous Studies

Adamowicz **(Adamowicz, 2018)** lists, defines, and categorizes various types of risk faced by

banks. The descriptive method was used, the data obtained from literature and documents from multiple banking supervisory authorities. The researcher concluded that defining risk types is very crucial to the survival of banks and should be the first practice of the internal risk management process. Thus, Multiple categorizations were made, in terms of measurability divided into measurable, hardly measurable, and non-measurable, the measurability means the ability to measure effects of risk using statistical, and/ mathematical, and/or econometric methods, then being expressed using a specific measure (unit or currency). likewise, Multiple categorizations were made in terms of significance. The risk was divided into significant and insignificant, significant means that risk might lead to financial losses, and it's the bank's task to assess relevance. pointing here that the types of risk that have an interest to the supervisory authorities are: credit, market, and operational. On the other hand, Kanchu & Kumar **(KANCHU & KUMAR, 2013)** seek to identify various types of risks that face the banking sector and risk management process, using secondary data from books, journals, and online sources. According to their study, risk categories are divided into financial and non-financial risks. Whereas financial risk is the risk caused by bank transactions that might lead to probable loss, this category of risk can be categorized as credit risk and market risk. The second category is a non-financial risk which consists of operational risk, strategic risk, funding risk, political risk, and legal risk. In terms of the risk management process, it consists of the following functions: risk identification, risk assessment, and measurement, risk control, risk monitoring, and risk-return trade-off. The study concluded that the risk management process at banks does not aim to prevent risk, as a risk is inevitable, but it aims to understand risks to be mitigated. Furthermore, risk management is specific to the bank in its size, quality of balance sheet, a complication of functions, technical/professional manpower, and status of MIS in place in the bank.

Mismanab & Bhatti **(Mismanab & Bhatti, 2010)** explores the types of risks that face Islamic banks and risk management practices within Islamic banks. They took Bank Islam Malaysia Berhad (BIMB) as a sample in their study. Financial ratios were calculated to make a comparison between BIMB and all commercial and Islamic banks in Malaysia to define risks and returns. The used ratios return on assets (ROA), return on equity (ROE), and the ratio of non-performing loan to total loan (CR). And then, a stock analysis was made to evaluate the risk and return relationship by calculating the average annual return, standard deviation, and coefficient of variations of BIMB and other stocks of the financial sector listed in Malaysia Bursa for 10 years from 1999-2008. Results showed negative ROA, negative ROE, a higher ratio of non-performing loan to total loan, and total risk is low as the coefficient of variations is low. In conclusion of their study risks in Islamic banks are influenced by three main factors. The first is the nature of instruments or products offered. The second factor is the compliance with Sharia, as Sharia principles forbid certain risk management instruments like hedging and credit derivatives. The final factor is the absence of standardization and regulations between countries offering Islamic banking. Furthermore, Hardan **(Hardan, 2020)** carried out a study of risk management practices at Islamic banks by taking Ajman bank as a case study. He used the qualitative method by conducting the face-to-face structured interviews. The results showed that Islamic banks and commercial banks have common types of risk (credit, operational, markup, and liquidity), moreover, Islamic banks face more types of risk: investment return risk, shari'ah compliance risk, and reputational risk, the impact of each type of risk is relevant to the type of financing Islamic contract. Risk management contains assessing and quantifying business risk, taking measures o risk, controlling risk, or mitigating risk. And then, the bank's corporate governance represents a base for the risk

management process and guidance for accomplishing the bank's strategies, vision, and goals. Results found that the most two important risks faced by banks are operational risk and credit risk, and regulations at Islamic banks are restricted and need to be enhanced.

Kozarević, Nuhanović,& Nurikić **(Kozarević, Nuhanović, & Nurikić, 2013)** explored risk management and determined the dependency of their financial performance on active risk management practices. They used a quantitative method using a questionnaire. They divided commercial banks' risks into market risk, credit risk, liquidity risk, operational risk, and other types of banking risks. On the other hand, they divided Islamic banks' risks into financial risk, business risk, treasury risk, management risk, and other types of risks in Islamic banks. The stages of risk management practices in commercial banks are risk identification, risk evaluation, selection of method for risk management, and implementation, and result assessment. While in Islamic banks, the stages include risk identification, risk, and capital quantification, grouping of similar risks, previous control, and risk monitoring. The outcomes of the study showed that all banks have their organizational units for risk management and they are aware of the importance of active risk management. Also, Islamic banks are exposed to more risk due to the specific nature of their products and limited hedging instruments against risk management. Finally, practicing active risk management led to better financial performance.

A comparison of commercial and Islamic banks in applying risk management and its effect on performance was made by Abbasi **(Abbasi, 2014)**. He collected primary data through a questionnaire, also secondary data was obtained from financial statements. His study showed that commercial banks have higher financial performance and an organized risk management processes. Islamic banks face more risk than commercial banks and still need to widely apply organized risk management. The study found a non-significant negative correlation between the

risk management process and operational performance. Moreover, results showed that an organized risk management process is associated with high financial performance.

The role of Governance in enhancing banking risk management has been investigated by Khairah **(Khairah, 2016)** . Historical literature has been reviewed and a qualitative method has been used, He made a comparison between the banking sector in Algeria and Morocco. The findings related to the current study: firstly, corporate governance is crucial for building an effective auditing system that works to enhance bank and risk management, as it defines and distributes tasks between parties involved in risk management. Secondly, Corporate governance is an important instrument for enhancing banks' performance as it ensures the integrity of the financial transactions. And thirdly, the Board of directors is responsible for risk management at banks, determining and continuously following up the work of the risk management committee, and setting up an effective framework for risk management by defining appropriate procedures and ensuring compatibility with capital and bank strategy. The researcher recommended in his study developing auditing roles to enhance risk management and properly apply corporate governance principles, reinforcing and entering governance culture in Algerian and Moroccan banks as a shared cultural concept by bank managers. On the same topic, Permatasari **(Permatasari, 2020)** seeks to find the relationship between corporate governance and risk management. In the study, the researcher measured risk management by four types of risks (market risk, credit risk, liquidity risk, and operational risk). Corporate governance is used as an independent variable and risk management as the dependent variable. The sample is all Indonesian Banks, the data is secondary data taken from annual reports and financial statements from 2010-2016. Based on the results, corporate governance applied by banks can affect risk management. As well as, Rahman, Noor, & Ismail **(Rahman, Noor, & Ismail, 2013)** conducted a study in Malaysia and Egypt to observe The

relation between governance, risk management and the subsequent effect of a good governance on effective risk management practices in Islamic banking. Literature has been used to define risk governance as "board and management oversight of risk and the attendant configuration of risk management processes of identifying, measuring, managing and reporting risk". Their study concluded that the complexity of the banking industry requires banks to adopt solid governance practices to improve risk management practices. The population consists of departments involved in risk management at Islamic banks, 17 Islamic banks in Malaysia, and 3 in Egypt. A survey questionnaire was used to collect data; 15 questionnaires were distributed to each bank. A multiple regression model was used to test a hypothesis. The study derived that Islamic banks are strong in the area of governance and risk management, while banks in Malaysia and Egypt are somewhat efficient in the risk management process. Furthermore, there is a positive relationship between the risk management process and risk management practices as well as between the board's involvement in risk management and the level of the risk management process.

Mohamed & Mokhtaryia **(Mohamed & Mokhtaryia, 2019)** elaborated the role of governance and its contribution to banking risk management using the descriptive method by reviewing the literature. As risk exposure is continuous and inevitable in the banking industry it is important to have effective banking risk management. Their study comes up with the following results: governance is compulsory among all banks' stakeholders to ensure accountability, disclosure, transparency, and building trust between them. governance mechanisms represented in internal and external audit, Ownership structure, management structure, and so commitment to internal regulation is a pillar of risk management and protect investors and depositors' rights. Risk governance motivates investors and depositors to increase investment ratios and control over

performance.

Mostafa, Rezina, & Hasan **(Mostofa, Rezina, & Hasan, 2016)** aimed to assess the financial performance of banks and predict the probability of financial distress. The data used in the study is secondary data collected from annual reports. The sample consists of 25 banks from the period 2010-2014. Z score takes into consideration four independent variables: Net working capital to total assets **(Current Assets − Current Liabilities) / Total Assets**, accumulated retained earnings to total assets **(Retained Earnings / Total Assets)**, Earnings Before Interest and Taxes to Total Asset **(Earnings before Interest and Taxes / Total Assets**), Market Value of Equity to Book Value of Debt **(Book Value of Equity / Total Liabilities).** Whereas the dependent variable is the Z score. The results demonistrated that 20% of the banks have a high probability of financial distress shortly (distress zone), 56% have less probability of financial distress (grey zone) and 24% have the least probability of financial distress (safe zone). Operations efficiency and financial performance are affected severely by non-performing loans.

Surepno & Swissa **(Surepno & Swissa, 2021)**evaluated the soundness of Indonesian Islamic banks and the probability of bankruptcy using Altman Z score. A quantitative approach was used. They used a sample consisting of 12 Islamic banks. The data used in their study is secondary data obtained from financial statements for the period from 2015 to 2017. The dependent variable of the study is the Z score. Whereas the independent variables are: (Working Capital/Total Assets), (Retained Earnings/Total Assets), (Earth Before Interest and Taxes/Total Assets), (Book Value of Equity/Total Liabilities). Results found that eleven banks out of twelve are in the safe area which indicates that they are in a healthy condition and one bank is in a grey area which indicates that the bank cannot be determined whether the bank is classified as healthy or bankrupt.

Fakhri, Anwar, Ismael, & Ascarya **(Fakhri, Anwar, Ismal, & Ascarya, 2019)** examined and

compared the possibility of bankruptcy of Islamic and commercial banks in Indonesia. The study used a quantitative method using Altman z score model. They used Indonesian banking financial data from 2014-2017. Their study used Z score as an Independent variable, which represents the bankruptcy rating. Whereas four dependent variables are used in the study. Firstly, X1 (working capital/total assets) indicates the liquidity ratio of the firm. Secondly, X2 (retained earnings /total assets) indicates profitability and earnings. Thirdly, X2 (earnings before interest and tax/total assets) measures the company's efficiency in managing assets and generating earnings. Finally, X4 (book value of equity/book value of total liabilities) shows the company's resilience. The results showed that commercial banks are in the safe zone and Islamic banks are in a relatively safe grey zone. The comparison shows that commercial banks are superior to Islamic banks.

The validity of Altman Z score model in predicting financial distress in Lebanese Alpha banks was tested by Elia, et al. **(Elia, Toros, Sawaya, & Balouza, 2021)** . The data they used was extracted from annual audited financial reports. Descriptive analysis and Person correlation matrix were used in the methodology of the study. The sample is 10 alpha Lebanese banks in the period 2009-2018. They used Altman Z score for non-manufacturing companies as well as for emerging markets. In their study, Z score results for non-manufacturing companies showed that all banks had a probability of financial distress soon. While the results of Z score for emerging markets showed that 73% of banks were in the distress zone, 26% were in a grey zone, and 1% were in safe zone. Consequently, the study proved that Lebanese Alpha banks had a probability of financial distress. The results have been proven by the current reality of Lebanese Alpha banks and banks in general from 2019 until the present.

2.4 The study Gap

Many studies have been conducted by many researchers in the area of risk and risk management in the Palestinian banking sector and its effects on performance and other variables, but none of these studies used a model for failure prediction in analyzing the effectiveness of risk management in Islamic and commercial banks and compared the results. Mainly this study is the first study that uses Altman Z score for failure prediction in the banking sector in Palestine.

Chapter 3 : Methodology

3.1 Introduction

This study aims to explore the extent of differences in the efficiency of risk management and governance between commercial banks and Islamic banks in Palestine, where this chapter describes the study curriculum, members of the study community and its sample, as well as the study tool used and methods of preparation, and to ensure its sincerity, based on the statistical description of the study sample and its characteristics to the test of the study model and its hypotheses.

3.2 Methodology

Based on the study plan and its objectives, this study is one of the quantitative studies for statistical analysis, which depends mainly on panel data of the Palestinian banks in question, and then analyzing them to describe the variables and developments that have occurred, and to achieve the objectives of the study will be used the analytical descriptive approach based on a statistical analysis of data to test hypotheses to reach the results.

3.3 Study Population

The study population consists of 13 banks operating in Palestine during the study period, which are distributed between local banks and expatriate banks, accounting for 53.84% of all banks operating in Palestine, and the proportion of Islamic banks representing 23.07 % of the total banks operating in Palestine, while Islamic banks account for 42.86% of local banks, while commercial banks account for 77% of the total banks operating in Palestine, and the proportion of commercial (commercial) banks in total local banks are wet 57.14%.

3.4 Study Sample

The size of the study sample is (7) Palestinian banks distributed between Islamic banks and

commercial banks during the period (2017-2020), representing 53.84% of the study population of (13) operating banks in Palestine until the end of In 2020, to achieve the objectives of the study, the sample was selected based on intentional in-kind, where the sample included only local banks operating in Palestine, because local banks have all their business operations in the Palestinian territories, providing useful information on the behavior of the Palestinian economy and the extent of the risks That it contains. Look at the table no. (3.1) that shows the banks included in the sample.

Table (3.1): Local Palestinian banks

Bank	Type of bank	Operating date
Bank of Palestine	Commercial	**1960**
The National Bank	Commercial	**2012**
Quds bank	Commercial	**1995**
Arab Islamic Bank	Islamic	**1995**
Palestine Islamic Bank	Islamic	**1995**
Palestine investment Bank	Commercial	**1994**
Safa Bank	**Islamic**	**2016**

3.5 Study Tool

The data of the study is secondary data obtained from audited financial reports published on the Website of the Palestine Stock Exchange and the websites of local banks in Palestine were relied upon as a tool for collecting data on the extent of differences in the efficiency of risk management and governance between commercial and Islamic banks in Palestine, because this tool is characterized by the collection of real data with high credibility because it reflects the reality and actual performance of the bank, as the annual financial reports are going through the ease of auditing Internal and external opinion on a reasonable confirmation of the validity of the data

contained in it by independent professional auditors, in addition to the bank's direct responsibility towards the validity and accuracy of these statements before the bright bodies represented by the Palestinian Monetary Authority and other stakeholders

3.6 Statistical methods and data collection methods

The data used in the study were collected as described in the following:

1. books, scientific journals, research, studies, and Arabic and foreign articles, including these sources that would enrich the study and provide the researcher with everything new, concerning the variables of the study, by reviewing the published literature on these topics.
2. Annual financial reports of banks are published on the Website of Inch Palestine or published on the websites of the Palestinian banks under study.

As for the statistical methods used to answer the hypotheses and questions of the study, the following methods were used:

1. Stata 14.2, using descriptive statistics: using repetitive distribution tables to describe data associated with the study sample, centralized measures (especially computational medium) and dispersion measures (especially standard deviation) were used.

2. Altman Z Score Model: The formula uses a statistical technique known as multiple discriminant analysis (MDA), by which Altman attempted to predict defaults by use of the following five accounting ratios:

   X1: Working Capital/Total Assets

   X2: Retained Earnings/Total Assets
   X3: Earnings before interest and taxes/Total Assets
   X4: Market value of equity/Book Value of Total Liabilities
   X5: Sales/Total Assets

The assessment of the financial health of the examined banks was carried out using the specialized Altman statistical model for non-manufacturing companies. More specifically, the following Z-score formula was applied to the data analysis that was performed (Altman, 1977, p. 22; Chotalia, 2014):

$Z = 6.56*X_1 + 3.26*X_2 + 6.72*X_3 + 1.05*X_4$

the financial position of the banks to be examined will be differentiated depending on which of the following zones were placing the computed mean Z-score, that is, if:

- above 2.6 – The bank was sorted in the "Safe" zone
- between 1.1 to 2.6 – The bank was sorted in the "Grey zone"
- less than 1.1 or had a negative number – The bank was sorted in the "Distress zone"

Table (3.2): Variable measurement

Variable Name	**Ratio of**	**Result to be achieved**
X1	Working Capital / Total Assets (WC/TA)	This ratio measures the networking capital relative to the size of the assets used in the business. It is used as a measure of liquidity standardized by the size of the firm.

X2	Retained Earnings / Total Assets (RE/TA)	This variable relates the total retained earnings of the firm to the total assets employed. It can capture the cumulative profitability of the firm since inception. Also, since young firms tend to have low RE/TA ratios, this variable may capture the age of the firm as well.
X3	Earnings Before Interest and Taxes / Total Assets (EBIT/TA)	The operating profitability of total assets measures the productivity of the assets or the earning power.
X4	Book Value of Equity / Book Value of Total Liabilities (BVE/TL)	This ratio measures the financial leverage of banks

3.7 Study Hypothesis

Based on the study problem, its questions, and the available information from previous studies, and to achieve the study's objectives, the following hypotheses were designed:

H01: There are no high risks faced by Palestinian banks when Z > 2.6.

H01.1: There are no high risks faced by Arab Islamic Bank when Z > 2.6

H01.2: There are no high risks faced by Palestine Islamic Bank when Z > 2.6

H01.3: There are no high risks faced by Safa Bank when Z > 2.6

H01.4: There are no high risks faced by The National Bank when Z > 2.6

H01.5: There are no high risks faced by the Bank of Palestine when Z > 2.6

H01.6: There are no high risks faced by Al-Quds bank when Z > 2.6Z > 2.6

H01.7: There are no high risks faced by Palestine investment Bank when Z > 2.6

H02: There are no high risks faced by Palestinian commercial banks when Z > 2.6.

H03: There are no high risks faced by Palestinian Islamic banks when Z > 2.6.

H04: There are no differences between Islamic banks and commercial banks in the effectiveness of risk management and governance.

Chapter 4 : Results and Discussion

4.1 Results:

4.1.1 Descriptive Statistics

table (4.1): Descriptive Statistics for Palestinian banks

	Z score	X1	X2	X3	X4
Mean	2.5792	0.3378	-0.0014	0.0070	0.3055
Median	1.2839	0.1457	0.0071	0.0103	0.2107
Maximum	5.9699	0.8391	0.0146	0.0185	1.4984
Minimum	0.6507	0.0635	-0.0596	-0.0194	0.0093
standard deviation	1.8866	0.2631	0.0222	0.0103	0.3671

Table (4.1) shows the results of the descriptive statistics for the study variables according to the Z score Altman equation, which includes four variables through which the value of (Z) is calculated for the period 2017-2020. The mean value (Z) calculated for the Palestinian bank's understudy is 2.5792, which is, therefore, less than The tabular value as it is located in the gray zone at ($1.1 < Z < 2.6$), the highest value for (Z) calculated was 5.9699 in the (safe zone) at ($Z > 2.6$), while the lowest value for (Z) calculated as 0.6507 in the distress zone at ($Z < 1.1$), the standard deviation of 1.8866. It also shows the variable (X1), which is the ratio of working capital to total assets. Its arithmetic mean was 0.3378, the median was 0.1457, and the highest value was 0.8391, while the

lowest value was 0.0635, and the standard deviation was 0.2631. The results showed the variable (X2), which is represented in the ratio of retained earnings to total assets. Its arithmetic mean was -0.0014, the median was 0.0071, and the highest value was 0.0146, while the lowest value was -0.0596, and the standard deviation is 0.0222. Moreover, the variable (X3), which is the ratio of net profit before tax to total assets, has an arithmetic mean of 0.0070, a median of 0.0103, and the highest value of 0.0185, while the lowest value of -0.0194, and a standard deviation of 0.0103. The variable (X4), which represents the ratio of the book value of equity to the total liabilities, the arithmetic mean was 0.3055, the median was 0.2107, the highest value was 1.4984, while the lowest value was 0.0093, and the standard deviation is 0.3671.

Table (4.2): mean based on year for Palestinian banks

	Z score	X1	X2	X3	X4
2017	2.7389	0.3618	-0.0024	0.0065	0.3141
2018	2.6343	0.3454	-0.0022	0.0067	0.3154
2019	2.5018	0.3253	-0.0021	0.0068	0.3136
2020	2.3674	0.3054	-0.0022	0.0067	0.3104

Table (4.2) shows the arithmetic means of the calculated (Z) value and the variables according to the Z score Altman equation for the Palestinian local bank's understudy based on the years from 2017 to 2020, and 2017. The results showed that the Palestinian banks achieved arithmetic mean with a calculated value of (Z) 2.7389, which is in the safe zone at ($Z > 2.6$), and the variable (X1), which is the ratio of working capital to total assets, its arithmetic mean reached 0.3618, and the results showed the variable (X2), which is the ratio of retained earnings to total assets. Its

arithmetic mean reached -0.0024, the variable (X3), which represents the ratio of net profit before tax to total assets, its arithmetic mean reached 0.0065, and the variable (X4), which represents the ratio of the book value of property rights to the total liabilities, the mean reached Its 0.3141.

In the year 2018, the results showed that the Palestinian banks achieved arithmetic mean with a calculated value (Z) of 2,6343 in the safe zone at (Z > 2.6), the variable (X1) which is represented in the ratio of working capital to total assets. The mean of it reached 0.3454, and the results showed the variable (X2), which represents the ratio of retained earnings to total assets, its arithmetic mean reached -0.0022, the variable (X3), which represents the ratio of net profit before tax to total assets, its mean reached 0.0067, the variable (X4), which is represented by the ratio of the book value of equity to the total liabilities, the mean of which is 0.3154.

As for the year 2019, the results showed that the Palestinian banks achieved arithmetic mean with a calculated value (Z) of 2.5018 in the gray zone at (1.1 < Z < 2.6), the variable (X1), which is represented in the ratio of working capital to total assets, was Its arithmetic mean reached 0.3253, and the results showed the variable (X2), which represents the ratio of retained earnings to total assets, so the arithmetic mean of it reached -0.0021, and the variable (X3), which represents the ratio of net profit before tax to total assets, its arithmetic mean reached 0.0068, the variable (X4), which represents the ratio of the book value of equity to the total liabilities, the arithmetic mean of which is 0.3136.

Finally, during the year 2020, the results showed that the Palestinian banks achieved arithmetic mean with a calculated value (Z) of 2.3674 in the gray zone at (1.1 < Z < 2.6), the variable (X1), which is the ratio of working capital to total assets, it reached The arithmetic mean has 0.3054, and the results showed the variable (X2), which represents the ratio of retained earnings to total assets, so the arithmetic mean of it reached -0.0022, the variable (X3), which represents the ratio

of net profit before tax to total assets, its arithmetic mean reached 0.0067, The variable (X4), which is represented in the ratio of the book value of equity to the total liabilities, has an arithmetic mean of 0.3104.

Table (4.3): Mean based on year for Palestinian commercial banks

	Z score	X1	X2	X3	X4
2017	0.9183	0.1091	0.0078	0.0106	0.1005
2018	0.9436	0.1107	0.0079	0.0107	0.1138
2019	0.9759	0.1124	0.0082	0.0109	0.1322
2020	1.0062	0.1159	0.0082	0.0108	0.1394

Table (4.3) shows the arithmetic means of the calculated value (Z) and the variables according to the Z score Altman equation for the Palestinian commercial banks under study based on the years from 2017 to 2020, during the year 2017. The results showed that the Palestinian commercial banks achieved arithmetic mean with a calculated value of (Z) 0.9183 It is in the distress zone at (Z < 1.1), the variable (X1), which is the ratio of working capital to total assets. The arithmetic mean of it reached 0.1091, and the results showed the variable (X2), which is the ratio of retained earnings to total assets. Assets, the arithmetic mean was 0.0078, the variable (X3), which represented the ratio of net profit before tax to the total assets, the arithmetic mean was 0.0106, the variable (X4), which represented the ratio of the book value of property rights to the total liabilities, the arithmetic mean reached Its 0.1005.

In 2018, the results showed that the Palestinian commercial banks achieved arithmetic mean with a calculated value (Z) of 0.9436 in the distress zone at (Z < 1.1), the variable (X1) which is

represented in the ratio of working capital to total assets. The arithmetic mean reached It has 0.1107, and the results showed the variable (X2), which represents the ratio of retained earnings to total assets, its arithmetic mean reached 0.0079, the variable (X3), which represents the ratio of net profit before tax to total assets, its arithmetic mean reached 0.0107, the variable (X4), which is represented by the ratio of the book value of equity to the total liabilities, the arithmetic mean of which is 0.1138.

During the year 2019, the results showed that the Palestinian commercial banks achieved arithmetic mean with a calculated value (Z) of 0.9759 in the distress zone at (Z < 1.1), and the variable (X1), which is the ratio of working capital to total assets, reached The arithmetic mean has 0.1124, and the results showed the variable (X2), which represents the ratio of retained earnings to total assets, so the arithmetic mean of it reached 0.0082, the variable (X3), which represents the ratio of net profit before tax to total assets, its arithmetic mean reached 0.0109, the variable (X4), which is represented in the ratio of the book value of equity to the total liabilities, the arithmetic mean of which is 0.1322.

Finally, during the year 2020, the results showed that the Palestinian commercial banks achieved arithmetic mean with a calculated value (Z) of 1.0062 in the distress zone at (Z < 1.1), the variable (X1) which is represented in the ratio of working capital to total assets. The mean reached The arithmetic mean is 0.1159, and the results showed the variable (X2), which represents the ratio of retained earnings to total assets, the arithmetic mean of it reached 0.0082, and the variable (X3), which represents the ratio of net profit before tax to total assets, its arithmetic mean reached 0.0108, the variable (X4) which is represented in the ratio of the book value of equity to total liabilities, the arithmetic mean of which is 0.1394.

table (4.4): Mean based on year for Palestinian Islamic banks

	Z score	X1	X2	X3	X4
2017	4.6349	0.6337	0.0015	0.0080	0.3988
2018	4.7825	0.6416	-0.0052	0.0052	0.5296
2019	4.8406	0.6455	-0.0125	0.0023	0.6018
2020	4.8337	0.6448	-0.0197	-0.0004	0.6389

Table (4.4) shows the arithmetic means of the calculated (Z) value and the variables according to the Z score Altman equation for the Palestinian Islamic bank's understudy based on the years from 2017 to 2020, during the year 2017. The results showed that the Palestinian banks achieved arithmetic mean with a calculated value (Z) of 4.6349, which is in the safe zone at (Z > 2.6), and the variable (X1), which is the ratio of working capital to total assets, its arithmetic mean reached 0.6337, and the results showed the variable (X2), which is the ratio of retained earnings to total assets. The arithmetic mean reached 0.0015, the variable (X3), which represented the ratio of net profit before tax to the total assets, the arithmetic mean reached 0.0080, and the variable (X4), which represented the ratio of the book value of property rights to the total liabilities, the arithmetic mean reached 0.3988.

In 2018, the results showed that the Palestinian Islamic banks achieved arithmetic mean with a calculated value (Z) of 4.7825 in the safe zone at (Z > 2.6), the variable (X1) which is represented in the ratio of working capital to total assets. The arithmetic mean reached It has 0.6337, and the results showed the variable (X2), which is represented in the ratio of retained earnings to total assets, so the arithmetic mean for it reached -0.0052, the variable (X3), which is represented by in the ratio of net profit before tax to total assets, its arithmetic mean reached 0.0052, the variable

(X4), which is represented in the ratio of the book value of equity to the total liabilities, the arithmetic mean of which is 0.5296.

As for the year 2019, the results showed that the Palestinian Islamic banks achieved arithmetic mean with a calculated value (Z) of 4.8406 in the safe zone at (Z > 2.6), and the variable (X1), which is represented in the ratio of working capital to total assets, reached The arithmetic mean of it is 0.6455, and the results showed the variable (X2), which represents the ratio of retained earnings to total assets, so the arithmetic mean of it reached -0.0125, the variable (X3), which represents the ratio of net profit before tax to total assets, its arithmetic mean reached 0.0023, The variable (X4), which is represented in the ratio of the book value of equity to the total liabilities, its arithmetic mean is 0.6018.

Finally, during the year 2020, the results showed that the Palestinian Islamic banks achieved arithmetic mean with a calculated value (Z) of 4.8337 in the safe zone at (Z > 2.6), the variable (X1), which is represented in the ratio of working capital to total assets. The mean reached The arithmetic mean is 0.6448, and the results showed the variable (X2), which represents the ratio of retained earnings to total assets, so the arithmetic mean of it reached -0.0197, and the variable (X3), which represents the ratio of net profit before tax to total assets, its arithmetic mean reached -0.0004. The variable (X4), which is represented in the ratio of the book value of equity to the total liabilities, has an arithmetic mean of 0.6389.

4.1.2 Calculation of Z score Altman

Table (4.5): Calculation of Z score Altman for Palestinian banks

AIB	X1	X2	X3	X4	Z	Zone

2017	0.561275394	0.003154	0.008645	0.238503	4.000769	Safe
2018	0.625289705	0.005947	0.009186	0.292691	4.490342	Safe
2019	0.636951501	0.00616	0.009399	0.264413	4.539275	Safe
2020	0.63788164	0.004455	0.007042	0.222552	4.480026	Safe
TNB						
2017	0.13050752	0.006842	0.011159	0.099373	1.057764	distress
2018	0.100315671	0.004816	0.010787	0.009302	0.756028	distress
2019	0.095714703	0.003902	0.008226	0.087873	0.788155	distress
2020	0.125996114	7.98E-05	0.001254	0.084208	0.923638	distress
BOP						
2017	0.075006761	0.010469	0.014941	0.10146	0.733109	distress
2018	0.063467493	0.009347	0.014993	0.098184	0.650664	distress
2019	0.071659898	0.008894	0.009838	0.089085	0.658734	distress
2020	0.082596157	0.007533	0.006913	0.080636	0.697507	distress
PIB						
2017	0.64248222	0.011311	0.018516	0.312105	4.703697	Safe
2018	0.839093531	0.008412	0.016182	0.313596	5.969895	Safe
2019	0.6326747	0.008189	0.011941	0.248563	4.518276	Safe
2020	0.595233038	0.009961	0.010603	0.198791	4.217182	Safe
SB						
2017	0.532822215	-0.04393	-0.01942	1.498352	4.794861	Safe
2018	0.631896135	-0.05763	-0.017	1.415215	5.329118	Safe
2019	0.660144668	-0.05964	-0.01667	0.94221	5.013379	Safe

2020	0.630623809	-0.05867	-0.0144	0.598279	4.477076	Safe
QUDS						
2017	0.123466522	0.014565	0.01402	0.105592	1.06251	distress
2018	0.112886524	0.006864	0.012485	0.101166	0.953035	distress
2019	0.134240973	0.010334	0.010851	0.096877	1.088947	distress
2020	0.110548038	0.008571	0.009923	0.094441	0.918986	distress
Investment						
2017	0.192473007	0.009809	0.012461	0.25795	1.649186	Grey
2018	0.150626402	0.007288	0.013024	0.273032	1.386077	Grey
2019	0.122713615	0.009018	0.0122	0.247887	1.176669	Grey
2020	0.140760234	0.004361	0.007839	0.182275	1.18167	Grey
Z score Altman = 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4						
Z >2.6 : Safe zone		1.1< Z <2.6: Grey zone			Z < 1.1: Distress zone	

Table (4.5) shows the Z score Altman calculation for Palestinian banks, each bank separately, in the period from 2017 to 2020 to predict the different levels of risks that banks in Palestine are expected to be exposed to, as shown in the following:

The results showed that the Arab Islamic Bank achieved in the year 2017 the calculated (Z) value of 4.000769 in the safe zone at (Z > 2.6), and in 2018 the bank achieved the calculated (Z) level of 4.490342, which is in the safe zone at (Z > 2.6), and in 2019 the bank achieved a (Z) level calculated with a value of 4.539275 in the safe zone at (Z > 2.6), and in the year 2020, the bank achieved a (Z) level calculated with a value of 4.480026 in the region The safe zone is at (Z > 2.6.(

The results showed that in 2017, the National Bank achieved a calculated (Z) value of 1.057764

in the distress zone, meaning that (Z < 1.1), and in 2018, the bank achieved a calculated (Z) level of 0.756028, which is in the distress zone, meaning that that (Z < 1.1), while in 2019 the bank achieved the (Z) level calculated with a value of 0.788155 in the distress zone means that (Z < 1.1), and in the year 2020 the bank achieved the (Z) level calculated with a value of 0.923638 In the distress zone, Z < 1.1 means.

The results showed that the Bank of Palestine achieved in the year 2017 a calculated (Z) value of 0.733109 in the distress zone, meaning that (Z < 1.1), and in 2018, the bank achieved a calculated (Z) level of 0.650664, which is in the distress zone, meaning that That (Z < 1.1), while in 2019 the bank achieved the (Z) level calculated with a value of 0.658734 in the distress zone means that (Z < 1.1), and in the year 2020 the bank achieved the (Z) level calculated with a value of 0.697507 In the distress zone, Z < 1.1 means.

The results showed that the Palestine Islamic Bank achieved in the year 2017, the calculated (Z) value of 4.703697 in the (safe zone) at (Z > 2.6), and in the year 2018 the calculated (Z) level of 5.969895 was in the (safe zone) at (Z > 2.6), and in 2019 the bank achieved a (Z) level, computed with a value of 4.518276 in the (safe zone) at (Z >2.6), and in the year 2020, the bank achieved a (Z) level computed with a value of 4.217182 in The safe zone is at (Z > 2.6).

The results showed that Al-Safa Bank achieved in the year 2017 the calculated (Z) value of 4.794861 in the (safe zone) at (Z > 2.6), and in the year 2018 the bank achieved the calculated (Z) level of 5.329118 is in the (safe zone) at (Z > 2.6), and in the year 2019 the bank achieved a level (Z) calculated with a value of 5.013379 in the safe zone (Z > 2.6), and in the year 2020 the bank achieved a level (Z) calculated with a value of 4.477076 in the safe zone (Safe zone) at (Z > 2.6).

The results showed that Al-Quds Bank achieved in the year 2017 a calculated (Z) value of 1.06251 in the distress zone, meaning that (Z < 1.1), and in 2018, the bank achieved a calculated (Z) level

of 0.953035, which is in the distress zone, meaning that that (Z < 1.1), while in 2019 the bank achieved a level (Z) calculated with a value of 1.088947 in the distress zone, which means that (Z < 1.1), and in the year 2020 the bank achieved a level (Z) calculated with a value of 0.918986 In the distress zone, Z < 1.1 means.

The results showed that the Palestine Investment Bank achieved in the year 2017, the calculated (Z) value of 1.649186 in the gray zone at (1.1 < Z < 2.6), and in the year 2018, the calculated "Z" level of 1.386077 is in the gray zone) at (1.1 < Z < 2.6), while in 2019 the bank achieved the (Z) level calculated with a value of 1.176669 in the gray zone at (1.1 < Z < 2.6), and in the year 2020 the bank achieved the (Z) level Calculated with a value of 1.18167 in the gray zone at (1.1 < Z < 2.6).

4.1.3 Relative distribution of risky banks and stable banks

Table (4.6): Altman Z score results for banks

	number of banks	Percentage
distress zone	3	43%
grey zone	1	14%
safe zone	3	43%
Total	7	100%

Table (4.6) shows the relative distribution of banks according to the status of financial stability according to the Z score Altman computed for non-industrial institutions in the study period from 2017 to 2020, the sample included 7 local banks in Palestine, where the results showed that 43% of the total local Palestinian banks replaced The study is in the distress zone, which means that (Z

< 1.1) there are three banks, while the results show that 43% of the Palestinian banks under study are in the safe zone, meaning that (Z > 2.6) the number of banks is three, and finally The percentage of banks that are in the gray zone is 14% and they are one, which means that the calculated (Z) value is between 1.1 and 2.6.

4.2 Hypothesis Test:

Test the first major hypothesis which states: There are no high risks faced by Palestinian banks when Z > 2.6.

table (4.7): Mean based on banks

	Z score	X1	X2	X3	X4
AIB	4.3776	0.6153	0.0049	0.0086	0.2545
PIB	4.8523	0.6774	0.0095	0.0143	0.2683
SB	4.9036	0.6139	-0.0550	-0.0169	1.1135
TNB	0.8814	0.1131	0.0039	0.0079	0.0702
BOP	0.6850	0.0732	0.0091	0.0117	0.0923
QUDS	1.0059	0.1203	0.0101	0.0118	0.0995
Investment	1.3484	0.1516	0.0076	0.0114	0.2403

Table (4.7) shows the means of the calculated (Z) value and the variables according to the Z score Altman equation for the Palestinian local bank's understudy based on each bank separately from 2017 to 2020, where the following results appear:

H01.1: There are no high risks faced by Arab Islamic Bank when Z > 2.6

The results showed that the Arab Islamic Bank achieved the arithmetic mean of the calculated

value (Z) of 4.3776, which is in the (safe zone) at (Z > 2.6), the variable (X1), which is represented in the ratio of working capital to total assets. The arithmetic mean of it reached 0.6153 The results showed the variable (X2), which represents the ratio of retained earnings to total assets, its arithmetic mean reached 0.0049, and the variable (X3), which represents the ratio of net profit before tax to total assets, its arithmetic mean reached 0.0086, and the variable (X4) which It is represented in the ratio of the book value of equity to the total liabilities, the arithmetic mean of which is 0.2545. Based on this, we accept the first sub-hypothesis of the first main null hypothesis, which states: **There are no high risks faced by Arab Islamic Bank when Z > 2.6**

H01.2: There are no high risks faced by Palestine Islamic Bank when Z > 2.6

The results showed that the Palestinian Islamic Bank achieved the arithmetic mean of the calculated value (Z) of 4.8523 in the (safe zone) at (Z > 2.6), the variable (X1), which is represented in the ratio of working capital to total assets, where the arithmetic mean reached 0.6774, The results showed the variable (X2), which represents the ratio of retained earnings to total assets, its arithmetic means reached 0.0095, the variable (X3), which represents the ratio of net profit before tax to total assets, its arithmetic mean reached 0.0143, the variable (X4) which represents In the ratio of the book value of equity to total liabilities, the arithmetic mean was 0.2683. Accordingly, we accept the second sub-hypothesis of the first main null hypothesis, which states: **There are no high risks faced by Palestine Islamic Bank when Z > 2.6**

H01.3: There are no high risks faced by Safa Bank when Z > 2.6

The results showed that Al-Safa Bank achieved the arithmetic mean of the calculated value (Z) 4.9036 in the (safe zone) at (Z > 2.6), the variable (X1), which is represented in the ratio of working

capital to total assets. The arithmetic mean of it reached 0.6139, and it showed Results The variable (X2), which represents the ratio of retained earnings to total assets, its arithmetic mean reached -0.0550, and the variable (X3), which represents the ratio of net profit before tax to total assets, its arithmetic mean reached -0.0169, the variable (X4) which It is represented in the ratio of the book value of equity to the total liabilities, the arithmetic mean of which is 1.1135. Accordingly, we accept the third sub-hypothesis of the first main null hypothesis, which states: **There are no high risks faced by Safa Bank when Z > 2.6**

H01.4: There are no high risks faced by The National Bank when Z > 2.6

The results showed that the National Bank achieved arithmetic mean with a calculated value (Z) of 0.8814 in the distress zone at (Z < 1.1), the variable (X1), which is represented in the ratio of working capital to total assets. The arithmetic mean of it reached 0.1131. Results The variable (X2), which represents the ratio of retained earnings to total assets, its arithmetic mean reached 0.0039, the variable (X3), which represents the ratio of net profit before tax to total assets, its arithmetic mean reached 0.0079, and the variable (X4) which is represented by The ratio of the book value of equity to total liabilities, the mean of which is 0.0702. Based on the foregoing, we reject the fourth sub-hypothesis of the first main null hypothesis, which states: **There are no high risks faced by The National Bank when Z > 2.6**

H01.5: There are no high risks faced by Bank of Palestine Bank when Z > 2.6

The results showed that the Bank of Palestine achieved arithmetic mean with a calculated value (Z) of 0.6850 in the distress zone at (Z < 1.1), the variable (X1), which is represented by the ratio of working capital to total assets, where the arithmetic mean reached 0.0732, and showed Results

The variable (X2) which represents the ratio of retained earnings to total assets, its arithmetic mean reached 0.0091, the variable (X3) which represents the ratio of net profit before tax to total assets, its arithmetic mean reached 0.0117, and the variable (X4) which is represented by The ratio of the book value of equity to total liabilities, the arithmetic mean was 0.0923. Based on the foregoing, we reject the fifth sub-hypothesis of the first main null hypothesis, which states: **There are no high risks faced by Bank of Palestine Bank when Z > 2.6**

H01.6: There are no high risks faced by Al-Quds bank when Z > 2.6

The results showed that Al-Quds Bank achieved arithmetic mean with a calculated value (Z) of 1.0059 in the distress zone at (Z < 1.1), the variable (X1), which is represented in the ratio of working capital to total assets. The arithmetic mean of it reached 0.1203, and it showed The results are the variable (X2), which represents the ratio of retained earnings to total assets, its arithmetic mean reached 0.0101, the variable (X3), which represents the ratio of net profit before tax to total assets, its arithmetic mean reached 0.0118, and the variable (X4) which is represented by The ratio of the book value of equity to total liabilities, the arithmetic mean is 0.0995. Based on the foregoing, we reject the sixth sub-hypothesis of the first main null hypothesis, which states: **There are no high risks faced by Al-Quds bank when Z > 2.6**

H01.7: There are no high risks faced by Palestine investment Bank when Z > 2.6

The results showed that the Palestine Investment Bank achieved arithmetic mean with a calculated value (Z) of 1.3484 in the gray zone at (1.1 < Z < 2.6), the variable (X1) which is represented in the ratio of working capital to total assets. 0.1516, and the results showed the variable (X2), which represents the ratio of retained earnings to total assets, its arithmetic mean reached 0.0076, the

variable (X3), which represented the ratio of net profit before tax to total assets, its arithmetic mean reached 0.0114, the variable (X4) Which is represented by the ratio of the book value of equity to the total liabilities, the arithmetic mean of it is 0.2403. Based on the foregoing, we reject the seventh sub-hypothesis of the first main null hypothesis, which states: **There are no high risks faced by Palestine investment Bank when Z > 2.6**

H02: There are no high risks faced by Palestinian commercial banks when Z > 2.6.

table (4.8): Descriptive Statistics for commercial banks

	Z score	X1	X2	X3	X4
Mean	0.9802	0.1146	0.0077	0.0107	0.1256
Median	0.9383	0.1178	0.0081	0.0110	0.0988
Maximum	1.6492	0.1925	0.0146	0.0150	0.2730
Minimum	0.6507	0.0635	0.0001	0.0013	0.0093
standard deviation	0.2697	0.0322	0.0032	0.0034	0.0717

Table (4.8) shows the results of the descriptive statistics for the study variables according to the Z score Altman equation, which includes four variables through which the value of (Z) for commercial banks is calculated for the period 2017-2020. The arithmetic mean of the value of (Z) calculated for the Palestinian commercial bank's understudy is 0.9802, which is, Therefore, it is less than the tabulated value as it is located in the distress zone at ($Z < 1.1$), the highest value of the calculated (Z) reached 1.6492 in the gray zone at ($1.1 < Z < 2.6$), while it reached the lowest The calculated value for (Z) is 0.6507 in the distress zone at ($Z < 1.1$), and the standard deviation

is 0.2697. It also shows the variable (X1), which is the ratio of working capital to total assets, where the arithmetic means was 0.1146, the median was 0.1178, the highest value was 0.1925, while the lowest value was 0.0635, and the standard deviation was 0.0322. The results showed the variable (X2), which is represented in the ratio of retained earnings to total assets, where the arithmetic mean was 0.0077, the median was 0.0081, and the highest value was 0.0146, while the lowest value was -0.0001, and the standard deviation is 0.0032. Moreover, the variable (X3), which is the ratio of net profit before tax to total assets, has an arithmetic mean of 0.0107, a median of 0.0110, and the highest value of 0.0150, while the lowest value of 0.0013, and a standard deviation of 0.0034. The variable (X4), which represents the ratio of the book value of equity to the total liabilities, its mean was 0.1256, the median was 0.0988, the highest value was 0.2730, while the lowest value was 0.0093, and the standard deviation is 0.0717. Based on the foregoing, the third major null hypothesis is rejected, which states: **There are no high risks faced by Palestinian commercial banks when Z > 2.6.**

H03: There are no high risks faced by Palestinian Islamic banks when Z > 2.6.

table (4.9): Descriptive Statistics for Islamic banks

	Z score	X1	X2	X3	X4
Mean	4.7112	0.6355	-0.0135	0.0020	0.5454
Median	4.5288	0.6323	0.0052	0.0089	0.3024
Maximum	5.9699	0.8391	0.0113	0.0185	1.4984
Minimum	4.0008	0.5328	-0.0596	-0.0194	0.1988
standard deviation	0.5031	0.0707	0.0296	0.0137	0.4548

Table (4.9) shows the results of the descriptive statistics for the study variables according to the Z score Altman equation, which includes four variables through which the value of (Z) for Islamic banks is calculated for the period 2017-2020. The arithmetic mean of the value of (Z) calculated for the Palestinian Islamic banks under study reached 4.7112, It is, therefore, greater than the tabular value as it is located in the (safe zone) at (Z > 2.6), the highest value of (Z) calculated was 5.9699 in the (safe zone) at (Z > 2.6), while the lowest value was for (Z) calculated 4,00008 in the safe zone at (Z > 2.6), the standard deviation is 0.5031. It also shows the variable (X1), which is the ratio of working capital to total assets, where the arithmetic means was 0.6355, the median was 0.6323, the highest value was 0.8391, while the lowest value was 0.5328, and the standard deviation is 0.5031. The results showed the variable (X2), which is represented in the ratio of retained earnings to total assets. Its arithmetic mean was -0.0135, the median was 0.0052, and the highest value was 0.0113, while the lowest value was -0.0596, and the standard deviation is 0.0296. Moreover, the variable (X3), which is the ratio of net profit before tax to total assets, has an arithmetic mean of 0.0020, the median is 0.0089, and the highest value is 0.0185, while the lowest value is -0.0194, and the standard deviation is 0.0137. The variable (X4), which represents the ratio of the book value of equity to the total liabilities, the arithmetic mean was 0.5454, the median was 0.3024, and the highest value was 1.4984, while the lowest value was 0.1988, and the standard deviation is 0.4548. Based on the foregoing, the second major null hypothesis is accepted, which states: **There are no high risks faced by Palestinian Islamic banks when Z > 2.6.**

- **t-test result**

H04: There are no differences between Islamic banks and commercial banks in the effectiveness of risk management and governance.

To test this hypothesis, a t-test was used, which is as follows:

Table (4.10): t-test result

	obs1	obs2	Mean 1	Mean 2	dif	St Err	t value	p value
Z by TYPEOFBANK: C~A	16	12	0.980	4.711	-3.731	.154	-24.3	0.000

The mean of the value of Z Altman for Islamic banks is 4.711, while the arithmetic means of the value of Z Altman for commercial banks is 0.980, as there is a difference between the arithmetic mean of both Islamic and commercial banks is 3.731, which means that Islamic banks are less exposed to risks than commercial banks, at a level of statistical significance less than 5%, which It indicates that there are differences between risks between Islamic and commercial banks, and based on the foregoing, the fourth major null hypothesis is rejected, which states: **There are no differences between Islamic banks and commercial banks in risk management.**

Table (4.11): summary of a null hypothesis test

#	null hypothesis	**reject/accept**
H01	There are no high risks faced by Palestinian banks when Z > 2.6.	
H01.1	There are no high risks faced by Arab Islamic Bank when Z > 2.6	**Accept**
H01.2	There are no high risks faced by Palestine Islamic Bank when Z > 2.6	**Accept**

H01.3	There are no high risks faced by Safa Bank when Z > 2.6	**Accept**
H01.4	There are no high risks faced by The National Bank when Z > 2.6	**Reject**
H01.5	There are no high risks faced by the Bank of Palestine when Z > 2.6	**Reject**
H01.6	There are no high risks faced by AL Quds bank when Z > 2.6	**Reject**
H01.7	There are no high risks faced by Palestine investment Bank when Z > 2.6	**Reject**
H02	There are no high risks faced by Palestinian commercial banks when Z > 2.6.	**Reject**
H03	There are no high risks faced by Palestinian Islamic banks when Z > 2.6.	**Accept**
H04:	There are no differences between Islamic banks and commercial banks in risk management.	**Reject**

Chapter 5 : Conclusions and Recommendations

5.1 Conclusions

This study examined the risk management in the Palestinian banking sector and also compared Islamic banks and Commercial banks by using Altman's Z-score model and statistical techniques. The findings of this study concluded that there are differences between Islamic banks and commercial banks in the effectiveness of risk management. In addition to concluding that 43% of the sample are in the "Safe Zone", 14% are in the "Grey Zone" and 43% are in the "Distress Zone". (EBIT/total assets) ratios indicate that Islamic and commercial banks are profitable, but (the working capital/total assets) ratio is higher in Islamic banks and has an increasing trend, so there is high liquidity at Islamic banks, and that could be translated into inefficiency in using capital and missed investment opportunities. Mainly, commercial banks are profitable but have a high-risk need to be managed to make balance.

According to the study findings, Islamic banks are less risky than commercial banks as they have higher Z scores which may seem a good sign, but actually, this may be interpreted in another way as Islamic banks are very conservative, they avoid taking a risk in a way that contradicts the core principle of Islamic banking "sharing profit and loss". Furthermore, they mostly tend to use debt-based financing tools such as Murabaha intensively and avoid assets-based tools financing as Musharaka, Mudaraba, and Istisnaa which are the most needed and very necessary for the Palestinian economy. Palestinian Islamic banks do not play their role in economic development in Palestine by introducing the necessary finance needed in size and quality.

5.2 Recommendations

- The study highly recommends bank management and investors use the Altman model as an assessment tool for risk management.
- The results of the study encourage commercial banks to balance risk and return.

5.3 Limitations of the Study

This study was limited to a period of four years (2017-2020). The selected period of the study was short. There may be variation in the results of the study if the years of the study were extended and more observations were used in the analysis.

5.4 Scope for Further Research

This study analyzed the financial health of local Palestinian banks, using Altman's Z-Score model. Other models and tools can be used for analyzing risk and financial situations, and the results of multiple models can be compared. Furthermore, the whole Palestinian banking sector can be compared and used as a sample. In addition, further studies could be applied to Palestinian Islamic banks that aim to explore financing tools and their importance in economic development.

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