

The Impact of Financial Risk Mitigation on Financial Sustainability in Banks: An Analytical Study of the Opinions of Auditors and Financial Managers in Private Banks in the Kurdistan Region of Iraq

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ABSTRACT:

The present study aimed at examining the effect of financial risk mitigation on financial sustainability in private banks in the Kurdistan Region of Iraq from external auditors' and financial managers' perspectives. The study was quantitative analytical using a questionnaire that has been distributed to a sample of 117 respondents. Data analysis for descriptive statistics, correlation, and regression was used in SPSS software, while data analysis in terms of testing the structural relationship between the constructs was performed using SmartPLS 4 software with PLS-SEM approach. Financial risk mitigation was assessed through five aspects: credit risk, liquidity risk, market risk, capital adequacy risk and operational risk. The results showed that there were high agreement about financial risk mitigation with a mean of 4.01, a standard deviation of 0.71, and an agreement rate of 80.21%. Financial sustainability was also at a positive level (3.94; SD=0.71; agreement rate=78.85%). The correlation results showed that there was a high degree of positive and statistically significant correlation between financial risk mitigation and financial sustainability ($r = 0.804$, $p = 0.000$). The same results were obtained when using the SmartPLS path analysis, which also showed a positive significant effect of financial risk mitigation on financial sustainability ($\beta = 0.562$, $p = 0.000$). The results of regression analysis indicated that financial risk mitigation explained 64.6% of the variation in financial sustainability, and had a significant coefficient of impact ($B = 0.853$, $t = 14.491$, $p = 0.000$). The results indicate that good risk management practices, including liquidity management, operational control, hedging, internal audit, employee training, and capital adequacy monitoring, plays an important role in improving the financial sustainability, stability, and resilience of private banks.

Keywords: Financial Risk Mitigation; Financial Sustainability; Private Banks; Credit Risk; Liquidity Risk; Market Risk; Operational Risk; Capital Adequacy.

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1. Introduction

Banks face a highly volatile financial landscape, where credit risk, liquidity risk, market risk, capital adequacy risk, operational risk, digital risk, and climate-related financial risk can all have an impact on profitability, solvency, stability and long-term continuity. Risk management has come to be seen in modern banking supervision as a strategic element for financial sustainability and not just a compliance matter. The Basel Committee on Banking Supervision (BCBS) has highlighted that robust governance, capital adequacy, risk management, operational resilience, and bank resilience to new and emerging risks (including digitalisation and financial exposures to climate change) are essential for effective banking supervision (Khelifa & Derradji, 2026; Alonso et al., 2024). The Basel Core Principles (BCPs) are revised and have been published as minimum standards for sound prudential regulation and supervision of banks, and explicitly highlight the importance of governance, sustainability and risk management in banking supervision.

Financial sustainability in banks is the long-term ability of banking institutions to be stable and profitable, as well as having enough liquidity, capital, and income sources, and to continue functioning and gaining the trust of stakeholders. Private banks are especially concerned with this concept, as it is essential for the survival of these banks; public trust, effective internal control, reliable financial reporting, and prudent risk governance are essential for private banks' survival. The correlation of financial sustainability with credit quality, liquidity risk, operational efficiency and capital strength and risk control has been established through empirical studies in recent years (Nhleko et al., 2025; Huang et al., 2026; Eltweri et al., 2024). Amoa-Gyarteng et al. (2025) studied the credit risk indicators and their effects on financial sustainability in listed banks in Ghana, and they found that credit risk indicators affect financial sustainability through indicators like net interest margin and cost efficiency.

Financial risk mitigation is also crucial in developing and transitional banking contexts, as the private banking sector is exposed to uncertain economic conditions, credit risk, liquidity risk, regulatory changes and lack of trust by the public. This is so in the Kurdistan Region of Iraq, where credit, liquidity, market, capital adequacy and operational risks require more effective mechanisms to be handled by private banks. The relevance of this topic is reinforced by a field study that was uploaded, which had a sample of 117 respondents from private banks and related professional groups, such as external auditors, financial managers, audit managers, risk managers and other banking professionals.

Accordingly, this study investigates the impact of financial risk mitigation on financial sustainability in private banks in the Kurdistan Region of Iraq. The study adopts a quantitative analytical approach and uses SmartPLS 4 through the Partial Least Squares Structural Equation Modeling method. PLS-SEM is appropriate for this study because it allows the researcher to examine latent variables measured through multiple questionnaire items and to test predictive structural relationships among constructs (Hair et al., 2021, 2024; Sarstedt et al., 2021; Susetyo et al., 2025). SmartPLS 4 is a widely adopted software for evaluating measurement-model quality and structural-path significance via bootstrapping procedures, which is applicable to research in the fields of business and management (Susetyo et al., 2025; Cheah et al., 2024).

2. Literature Review

2.1 Financial Risk Mitigation in Banks

Financial risk mitigation is the policy and procedures, tools and control mechanisms that banks use to identify, measure, monitor and minimise the risk of financial loss. Typically in banking, risk mitigation involves credit risk management, liquidity risk management, hedging market risk, capital adequacy management, internal audit, employee training, operational risk management, risk reporting and compliance systems. These practices align with Basel supervisory principles, which outline the pillars

of sound banking as governance, risk data aggregation, operational resilience, digital-risk awareness, and climate-related financial risk management, as essential elements of sound banking (BCBS, 2021, 2022, 2023, 2024a).

2.1.1 Credit Risk Mitigation

Lending is a fundamental and integral part of bank business and is one of the main sources of income and exposure for banks, making credit risk mitigation one of the most important parts of bank risk management. The lack of effective credit risk control can lead to higher NPLs, lower profitability, lower liquidity and poorer financial sustainability. The findings from recent studies show that credit risk indicators have a significant impact on the performance and sustainability of banks (Nguyen, 2023; Cheng et al., 2024; Nhleko et al., 2025). The findings by Amoa-Gyarteng et al (2025) showed that non-performing loan ratios, loan to asset ratios and deposit to asset ratios affect the financial sustainability of listed banks to promote long-term banking stability, thereby arguing the need for credit risk mitigation.

2.1.2 Liquidity Risk Mitigation

Liquidity risk mitigation is the ability of a bank to cover the demands of withdrawal, commitments of loan, and unforeseen financial obligation with adequate liquid resources. Adequate liquidity management can prevent banks from having to accept emergency funding, build depositor confidence and operate normally under financial stress. However, recent studies indicate that the liquidity risk has a strong relationship with the bank performance and sustainability since the lack of proper control of liquidity could lead to financial distress within a short time (Eltweri et al., 2024; Ogundele & Nzama, 2025; Huang et al., 2026; Lee, 2024). Hence, the activities of liquidity planning, funding diversification, cash flow monitoring and stress testing are important cornerstone practices of sustainable banking.

2.1.3 Market Risk Mitigation

Market risk mitigation is the reduction of the impact of exchange-rate changes, interest-rate changes, securities-prices changes, and other

market-related factors on the bank's income and on the stability of its balance-sheet. Banks during the period of volatile economics require the following elements: Hedging strategies, asset-liability management, diversification, and constant monitoring of market exposures. This is in line with the uploaded study which demonstrates a high degree of agreement amongst the respondents on the impact of exchange-rate and interest-rate volatility on banks' financial stability is reduced by hedging strategies. A range of measures for mitigation of market risk is therefore crucial for the protection of profitability, capital, and long-term financial sustainability (BCBS, 2024a; Cardenas, 2024; Lee, 2024).

2.1.4 Capital Adequacy Risk Mitigation

Capital adequacy risk mitigation is the ability to have adequate capital to withstand losses, or to comply with the regulations. Sufficient capital improves solvency, helps to safeguard depositors, enhances confidence and allows banks to withstand financial shocks. Capital adequacy is a key pillar of safe and sound banking supervision, as capital acts as a buffer against unexpected losses and supports systemic stability (BCBS, 2024a). Empirical studies also show a correlation between capital strength and financial sustainability and bank performance in the longer term (Amoa-Gyarteng et al., 2025; Nhleko et al., 2025; Nguyen, 2023).

2.1.5 Operational Risk Mitigation

Operational risk mitigation involves minimizing losses due to human error, system failure, fraud, internal process failures, cyber attacks, and other external events. The growing importance of operational resilience is due to the increased operational and cyber risk exposure of banks caused by digitalization and the dependency on technology. Basel guidance on operational resilience is guidance to banks to withstand, adapt and recover from operating events (BCBS, 2021). In addition, more recent research indicates that operational risk management helps to make the financial sector more stable, sustainable, and performant (Yousef et al., 2023; Osabohien et al., 2024; BCBS, 2024b).

2.2 Financial Sustainability in Banks

Financial sustainability of banks is a multi-dimensional result that relies on profitability, liquidity, solvency, income diversification, ethical behavior, good governance, and resilience to risks. If a bank cannot control credit losses, liquidity issues, operational problems or shocks to the market, then it will be profitable, but not sustainable. The literature on sustainable banking also suggests that green banking practices, ESG risk management, sustainable disclosure and green finance have the potential to enhance the banking performance on sustainability and institutional resilience (Kumar et al., 2024; Gulzar et al., 2024; Gazi et al., 2025; Badroun et al., 2025; Nocoń, 2024). The use of structural modeling in banking sustainability research is supported by Kumar et al. (2024), who employed PLS-SEM and discovered that green banking practices had a positive impact on sustainability performance with the mediation of green finance.

2.3 Relationship Between Financial Risk Mitigation and Financial Sustainability

The theory and empirical correlation between financial risk mitigation and financial sustainability are significant. Banks with a lower credit risk profile will have an improved asset quality and profitability profile. The banks that manage liquidity risk, have a better chance to fulfill their commitments and to gain depositor trust. Banks that manage the risks in their portfolios can mitigate the detrimental effects of exchange-rate and interest-rate fluctuations. Banks with sufficient capital cushions can withstand shocks and banks with low operational risk can ensure service continuity/reputation. New banking and sustainability research, such as those by Anton et al. (2025), Lee (2024), Nocoń (2024), Amoa-Gyarteng et al. (2025), and Eltweri et al. (2024), has shown that there is a link between risk governance, ESG risk management, financial performance, and sustainability outcomes.

2.4 Research Gap

While a number of studies have investigated credit risk, financial performance, green banking or sustainability in banking, a further study

linking multidimensional financial risk mitigation with financial sustainability in private banks in the context of developing financial environment is still needed. Most of the previous studies are on listed banks, commercial banks in particular national markets or green banking practices. For instance, Amoa-Gyarteng et al. (2025) study the credit risk and financial sustainability of listed banks in Ghana, whereas Gazi et al. (2025) analyze the green banking and sustainable performance of banks in Bangladesh.

The present study responds to this lack of studies by targeting private banks in the Kurdistan Region of Iraq and considering financial risk mitigation as a multidimensional construct. The study does not just look at one risk; it takes the following risks into account: credit risk, liquidity risk, market risk, capital adequacy risk, and operational risk. This will give a wider perspective on risk reduction and its role in financial sustainability. Further, this study draws on the viewpoints of auditors and financial managers, who are key stakeholders in the professional practice of auditing and finance management, and hence pertinent to the study of risk control, financial reporting and sustainability.

2.5 Research Framework

The research framework sheds light on the direct link between financial risk mitigation and financial sustainability of private banks in the Kurdistan Region of Iraq. The independent variable in this study is financial risk mitigation while financial sustainability is the dependent variable. The framework is built on the premise that the more effective banks can be in minimizing financial risks, the more sustainable will be their long-term existence.

Financial risk mitigation is the independent variable and it is composed of five main dimensions: credit risk mitigation, liquidity risk mitigation, market risk mitigation, capital adequacy risk mitigation and operational risk mitigation. The dimensions are the key areas of risk which impact banks' profitability, liquidity, solvency, stability and continuity. Financial sustainability is the dependent variable that demonstrates a bank's financial stability,

diversification of income, customer trust, ability to operate and withstand financial shocks.

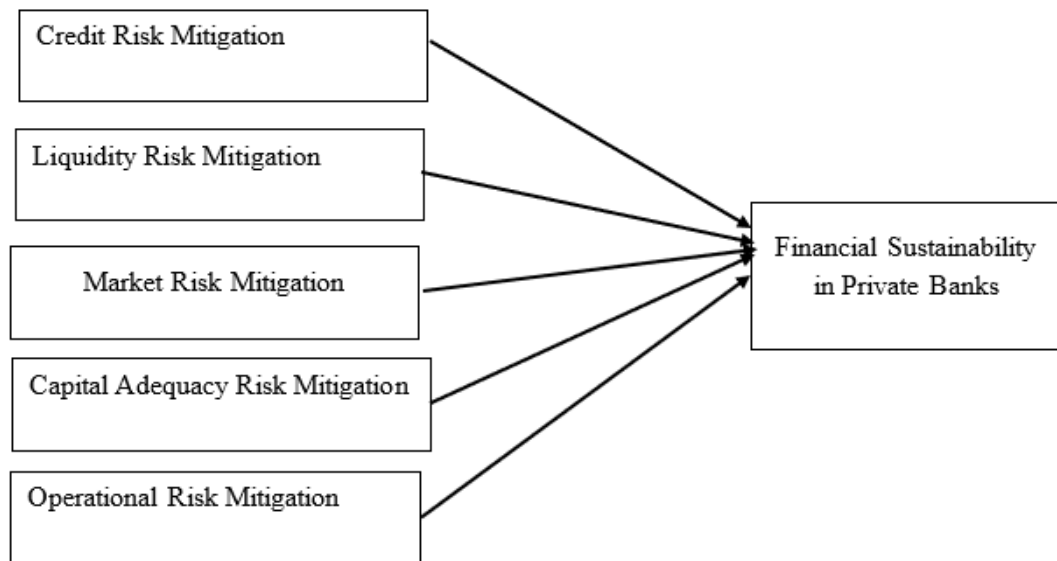


Figure1: Proposed Framework

2.6 Research Hypotheses

The study suggests that, based on the theoretical arguments and findings from empirical evidence presented above, financial risk mitigation has a positive impact and has a statistically significant relationship with financial sustainability in private banks within the Kurdistan Region in the Republic of Iraq. This expectation is backed up by the Basel supervisory framework, and the principles of risk governance, capital strength and operational resilience as pillars of banking soundness (BCBS, 2024). It is also grounded on empirical findings that weak credit risk management and high NPLs lead to deterioration in financial sustainability, and that improved credit risk management contributes to building the long-term resiliency of banking systems (Amoa-Gyarteng et al., 2025).

H1: There is a positive and statistically significant relationship between H1: Financial risk mitigation and financial sustainability in private banks in the Kurdistan Region of Iraq.

Financial risk mitigation has multiple dimensions, so the main hypothesis is broken down into five sub-hypotheses. It is expected that the credit risk mitigation will contribute to the financial

sustainability as better credit appraisal, monitoring of borrowers and control of the risk of default will lower the proportion of non-performing loans and enhance profitability. This is in line with the findings that non-performing loans have negative impacts on sustainability and financial performance (Amoa-Gyarteng et al., 2025; Saeed, 2026).

H1a: The statistical results showed that credit risk mitigation has a positive effect on the sustainability of financial problems in private banks in the Kurdistan Region of Iraq.

Liquidity risk mitigation will be expected to strengthen financial sustainability as good liquidity will help banks to fulfill their obligations, keep customers confident in the bank, avoid emergency funding, and sustain the bank's operations in stress periods. In the banking business, liquidity control is more crucial as a banking crisis can emerge quickly when customers or creditors lose confidence.

H1b: The results reveal that, in private banks in the Kurdistan Region of Iraq, Liquidity risk mitigation has a statistically significant positive impact on financial sustainability.

Market risk mitigation is expected to enhance financial sustainability as hedging and diversification will mitigate the adverse effects of interest rate fluctuation and exchange rate fluctuation. The results uploaded agree strongly with the idea that hedging policies can help limit the volatile effects of exchange rate and interest rates on bank financial budget stability, substantiating the rationale of this hypothesis.

H1c: The results show that there is a positive statistically significant relationship between Market risk mitigation and financial sustainability of private banks in Kurdistan Region of Iraq.

Financial sustainability is likely to be enhanced through capital adequacy risk mitigation as sufficient capital will allow the banks to withstand unforeseen losses, meet regulatory requirements, and build confidence. Capital adequacy is also crucial to sound banking supervision and financial stability, as per Basel (BCBS, 2024).

H1d: Financial sustainability is positively and statistically significantly related to capital adequacy risk mitigation in private banks in the Kurdistan Region of Iraq.

The benefits of operational risk mitigation are expected to increase financial sustainability as internal controls, staff training, auditing and monitoring minimize errors, fraud, system failures and operational losses. The results uploaded support this hypothesis and point to training and internal audit as the most important mechanisms to mitigate risks.

H1e: The results indicate that there is a positive relationship between operational risk mitigation and financial sustainability in private banks in the Kurdistan Region of Iraq and this relationship is statistically significant.

3. Methodology

In this study, the quantitative analytical research design is used to analyse the impact of financial risk mitigation on financial sustainability in private banks in the Kurdistan Region of Iraq. A quantitative design is suitable for the study as it assesses the respondents' perceptions through the items in the questionnaire and statistically significant relationships between the latent

variables. The final sample included 117 respondents – external auditors, financial managers, audit managers, risk managers, and other banking professionals, which is relevant to the study on risk mitigation and financial sustainability.

A structured questionnaire having likert scale (5 point) was used for the study. Financial Risk Mitigation (FRM) was used as an independent variable and was measured in five dimensions, namely, (1) Credit Risk Mitigation, (2) Liquidity Risk Mitigation, (3) Market Risk Mitigation, (4) Capital Adequacy Risk Mitigation, and (5) Operational Risk Mitigation. Financial sustainability was the dependent variable assessed based on the indicators of income diversification, financial stability, ethical commitment, clear financial policies, long term continuity and resilience. The dimensions are similar to those used by other studies which have correlated banking sustainability with banks' risk control, capital strength, liquidity management, operational efficiency, and governance quality (Amoa-Gyarteng et al., 2025; Eltweri et al., 2024; Kumar et al., 2024; Nhleko et al., 2025).

The data were analyzed with SPSS and SmartPLS 4. Descriptive statistics, frequencies, percentages, means, standard deviations, Pearson correlation and regression analysis were calculated with SPSS. Partial Least Square Structural Equation Modeling (PLS SEM) was applied in this study using SmartPLS 4. The advantages of using PLS-SEM are that it can be applied in multiple-indicator measurement models of latent constructs and it is particularly appropriate to test relationships in predictive research models (Hair et al., 2021, 2024; Sarstedt et al., 2021). In addition, SmartPLS 4 can be used for bootstrapping, reliability assessment, convergent and discriminant validity, and structural-path testing (Susetyo et al., 2025; Cheah et al., 2024).

Indicator loadings, Cronbach's alpha coefficient, composite reliabilities, average variance extracted and discriminant validity should be used to assess the measurement model. These procedures assist in ensuring that the constructs being measured by the items of the questionnaire are measured

consistently and accurately. The structural model should then be evaluated with regard to path coefficients, t-values, p values, coefficient of determination, effect size and predictive relevance. The two-step procedure is based on the recommendations of PLS-SEM (Hair et al., 2021, 2024; Sarstedt et al., 2021).

Results and Discussion

Descriptive Results of the Respondents

A valid sample of 117 respondents composed of external auditors, financial managers, audit managers, risk managers, and other professionals who work in or are related to private banks in the Kurdistan Region of Iraq constituted the study's

sample. The demographic results show that the sample is professionally suitable to investigate financial risk mitigation and financial sustainability as it includes respondents with various levels of practical experience and professional responsibilities. In terms of experience, 30.8% of those that responded had less than 5 years in and 19.7% had 5-10 years in, 25.6% had 11-15 years in and 23.9% had more than 15 years in. This distribution offers a balanced mix of new as well as old professional views. Besides, it is supported by a fact that the answers were reliable as 50.4% of the respondents were legal accountants while the remaining 49.6% were bachelor's holders, master's, doctoral and others.

Table 1. Demographic Profile of Respondents

Variable	Category	Frequency	Percentage
Years of experience	Less than 5 years	36	30.8%
	5–10 years	23	19.7%
	11–15 years	30	25.6%
	More than 15 years	28	23.9%
Educational qualification	Bachelor's degree	36	30.8%
	Master's degree	13	11.1%
	Doctorate	6	5.1%
	Certified / legal accountant	59	50.4%
	Other	3	2.6%
Job position	External auditor	50	42.7%
	Financial manager	9	7.7%
	Audit manager	8	6.8%
	Risk management manager	6	5.1%
	Other	44	37.6%

The occupational distribution also again verifies appropriateness of the sample. The largest contribution was made by external auditors (42.7%), other related job categories (37.6%), financial managers (7.7%), audit managers (6.8%) and risk management managers (5.1%). This is significant due to the fact that the research topic is formulated to target the people who are

knowledgeable about auditing, financial reporting, risk control and banking sustainability. Additionally, the field data reveals that 52.1% of Respondents had taken part in training on banking risks and 43.6% had taken part in training on financial sustainability. This represents a moderate level of professional awareness but also highlights a training mismatch

particularly in the sustainability field, with more than half of the respondents trained in none.

Table 2. Respondents' Training Background

Training Area	Response	Frequency	Percentage
Training in banking risks	Yes	61	52.1%
	No	56	47.9%
Training in financial sustainability	Yes	51	43.6%
	No	66	56.4%

Source: Prepared by the researcher based on SPSS results from the field study, n = 117.

Descriptive Results of Financial Risk Mitigation

The results show that financial risk mitigation achieved a high level of agreement among the respondents. The overall mean for this variable was 4.01 with a standard deviation of 0.71 and an agreement rate of 80.21%. This finding shows that, in general, people in Kurdistan Region of Iraq believe that the private banks in the Region adopt important procedures and policies in reducing financial risks. The relatively small SD also indicates that there were reasonable similarities in the answers given, although there were differences in job position, experience and educational level among the respondents.

Liquidity risk mitigation had the highest mean of 4.05 and the agreement rate was 80.94% at the

dimensional level. This shows that, in private banks, liquidity management is considered as one of the most significant risk mitigation measures. The operational risk mitigation had a mean of 4.03 and agreement rate 80.51%, and the market risk mitigation had a mean of 4.02 and an agreement rate of 80.46%. The mean of credit risk mitigation was 3.99 and the agreement rate was 79.77%, which was higher than the capital adequacy risk mitigation with its lowest mean value (3.97) and agreement rate (79.34%). All dimensions had positive scores, though the lower score for capital adequacy suggests some respondents may not be as aware of the policies related to capital or they may feel that those policies rely more on higher level strategic and regulatory decisions.

Table 3. Descriptive Statistics of Financial Risk Mitigation Dimensions

Dimension	Mean	Standard Deviation	Agreement Rate	Rank
Liquidity risk mitigation	4.05	0.73	80.94%	1
Operational risk mitigation	4.03	0.70	80.51%	2
Market risk mitigation	4.02	0.65	80.46%	3
Credit risk mitigation	3.99	0.72	79.77%	4
Capital adequacy risk mitigation	3.97	0.76	79.34%	5
Overall financial risk mitigation	4.01	0.71	80.21%	—

Source: Prepared by the researcher based on SPSS results from the field study.

Items in the top of the financial risk mitigation also give pertinent practical insights. The respondents were highly convinced that hedging strategies have a positive impact on the financial stability of banks in regard to exchange-rate as

well as interest-rate fluctuations. They also highlighted the importance of frequent training of employees to minimise human errors and the need for internal auditing and continuous monitoring to identify weaknesses in the

operation before the financial impacts are felt. The results demonstrate that financial ratios and regulatory requirements are not the only factors involved in risk mitigation, but also human competence, internal control, auditing quality,

and proactive monitoring. This result aligns with the principles of today's banking supervision, which emphasize governance, risk management and operational resilience alongside effective supervision as key components of bank stability.

Table 4. Highest-Ranked Items of Financial Risk Mitigation

Code	Item	Mean	Standard Deviation	Agreement Rate
Z3.1	Hedging strategies help reduce the effect of exchange-rate and interest-rate fluctuations on banks' financial budget stability.	4.11	0.667	82.22%
Z5.5	Regular training of employees on operational policies and procedures reduces the probability of human error.	4.11	0.679	82.22%
Z5.6	Internal auditing and continuous monitoring help detect operational weaknesses and correct them before they affect banks' financial performance.	4.11	0.692	82.22%

Source: Prepared by the researcher based on SPSS results from the field study.

Descriptive Results of Financial Sustainability

It was also seen from the results that the level of financial sustainability is positive at the private banks sampled. The overall mean of financial sustainability was 3.94 out of 5, the standard deviation was 0.71 and the agreement was 78.85%. This finding suggests that people overall see the sustainability practices of private banks as being reasonably okay, but not as high as they see financial risk mitigation are. This indicates that whilst risk mitigation procedures are viewed favorably, there is scope to enhance the long-term sustainability mechanisms particularly in terms of income diversification, policy clarity and strategic financial resilience.

Income diversification (4.15 mean and 82.91% agreement) was the best item in the financial sustainability dimension. This means that respondents believe diversification of sources of income is necessary for banks to be able to respond to fluctuations in the economy and financial markets. Professional ethics was the second best item with a mean of 4.08 and an agreement rate of 81.54%. The finding indicates

that ethical engagement is considered one of the essential elements to minimize financial risk and strengthen trust with customers. The third significant item was the presence of clear financial policies to support long-term sustainability with a mean of 4.03 and an agreement rate of 80.51%. The results suggest that financial sustainability in banks is not only based on profitability but also on income stability, ethical behaviour, transparent policies and financial strategy.

These are related to recent banking literature that shows that financial sustainability is a function of a bank's profitability, cost containment, credit risk management, liquidity management and financial resilience over time. Amoa-Gyarteng et al (2025). revealed that the credit risk factors affect the financial sustainability of the banks, which can be measured by indicators like nonperforming loans, loan-to-asset ratio and deposit-to-asset ratio. It reinforces the notion that, without managing the risks that impact financial performance and continuity, banks will never be sustainable.

Table 5. Descriptive Statistics of Financial Sustainability

Variable / Item	Mean	Standard Deviation	Agreement Rate	Rank
Y1: Diversification of income sources enhances banks' ability to adapt to economic and financial fluctuations.	4.15	0.61	82.91%	1
Y28: Commitment to professional ethics helps reduce financial risks and enhance customer trust.	4.08	0.66	81.54%	2
Y17: Clear financial policies support banks' long-term sustainability.	4.03	0.69	80.51%	3
Overall financial sustainability	3.94	0.71	78.85%	—

Source: Prepared by the researcher based on SPSS results from the field study.

Correlation Results

The correlation results indicate that there is a strong positive and statistically significant correlation between financial risk mitigation and financial sustainability. The Pearson correlation coefficient, r , between two variables was 0.804 and the p value was 0.000. The p value is smaller

than 0.01, indicating that the relationship is statistically significant at the 1% level. The better they do in terms of financial risk mitigation, the better they do in terms of financial sustainability. The first step is to understand that banks that pay more attention to the credit risk, liquidity risk, market risk, capital adequacy risk, and operational risk will have a better financial sustainability.

Table 6. Pearson Correlation Between Financial Risk Mitigation and Financial Sustainability

Independent Variable	Dependent Variable	Pearson Correlation	p-value	Result
Financial risk mitigation	Financial sustainability	0.804**	0.000	Significant positive relationship

Note: ** Significant at $p < 0.01$.

Source: Prepared by the researcher based on SPSS correlation results.

This is also supported by the results of the sub-dimensions. The most significant correlation with financial sustainability was for liquidity risk mitigation (0.703). The operational risk mitigation had a coefficient of 0.686, market risk mitigation 0.674, credit risk mitigation 0.643, and capital adequacy risk mitigation 0.615. All these relationships were statistically significant at $p = 0.000$. The results show that all five financial risk mitigation dimensions are relevant to financial sustainability, but from the perspective of the respondents, liquidity risk seems to be the most influential dimension.

The link between liquidity risk mitigation and financial sustainability makes perfect sense as liquidity is at the core of banking operations. If a bank fulfills its settlement obligations and short-term commitments but fails to satisfy the demands of its depositors, then the bank's viability will be jeopardized. Likewise, the tight relationship between operational risk mitigation and sustainability highlights the importance of internal processes, employee training, internal auditing and monitoring systems to minimize errors and ensure long-term financial success. This is in line with the Basel Committee's focus on the three pillars of operational resilience, good governance and risk management, as critical components of effective banking supervision.

Table 7. Correlation Between Financial Risk Mitigation Dimensions and Financial Sustainability

Risk Mitigation Dimension	Financial Sustainability	p-value	Result
Credit risk mitigation	0.643**	0.000	Significant positive relationship
Liquidity risk mitigation	0.703**	0.000	Significant positive relationship
Market risk mitigation	0.674**	0.000	Significant positive relationship
Capital adequacy risk mitigation	0.615**	0.000	Significant positive relationship
Operational risk mitigation	0.686**	0.000	Significant positive relationship

Note: ** Significant at $p < 0.01$.

Source: Prepared by the researcher based on SPSS correlation results.

Regression Results

The regression results validate that financial risk mitigation is statistically significant in a positive direction with financial sustainability. The regression coefficient was 0.853, meaning that financial risk mitigation increases by 0.853, when financial sustainability increases by one unit. The t-value was 14.491, and the p-value was 0.000, which indicates that the effect is statistically

significant. The F-value was 209.988 and the p-value was 0.000 which indicated that the overall regression model was statistically significant. Financial risk mitigation accounted for 64.6% of the variance in financial sustainability, as indicated by the coefficient of determination (R^2). A very powerful explanation and that risk mitigation is one of the key factors of sustainability in private banks.

Table 8. Regression Effect of Financial Risk Mitigation on Financial Sustainability

Independent Variable	Dependent Variable	Constant B0	Effect Coefficient B1	t-value	F-value	R^2	p-value	Decision
Financial risk mitigation	Financial sustainability	0.521	0.853	14.491	209.988	64.6%	0.000	Accepted

Source: Prepared by the researcher based on SPSS regression results.

The individual dimensions give a deeper understanding of the regression results. Liquidity risk mitigation accounted for 49.4% of the variance in financial sustainability, and had a coefficient of 0.612, and t-value of 10.591. Operational risk mitigation was the most significant factor among the five factors explaining the variance, with a coefficient of 0.606 and t-value of 10.110 and explained 47.1% variance. The variance in Market risk mitigation

was explained by 45.4%, the coefficient was 0.651 and the t value was 9.782. Credit risk mitigation accounted for 41.3% of the variance and had a coefficient of 0.572 and t value of 8.995. The variance explained by the capital adequacy risk mitigation is 37.8%, the coefficient is 0.482 and the t value is 8.356. All these effects were significant at the 0.000 level.

The findings show that all three aspects of financial risk mitigation contribute positively to

the financial sustainability. The primary explanatory power seems to be liquidity risk mitigation, leading to the conclusion that the importance of liquidity planning, cash-flow management and funding stability are important. There is also a significant impact from operational risk mitigation, highlighting the importance of internal audit, staff training, process control and ongoing monitoring to ensure sustainability. The coefficient value of market risk mitigation is strong, indicating that necessary mechanisms for hedging and

monitoring market risk must be established in banks to minimize the impact of exchange-rate and interest-rate changes on the banking system. The issue of credit risk mitigation is still of great significance as the lack of quality loans can affect profitability and financial pressure. Although the explanatory power for the five dimensions is lowest, capital adequacy risk mitigation is an important contributor since capital is the assurance that banks are not faced by unexpected losses, and enhances the confidence of their stakeholders.

Table 9. Regression Effect of Financial Risk Mitigation Dimensions on Financial Sustainability

Dimension	Constant B0	Effect Coefficient B1	t-value	F-value	R ²	p-value	Result
Credit risk mitigation	1.659	0.572	8.995	80.911	41.3%	0.000	Significant positive effect
Liquidity risk mitigation	1.465	0.612	10.591	112.162	49.4%	0.000	Significant positive effect
Market risk mitigation	1.325	0.651	9.782	95.678	45.4%	0.000	Significant positive effect
Capital adequacy risk mitigation	2.032	0.482	8.356	69.829	37.8%	0.000	Significant positive effect
Operational risk mitigation	1.501	0.606	10.110	102.215	47.1%	0.000	Significant positive effect

Source: Prepared by the researcher based on SPSS regression results.

SmartPLS Path Analysis

The results of path analysis with SmartPLS 4 complete the support of the main hypothesis. The financial risk mitigation to financial sustainability path coefficient value of the structural model was 0.562, with a p value of 0.000, showing a positive path coefficient. This

indicates that the correlation between the two latent variables is statistically significant and positive. Hence, the PLS-SEM analysis findings endorse that an increase in the financial risk mitigation leads to an improvement in financial sustainability of private banks in the Kurdistan Region of Iraq.

Table 10. SmartPLS Path Analysis Result

Structural Path	Path Coefficient β	p-value	Direction	Result
Financial risk mitigation → Financial sustainability	0.562	0.000	Positive	Significant

Source: Prepared by the researcher based on SmartPLS 4 path analysis results.

The results of the statistical decision for the main hypothesis and the five sub-hypotheses of the study are summarized in Table 11. The aim of this table is to determine the effect of financial risk mitigation and its dimensions on financial sustainability in private banks in the Kurdistan Region of Iraq (KRI), and to see if that effect is significant or not, in both directions. This table aims to determine the effect of financial risk mitigation and its dimensions on financial sustainability in private banks in the Kurdistan Region of Iraq (KRI) in both directions and in both significant and non-significant ways.

The main hypothesis H1 was accepted due to the results, which indicate that there is a positive and statistically significant influence of financial risk mitigation on financial sustainability. The result of the SmartPLS obtained a path coefficient of $\beta = 0.562$ with $p = 0.000$, and the regression result was obtained $B = 0.853$, $R^2 = 64.6\%$. Improving financial risk mitigation practices results in improved financial sustainability, and 64.6% of the variance in financial sustainability can be attributed to financial risk mitigation. Thus, the overall correlation between the two predominant variables is positive and statistically significant.

The results of the first sub-hypothesis (H1a) indicate that the credit risk mitigation has a significant positive effect on financial sustainability. The results for the first sub-hypothesis (H1a) prove that the credit risk mitigation has a significant positive effect on financial sustainability. The effect coefficient was $B = 0.572$, with $p = 0.000$ and $R^2 = 41.3\%$. This implies that enhanced credit risk management in general, including better loan assessment and lower risk of default, helps to increase financial sustainability of banks. So, H1a is welcome.

For the second sub-hypothesis H1b, liquidity risk mitigation recorded $B = 0.612$, $p = 0.000$, and $R^2 = 49.4\%$. This has the greatest explaining power of the five dimensions. It suggests that liquidity risk management lies among the most crucial factors that contribute to financial sustainability. Properly-managed liquidity gives banks the ability

to pay longer in financial distress, maintain customer confidence, and continue business operations. Hence, the H1b is accepted.

Regarding the third sub-hypothesis H1c, an analysis of the financial sustainability showed positive and significant impact by the market risk mitigation with a coefficient $B = 0.651$, $p = 0.000$ and $R^2 = 45.4\%$. This implies that exposure to exchange rates fluctuations, interest rates and other market risks will be reduced, which will contribute to the financial stability of banks. So, H1c is allowed.

Capital adequacy risk mitigation also had an important positive impact for the fourth sub-hypothesis H1d with $B = 0.482$, $p = 0.000$, and $R^2 = 37.8\%$. This dimension, which has the lowest explanatory power among the other dimensions, is still statistically significant. It is crucial to have adequate capital to cushion losses, safeguard depositors and ensure sustainability over time. So, H1d is accepted.

The results for the fifth sub-hypothesis, operational risk mitigation and financial sustainability, indicated that the operational risk mitigation had a strong positive effect on financial sustainability, indicated by a B of 0.606, a p value of 0.000 and an R^2 of 47.1%. This suggests that internal controls, employee training, internal audits, and ongoing monitoring will minimise operational mistakes and contribute to the financial health of the organisation. Thus, H1e is accepted.

The overall results of Table 11 support all of the hypotheses. The results confirm that all the financial risk mitigation components, namely, credit risk, liquidity risk, market risk, capital adequacy risk and operational risk are statistically significant with statistically positive impact on financial sustainability. Liquidity risk mitigation is the highest explaining dimension followed by operational risk mitigation and market risk mitigation. This indicates that private banks must focus more attention on liquidity management, operational control, and market risk protection to enhance their financial sustainability.

Table 11. Summary of Hypothesis Testing

Hypothesis	Relationship Tested	Statistical Evidence	Decision
H1	Financial risk mitigation → Financial sustainability	$\beta = 0.562$, $p = 0.000$; regression $B = 0.853$, $R^2 = 64.6\%$	Accepted
H1a	Credit risk mitigation → Financial sustainability	$B = 0.572$, $p = 0.000$, $R^2 = 41.3\%$	Accepted
H1b	Liquidity risk mitigation → Financial sustainability	$B = 0.612$, $p = 0.000$, $R^2 = 49.4\%$	Accepted
H1c	Market risk mitigation → Financial sustainability	$B = 0.651$, $p = 0.000$, $R^2 = 45.4\%$	Accepted
H1d	Capital adequacy risk mitigation → Financial sustainability	$B = 0.482$, $p = 0.000$, $R^2 = 37.8\%$	Accepted
H1e	Operational risk mitigation → Financial sustainability	$B = 0.606$, $p = 0.000$, $R^2 = 47.1\%$	Accepted

Source: Prepared by the researcher based on SPSS and SmartPLS 4 results.

Discussion of the Findings

The overall results suggest that financial risk mitigation is one of the important factors which contributes to financial sustainability in private banks within the Kurdistan Region of Iraq. The positive descriptive results reveal that respondents are aware of the significance of practices in mitigating risks, particularly the categories of liquidity management, operational control, hedging, internal auditing and training. All three results (correlation, regression, and SmartPLS) indicate that risk mitigation positively affects sustainability. Therefore, the main hypothesis of the study is accepted.

The findings also reveal that financial sustainability is achieved through financial, ethical, operational and strategic means. There is a strong sustainability item of income diversification, meaning that banks should not rely on a single source of income. Professional ethics also came out as one of the major sustainability factors, highlighting the importance of trust, transparency, and responsible behavior within the banking sector. Financial policies were also ranked highly, indicating the need for formalized policies and consistent financial decision making for sustainability.

The results are consistent with recent empirical research showing that credit risk has a significant influence on bank sustainability. The study by Amoa-Gyarteng et al., (2025) found that credit risk indicators have significant impacts on the financial sustainability of listed banks, especially the loan quality indicators and the deposit-related indicators. This is in line with the present study that found credit risk mitigation has a positive contribution to sustainability.

The results also contribute to the general theory that management practices and institutional policies have an impact on banking sustainability. Kumar et al. discovered that green banking practices can contribute to the sustainability performance in banking institutions and conducted the test using PLS-SEM. The companies studied were in the field of green banking, but it is important to emphasize that the study has taken a methodological and theoretical approach to sustainability in banks, which can be influenced by organizational practices, policies and managerial systems.

On a practical level the findings indicate that private banks should focus their risk mitigation efforts more on it being a strategic sustainability process than a technical compliance process. Risk

mitigation helps to make banking more sustainable, as it guards against losses, creates greater financial stability, promotes trust, aids decision making, and helps ensure long-term continuity. Therefore, the importance of banking management or banking regulators in putting more emphasis on the systems of integrated risk management, which link credit control, liquidity planning, market monitoring, capital adequacy and operational resilience, is crucial.

Conclusion

The study explored the influence of financial risk mitigation on financial sustainability in private banks in the Kurdistan Region of Iraq based on the opinion of 117 external auditors, financial managers, audit managers, risk managers and related banking professionals. The outcome indicated that there was a high degree of agreement on the financial risk mitigation, with the overall mean score being 4.01 with 80.21% of the respondents agreeing. The levels of financial sustainability were also positive, having a mean of 3.94 and an agreement rate of 78.85%.

The correlation results showed the high positive correlation and statistically significant correlation between financial risk mitigation and financial sustainability which were obtained as Pearson correlation coefficient of 0.804 and $p = 0.000$ respectively. The regression results indicated financial risk mitigation accounted for 64.6% of the variance in financial sustainability and had a significant, positive coefficient of 0.853. The SmartPLS path analysis also yielded the same result that the hypothesis was accepted, with a path coefficient of 0.562 and $p = 0.000$.

From these findings, the study concludes that financial risk mitigation is one of the important factors that determines financial sustainability for private banks. The results indicate that banks can enhance their sustainable development in the long-term by strengthening their credit risk control, liquidity management, market risk hedging, capital adequacy monitoring, internal auditing, staff training, and operational risk control. The study also finds that sustainability in banks is additionally reliant on profitability, income diversification, professional ethics,

transparency of financial policies, customer confidence, and financial shock resistance.

Recommendations

Private banks in the Kurdistan Region of Iraq should bolster the integrated financial risk management systems, which integrate credit risk, liquidity risk, market risk, capital adequacy risk and operational risk under one umbrella. Risk mitigation should be seen as an integral part of financial sustainability and the banking stability in the long term and not as a standalone technical process.

Banks must improve the credit risk assessment mechanism, which includes the use of rigorous borrower evaluation, continuous monitoring of loans, setting up early warning indicators, and assessing the quality of collaterals; and periodic review of NPLs. Good credit risk control will help lower loss of the loans, maintain profitability and contribute to sustainable financial performance.

Liquidity risk would have been given more priority by banks as its relationship with financial sustainability was the strongest. Private banks should keep sufficient liquid assets, have contingency funding plans, keep track of cash flows, spread funding sources, and have regular loan to deposit ratio assessments.

Banks need to increase the application of market risk management instruments, particularly the hedging of exchange rate and interest rate risks. Volatility in the market may impacts the balance-sheet stability of a bank, therefore, banks should have clear asset-liability management and monitoring policies for market exposure.

Banks should boost their capital adequacy planning and build up adequate capital buffers, keep track of risk-weighted assets and ensure the growth plans are matched by capital capacity. Capital cushion is very important for absorbing unforeseen losses as well as to build the confidence of the customers, investors and regulators.

Banks need to allocate more resources to operational risk management by training staff, internal auditing, internal control systems and

compliance measures, digital security and continuous monitoring. It is evident from the results obtained that training and internal audit are important tools that can help minimise operational weaknesses to prevent them from having a negative impact on financial performance.

Financial sustainability training should be more focused and offered by banking regulators and professional associations. The field results revealed that 56.4% of the participants had not taken any training courses about financial sustainability, indicating that training is very much needed in this field.

Private banks need to have clear written sustainability policies that link risk management to long-term financial planning and income diversification, ethical behaviour and customer trust. These policies are to be reviewed on a regular basis and shared with all relevant departments.

Limitations and Future Research

This study has a number of limitations. First, it was conducted on private banks in the Kurdistan Region of Iraq only. Hence, the findings may not be applicable to all public banks, Islamic banks, banks in other parts of Iraq or other countries. Further research can be conducted to compare private and public banks or to compare conventional banks and Islamic banks.

Second, the study was based on the data obtained from questionnaires, which were oriented towards the perception of the respondents. The respondents were of a professional nature but perception-based data can be impacted by personal judgment, organizational experience, or response bias. Future study might include the use of Financial Data (ROA, ROE, CAR, LR, NPL, CIR) in addition to Data from the Questionnaires.

Third, the study was a cross-sectional design, with data gathered at the one time. This reduces the ability to detect over time changes. Longitudinal data can be analysed to provide a good test for financial sustainability over multiple years as a result of improved risk mitigation.

Fourth, the study was confined to five financial risk mitigation factors, namely credit risk, liquidity risk, market risk, capital adequacy risk and operational risk. Other factors could be incorporated into future studies, including corporate governance, digital banking risk, cybersecurity risk, quality of internal audits, regulatory compliance, financial technology adoption, and environmental/climate-related financial risk.

Fifth, the direct impact of financial risk mitigation on financial sustainability was explored. Future research could be directed towards moderating or mediating variables, such as the effectiveness of internal controls, audit quality, risk governance, bank size, ownership structure, management competence, digital transformation, or other variables.

Multi-group analysis based on SmartPLS could also be employed in future studies to see if there are any differences in the relationship between the financial risk mitigation and financial sustainability across different job positions, years of experience, educational qualifications or training backgrounds. This analysis would give a better understanding of the effect of the professional attributes on the perceptions of banking risk and sustainability.

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