Evaluating the Influence of IFRS 9 Implementation on Credit Risk Management: Evidence from Saudi Banks

(1) DR. Mahmoud Abdoul aleem Elkholy
(2) DR. Mohamed El-Saeed Ali Saba
(3) DR. Eman Ali Selem

(1) Accounting department Faculty of Business Administration – Benha University
mkhouly@taibahu.edu.sa
(2) Accounting department Faculty of Commerce – Mansoura University
msaba@taibahu.edu.sa, m_a_saba180yahoo.com
(3) Accounting department Faculty of Commerce – Suez Canal University
esalem@taibahu.edu.sa, eman.selem1@gmail.com

(1),(2),(3) Accounting department faculty of business administration, Taibah University, KSA

Abstract

This study provides a comprehensive analysis of the impact of IFRS 9 implementation on credit risk management within Saudi banks. IFRS 9 is treated as an independent variable, with a binary measure of 0 before its implementation and 1 post-implementation. The study evaluates credit risk management as a dependent variable through five key indicators: non-performing loans (NPL), loan loss coverage (LLC), capital adequacy ratio (CAR), loan-to-deposit ratio (LDR), and loan loss provisions (LLP). Employing Paired Samples Tests and regression analysis, the research identifies significant relationships between IFRS 9 and these indicators, revealing noteworthy reductions in NPL, LDR, and CAR, alongside increases in LLC and LLP. These changes reflect enhanced credit risk management and improve financial transparency within the banks. The study further explores the role of control variables, including the Liquidity Coverage Ratio (LCR), Leverage Ratio (LR), Return on Equity (ROE), and Return on Assets (ROA) in explaining changes in credit risk management indicators, offering insights into the strategic responses of banks. The study also examines, to deepen the understanding of variations in credit risk management metrics. The findings offer valuable insights for commercial banks, regulators, and stakeholders, highlighting the need for strengthened liquidity management, conservative loss provisioning strategies, and increased transparency in financial reporting to adapt to the evolving financial landscape.

Keywords: *IFRS 9, Credit Risk Management, Non-Performing Loans, Loan Loss Coverage, Capital Adequacy Ratio, Loan Deposit Ratio, Loan Loss Provisions, Saudi Banks, Financial Reporting, Liquidity Coverage Ratio, Leverage Ratio, Return on Equity, Return on Assets.*

"تقييم أثر تطبيق المعيار الدولي للتقارير المالية IFRS 9 على إدارة المخاطر الائتمانية: أدلة من البنوك السعودية"

ملخص الدراسة:

تهدف الدراسة إلى تحليل تأثير تطبيق المعيار الدولي للتقارير المالية (IFRS 9) على إدارة المخاطر الائتمانية في البنوك السعودية. حيث يمثل IFRS 9 متغيرًا مستقلًا، ويُقاس باستخدام مقياس ثنائي: 0 قبل التطبيق و1 بعد التطبيق. بينما يتم قياس إدارة المخاطر الائتمانية كمتغير تابع من خلال خمسة مؤشرات رئيسية، وهي: نسبة القروض المتعثرة (NPL) ، نسبة تغطية خسائر القروض(LLC) ، نسبة كفاية رأس المال(CAR) ، نسبة القروض إلى الودائع(LDR) ، ومخصصات خسائر القروض إلى إجمالي القروض(LLP) .

وقد اعتمدت الدراسة على اختبارات العينات المزدوجة وتحليل الانحدار للكشف عن العلاقات الإحصائية بين IFRS 9 بين المؤشرات التي تمثل إدارة المخاطر الائتمانية، حيث أظهرت النتائج انخفاضًا ملحوظًا في كل من NPLو LDR وCAR، في مقابل ارتفاع في LLC و LLP .وتعكس هذه التغيرات تحسنًا في إدارة المخاطر الائتمانية وزيادة مستوى الشفافية المالية في البنوك.

كما توصلت الدراسة إلى دور بعض المتغيرات الحاكمة، مثل نسبة تغطية السيولة(LCR) ، ونسبة الرافعة المالية (LR)، والعائد على حقوق الملكية(ROE) ، والعائد على الأصول(ROA) ، في تفسير التغيرات التي طرأت على مؤشرات إدارة المخاطر الائتمانية، مما يساعد في فهم الاستراتيجيات التي تتبناها البنوك لمواجهة هذه التغيرات.

وتبرز نتائج الدراسة أهمية تعزيز إدارة السيولة، وتبني سياسات تحفظية لمخصصات الخسائر، وزيادة الشفافية في التقارير المالية، مما يسهم في تمكين البنوك من التكيف مع بيئة مالية متطورة ومتغيرة.

الكلمات المفتاحية: IFRS 9 ، إدارة المخاطر الائتمانية، نسبة القروض المتعثرة، تغطية خسائر القروض، نسبة كفاية رأس المال، نسبة القروض إلى الودائع، مخصصات خسائر القروض إلى إجمالي القروض، البنوك السعودية، التقارير المالية، نسبة تغطية السيولة، نسبة الرافعة المالية، العائد على حقوق الملكية، العائد على الأصول.

1. Introduction

The banking sector serves as a keystone of economic stability and growth, acting as a crucial intermediary that facilitates financial transactions, investment activities, and risk management strategies. Beyond simple transactional functions, banks play a vital role in maintaining economic equilibrium by ensuring the efficient circulation of capital throughout the financial system. In recent years, financial reporting and risk management within the banking industry have undergone substantial transformation due to the widespread adoption of international accounting standards, particularly those aimed at enhancing transparency and accountability. One such standard significantly impacting banks is IFRS 9, which addresses the classification and measurement of financial instruments while introducing a forward-looking approach to credit loss recognition. This necessitates that banks adopt proactive credit risk management methodologies, fundamentally altering how they evaluate, quantify, and disclose financial risks. In the specific context of Saudi Arabia, the implementation of international financial reporting standards carries considerable importance due to the unique characteristics of the nation's financial landscape and its evolving regulatory framework. The adoption of IFRS 9 aligns Saudi banks with global best practices while simultaneously presenting challenges and opportunities that may influence their credit risk management strategies.

The research problem is to study the impact of the Implementation of IFRS 9 standards on credit risk management in Saudi banks and how the Implementation of IFRS 9 may affect credit risk and banking practices associated with managing these risks. Additionally, the research examines the impact of control variables such as return on equity, leverage, return on assets, and liquidity coverage ratio on this relationship, to understand the extent to which these factors affect the Implementation of IFRS 9 on credit risk management. While these standards aim to improve transparency and

reliability in financial reporting, there remains a gap in understanding their specific impact on the credit risk management frameworks of banks in Saudi Arabia. Furthermore, compliance challenges and the effectiveness of these regulations in strengthening credit risk assessment strategies have not been thoroughly examined. This study seeks to address these gaps by investigating the influence of IFRS 9 on credit risk management practices in Saudi Arabian banks.

Research Objectives

- Examine the impact of IFRS 9 on credit risk management which is measured by five indicators as follows non-performing loan ratio (NPL), loan loss coverage ratio (LLC), capital adequacy ratio (CAR), Loan To Deposit Ratio (LDR), and loan loss provisions (LLP) to total loans.
- Analyze the impact of control variables on the relationship between the Implementation of IFRS 9 and credit risk management by assessing how Liquidity Coverage Ratio (LCR), Leverage Ratio (LR), Return on Equity (ROE), and Return on Assets. (ROA). Influence this relationship. This includes determining whether these control variables enhance or mitigate the impact of IFRS 9 on credit risk management in Saudi banks.
- Provide recommendations based on research findings to enhance the approach to managing credit risk in Saudi banks under the Implementation of IFRS 9.

Research Questions

- What is the impact of IFRS 9 on the non-performing loan ratio (NLP) as an indicator of credit risk management in Saudi banks?
- What is the impact of IFRS 9 on the loan loss coverage ratio (LLC) as an indicator of credit risk management in Saudi banks?
- What is the impact of IFRS 9 on the capital adequacy ratio (CAR) as an indicator of credit risk management in Saudi banks?
- What is the impact of IFRS 9 on the Loan To Deposit Ratio (LDR) as an indicator of credit risk management in Saudi banks?
- What is the impact of IFRS 9 on the loan loss provisions (LLP) to total loans as an indicator of credit risk management in Saudi banks?
- Does IFRS 9 lead to changes in credit risk management in Saudi banks?
- How do control variables such as Liquidity Coverage Ratio (LCR), Leverage Ratio (LR), Return on Equity (ROE), and Return on Assets (ROA) affect the relationship between IFRS 9 and credit risk management in Saudi banks?

2. Overview: IFRS 9 vs. IAS 39 in Banking Risks

There exists an excess of scholarly and professional analyses regarding IFRS 9 and its distinctions from its predecessor, IAS 39 (Deloitte, 2019; Ernst and Young, 2014; European central bank, 2024; KPMG, 2016; Novotny-Farkas, 2016). Consequently, we shall present a brief exploration, concentrating on the implications that the stipulations enshrined within the standard may have on banking risk. A principal divergence between IAS 39 and IFRS 9 pertains to the method of recognizing provisions. Under the framework of IAS 39, provisions are determined based on the incurred loss model; conversely, IFRS 9 employs an expected loss model that is ranked into three stages contingent upon a significant increase in credit risk. IAS 39 mandates that a financial asset or a collective grouping of financial assets, inclusive of loans and advances, is deemed impaired solely upon the presence of objective evidence attributable to one or

more events transpiring after the initial recognition of the asset (Deloitte, 2019). Thus, provisions are established predicated upon the actual or unequivocal certainty of an event-inducing impairment.

The fundamental tenet governing loss provisions under IFRS 9 is the establishment of provisions in anticipation of an increase in expected credit losses, given that the anticipated credit losses over the lifespan of the debt instrument are summarized within a credit risk premium incorporated in the interest rate at the stage of loan origination. Consequently, there exist three distinct stages during which the anticipated credit loss will increase, warranting the allocation of provisions. Credit loss is quantified as the discounted value of the differences between all contractual cash flows and the expected cash flows. Stage 1 financial assets encompass all assets for which the anticipated credit loss remains relatively unchanged. Additionally, entities are required to recognize the 12-month expected credit loss, which constitutes a fraction of the lifetime expected credit loss of the asset at the initial reporting date (Albrahimi, 2020). All debt instruments, inclusive of loans and advances, are classified into Stage 1 immediately following origination, provided that the risk of default has not undergone a significant alteration relative to the date of initial recognition. Nonetheless, IFRS 9 merely refers to default without offering a precise definition, thereby granting management augmented discretion. The standard articulates that preparers of financial statements should employ a default definition that aligns with the definition utilized for internal credit risk management objectives. However, a rebuttable presumption exists that default does not transpire later than when a financial asset is 90 days past due. Furthermore, the standard delineates presumptive indicators of a significant augmentation of credit risk concerning a financial asset when contractual payments are more than 30 days past due following initial recognition In instances where the credit risk associated with financial assets witnesses a significant escalation, these assets should be transitioned to Stage 2, wherein impairment is established to represent the assets' lifetime expected credit loss. Financial assets characterized by substantially elevated credit risk, which are classified as credit-impaired assets due to recurrent defaults, are designated to Stage 3. In a manner analogous to Stage 2, loan loss allowances the estimations in Stage 3 are predicated upon the anticipated credit loss throughout the asset's lifecycle. Nevertheless, the projected lifetime expected credit loss in Stage 3 is anticipated to exceed that in Stage 2, attributable to the elevated likelihood of default present in Stage 3. The fundamental distinction between IAS 39 and IFRS 9 becomes more pronounced when assets transition into Stages 2 and 3, given that in Stage 1, the anticipated losses are less likely to diverge significantly from those reflected in interest rates as a component of credit risk premium (Novotny-Farkas, 2016). An illustration of how the enactment of IFRS 9 modifies the provisions regarding a bank's credit losses in comparison to IAS 39 is presented as follows. The COVID-19 pandemic has exerted a considerable influence on the aviation industry, wherein several enterprises are concluding operations with increased worries regarding the potential death of additional firms within the supplied years. Consequently, bank loans extended to aviation professionals and enterprises are prone to be impacted by both incurred losses and anticipated losses. Under the stipulations of IAS 39, financial institutions are mandated to recognize solely the losses that have transpired within the

current fiscal year (such as firms that have ceased operations or individuals who have lost employment). Conversely, IFRS 9 obliges banks to acknowledge all conceivable credit losses that the institution could project as a result of COVID-19, encompassing both the present year and subsequent years. Consequently, loan loss provisions for the aviation sector under IFRS 9 will encompass both incurred losses and projected losses, which will surpass the provisions established under IAS 39. Such a substantial provision will precipitate a diminution in the regulatory capital and retained earnings of the banks, along with a subsequent decrease or cessation of dividend distributions. Thus, in light of the anticipated losses stemming from COVID-19, banks may adopt a prudent approach by curtailing their overall investments, as well as their exposure to loans and advances (thereby assuming less risk), which in turn could lead to a further decline in profitability. Furthermore, banks can leverage the insights gleaned from the estimation of expected losses to formulate more resilient investments, loans, and advances aimed at enhancing their performance to offset the expected losses induced by COVID-19.(Kyiu & Tawiah, 2023).

3. Literature Review

(Kyiu & Tawiah, 2023) This paper investigates the impact of the International Financial Reporting Standard 9 (IFRS 9) on bank risk, focusing on a sample of 666 banks across 61 countries during the period from 2016 to 2019. The primary objective is to assess whether the forward-looking loan loss provisioning mandated by IFRS 9 influences bank risk levels. **The study finds a notable decrease in bank risk following the implementation of IFRS** 9, suggesting that the standard's forward-looking provisions facilitate risk reduction. This effect is particularly pronounced in riskier banks, indicating that IFRS 9 serves as an effective regulatory measure rather than an instance of regulatory overreach. Additionally, the study observes that the impact of IFRS 9 is more significant in countries with stronger accounting regulatory enforcement and higher banking supervision intensity. The findings are robust across various estimation techniques, including multi-level hierarchical regressions and entropy balancing estimations, underscoring the role of increased transparency and timely recognition in reducing bank risk (Ahmad et al., 2022) This study aims to investigate the impact of International Financial Reporting Standards (IFRS) on the relationship between risk management and financial disclosure within Jordanian banks, particularly in the context of the Covid-19 pandemic. The research utilizes financial reports from these banks, employing panel data to measure the effects of IFRS and risk management. Additionally, the study incorporates daily trading data over a specified period and gathers insights through questionnaires and interviews with bank managers. The findings reveal a positive and statistically significant relationship between risk management and financial disclosure, with a coefficient of 0.315. Furthermore, the study highlights the moderating role of IFRS in this relationship, with an effect size of 0.696. These results underscore the importance of IFRS and risk management in enhancing financial disclosure, (Wen, 2021) This paper investigates the adoption of IFRS 9 by Chinese banks, focusing on the international and national contexts influencing this transition. The primary objective is to explore how IFRS 9, introduced to address deficiencies in financial reporting post the 2008 financial crisis, impacts the banking sector in China. The study aims to provide insights into the changing financial environment, accounting practices, and institutional settings in China, which are crucial for understanding the implications of IFRS 9 adoption. Additionally, the paper seeks to

assist foreign investors in making informed decisions based on the financial disclosures of Chinese banks, thereby enhancing transparency and comparability in financial reporting. The findings suggest that while IFRS 9 adoption presents challenges, it also offers opportunities for improved financial stability and market discipline through earlier recognition of credit losses and extended disclosure requirements. The paper concludes that despite inherent limitations, the adoption of IFRS 9 in China is beneficial and contributes to a more transparent and efficient international financial market (Mantik et al., 2021) The paper aims to explore the intricate relationship between credit management practices and the prevalence of non-performing loans (NPLs) within the banking sector. It employs a qualitative descriptive methodology to delve into the factors contributing to NPLs, emphasizing the importance of both preventative and remedial strategies to mitigate these risks. The study identifies key internal factors within banks, such as soft credit policies and inadequate monitoring systems, as significant contributors to the rise in NPLs. Additionally, it highlights the external economic pressures, including the global financial crisis and competitive market dynamics, which exacerbate the issue. The findings underscore the necessity for a comprehensive approach that combines proactive measures, such as stringent credit assessments and enhanced training for banking personnel, with reactive strategies like loan restructuring and legal actions. By fostering collaboration among stakeholders and improving regulatory frameworks, the paper suggests that banks can effectively manage NPLs, thereby ensuring financial stability and supporting economic growth (Li, 2024) This study investigates the impact of financial market development on bank risk-taking within the Gulf Cooperation Council (GCC) member countries. The research focuses on the period from 2012 to 2022, analyzing data from 120 GCC banks. The study aims to understand how financial development, represented by the stock market and banking sector development, influences bank risk, which is measured through capitalization and income diversification. The findings reveal that increased financial development correlates with heightened bank risk, applicable to both stock market and banking sector development. However, the study notes that neither measure of financial development significantly affects income diversification. These results have important implications for bank managers, policymakers, regulators, and stakeholders concerned with the financial stability of GCC countries, highlighting the need for careful supervision and regulation to mitigate potential risks associated with financial development (Tang, 2024) This study aims to explore the determinants of credit risk and market risk in Vietnamese commercial banks, focusing on specific factors such as bank size, capital adequacy, non-performing loan (NPL) ratio, and portfolio diversification. By employing a dataset from five commercial banks spanning the years 2015 to 2022, the research utilizes multivariate regression analysis to identify the key drivers of credit risk and applies the Value at Risk (VaR) model to assess market risk. The findings indicate that larger banks with higher capital adequacy ratios tend to exhibit lower credit risk, whereas banks with higher NPL ratios face significantly increased credit risk. Additionally, market risk, as measured by VaR, is found to be strongly influenced by portfolio volatility and interest rate fluctuations. These results underscore the necessity for robust risk management frameworks that are tailored to the unique characteristics of the Vietnamese banking sector. (Vasiliev et al., 2018) The study aims to develop an effective system for managing the operational risk of a commercial bank, addressing the unique challenges posed by operational risks which are distinct from other types of bank risks due to their specific characteristics

and the lack of systematic analysis and identification criteria The objectives include determining the economic and legal aspects of managing operational risk, studying the methodologies used both internationally and in Russia, and identifying potential directions for improvement in the banks under study. The findings highlight the importance of modernizing and improving operational risk management systems to stabilize banks, enhance their stability and profitability, and reduce capital provisions for operational risk, thereby increasing the attractiveness of banking services. The study emphasizes the need for a comprehensive approach to operational risk management, incorporating empirical research methods such as description, comparison, generalization, analysis, and synthesis, as well as theoretical methods like the hypothetical-deductive approach. The study underscores the critical role of effective operational risk management in the long-term development strategy of banks, especially in the context of global financial instability and evolving regulatory frameworks. (Ismail & Ahmed, 2023)This study aims to investigate the impact of unsystematic financial risks, specifically liquidity risk, credit risk, and operational risk, on the financial stability of conventional banks in Jordan. The research focuses on banks listed on the Amman Stock Exchange, utilizing a descriptive approach and cross-sectional panel data from 2016 to 2021 to establish cause-and-effect relationships between the variables. The findings reveal that while liquidity risk does not directly affect financial stability, it remains a crucial factor in risk management strategies. Credit risk is found to have a negative impact on financial stability, underscoring the necessity for effective credit risk management to maintain a stable financial system. Although operational risk does not directly influence financial stability, it can have significant implications for individual institutions and may indirectly affect overall stability. The study highlights the importance of comprehensive risk management strategies to mitigate the adverse effects of unsystematic financial risks.(Kamara, 2024) This paper investigates the intricate dynamics of credit risk management within the banking sector, emphasizing the dual impact of performing loans on a bank's asset base. It highlights the necessity for banks to adopt systematic and proactive strategies to navigate the complex risk landscape, ensuring both stability and profitability. The study employs a mixed methods research approach, combining quantitative and qualitative data to provide a comprehensive understanding of credit risk management practices. The findings reveal that effective credit management significantly influences a bank's profitability, with notable increases in deposits, investments, and credit extensions contributing to enhanced financial performance despite challenging economic conditions. However, the research acknowledges limitations, such as the exclusion of detailed computations of various risk types, underscoring the need for further academic inquiry to guide management and regulatory practices.(Porretta et al., 2020) This paper investigates the Expected Credit Loss (ECL) model as defined by IFRS 9, which replaced the previous incurred loss approach under IAS 39, focusing on its implications for credit risk management and financial reporting. The study explores the interdependencies between IFRS 9 and the credit risk framework for financial intermediaries, including Basel 3, through a detailed case study. The findings reveal that while Stage 1 of IFRS 9 does not significantly reduce excess coverage for performing portfolios, the lifetime ECL in Stage 2 imposes excessive provisions by not accounting for expected premium coverage. This excess provision compensates for the capital requirement shortfall in portfolios with short repayment periods. The paper contributes to the understanding of the relationship between credit risk management

frameworks and accounting standards (Pedro et al., 2021) This paper presents a forward-looking methodology to construct efficient credit portfolios under the IFRS 9 framework, focusing on the tradeoff between portfolio income and volatility. The study employs a credit loss model based on point-in-time probabilities of default, determined through a stochastic simulation of credit transitions influenced by global GDP growth. The research compares the IFRS 9 framework with IAS 39 and Current Expected Credit Loss (CECL) frameworks, revealing that IFRS 9 and CECL tend to penalize riskier-rated credits, while IAS 39 favors speculative-grade credits. The findings highlight that longer credit maturities further emphasize the penalization of speculative-grade credits in efficient portfolios. This work underscores the importance of understanding the practical implications of different accounting frameworks on credit portfolio management, in summary, IFRS 9 is often seen as an improvement over IAS 39 in terms of reducing volatility and enhancing risk management through a forward-looking approach.(Kim et al., 2021) This paper investigates the impact of the transition from the incurred credit loss model to the expected credit loss (ECL) model under the International Financial Reporting Standard (IFRS) 9 on the timeliness of loan loss recognition by banks. The research examines a dataset comprising international banks from 33 different countries to determine if the Expected Credit Loss (ECL) model improves the timeliness of loan loss allocation. The findings reveal that the adoption of the ECL model significantly improves loan loss recognition timeliness (LLRT), particularly for banks that previously engaged in higher risk-taking and recorded lower loan losses. Additionally, the study observes that banks subject to more stringent provisions for underperforming loans exhibit a more pronounced improvement in LLRT. The research also highlights that U.S. banks, although not directly subject to IFRS 9, experience enhanced LLRT if they have subsidiaries in IFRS 9-adopting countries. These results provide early insights into the transformative effects of IFRS 9 on accounting for credit losses, suggesting a reduction in the pro-cyclicality of bank lending and risk-taking behaviors.(Sultan et al., 2024) The study investigates the impact of International Financial Reporting Standards (IFRS) on global capital markets, focusing on enhancing market efficiency, financial statement comparability, and investment decision-making processes. Utilizing a dataset of 1,200 publicly traded companies across 30 countries, the research employs a difference-in-differences approach to assess the effects of IFRS adoption. The findings reveal significant improvements in market liquidity, with a 15% increase, and a 10% reduction in stock price volatility, attributed to the enhanced transparency and comparability of financial statements. Additionally, the study highlights a 25% improvement in financial statement comparability and a 20% increase in cross-border investment flows, underscoring the positive impact on global capital mobility. These results emphasize the role of IFRS in fostering a more integrated and dynamic international financial landscape, contributing to sustainable economic growth through improved investor confidence and reduced information asymmetrical (Al-Beshtawi, 2023) This study investigates the application of the International Financial Reporting Standard (IFRS) 9 in Islamic banks, focusing on its role in mitigating potential financial defaults. The primary objective is to assess how IFRS 9 can enhance the accuracy of credit risk assessment and improve the financial stability of banks by incorporating expected credit losses (ECL) into financial statements. The research highlights the importance of fair value accounting and the need for comprehensive income disclosures, which significantly influence decision-making by users of financial statements. The findings

reveal that the implementation of IFRS 9, particularly in the context of Islamic banks in Jordan, aids in the accurate measurement and recording of expected credit losses, thereby reducing the risk of financial default. Additionally, the study underscores the necessity to enforce stringent measures and provide guidance to ensure consistent application of IFRS 9 across banks, which is crucial for maintaining financial stability and investor confidence. The research concludes that adopting IFRS 9 not only enhances the transparency and reliability of financial reporting but also plays a pivotal role in managing credit risk and preventing financial crises in the banking sector. (Travkina et al., 2020) The paper aims to address the challenges faced by commercial banks in transforming their forecast assessment of expected credit losses, particularly in the context of monitoring and evaluating credit risk. With the implementation of IFRS 9 'Financial Instruments', banks encounter uncertainties regarding the long-term impact of credit risk and difficulties in utilizing extensive additional information for calculating future credit losses. The study emphasizes the importance of considering collective or individual assessment based in predictive models of expected credit losses. It proposes a comprehensive approach to using impairment models as fundamental tools for modeling expected credit losses, which are crucial for forming impairment provisions. The findings suggest that the modification of these models should be tailored to the specific credit activities and portfolios of banks, the types of financial instruments, available information sources, and IT systems in use. Validation of these models is highlighted as a means to reduce expected credit losses, decrease estimated reserves, and enhance overall bank efficiency.

In reviewing the literature on IFRS 9, we find a profound shift in how credit risk is managed across global banks. IFRS 9 has introduced a forward-thinking approach that requires banks to incorporate macroeconomic forecasts into their expected credit loss models. This change demands that banks handle large datasets and refine their models to stay compliant. Despite the global research on IFRS 9, a significant gap exists in studies specifically examining its implementation in Saudi Arabia. Addressing this gap is crucial as it could provide valuable insights for regulators and decision-makers looking to improve credit risk management and align with international standards. The literature also stresses the importance of validating and optimizing impairment models to reduce expected credit losses, thus enhancing overall bank efficiency. Accurate credit loss estimation is vital for maintaining financial stability and resilience in the banking sector. The research highlights IFRS 9's transformative impact on global banking practices and emphasizes the need to explore its application in different regional contexts, especially in Saudi Arabia. However, previous studies have their limitations. There is a noticeable lack of focus on how Saudi banks implement IFRS 9, which restricts our understanding of its impact on credit risk management in the Kingdom. Many studies rely on theoretical analyses or data from other countries, often overlooking the unique economic factors of Saudi Arabia. Additionally, there has been a lack of comprehensive evaluations of IFRS 9's impact on credit granting in Saudi banks, with most research focusing on European and Asian markets. This current study seeks to address these gaps. It specifically focuses on Saudi banks, aiming to provide a deeper analysis of IFRS 9's impact on credit risk management in the local market. The study uses recent data from Saudi banks, enhancing the credibility and relevance of its findings. It also considers local regulatory factors, offering practical recommendations for both regulators and banks. By examining these aspects, the study not only contributes to academic literature but also aids in decision-making.

4. Theoretical framework and development of hypotheses

4.1 IFRS 9 and Credit Risk Management in Saudi Banks

The adoption of IFRS 9, *Financial Instruments*, marks a pivotal transition in accounting and credit risk management, replacing historical incurred loss methodologies with a forward-looking Expected Credit Loss (ECL) framework that necessitates earlier recognition of credit impairments through probability-weighted scenarios. (Porretta et al., 2020). Within Saudi Arabia's banking sector—distinguished by conservative lending practices, robust capitalization, and stringent oversight by the Saudi Central Bank (SAMA)—the standard aligns with the broader objectives of Saudi Vision 2030, aiming to modernize financial systems and integrate global regulatory norms. Proponents, guided by **contingency theory**, argue that the ECL model enhances adaptive credit risk management by dynamically incorporating macroeconomic forecasts and borrower-specific risks, thereby enabling proactive mitigation strategies (Dagilienė & Klovienė, 2019). Conversely, critics leveraging **agency theory** contend that the standard's dependence on managerial judgment and complex predictive models may exacerbate informational asymmetries, moral hazard, or provisioning volatility, particularly in markets characterized by economic unpredictability or data scarcity(Kajola et al., 2022). Empirical studies across Gulf Cooperation Council (GCC) banking systems reflect fragmented outcomes: while some institutions report strengthened risk governance and capital adequacy, others underscore operational strain from the ECL's data-intensive requirements. In Saudi Arabia, however, the sector's institutional resilience—reinforced by SAMA's prudential regulations, historically low non-performing loan (NPL) ratios (1.8% as of 2023), and sophisticated risk infrastructures—suggests a pre-existing congruence with IFRS 9's risk-sensitive objectives. This inherent alignment, coupled with the sector's dominance by large, well-capitalized banks adept at navigating regulatory complexities, implies that the theoretical disruptions posited by critics may be neutralized in practice. Consequently, synthesizing contingency theory's emphasis on adaptive systems and agency theory's warnings of asymmetric incentives, this study hypothesizes that **there is significant impact of the implementing IFRS 9 on credit risk management in Saudi banks**, as structural and regulatory safeguards attenuate the standard's transformative potential.

This study empirically examines the main hypothesis that the implementing of *IFRS 9: Financial Instruments* has a statistically significant impact on credit risk management practices in Saudi banks, as measured through five key financial indicators. The hypotheses are formulated to interrogate the interplay between IFRS 9's Expected Credit Loss (ECL) framework and credit risk metrics, leveraging Saudi Arabia's unique regulatory and institutional context: To serve the objective of the study, the main hypothesis, which posits a significant relationship between the implementation of International Financial Reporting Standard (IFRS) 9 and credit risk management in Saudi banks, so, Based on a review of recent literature on the impact of IFRS 9 implementation on credit risk management, and drawing on empirical evidence from prior studies, we can formulate the following sub-hypotheses:

4.1.1 The Impact of IFRS 9 on Non-Performing Loan (NPL) Ratios:

IFRS 9 relies on the expected credit loss (ECL) model, which aims to promote a proactive approach to identifying non-performing loans and taking precautionary measures to reduce NPL ratios (Obeid, 2020). Research has shown that transitioning to

this model has led to a noticeable reduction in NPL ratios in some Arab countries, including Saudi Arabia, due to increased transparency in credit evaluations (Al-Sharkas & Al-Sharkas, 2022). However, other studies have indicated that the application of the standard has not always resulted in a decrease in NPL ratios, as the impact depends on the availability of accurate customer data, reflecting variability in results across different banks (Al-Nsour & Abuaddous, 2022). Therefore, the first sub-hypothesis can be formulated as follows:

H1: *There is a statistically significant impact of implementing IFRS 9 on the Non-Performing Loans Ratio (NPL) in Saudi banks.*

4.1.2 The Impact of IFRS 9 on Loan Loss Coverage (LLC) Ratios:

IFRS 9 mandates banks to create future loss provisions based on a more precise assessment of potential risks, leading to an increase in loan loss coverage ratios (Elnagar et al., 2024). According to a report by Moody's, Saudi banks experienced an improvement in coverage rates after adopting IFRS 9, with the ratio rising to 150% by the end of 2017, (The Ministry of Finance of the Kingdom of Saudi Arabia, 2025) indicating an enhanced ability of banks to absorb potential credit losses. However, a study by (Boussaada et al., 2022) highlighted that this increase might negatively impact short-term profitability, potentially posing challenges in maintaining capital adequacy.
Therefore, the second sub-hypothesis can be formulated as follows:

H2: *There is a statistically significant impact of implementing IFRS 9 on the Loan Loss Coverage Ratio (LLC) in Saudi banks*.

4.1.3 The Impact of IFRS 9 on Capital Adequacy Ratio (CAR):

One of the primary concerns associated with the implementation of IFRS 9 is its impact on banks' core capital, as increased provisions could affect the capital adequacy ratio (CAR) (Mies, 2024). However, evidence suggests that Saudi banks maintain capital adequacy levels above the regulatory minimum, as reported by Moody's, indicating a limited impact on capital adequacy and mitigating potential negative effects (Bholat et al., 2017) Additionally, some studies have found that the implementation of IFRS 9 has contributed to strengthening capital reserves to address risks, thereby enhancing the stability of the banking sector in markets with strong regulatory frameworks, such as Saudi Arabia (Rodrigues Boscia et al., 2022). Therefore, the third sub-hypothesis can be formulated as follows:

H3: *There is a statistically significant impact of implementing IFRS 9 on the Capital Adequacy Ratio (CAR) in Saudi banks.*

4.1.4 The Impact of IFRS 9 on the Loan-to-Deposit Ratio (LDR):

Under IFRS 9, the increased provisioning requirements lead to the adoption of more conservative credit policies, which could affect banks' ability to extend loans and, consequently, impact the loan-to-deposit ratio (Pancotto et al., 2024). However, a study by (Alaoui Mdaghri, 2022) indicates that banks in the Gulf region, including Saudi Arabia, have managed to adapt to the new requirements without significantly affecting loan growth. According to a report by (Alvarez & Marsal, 2024), loans and advances in major Saudi banks continued to grow by 3.2% in the second quarter of 2024, suggesting a limited impact of IFRS 9 on the loan-to-deposit ratio. This variance in impact highlights the importance of institutional and regulatory factors in determining the relationship between IFRS 9 and the loan-to-deposit ratio. Therefore, the fourth sub-hypothesis can be formulated as follows:

H4: *There is a statistically significant impact of implementing IFRS 9 on the Loan Deposit Ratio (LDR) in Saudi banks.*

4.1.5 The Impact of IFRS 9 on the Loan Loss Provisions to Total Loans Ratio:

Since IFRS 9 requires the formation of provisions based on expected losses over the lifetime of a loan, it is anticipated that the loan loss provisions to total loans ratio will increase (Obeid, 2022). A study by (Bawatneh, 2024), has shown that this increase can help improve financial stability and reduce systemic risk, although it may affect banks' profitability in the short term, particularly if these provisions are not managed efficiently. Therefore, the fifth sub-hypothesis can be formulated as follows:

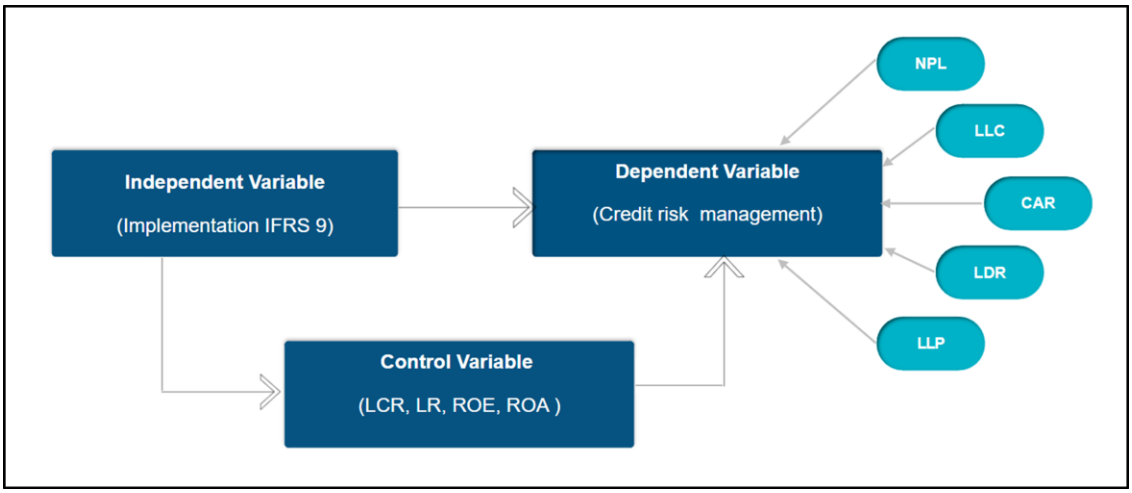
H5: *There is a statistically significant impact of implementing IFRS 9 on Loan Loss Provisions (LLP) to Total Loans in Saudi banks.*

The review of previous studies reveals that the impact of IFRS 9 on credit risk management is not uniform, as it depends on a set of regulatory and institutional factors. While some banks have shown improvements in credit risk management indicators and, consequently, financial performance stability, others have faced challenges related to profitability and liquidity. Based on this, it is evident that the implementation of IFRS 9 has varied effects on indicators associated with credit risk management in Saudi banks, supporting the main hypothesis of the study.

4.2 IFRS 9, Control variables (LCR), (LR), (ROE), (ROA). And Credit Risk Management in Saudi Banks.

In the realm of Saudi banks, the implementation of IFRS 9 has been pivotal in transforming credit risk management by introducing new methodologies for categorizing and valuing financial instruments. This transformation is further enhanced by the strategic integration of key control variables, namely the Liquidity Coverage Ratio (LCR), Leverage Ratio (LR), Return on Equity (ROE), and Return on Assets (ROA). These variables play a critical role in bolstering the banks' ability to manage credit risk more effectively under the IFRS 9 framework. The Liquidity Coverage Ratio (LCR) is essential for ensuring that banks maintain a buffer of high-quality liquid assets sufficient to cover short-term liabilities. (Adebanjo, 2024) This capability enables banks to withstand periods of financial stress without resorting to distressed asset sales or emergency funding. By maintaining a robust LCR, banks can mitigate liquidity-related credit risks, ensuring that they remain solvent and stable even in volatile market conditions. (Temba et al., 2024) The emphasis on liquidity within IFRS 9 further underscores the importance of LCR, as it aligns with the standard's objective of enhancing financial resilience. The Leverage Ratio (LR) is another vital control variable that influences a bank's capital structure and risk exposure. High leverage can lead to amplified returns during profitable times but also increases vulnerability to financial distress during downturns. (Adebanjo, 2024) Effective management of the leverage ratio is crucial, as it ensures that banks maintain a healthy balance between debt and equity, reducing the risk of insolvency. The intersection of IFRS 9 with LR management encourages banks to adopt more conservative capital structures, which are better suited to absorb potential losses and sustain operations under adverse economic conditions.(Isenberg et al., 2022) Return on Assets (ROA) provides insights into a bank's operational efficiency by measuring profitability relative to total assets. (Antony & Suresh, 2023) A higher ROA indicates that a bank effectively utilizes its assets to generate income, creating a financial buffer against credit losses. This operational efficiency is integral to credit risk management, as it allows banks to absorb

unexpected losses without compromising their financial stability. (Kamara, 2024) IFRS 9's focus on expected credit losses complements the role of ROA by prompting banks to maintain efficient operations that can support proactive risk management strategies. Return on Equity (ROE) reflects a bank's ability to generate profits from its shareholders' equity, offering insights into financial performance and efficiency.(Muduli & Dash, 2024) A strong ROE indicates robust profitability, which can support more aggressive risk management strategies and enhance resilience against credit losses.(Kamara, 2024) Under IFRS 9, the emphasis on forward-looking information and prudent risk assessment aligns with the need for high ROE, as banks are encouraged to optimize their equity to sustain long-term growth and stability. By integrating these control variables with the implementation of IFRS 9, Saudi banks can significantly enhance their credit risk management capabilities. The intersection of IFRS 9 with these variables encourages a more comprehensive approach to risk management, ensuring that banks are better equipped to navigate the complexities of the financial landscape. This synergy not only strengthens the banks' resilience against financial shocks but also promotes sustainable growth and stability in the Saudi banking sector. **The model of study can be plotted as follows.**



Source: prepared the researchers.

5. Research Methodology

The applied study aims to provide empirical evidence from Saudi banks on the impact of implementing IFRS 9 standards on credit risk management in these banks. The study sample consists of Saudi banks listed on the Capital Market Authority through a time series spanning from 2015 to 2023. Saudi banks were selected based on the availability of complete annual financial data for the period from 2015 to 2023, the continuous provision of services during the study period, and adherence to the application of IFRS standards in financial reporting starting from the implementation year, 2017. The study sample includes ten Saudi banks, comprising 90 observations. Financial data were extracted from financial reports published on the official websites of the banks, the Saudi Capital Market Authority website (Authority, 2025), annual reports published by the Saudi Central Bank (Saudi Central Bank, 2025) the Mubasher website (the Mubasher website, 2025), and the Argaam website (Website, 2025)

Study Variables and Measurement Methods:

The study variables include independent variables, dependent variables, and control variables, which can be presented as follows:

Independent Variable: implementation of IFRS 9, this variable represents the implementation of IFRS 9 by Saudi banks and is quantified as follows:

- Value "0": the period before the implementation of the standards.
- Value "1": the period after the implementation of the standards.as illustrated in Table (1).

Table No. (1): Independent Variable - Implementation of IFRS Standards.

Variable	Variable Definition	Code	Operational definition of the variable	The studies that addressed the measurement
Independent Variable				
Implementation of IFRS Standards	Implementation of IFRS Standards (IFRS) in commercial banks in Saudi Arabia.	IFRS	A dummy variable that takes the value (0) for the pre-implementation period and (1) for the post-implementation period.	(Akhmedov, 2023; Selem & Elkholy, 2025)

Dependent Variable: the dependent variable of the study represents the credit risk management in banks, and the tools for measuring credit risk can be summarized according to Table No. (2)

Table No. (2): Methods for Measuring the Dependent Variable: Credit Risk Management

Variable	Variable Definition	Code	Operational definition of the variable	The studies that addressed the measurement
Dependent Variables: Credit Risk Management				
Non-Performing Loans Ratio	measures the ratio of loans that have not been repaid on schedule and have not generated any interest income over a specified period, compared to the total loans granted.	NPL	NPL Ratio = (Total Non-Performing Loans / Total Loans Granted) × 100.	(Adebanjo, 2024; Isenberg et al., 2022; Islam & Rana, 2022; Kamara, 2024; Mahisi et al., 2023; Ogunwale & Areghan, 2024; Sankareswari, 2024; Temba et al., 2024)
Loan Loss Coverage Ratio	measures the adequacy of credit provisions to cover non-performing loans	LLC	Loan Loss Coverage Ratio = (Total Non-Performing Loans (NPLs) / Loan Loss Provisions) × 100.	(Adebanjo, 2024; Islam & Rana, 2022; Temba et al., 2024)
Capital Adequacy Ratio	measures the bank's ability to cover potential losses and protect depositors from financial risks by comparing the bank's regulatory capital to its total risk-weighted assets (RWA)	CAR	CAR = (Total Capital / Total Risk-Weighted Assets (RWA)) × 100	(Adebanjo, 2024; Islam & Rana, 2022; Kamara, 2024; Mahisi et al., 2023; Sankareswari, 2024; Temba et al., 2024)
loan Loss Provisions to Total Loans)	measures the ratio of provisions that the bank holds to cover potential loan losses compared to the total loans granted. It reflects the bank's conservatism in credit risk management and its expectations regarding the quality of the loan portfolio	LLP	LLP/TL = (Loan Loss Provisions / Total Loans) × 100	(Isenberg et al., 2022; Ogunwale & Areghan, 2024)
Loan to Deposit Ratio	measures the extent to which the bank relies on customer deposits to fund loans. It reflects the bank's ability to convert deposits into loans, which affects its liquidity and financial stability.	LDR	LDR = (Total Loans / Total Deposits) × 100	(Adebanjo, 2024; Islam & Rana, 2022; Mahisi et al., 2023; Sankareswari, 2024)

***Control Variables*:** To analyze the relationship between the independent variable and the dependent variable, it is necessary to have a set of control or governing variables that help adjust the relationship between the independent and dependent variables by neutralizing the effect. Upon reviewing previous accounting literature related to the research, the researchers found that some variables may affect the relationship between the main variables of the study. These important variables are represented in certain characteristics related to the bank, as shown in Table No. (3)

Table No. (3) Methods of Measuring Control Variables

Variable	Variable Definition	Code	Operational definition of the variable	The studies that addressed the measurement
Control Variables				
Liquidity Coverage Ratio	It is a measure designed to ensure that banks maintain an adequate level of high-quality liquid assets to cover their liquidity needs over 30 days in the event of a financial crisis or a sudden deposit outflow. The aim is to enhance the banks' ability to withstand difficult economic times.	LCR	LCR = (Qualifying Liquid Assets / Net Liquidity Outflows) × 100	(Adebanjo, 2024; Temba et al., 2024)
Leverage Ratio	It is a measure of the bank's financial sustainability and reflects the amount of shareholders' equity in comparison to total assets. It is a key indicator of the bank's ability to withstand financial shocks without resorting to excessive debt.	LR	LR = (Total Assets / Shareholders' Equity) × 100	(Adebanjo, 2024; Isenberg et al., 2022)
Return on Equity	It is a measure that evaluates the bank's ability to generate profit relative to shareholders' equity. It is used to assess the bank's efficiency in using shareholders' capital to achieve returns.	ROE	ROE = (Net Profit / Shareholders' Equity) × 100.	(Kamara, 2024; Muduli & Dash, 2024)
Return on Assets	It is a measure used to assess how efficiently a bank uses its assets to generate profits. ROA reflects the bank's ability to generate net profit from the total assets it owns.	ROA	ROA = (Net Profit / Total Assets) × 100.	(Adebanjo, 2024; Antony & Suresh, 2023; Kamara, 2024)

Formulation of Research Models to Test Study Hypotheses:

Regression models were used to test the main hypothesis of the research, which is: **'There is a statistically significant impact of implementation IFRS 9 on credit risk management in Saudi banks.'** This was done in the presence of certain control variables identified by the study, which help to regulate the relationship between the research variables, thereby enhancing the accuracy and reliability of the results, as follows:"

The main equation is:

$$\text{Credit Risk Management}=\beta 0+\beta 1\cdot \text{IFRS9}+\beta 2\cdot \text{Leverage Ratio}+\beta 3\cdot \text{Liquidity Coverage Ratio}+\beta 4\cdot \text{Return on Equity}+\beta 5\cdot \text{Return on Assets}+\varepsilon$$

This equation models the impact of implementing IFRS 9 and several financial ratios on credit risk management, with ε representing the error term. Based on the formulation of the main model, sub-models for the study can be formulated separately for each indicator of credit risk management. These indicators include the non-performing loan (NPL) ratio, loan loss coverage (LLC) ratio, capital adequacy ratio (CAR), loans deposits ratio (LDR) loan loss provisions (LLP) to total loans ratio, and. This approach helps in analyzing the impact of implementing the IFRS 9 on each indicator, providing a more detailed and accurate view of the study's results, as follows:

The first model to test the first sub-hypothesis is: 'There is a statistically significant impact of implementing IFRS 9 on the Non-Performing Loans (NPL) Ratio in Saudi banks.' It can be formulated with the following equation:

$$\text{NPL}=\beta 0+\beta 1\cdot \text{IFRS9}+\beta 2\cdot \text{Leverage Ratio}+\beta 3\cdot \text{Liquidity Coverage Ratio}+\beta 4\cdot \text{Return on Equity}+\beta 5\cdot \text{Return on Assets}+\varepsilon$$

The second model to test the second sub-hypothesis is: 'There is a statistically significant impact of implementing IFRS 9 on the Loan Loss Coverage (LLC) Ratio in Saudi banks. It can be formulated with the following equation:

$$\text{LLC}=\beta 0+\beta 1\cdot \text{IFRS9}+\beta 2\cdot \text{Leverage Ratio}+\beta 3\cdot \text{Liquidity Coverage Ratio}+\beta 4\cdot \text{Return on Equity}+\beta 5\cdot \text{Return on Assets}+\varepsilon$$

The third model to test the third sub-hypothesis is: 'There is a statistically significant impact of implementing IFRS 9 on the Capital Adequacy Ratio (CAR) in Saudi banks. It can be formulated with the following equation:

$$\text{CAR}=\beta 0+\beta 1\cdot \text{IFRS9}+\beta 2\cdot \text{Leverage Ratio}+\beta 3\cdot \text{Liquidity Coverage Ratio}+\beta 4\cdot \text{Return on Equity}+\beta 5\cdot \text{Return on Assets}+\varepsilon$$

The fourth model for the fourth sub-hypothesis is: 'There is a statistically significant impact of implementing IFRS 9 on the loan deposit ratio in Saudi banks. It can be formulated with the following equation:

$$\text{LDR}=\beta 0+\beta 1\cdot \text{IFRS9}+\beta 2\cdot \text{Leverage Ratio}+\beta 3\cdot \text{Liquidity Coverage Ratio}+\beta 4\cdot \text{Return on Equity}+\beta 5\cdot \text{Return on Assets}+\varepsilon$$

The fifth model to test the fifth sub-hypothesis is: 'There is a statistically significant impact of implementing IFRS 9 on the Loan Loss Provisions to Total Loans ratio in Saudi banks. It can be formulated with the following equation:

$$\text{LLP}=\beta 0+\beta 1\cdot \text{IFRS9}+\beta 2\cdot \text{Leverage Ratio}+\beta 3\cdot \text{Liquidity Coverage Ratio}+\beta 4\cdot \text{Return on Equity}+\beta 5\cdot \text{Return on Assets}+\varepsilon$$

Where:

- Credit Risk Management: A composite indicator representing credit risk management. Consists of (NPL, LLC, CAR, LDR, LLP.) (dependent variable)
- IFRS 9: A variable representing the implementation of IFRS 9, with 0 for before implementation and 1 for after implementation. (independent variable)
- Leverage Ratio. (control variable)
- Liquidity Coverage Ratio. (control variable)
- Return on Equity. (control variable)

- Return on Assets. (control variable)
- β0: The constant term.
- β1,β2,β3,β4,β5β1,β2,β3,β4,β5: Régression coefficients.
- ε: The error term.

Statistical Methods Used in Analyzing Study Data: The researchers input and processed the data using the Statistical Package for the Social Sciences (SPSS.25) to ensure the validity of the data and the quality of the study's empirical models. They then analyzed the descriptive statistics of the study variables, correlation analysis, and the results of hypothesis testing, comparing these with previous studies' results. The following methods were used:

- ✓ **Descriptive Statistical Analysis**: Aimed at obtaining an analytical description of the characteristics of the study's research model variables, such as minimum value, maximum value, mean, and standard deviation.
- ✓ **Correlation Analysis using Pearson's Correlation Coefficient**: Aimed at analyzing the relationships between the study variables and determining the strength and direction of these relationships.
- ✓ **Tests of Normality**: To verify how closely the empirical study data approximates a normal distribution.
- ✓ **Variance Inflation Factor (VIF)**: To determine if the variables used in the model interact with each other. The Collinearity measure was used to ensure there is no multicollinearity problem among the study variables.
- ✓ **Durbin-Watson Test**: To determine if there is an autocorrelation problem among the errors in the study's statistical models.
- ✓ **Paired Samples Test**: Used to compare the means of the same group before and after implementing a specific procedure, aiming to determine if there is a statistically significant difference between the means before and after the change.
- ✓ **Simple Linear Regression Model**: Used to analyze the relationship between a dependent variable and one independent variable, aiming to estimate the effect of the independent variable on the dependent variable.
- ✓ **Multiple Linear Regression**: Used to analyze the relationship between one dependent variable and multiple independent variables, aiming to understand the combined effect of several variables on the dependent variable.
- ✓ **Random Effects Regression**: A type of linear mixed model used to determine if the effect of the independent variable on the dependent variable is consistent across all banks or fundamentally differs according to each bank's strategies.

6. Findings and Discussion

Descriptive Analysis of Study Variables:

The purpose of the descriptive analysis is to present the nature and distribution of the sample, providing an indication of the characteristics of the study variables and the normality of the data, which in turn affects the reliability of the results. The outcomes of the descriptive analysis of the study variables are demonstrated in Table No. (4)."

Table No. (4) presents the results of the descriptive analysis of the study variables

Variables	N	Minimum	Maximum	Mean	Standard Deviation
NPL	90	1%	4%	1.95%	0.641%
LLC	90	99%	342%	164.72%	47.861%
CAR	90	15%	27%	19.66%	2.072%
LDR	90	71%	93%	82.67%	4.762%
LLP	90	0%	3%	1.22%	0.553%
LCR	90	109%	398%	188.13%	49.447%
LR	90	9%	19%	13.11%	1.799%
ROE	90	7%	24%	13.18%	3.762%
ROA	90	0%	3%	1.79%	0.485%
Implementation of IFRS Standards	90	0.00	1.00	0.7778	0.41807

Source: Statistical Analysis Results

From the descriptive data analysis, the following insights are evident:

- **Non-Performing Loans (NPL) Ratio**: The average NPL ratio is 1.95%, which is relatively low. The minimum and maximum values range between 1% and 4%, indicating limited variation in non-performing loans among banks. The standard deviation is 0.641%, suggesting that values are close to the mean, reflecting relative stability in non-performing loans in Saudi banks.
- **Loan Loss Coverage (LLC) Ratio**: The average LLC ratio is 164.72%, indicating that loan loss provisions exceed their original value, reflecting a conservative and more precautionary approach by Saudi banks. The minimum and maximum values range from 99% to 342%, indicating significant variation in banks' credit risk coverage policies. The standard deviation is 47.861%, pointing to noticeable differences among banks in their hedging against non-performing loans.
- **Capital Adequacy Ratio (CAR)**: The average CAR is 19.66%, which is above the Saudi Central Bank (SAMA) regulatory minimum, indicating strong financial solvency among Saudi banks. The minimum and maximum values range between 15% and 27%, showing relative differences in available capital to face risks among banks. The standard deviation is 2.072%, reflecting relative stability in capital adequacy levels among banks.
- **Loan to Deposit Ratio (LDR)**: The average LDR is 82.67%, indicating that Saudi banks use a large portion of their deposits for lending, which is relatively balanced. The minimum and maximum values range from 71% to 93%, reflecting variations in lending policies among banks. The standard deviation is 4.762%, indicating limited differences in lending levels compared to deposits.
- **Loan Loss Provisions to Total Loans (LLP)**: The average LLP ratio is 1.22%, indicating that banks allocate a relatively low percentage of total loans as provisions for potential losses. The minimum and maximum values range from 0% to 3%, reflecting differences in banks' assessments of loan risks. The standard deviation is 0.553%, indicating limited variation in provisioning policies among banks.
- **Liquidity Coverage Ratio (LCR)**: The average LCR is 188.13%, indicating that Saudi banks maintain liquidity exceeding regulatory requirements, enhancing their ability to meet short-term financial obligations. The minimum and maximum values range from 109% to 398%, indicating significant variation in liquidity levels among banks. The standard deviation is 49.447%, reflecting clear differences in liquidity management strategies among banks.
-

- **Leverage Ratio (LR)**: The average LR is 13.11%, indicating that banks rely on self-capital in a balanced manner compared to debt. The minimum and maximum values range from 9% to 19%, reflecting variations in financial risk levels among banks. The standard deviation is 1.799%, indicating relative stability in leverage policies among banks.
- **Return on Equity (ROE)**: The average ROE is 13.18%, indicating a good level of return on shareholders' investments by the banks. The minimum and maximum values range from 7% to 24%, reflecting variations in financial performance among banks. The standard deviation is 3.762%, indicating a noticeable variation in profitability rates among banks.
- **Return on Assets (ROA)**: The average ROA is 1.79%, indicating positive returns from total assets by the banks. The minimum and maximum values range from 0% to 3%, indicating differences in banks' efficiency in utilizing assets to generate profits. The standard deviation is 0.485%, reflecting relative stability in returns on assets among banks.
- **IFRS 9 Application Standard Deviation**: The standard deviation for the independent variable, applying the IFRS 9 standard, is 0.41807, reflecting a balanced data distribution between periods. The standard deviation of 2.596 indicates a balanced spread of data over the years.

Correlation Analysis Using Pearson's Correlation Coefficient:

The study aims to present the Pearson correlation matrix to display the nature of the correlation relationships between the study variables. This helps to understand the strength and direction of the relationship between the variables, providing an initial insight into the form of these relationships. Positive values indicate a direct relationship, while negative values indicate an inverse relationship. The results are shown in Table No. (5).

Table No. (5) presents the results of the correlation analysis

Variables	Implementation of IFRS Standards	ROA	ROE	LR	LCR	LLP	LDR	CAR	LLC	NPL
NPL										**1**
LLC									**1**	**-0.644****
CAR								**1**	**0.161**	**-0.209***
LDR							**1**	**-0.296****	**-0.209***	**0.201**
LLP						**1**	**-0.109**	**0.607****	**0.296****	**-0.237***
LCR					**1**	**-0.264***	**-0.156**	**-0.047**	**-0.418****	**0.393****
LR				**1**	**-0.14**	**0.018**	**0.339****	**-0.124**	**-0.236***	**0.159**
ROE			**1**	**-0.381****	**-0.223***	**0.015**	**-0.205**	**-0.189**	**0.510****	**-0.472****
ROA		**1**	**0.755****	**-0.141**	**-0.052**	**0.013**	**-0.129**	**-0.232***	**0.292****	**-0.420****
Implementation of IFRS Standards	**1**	**0.038**	**0.031**	**0.042**	**-0.058**	**0.532****	**-0.251***	**-0.506****	**0.313****	**-0.318****

Source: Statistical Analysis Results

(*) indicates that the relationship is statistically significant at the 0.01 level (99% confidence).

(**) indicates that the relationship is statistically significant at the 0.05 level (95% confidence).

From the correlation analysis, the following insights are evident:

Relationship between IFRS 9 and Credit Risk Management Indicators:

- There is a significant inverse relationship between IFRS 9 and NPL (r=−0.318,p=0.002r=−0.318,p=0.002), indicating that the implementation of IFRS 9 is associated with a decrease in non-performing loans, likely due to enhanced loan provisions under the new standard.
- A significant positive relationship exists between IFRS 9 and LLC (r=0.313,p=0.003r=0.313,p=0.003), meaning the standard's implementation is linked to increased coverage of non-performing loans, supporting the notion that IFRS 9 aids banks in allocating greater reserves for expected losses.
- There is a significant inverse relationship between IFRS 9 and CAR (r=−0.506,p=0.000r=−0.506,p=0.000), suggesting that the standard's implementation may have contributed to reduced regulatory capital levels in Saudi banks.
- A significant inverse relationship exists between IFRS 9 and LDR (r=−0.251,p=0.017r=−0.251,p=0.017), indicating that the standard's implementation has contributed to reducing banks' reliance on deposits for loan financing, possibly reflecting tightened lending conditions in Saudi banks.
- There is a significant positive relationship between IFRS 9 and LLP (r=0.532,p=0.000r=0.532,p=0.000), indicating that banks have increased their loan loss provisions after implementing IFRS 9.

Relationships between Variables in the Model:

- The relationship between NPL and LLC is significantly inverse (r=−0.644,p=0.000r=−0.644,p=0.000), meaning that as loan loss coverage increases, the non-performing loan ratio decreases.
- A significant positive relationship exists between CAR and LLP (r=0.607,p=0.000r=0.607,p=0.000), indicating that banks with higher capital adequacy ratios tend to increase their loan provisions.
- The relationship between ROE and ROA is significantly positive (r=0.755,p=0.000r=0.755,p=0.000), reflecting a strong correlation between return on assets and return on equity.

The researchers conclude from Pearson’s correlation analysis that the implementation of IFRS 9 is positively associated with an improved non-performing loan coverage ratio (LLC) and increased loan loss provisions (LLP), reflecting a more conservative approach by Saudi banks in managing credit risk. Conversely, there is a negative correlation between IFRS 9 and capital adequacy ratio (CAR), non-performing loans (NPL), and loan-to-deposit ratio (LDR). The results from Pearson's correlation analysis also highlight that control variables have an impact on dependent variables representing credit risk management, which justifies their inclusion as control models in the study to adjust the analysis, ensure accuracy results, enhance interpretation, and minimize potential biases.

Tests for Normality of Data Distribution:

The researchers relied on normality tests, specifically the Kolmogorov-Smirnov and Shapiro-Wilk tests, to verify how closely the data approximates a normal distribution. The results are presented in Table No. (6).

Table No. (6) presents the results of the Kolmogorov-Smirnov and Shapiro-Wilk tests.

Variable	Kolmogorov-Smirnov Statistic		Shapiro-Wilk Statistic	
	Value	P-value	Value	P-value
NPL	0.204	0.000	0.924	0.000
LLC	0.219	0.000	0.812	0.000
CAR	0.138	0.000	0.921	0.000
LDR	0.074	0.200*	0.981	0.227
LLP	0.118	0.003	0.953	0.003
LCR	0.131	0.001	0.884	0.000
LR	0.081	0.200*	0.973	0.054
ROE	0.086	0.096	0.964	0.014
ROA	0.070	0.200*	0.970	0.037
Implementation of IFRS Standards	0.480	0.000	0.513	0.000

Source: Statistical Analysis Results

From the analysis of normality tests, the following insights are evident:

Non-Normal Distribution Variables:

- The test results indicate that the variables NPL, LLC, CAR, LLP, LCR, and IFRS9 do not follow a normal distribution, as evidenced by p-values less than 0.05. This means these variables significantly deviate from a normal distribution.

Normal Distribution Variables:

- The variables LDR, LR, ROE, and ROA are indicated to follow a normal distribution, as their p-values are greater than 0.05.

Based on the results presented in Table No. (), a significant number of study variables do not pass the normality tests, indicated by p-values less than 0.05, suggesting a non-normal distribution of data for these variables. However, since the sample size in the current study is N=90, the issue of non-normal distribution is unlikely to affect the validity of the models used in the study. This is because the sample size qualifies as large under the Central Limit Theorem, which assumes normal distribution for large samples (N>30) regardless of the original population distribution. Therefore, non-normal distribution should not impact the validity of the study's models. It is also noteworthy that the independent variable, "Implementation of IFRS Standard," does not undergo normality testing as it is a non-continuous (dummy) variable with binary values.

Linear Interaction Test and Autocorrelation Test Among Explanatory Variables:

Collinearity Measure:

- To verify the presence of multicollinearity, which can hinder the study model's ability to explain the impact on the dependent variable, the Tolerance value for each explanatory variable (independent and control variables) in the regression relationship with the dependent variable was calculated. Additionally, the Variance Inflation Factor (VIF) was determined, which reflects the extent of the correlation between independent variables.

- The Durbin-Watson Test was used to examine the presence of autocorrelation in the errors or residuals of the model.

The results are presented in Table No. (7), as follows:

Table No. (7) presents the results of the linear interaction test (Collinearity) and the autocorrelation test (Durbin-Watson)

Variable	Tolerance		(VIF)		
Implementation of IFRS Standards	0.994		1.006		
LCR	0.831		1.004		
LR	0.728		1.073		
ROE	0.302		1.115		
ROA	0.378		1.043		
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
	NPL	LLC	CAR	LDR	LLP
Durbin Watson Test	1.955	1.897	1.995	1.837	1.793

Source: Statistical Analysis Results

Based on the results of the linear interaction and autocorrelation tests, the following conclusions can be drawn:

Evaluation of Multicollinearity through Tolerance and VIF Values:

- Multicollinearity indicates a strong relationship between some independent variables, potentially affecting the accuracy of model results. Tolerance indicates the proportion of variance in an independent variable not explained by other independent variables in the model. A Tolerance value less than 0.1 suggests a multicollinearity problem. VIF measures the extent of interaction among the independent variables. A VIF value greater than 10 indicates overlap among variables and potential multicollinearity issues.
- The results show that all Tolerance values are less than 1, indicating no multicollinearity problems in the model. Additionally, all VIF values for the independent variables are less than 2, which is considered ideal and not indicative of multicollinearity, suggesting no problematic overlap among independent variables that would affect result accuracy.

Durbin-Watson Test:

- This test examines the presence of autocorrelation in the model's errors or residuals. The acceptable Durbin-Watson range is typically between 1.5 and 2.5. The results show values ranging from 1.793 to 1.995 across the five models, which are within the acceptable range and indicate the absence of strong autocorrelation. This implies that the model results are reliable, and free from unwanted effects due to autocorrelation among errors, enhancing the model's reliability.

Based on the above, the model does not suffer from multicollinearity or autocorrelation issues among the errors, which enhances the credibility of the results and allows for further analysis of the relationship between the independent and dependent variables with high reliability.

Results of the Statistical Hypotheses Tests:

The statistical hypotheses were evaluated using two primary tests:

Paired Samples Test:

- This test was used to determine whether there is a statistically significant difference between the means of the two periods, before and after the

implementation of IFRS9 standards. This helps assess the impact of IFRS 9 on various financial metrics over the specified periods.

Regression Analysis:

- **Simple Linear Regression**: Conducted without including control variables to evaluate the direct impact of IFRS 9 on credit risk management indicators.
- **Multiple Linear Regression**: Conducted after including control variables to account for other influencing factors, providing a more comprehensive analysis of IFRS 9's impact.
- **Random Effects Regression**: Used to measure the impact of IFRS 9 on credit risk management, specifically focusing on:
  - ✓ Non-performing loan ratio (NPL)
  - ✓ Non-performing loan coverage ratio (LLC)
  - ✓ Capital adequacy ratio (CAR)
  - ✓ Loan loss provisions to total loans ratio (LLP)
  - ✓ Loan-to-deposit ratio (LDR)

These analyses provide insights into the effects of IFRS 9 on various aspects of credit risk management, allowing for a detailed understanding of how the standards influence financial stability and risk management practices.

Results of the First Sub-Hypothesis Test:

To test the first sub-hypothesis, which states: "There is a statistically significant impact of implementing IFRS 9 on the Non-Performing Loans Ratio (NPL) in Saudi banks."

The Paired Samples Test was conducted. This test compared the impact of IFRS 9 on the NPL ratio before and after their implementation. The results are presented in Table No. (8), as follows:

Table No. (8): Paired Samples Test Results for NPL Ratio

Variable	Mean	N	Standard Deviation	Standard Error
Before IFRS 9 Implementation	0.5182	90	1.02197	0.10772
After IFRS 9 Implementation	1.4342	90	0.93268	0.09831
Mean Difference	**Standard Deviation**	**Standard Error**	**t**	**P-value**
0.91602	1.84865	0.19486	4.701	0.000
Correlation Coefficient		**P-value**		
-0.789		0.000		

Based on the results of the Paired Samples Test, there is a statistically significant difference in the Non-Performing Loans Ratio (NPL) before and after the implementation of IFRS 9. The difference between the means is notable, with the NPL being higher after the implementation of IFRS 9 (1.4342) compared to the previous period (0.518). Additionally, the correlation results show a strong negative relationship between the two periods (-0.789) at a significance level of \(p = 0.000 \). This indicates that IFRS 9 has significantly impacted the NPL ratio in Saudi banks, leading to a decrease in non-performing loans. This suggests that the implementation of IFRS 9 has resulted in improved credit risk management in these banks.

Regression Analysis Results:

The impact of IFRS 9 on credit risk management, specifically on the Non-Performing Loans Ratio (NPL), was assessed using three types of regression analysis:

Simple Linear Regression (without control variables):

- This analysis measured the direct impact of IFRS9 on the NPL ratio, providing a straightforward view of the relationship between IFRS 9 implementation and changes in the NPL.

Multiple Linear Regression (with control variables):

- By including control variables, this analysis accounted for other factors that might influence the NPL ratio. This approach offers a more comprehensive understanding of how IFRS 9 affects NPL when considering the broader financial and economic context.

Random Effects Regression:

- This method was employed to account for unobserved heterogeneity across banks that might affect the NPL ratio. It helps in understanding the impact of IFRS 9 across different banks by considering random variations.

Results summary

Table No. (8): Regression Analysis Results for the First Sub-Hypothesis

The First Hypothesis (The Impact of Implementing IFRS 9 on the Ratio of Non-Performing Loans (NPL) in Saudi Banks).							
"Regression analysis"							
Variables	Type of Analysis	Basic Analysis: Regression Model without Control Variables			Additional Analysis: Regression Model with Control Variables		
	Targeted Relationship	Effect of IFRS9 Implementation on NPL			Effect of IFRS9 Implementation on NPL with Control Variables		
	Symbol	B	t	(P.Value)	B	t	(P.Value)
Constant	B_0	2.332	17.060	0.000	1.741	2.581	0.012
IFRS9 Implementation	IFRS9 Implementation	-0.448	-3.148	0.002	-0.493	-3.486	0.001
Liquidity Coverage Ratio	LCR	--	--	--	0.005	3.895	0.000
Leverage Ratio	LR	--	--	--	0.048	1.395	0.167
Return on Equity	ROE	--	--	--	-0.021	-0.806	0.422
Return on Assets	ROA	--	--	--	-0.371	-2.089	0.040
R^2		0.301			0.627		
F Value		9.911			12.524		
(Model Significance (P. Value)		0.002			0.000		
Random Effects Regression							
F Value		841.151					
(Significance of Random Effects)		0.000					

Source: Statistical Analysis Results

Based on the results of the linear regression analysis, the following conclusions can be drawn from Table No. (8):

Basic Analysis: Regression Model Without Control Variables

Model Significance:

- The relationship between the implementation of IFRS 9 and the Non-Performing Loans Ratio (NPL) is statistically significant, with F=9.911 and p=0.002. This indicates that the model reliably predicts changes in the NPL based on IFRS9 implementation.

- The coefficient B for the impact of IFRS 9 on NPL is negative (B=−0.488), suggesting that the implementation of IFRS 9 is associated with a reduction in the NPL ratio. This implies that adopting IFRS 9 contributes to improved credit risk management by reducing non-performing loans.

Explanatory Power of the Model:

- The model explains 30.1% of the variance in the NPL ratio (R2=0.301). This means that IFRS 9 accounts for a significant portion of the changes in non-performing loans, highlighting its role in influencing credit risk management practices.

Additional Analysis: Regression Model with Control Variables (LCR, LR, ROE, ROA)

Model Significance:

- The relationship between the implementation of IFRS 9 and the NPL ratio is statistically significant, with F=12.524 and p=0.001. The coefficient B for the impact of IFRS 9 on NPL remains negative and significant (B=−0.443) after including control variables, reinforcing the finding that IFRS 9 reduces the NPL ratio.

Explanatory Power of the Model:

- The explanatory power of the model increases significantly to 62.7% (R2=0.627) after including control variables. This indicates that these variables play an important role in explaining the changes in the NPL ratio, and their inclusion strengthens the model's explanatory power from 30.1% to 62.7%.

Random Effects Regression Analysis

The results of the Random Effects Regression indicate differences between banks in the impact of IFRS 9 on the NPL ratio. Some banks experienced a significant reduction in NPL after implementing IFRS 9, while others saw a less pronounced decrease. This variation suggests that the impact of IFRS 9 on NPL is not uniform and depends on each bank's credit risk management strategies and loan portfolio structure.

Significance of Random Effects:

- The significance test for random effects shows F=841.152 with p=0.000, indicating significant differences between banks in the effect of IFRS 9 on NPL. This leads to varying impacts on NPL, implying that some banks may have adopted more conservative credit policies and improved debt management practices after implementing IFRS 9, resulting in a greater reduction in NPL, while others showed a less pronounced decrease due to more flexible lending and debt recovery strategies.

Supporting Studies:

These findings align with the results of previous studies:

- (Al-Sharkas & Al-Sharkas, 2022) Found that Saudi banks adopting IFRS 9 experienced a reduction in NPLs, reflecting the standard's impact on enhancing financial stability and prudential banking.
- (OBEID, 2020): Confirmed that IFRS 9 implementation contributed to reducing credit risk and improving asset quality in Saudi banks.
- (Dib & Feghali, 2021): Highlighted that IFRS 9 strengthened the stability of the Saudi banking system compared to other Arab countries due to robust regulatory frameworks.

- (Alrub, 2024): Found that IFRS 9 led to a decrease in NPLs in Palestinian banks by increasing provisions for expected credit losses.
- (Al-Nsour & Abuaddous, 2022): Demonstrated that IFRS 9 was more effective than IAS 39 in reducing NPLs in Saudi banks compared to other Gulf countries, aiding in better asset classification and credit risk identification.

Based on the above, it is evident that the implementation of IFRS 9 has led to a reduction in the NPL ratio, indicating its role in improving credit risk management. ***Therefore, the first hypothesis, stating that there is a statistically significant impact of implementing IFRS 9 on the Non-Performing Loans (NPL) ratio in Saudi banks, can be accepted. This allows the estimation of the regression model for the first sub-hypothesis through the following equation:***

$$NPL=1.741-0.443(IFRS9)+0.005(LCR)+0.048(LR)-0.021(ROE)-0.371(ROA)+\varepsilon$$

Results of the Second Sub-Hypothesis Test:

To test the second sub-hypothesis, which states: "***There is a statistically significant impact of implementing IFRS 9 on the Loan Loss Coverage Ratio (LLC) in Saudi banks***," a Paired Samples Test was conducted. This test compared the impact of IFRS 9 on the LLC ratio before and after its implementation. The results are presented in Table No. (9), as follows:

Table No. (9): Paired Samples Test Results for LLC Ratio

Variable	Mean	N	Standard Deviation	Standard Error
Before IFRS 9 Implementation	30.4203	90	58.12501	6.12691
After IFRS 9 Implementation	134.2978	90	84.70398	8.92858
Mean Difference	**Standard Deviation**	**Standard Error**	**t**	**P-value**
-103.87751	137.17091	14.45908	-7.184	0.000
Correlation Coefficient		**P-value**		
-0.839		0.000		

Source: Statistical Analysis Results

Based on the results of the Paired Samples Test, there is a statistically significant difference in the Loan Loss Coverage Ratio (LLC) before and after the implementation of IFRS 9. The average LLC increased from 30.4203 before implementation to 134.2978 after implementation, indicating a notable increase following the adoption of IFRS 9. Additionally, the correlation results show a strong negative relationship between the two periods, with a correlation coefficient of -0.839 at a significance level of p=0.000. This suggests that the implementation of IFRS 9 has significantly impacted the LLC ratio in Saudi banks. Banks that had a low LLC before IFRS 9 experienced a substantial increase after its implementation, implying that the standards have led to improved credit risk management by compelling banks to increase their loan loss coverage. This enhancement contributes to greater financial stability.

Regression Analysis Results:

The impact of IFRS 9 on credit risk management, specifically on Loan Loss Coverage Ratio (LLC), was assessed using three types of regression analysis:

Simple Linear Regression (without control variables):

- This analysis measured the direct impact of IFRS9 on the LLC ratio, providing a straightforward view of the relationship between IFRS 9 implementation and changes in the LLC.

Multiple Linear Regression (with control variables):

- By including control variables, this analysis accounted for other factors that might influence the LLC ratio. This approach offers a more comprehensive understanding of how IFRS 9 affects LLC when considering the broader financial and economic context.

Random Effects Regression:

- This method was employed to account for unobserved heterogeneity across banks that might affect the LLC ratio. It helps in understanding the impact of IFRS 9 across different banks by considering random variations.

Results summary

Table No. (10): Regression Analysis Results for the Second Sub-Hypothesis

The Second Hypothesis (The Impact of Implementing IFRS 9 on the Ratio Loan Loss Coverage (LLC) in Saudi Banks).							
"Regression analysis"							
Variables	Type of Analysis	Basic Analysis: Regression Model without Control Variables			Additional Analysis: Regression Model with Control Variables		
	Targeted Relationship	Effect of IFRS9 Implementation on NPL			Effect of IFRS9 Implementation on NPL with Control Variables		
	Symbol	B	t	(P.Value)	B	t	(P.Value)
Constant	B_0	136.891	13.389	0.000	187.880	3.841	0.000
IFRS9 Implementation	IFRS9 Implementation	35.777	3.586	0.003	39.092	3.091	0.001
Liquidity Coverage Ratio	LCR	--	--	--	-0.316	-3.707	0.000
Leverage Ratio	LR	--	--	--	-3.653	-1.460	0.148
Return on Equity	ROE	--	--	--	5.651	3.041	0.003
Return on Assets	ROA	--	--	--	-8.967	-0.697	0.488
R^2		0.2976			0.559		
F Value		9.524			14.265		
Model Significance (P.Value)		0.002			0.000		
Random Effects Regression							
F Value		1663.631					
(Significance of Random Effects)		0.000					

Source: Statistical Analysis Results

Based on the results of the linear regression analysis, the following conclusions can be drawn from Table No. (10):

Basic Analysis: Regression Model Without Control Variables

Model Significance:

- The relationship between the implementation of IFRS9 standards and the Loan Loss Coverage Ratio (LLC) is statistically significant, with F=9.524 and p=0.002. This indicates the model is effective in explaining the relationship.

Effect of IFRS 9 on LLC:

- The coefficient B=35.777 indicates that the implementation of IFRS 9 has a significant positive impact on LLC, meaning that implementing IFRS 9 has increased the loan loss coverage ratio. The T-value of 3.586 confirms the significance of this effect at a significance level of 0.003.

Explanatory Power of the Model:

- The coefficient of determination R2=0.2976 shows that IFRS 9 explains approximately 29.76% of the variance in the LLC ratio, suggesting other factors might also contribute to changes in LLC.

Additional Analysis: Regression Model with Control Variables (LCR, LR, ROE, ROA)

Model Significance:

- After including control variables, the model's significance improved, with F=14.265 and p=0.000, reflecting an enhanced explanatory capability.

Effect of IFRS 9 on LLC with Control Variables:

- The positive and significant effect of IFRS9 on LLC remains, with B=39.092 and T=3.091 at a significance level of p=0.001, indicating a strong positive impact even with additional factors considered.

Explanatory Power of the Model:

- The explanatory power increased to R2=0.559, meaning that 55.9% of the variance in LLC can be explained by IFRS 9 and the control variables, while the remaining variance is due to other factors.

Random Effects Regression Analysis

The Random Effects Regression results indicate differences between banks in the impact of IFRS 9 on the LLC ratio. Some banks saw a notable increase in LLC, while others had less pronounced changes, suggesting that the impact varies based on each bank's credit risk management strategies. The significance of random effects, with F=1663.632 and p=0.000, highlights significant differences among banks regarding IFRS 9's impact on LLC. This suggests that some banks adopted more conservative loss provisioning policies compared to others, leading to varying effects on LLC.

Supporting Studies

These findings align with the results of previous studies:

- (Mies & Menk, 2023): Found that IFRS 9 significantly increased expected credit loss provisions, improving loan coverage ratios and enhancing financial stability in Saudi banks.
- (Abuaddous, 2023): Confirmed that IFRS9 boosted LLC in Gulf banks, including Saudi banks, showing improvement over the IAS39 era.
- (Al-Nsour & Abuaddous, 2022): Demonstrated that IFRS 9 improved LLC in Saudi banks through increased credit loss provisions and reduced financial loss volatility.

Based on the above, it is evident that the implementation of IFRS 9 has a significant impact on LLC in Saudi banks, Therefore, the second hypothesis, stating that there is a statistically significant impact of implementing IFRS 9 on the Loan Loss Coverage (LLC) ratio in Saudi banks, can be accepted Which allows the estimation of the regression model for the second sub-hypothesis through the following equation:

$$LLC=187.880+39.092(IFRS9)-0.316(LCR)-3.653(LR)+5.651(ROE)-8.967(ROA)+\varepsilon$$

Results of the third Sub-Hypothesis Test:

To test the third sub-hypothesis of the research, which states: **"There is a statistically significant impact of applying IFRS 9 standards on the Capital Adequacy Ratio (CAR) in Saudi banks,"** a Paired Samples Test was conducted. This test compared the

effect of implementing IFRS 9 in the periods before and after their implementation. The results, as shown in Table (11), are as follows:

Table (11) shows the results of the Paired Samples Test for the third sub-hypothesis

Variable	Mean	N	Standard Deviation	Standard Error
Before IFRS 9 Implementation	3.9344	90	7.42914	0.7831
After IFRS 9 Implementation	1.4342	90	0.93268	0.09831
Mean Difference	**Standard Deviation**	**Standard Error**	**t**	**P-value**
-103.87751	2.50021	0.86586	2.888	0.005
Correlation Coefficient		**P-value**		
-0.824		0.000		

Source: Statistical Analysis Results

Based on the results of the Paired Samples Test, there is a statistically significant difference in the Capital Adequacy Ratio (CAR) before and after the implementation of IFRS 9. The average CAR decreased from 3.9344 before implementation to 1.4342 after implementation, indicating a significant decline following the implementation of IFRS 9. The correlation results also showed a strong negative relationship between the two periods, with a correlation coefficient of -0.824 at a significance level of P-value = 0.000. This indicates that the implementation of IFRS 9 had a substantial impact on the Capital Adequacy Ratio in Saudi banks. This effect suggests that the new standards led to an increase in credit provisions, which affected the core capital of the banks and reduced the CAR. This decrease reflects the challenges faced by Saudi banks in complying with the new capital requirements after the implementation of IFRS 9. It indicates a more conservative policy in credit risk management and improved hedging against credit risks, which enhances the financial stability of the banks but may reduce profitability and negatively impact capital adequacy in the short term

Regression Analysis Results:

The impact of IFRS 9 on credit risk management, specifically on the ***Capital Adequacy Ratio*** (CAR), was assessed using three types of regression analysis:

Simple Linear Regression (without control variables):

- This analysis measured the direct impact of IFRS 9 on the CAR ratio, providing a straightforward view of the relationship between IFRS 9 implementation and changes in the CAR.

Multiple Linear Regression (with control variables):

- By including control variables, this analysis accounted for other factors that might influence the CAR ratio. This approach offers a more comprehensive understanding of how IFRS 9 affects CAR when considering the broader financial and economic context.

Random Effects Regression:

- This method was employed to account for unobserved heterogeneity across banks that might affect the CAR ratio. It helps in understanding the impact of IFRS 9 across different banks by considering random variations.

Results summary

Table (12) presents the regression analysis results for the third sub-hypothesis

The third Hypothesis (The Impact of Implementing IFRS 9 on the Capital Adequacy Ratio (CAR) in Saudi Banks).							
"Regression analysis"							
Variables	Type of Analysis	Basic Analysis: Regression Model without Control Variables			Additional Analysis: Regression Model with Control Variables		
	Targeted Relationship	Effect of IFRS9 Implementation on NPL			Effect of IFRS9 Implementation on NPL with Control Variables		
	Symbol	B	t	(P.Value)	B	t	(P.Value)
Constant	B_0	17.705	44.058	0.000	25.397	11.173	0.000
IFRS9 Implementation	IFRS9 Implementation	0.599	5.505	0.000	-2.509	6.048	0.000
Liquidity Coverage Ratio	LCR	--	--	--	-0.005	-1.253	0.214
Leverage Ratio	LR	--	--	--	-0.317	-2.731	0.008
Return on Equity	ROE	--	--	--	-0.143	-1.660	0.101
Return on Assets	ROA	--	--	--	-0.430	-0.719	0.474
R^2		0.256			0.477		
F Value		0.256			10.159		
(Model Significance (P. Value)		0.000			0.000		
Random Effects Regression							
F Value		12300.532					
(Significance of Random Effects)		0.000					

Based on the results of the Regression Analysis, the following conclusions can be drawn from Table (12):

Basic Analysis: Regression Model without Control Variables

- **Model Significance:** The relationship between the implementation of IFRS 9 and CAR is statistically significant, with an F-value of 30.309 at a significance level of P-value = 0.000, indicating that IFRS 9 has a substantial impact on the Capital Adequacy Ratio.
- **Explanatory Power of the Model:** The coefficient of determination $R^2 = 0.256$ suggests that 25.6% of the variation in the Capital Adequacy Ratio (CAR) can be explained by the application of IFRS 9 alone, while the remaining percentage is attributed to other factors.
- **Impact of IFRS 9 on CAR:** The t-value is 5.505 with a significance level of P-value = 0.000, confirming that this impact is statistically significant.

Additional Analysis: Regression Model with Control Variables (LCR, LR, ROE, ROA)

- **Model Significance:** After incorporating control variables, the model's significance increased, with an F-value of 10.160 at a significance level of P-value = 0.000.
- **Explanatory Power of the Model:** The coefficient of determination increased to $R^2 = 0.477$, meaning that 47.7% of the variation in the Capital Adequacy Ratio (CAR) is explained after incorporating additional variables, indicating that other factors play a significant role.
- **Impact of IFRS 9 on CAR with Control Variables:** The t-value is 6.048 with a significance level of P-value = 0.000, indicating that this impact remains significant.

Based on the above, it is evident that the application of IFRS 9 has led to a decrease in the Capital Adequacy Ratio (CAR) due to increased credit loss provisions. The inclusion of control variables in the model significantly improved explanatory power,

with the R^2 increasing from 25.6% to 47.7%, indicating that other factors such as Leverage Ratio (LR) and Return on Equity (ROE) play a crucial role in explaining changes in CAR.

The researchers believe that the decrease in the Capital Adequacy Ratio (CAR) following the implementation of IFRS 9 does not reflect financial weakness but rather the banks' adoption of a more conservative approach to risk management. The increase in credit loss provisions enhances banks' ability to withstand future losses without the need for emergency financial interventions. Furthermore, the decrease in Non-Performing Loans (NPL) over time helps offset the impact of the CAR decline. Thus, it can be said that the implementation of IFRS 9 contributed to improving credit risk management by enhancing hedging and reducing the likelihood of default, despite its initial impact reflecting a decrease in CAR. This, in turn, leads to a more stable and secure banking system, enhancing financial stability in the long term. Accordingly, the implementation of IFRS 9 plays a significant role in strengthening the stability of the banking sector, increasing banks' ability to face potential risks, and improving credit risk management in Saudi banks.

The results of the Random Effects Regression analysis indicate differences among banks in the impact of IFRS 9 on the Capital Adequacy Ratio (CAR). Some banks experienced a significant decrease in CAR after applying the standard, while others showed less pronounced changes, reflecting that the impact of IFRS 9 on CAR is not uniform but varies according to each bank's characteristics and strategies in capital and credit risk management. The Significance of Random Effects Test showed an F-value of 12300.533 at P-value = 0.000, indicating significant differences among banks regarding the impact of IFRS 9 on CAR. This may suggest that some banks have adopted more conservative capital management policies compared to others. It suggests that some banks may have adopted different strategies after implementing IFRS 9, leading to varying impacts on CAR, where the ratio decreased in some banks due to increased credit provisions and more conservative policies, while changes in other banks were less pronounced due to their different capital management strategies.

Supporting Studies:

These findings align with previous studies that confirmed IFRS 9 has enhanced financial risk hedging by increasing credit loss provisions and improving banks' financial reporting quality: as follows"

- (Bogari, 2023), which showed that IFRS 9 implementation led to higher provisions for non-performing loans, negatively impacting the Capital Adequacy Ratio (CAR) in Saudi banks.
- (Al-Sharkas & Al-Sharkas, 2022) Also confirmed that implementing IFRS 9 in Saudi banks led to a decrease in CAR due to increased credit loss provisions.
- (Elnagar et al., 2024)Focused on Egyptian banks, its results support the global trend, finding that the IFRS 9 application led to a general decline in CAR due to increased credit loss provisions.

Based on these results, the third hypothesis can be accepted, indicating a significant impact of IFRS 9 on the Capital Adequacy Ratio (CAR) in Saudi banks. Therefore, the third hypothesis, stating that there is a statistically significant impact of implementing IFRS 9 on the Capital Adequacy Ratio (CAR) in Saudi banks, can be accepted Which allows the estimation of the regression model for the Third sub-hypothesis through the following equation:

$$CAR=25.397+2.590(IFRS9)-0.005(LCR)-0.317(LR)-0.143(ROE)-0.430(ROA))+\varepsilon$$

Results of the fourth Sub-Hypothesis Test:

To test the fourth sub-hypothesis of the research, which states: ***'There is a statistically significant impact of applying IFRS 9 standards on the Loan to Deposit Ratio (LDR) in Saudi banks,'*** a Paired Samples Test was conducted. This test compared the effect of applying IFRS 9 standards in the periods before and after their implementation. The results, as shown in Table (13), are as follows:

Table (13) presents the results of the Paired Samples Test for the fourth sub-hypothesis

Variable	Mean	N	Standard Deviation	Standard Error
Before IFRS 9 Implementation	18.865	90	35.55231	3.74754
After IFRS 9 Implementation	63.8024	90	34.54014	3.64085
Mean Difference	**Standard Deviation**	**Standard Error**	**t**	**P-value**
-44.9374	69.93785	7.3721	-6.096	0.000
Correlation Coefficient		**P-value**		
-0.824		0.000		

Source: Statistical Analysis Results

Based on the results of the Paired Samples Test, there is a statistically significant difference in the loan-to-deposit ratio (LDR) before and after the implementation of IFRS 9. The average LDR increased from 18.8650 before implementation to 63.8024 after implementation, indicating a notable change in lending policies following the implementation of the standard. The correlation results also showed a strong negative relationship between the two periods, with a correlation coefficient of -0.991 at a significance level of P-value = 0.000. This suggests that the implementation of IFRS 9 had a substantial impact on risk management in Saudi banks. These changes in LDR reflect a shift in lending strategies and risk management after the implementation of IFRS 9, as it became necessary to restructure loan provisions following the Expected Credit Loss (ECL) model. This shift indicates that banks have adopted more conservative policies in granting loans, enhancing credit risk management in line with IFRS 9 requirements.

Regression Analysis Results:

The impact of IFRS 9 on credit risk management, specifically on the ***Loan- to- Deposit Ratio*** (LDR), was assessed using three types of regression analysis:

Simple Linear Regression (without control variables):

- This analysis measured the direct impact of IFRS 9 on the LDR ratio, providing a straightforward view of the relationship between IFRS 9 implementation and changes in the LDR.

Multiple Linear Regression (with control variables):

- By including control variables, this analysis accounted for other factors that might influence the LDR ratio. This approach offers a more comprehensive understanding of how IFRS 9 affects LDR when considering the broader financial and economic context.

Random Effects Regression:

- This method was employed to account for unobserved heterogeneity across banks that might affect the LDR ratio. It helps in understanding

the impact of IFRS 9 across different banks by considering random variations.

Results summary:

Table (14) presents the regression analysis results for the fourth sub-hypothesis

The Fourth Hypothesis (The Impact of Implementing IFRS 9 on Loan to Deposit Ratio (LDR) in Saudi Banks).							
"Regression analysis"							
Variables	Type of Analysis	Basic Analysis: Regression Model without Control Variables			Additional Analysis: Regression Model with Control Variables		
	Targeted Relationship	Effect of IFRS9 Implementation on NPL			Effect of IFRS9 Implementation on NPL with Control Variables		
	Symbol	B	t	(P.Value)	B	t	(P.Value)
Constant	B_0	84.893	81.906	0.000	80.508	13.716	0.000
IFRS9 Implementation	IFRS9 Implementation	-2.861	-2.434	0.017	-3.059	-2.766	0.007
Liquidity Coverage Ratio	LCR	--	--	--	-0.016	-1.543	0.126
Leverage Ratio	LR	--	--	--	0.728	2.426	0.017
Return on Equity	ROE	--	--	--	-0.183	-0.819	0.415
Return on Assets	ROA	--	--	--	0.203	0.131	0.896
R^2		0.063			0.213		
F Value		5.925			4.551		
Model Significance (P. Value)		0.016			0.001		
Random Effects Regression							
F Value		30543.435					
(Significance of Random Effects)		0.000					

Source: Statistical Analysis Results

Based on the results of the Regression Analysis, the following conclusions can be drawn from Table (14):

Basic Analysis: Regression Model without Control Variables.

- **Model Significance:** The relationship between the application of IFRS 9 and the Loan- to- Deposit Ratio (LDR) is statistically significant, with an F-value of 5.925 at a significance level of P-value = 0.017, indicating that IFRS 9 had a clear impact on LDR.
- **Explanatory Power of the Model:** The coefficient of determination $R^2 = 0.063$ suggests that 6.3% of the variation in the loan-to-deposit ratio (LDR) can be explained by the application of IFRS 9, while the remaining percentage is attributed to other factors.
- **Impact of IFRS 9 on LDR:** The t-value is -2.434 at P-value = 0.017, indicating that the impact is negative and statistically significant, with a coefficient B = -2.861, suggesting that the application of IFRS 9 is associated with a slight decrease in LDR, possibly reflecting a reassessment of lending policies after the standard's implementation.

Additional Analysis: Regression Model with Control Variables (LCR, LR, ROE, ROA)

- **Model Significance:** After incorporating control variables, the model's significance increased, with an F-value of 4.551 at a significance level of P-value = 0.001, reflecting that additional factors play an important role in explaining changes in LDR.

- **Explanatory Power of the Model:** The coefficient of determination increased to $R^2 = 0.213$, meaning that 21.3% of the variation in the loan-to-deposit ratio (LDR) is explained after incorporating additional variables, indicating that other factors such as leverage, and liquidity ratios play a fundamental role.
- **Impact of IFRS 9 on LDR with Control Variables:** The impact of IFRS 9 on LDR remained negative, with a coefficient B = -3.059 and t-value = -2.766 at P-value = 0.007, indicating that the impact remains significant even after controlling for other factors.

The Random Effects Regression results indicate differences among banks in the impact of IFRS 9 on the loan-to-deposit ratio (LDR). Some banks saw an increase in LDR after applying the standard, while others saw a decrease, reflecting that the impact of IFRS 9 on LDR is not uniform but varies according to each bank's characteristics. The Significance of Random Effects Test showed an F-value of 30543.435 with P-value = 0.000, indicating significant differences among banks regarding the impact of IFRS 9 on LDR. The LDR experienced irregular changes, increasing in some years and decreasing in others (values in 2016 were 33.04 (very high), in 2020 were 32.13, while it decreased to 10.91 in 2022). This suggests that some banks may have adopted different strategies after implementing IFRS 9, leading to varied impacts on LDR, with increases in some banks and decreases in others. This means some banks adopted a more conservative lending approach, while others increased lending due to restructuring their credit policies.

Supporting Studies:

These findings align with previous studies such as

- (Hassan et al., 2023), which showed that IFRS 9 improved credit risk management through a slight decrease in LDR due to increased caution in lending.
- (Qadiri & Alsughayer, 2021) Also confirmed that IFRS 9 imposed stricter lending policies, leading to an average decrease in the Loan to Deposit Ratio after implementation.
- (Ali, 2020), which showed that increased financial provisions under IFRS 9 led to a reduction in the volume of loans granted, directly affecting the LDR and making Saudi banks more conservative compared to their Gulf counterparts.
- (Muhammed et al., 2024) Also indicated that the LDR experienced a slight decrease due to additional financial provision requirements imposed by IFRS 9, prompting banks to adopt more conservative lending strategies and enhancing their financial stability.

Based on the previous results, the fourth hypothesis can be accepted, "Therefore, the fourth hypothesis, stating that there is a statistically significant impact of implementing IFRS 9 on the Loan Deposit Ratio (LDR) ratio in Saudi banks," can be accepted indicating a significant impact of IFRS 9 on the Loan to Deposit Ratio (LDR) in Saudi banks, contributed to reducing credit risk by decreasing the LDR to enhance financial stability Which allows the estimation of the regression model for the fourth sub-hypothesis through the following equation:

$$LDR=80.508-3.059(IFRS9)-0.016(LCR)+0.728(LR)-0.183(ROE)+0.203(ROA))+\varepsilon$$

Results of the fifth Sub-Hypothesis Test:

To test the fifth sub-hypothesis of the research, which states: **'There is a statistically significant impact of implementing IFRS 9 on Loan Loss Provisions (LLP) to Total Loans in Saudi banks,"** a Paired Samples Test was conducted. This test compared the effect of applying IFRS 9 standards in the periods before and after their implementation. The results, as shown in Table (15), are as follows:"

Table (15) presents the results of the Paired Samples Test for the fifth sub-hypothesis

Variable	Mean	N	Standard Deviation	Standard Error
Before IFRS 9 Implementation	0.1507	90	0.32572	0.03433
After IFRS 9 Implementation	1.0742	90	0.72576	0.07650
Mean Difference	**Standard Deviation**	**Standard Error**	**t**	**P-value**
-0.92356	0.97988	0.10329	-8.942	0.000
Correlation Coefficient		**P-value**		
-0.692		0.000		

Source: Statistical Analysis Results

Based on the results of the Paired Samples Test, there is a statistically significant difference in Loan Loss Provisions (LLP) before and after the implementation of IFRS 9. The average LLP increased from 0.1507 before implementation to 1.0742 after implementation, indicating a substantial increase in the credit provisions held by banks following the standard's implementation. The correlation results also showed a strong negative relationship between the two periods, with a correlation coefficient of -0.692 at a significance level of P-value = 0.000. This suggests that the application of IFRS 9 has a significant impact on credit provisioning policies in Saudi banks. The increase in Loan Loss Provisions (LLP) reflects a shift in banks' strategies towards enhancing hedging against credit risks, as IFRS 9 requires provisions to be calculated based on the Expected Credit Loss (ECL) model, rather than the previous model that relied on actual losses. This shift indicates that banks have become more conservative in assessing loan risks, which may affect their credit policies and lending capabilities. The implementation of IFRS 9 resulted in a significant increase in loan loss provisions, thereby enhancing banks' ability to hedge against potential credit risks. These results align with global trends towards increasing transparency in financial reporting and strengthening banks' ability to withstand financial shocks."

Regression Analysis Results:

The impact of IFRS 9 on credit risk management, specifically on the ***Loan Loss Provisions to Total Loans*** (LLP), was assessed using three types of regression analysis:

Simple Linear Regression (without control variables):

- This analysis measured the direct impact of IFRS 9 on the ***Loan Loss Provisions to Total Loans***, providing a straightforward view of the relationship between IFRS 9 implementation and changes in the LLP average.

Multiple Linear Regression (with control variables):

- By including control variables, this analysis accounted for other factors that might influence the ***Loan Loss Provisions to Total Loans***. This approach offers a more comprehensive understanding of how IFRS 9

affects ***Loan Loss Provisions to Total Loans*** when considering the broader financial and economic context.

Random Effects Regression:

- This method was employed to account for unobserved heterogeneity across banks that might affect the ***Loan Loss Provisions to Total Loans***. It helps in understanding the impact of IFRS 9 across different banks by considering random variations.

Results summary:

Table (16) presents the regression analysis results for the fourth sub-hypothesis

The Fifth Hypothesis (The Impact of Implementing IFRS 9 on Loan Loss Provisions to Total Loans (LLP)) in Saudi Banks).							
"Regression analysis"							
Variables	Type of Analysis	Basic Analysis: Regression Model without Control Variables			Additional Analysis: Regression Model with Control Variables		
	Targeted Relationship	Effect of IFRS9 Implementation on NPL			Effect of IFRS9 Implementation on NPL with Control Variables		
	Symbol	B	t	(P.Value)	B	t	(P.Value)
Constant	B_0	0.678	6.442	0.000	1.797	2.898	0.005
IFRS9 Implementation	IFRS9 Implementation	0.703	5.892	0.000	0.689	5.897	0.000
Liquidity Coverage Ratio	LCR	--	--	--	-0.003	-2.894	0.005
Leverage Ratio	LR	--	--	--	-0.029	-0.916	0.362
Return on Equity	ROE	--	--	--	-0.025	-1.056	0.294
Return on Assets	ROA	--	--	--	0.106	0.647	0.519
R^2		0.383			0.547		
F Value		34.712			8.966		
Model Significance (P.Value)		0.000			0.000		
Random Effects Regression							
F Value		533.143					
(Significance of Random Effects)		0.000					

Source: Statistical Analysis Results

Based on the results of the Regression Analysis, the following conclusions can be drawn from Table (16):

Basic Analysis: Regression Model without Control Variables

- **Model Significance:** The relationship between the application of IFRS 9 and Loan Loss Provisions (LLP) is statistically significant, with an F-value of 34.712 at a significance level of P-value = 0.000, indicating that IFRS 9 had a substantial impact on LLP.
- **Explanatory Power of the Model:** The coefficient of determination $R^2 = 0.383$ suggests that 38.3% of the variation in LLP can be explained by the application of IFRS 9 alone, while the remaining percentage is attributed to other factors.
- **Impact of IFRS 9 on LLP:** The t-value is 5.892 at P-value = 0.000, indicating that the impact is statistically significant, with a coefficient B = 0.703, suggesting that the application of IFRS 9 led to a significant increase in Loan Loss Provisions (LLP), reflecting banks' adoption of a more conservative approach to credit risk management.

Additional Analysis: Regression Model with Control Variables (LCR, LR, ROE, ROA)

- **Model Significance:** After incorporating control variables, the model's significance increased, with an F-value of 8.967 at a significance level of P-

value = 0.000, reflecting that additional factors play a role in explaining changes in LLP.

- **Explanatory Power of the Model:** The coefficient of determination increased to $R^2 = 0.548$, meaning that 54.8% of the variation in LLP is explained after incorporating additional variables, indicating that other factors such as liquidity and profitability may contribute to determining the level of provisions.
- **Impact of IFRS 9 on LLP with Control Variables:** The positive and significant impact of IFRS 9 on LLP remained, with a coefficient B = 0.689 and t-value = 5.897 at P-value = 0.000, indicating that the impact remains strong even after controlling for other factors.

The regression analysis results indicate that the implementation of IFRS 9 led to a significant increase in Loan Loss Provisions (LLP), reflecting banks' adoption of more conservative policies in credit risk assessment. The inclusion of control variables improved the model's explanatory power, with R^2 increasing from 38.3% to 54.8%, suggesting that other factors such as the Liquidity Coverage Ratio play a role in explaining changes in LLP. The positive impact of IFRS 9 on LLP can be interpreted as banks shifting towards enhancing hedging against risks, in line with the new standard's requirements for assessing Expected Credit Losses (ECL), thus enhancing these banks' ability to manage credit risks more conservatively.

The Random Effects Regression results indicate differences among banks in the impact of IFRS 9 on Loan Loss Provisions (LLP). Some banks experienced a significant increase in LLP after applying the standard, while others saw a less pronounced rise, reflecting that the impact of IFRS 9 on LLP is not uniform but varies according to each bank's credit risk management strategy. The Significance of Random Effects Test showed an F-value of 533.143 at P-value = 0.000, indicating significant differences among banks regarding the impact of IFRS 9 on LLP. LLP experienced irregular changes over the years, increasing in some periods and decreasing in others, reflecting differences in banks' strategies in dealing with IFRS 9 requirements. This may suggest that some banks adopted more conservative policies in provisioning compared to others, indicating that some banks may have adopted different strategies after implementing IFRS 9, leading to varying impacts on LLP, where provisions increased more in some banks due to adopting a more conservative approach to credit risk assessment, while increases in other banks were less pronounced due to restructuring their credit policies and improving their credit portfolios' quality.

Supporting Studies:

These findings align with previous studies such as:

- (Abuaddous, 2023), which showed that Saudi banks experienced a noticeable increase in credit loss provisions compared to other Gulf countries, enhancing their ability to face risks.
- (Mies & Menk, 2023) also confirmed that IFRS 9 led to an increase in the LLP/TL ratio in Saudi banks after implementation, providing greater financial stability, along with improved financial disclosure and transparency, thus enhancing investors' and stakeholders' confidence in banks' financial statements.
- (Ali, 2020) which found that the transition from IAS 39 to IFRS 9 led to the adoption of more conservative standards in risk assessment, contributing to reduced profit volatility and achieving sustainable financial stability, reflecting an overall improvement in credit risk management in Saudi banks.

Based on the previous results, "Therefore, the fifth hypothesis, stating that there is a statistically significant impact of implementing IFRS 9 on Loan Loss Provisions (LLP) to Total Loans in Saudi banks," can be accepted indicating a significant impact of IFRS 9 on Loan Loss Provisions (LLP) in Saudi banks through increased precautionary provisions, improved risk assessment, and enhanced financial transparency, helping to reduce financial volatility and achieve greater financial stability. The regression model can be represented as follows:

$$LLP=1.797+0.689(IFRS9)-0.003(LCR)-0.029(LR)-0.025(ROE)+0.106(ROA+\varepsilon$$

7. Conclusion and Future Research Directions

☒ Conclusion:

The study comprehensively examined the impact of IFRS 9 implementation on credit risk management which was measured according to (Non-Performing Loans, Loan Loss Coverage, Capital Adequacy Ratio, Loan- to- Deposit Ratio, and Loan Loss Provisions to Total Loans) within Saudi banks, revealing significant findings across multiple dimensions:

1. **Impact on Non-Performing Loans (NPL):**
   The Paired Samples Test demonstrated a statistically significant difference in NPL ratios before and after the implementation of IFRS 9, with a notable decrease post-implementation. A strong negative correlation (-0.789) between the periods suggests that IFRS 9 significantly contributed to reducing non-performing loans in Saudi banks. Regression analysis confirmed a negative and significant impact of the standard on NPL, with the model's explanatory power increasing from 30.1% to 62.7% upon the inclusion of control variables, highlighting their importance in explaining NPL changes. Random Effects analysis indicated variability in IFRS 9's impact among banks, influenced by individual policies. Liquidity Coverage Ratio (LCR) positively affected NPL, whereas Return on Assets (ROA) had a negative impact. NPL ratios exhibited irregular changes over the years, reflecting diverse bank strategies in applying IFRS 9 standards.
2. **Impact on Loan Loss Coverage (LLC):**
   The Paired Samples Test indicated a statistically significant difference in loan loss coverage ratios before and after IFRS 9, with a significant increase post-implementation. Regression analysis confirmed a positive and significant impact on loan loss coverage, with the explanatory power of the model rising from 29.76% to 55.9% after introducing control variables. The analysis also showed that LCR had a significantly negative impact on loan loss coverage, while Return on Equity (ROE) had a significantly positive effect. LLC ratios experienced inconsistent changes across the years, rising sharply in some periods and decreasing relatively in others, reflecting varied bank strategies in implementing IFRS 9.
3. **Impact on Capital Adequacy Ratio (CAR):**
   The Paired Samples Test revealed a statistically significant difference in CAR before and after IFRS 9, with a marked decrease following implementation. Regression analysis confirmed a negative and significant impact on CAR, with the model's explanatory power increasing from 25.6% to 47.7% after adding control variables. The analysis showed that Leverage Ratio (LR) had a significantly negative impact on CAR, while ROA and ROE were not

significant. CAR ratios showed irregular changes over the years, declining in some periods and rising in others, reflecting different bank strategies in applying IFRS 9.

4. **Impact on Loan to Deposit Ratio (LDR)**
   The Paired Samples Test demonstrated a statistically significant difference in LDR before and after IFRS 9, with a notable increase post-implementation. Regression analysis affirmed a negative and significant impact on LDR, with explanatory power rising from 6.3% to 21.3% after introducing control variables. The analysis showed that LR had a significantly positive impact on LDR, while LCR, ROA, and ROE were not significant. LDR ratios exhibited irregular changes over the years, increasing rapidly in some periods and decreasing in others, reflecting varied bank strategies in applying IFRS 9 standards.
5. **Impact on Loan Loss Provisions to Total Loans (LLP):**
   The Paired Samples Test found a statistically significant difference in LLP before and after IFRS 9, with a significant increase in provisions post-implementation. Regression analysis confirmed a positive and significant impact on LLP, with explanatory power increasing from 38.3% to 54.8% after incorporating control variables. The analysis showed that LCR had a significantly negative impact on LLP, while LR, ROA, and ROE were not significant. LLP exhibited irregular changes across the years, rising in some banks during certain periods and declining in others, reflecting different strategies in applying IFRS 9 standards.

These findings collectively underscore the significant influence of IFRS 9 on enhancing credit risk management, financial transparency, and stability within Saudi banks, even though with varied impacts across different financial metrics and individual bank strategies.

☒ **Future Research:**

Based on the study's findings and current trends in financial reporting, the following future research directions are suggested:

1. **Comparative Analysis Across Regions:** Investigate the impact of IFRS 9 adoption in different regions, comparing Saudi banks with those in other Gulf Cooperation Council (GCC) countries or globally, to understand regional variations and identify best practices.
2. **Impact on Smaller and Non-Banking Financial Institutions:** Extend the research to include smaller banks and non-banking financial institutions to assess how IFRS 9 affects entities with different operational scales and financial structures.
3. **Technological Integration in Financial Reporting:** Explore how technology, such as artificial intelligence and data analytics, can enhance the implementation and compliance with IFRS 9, improving accuracy and efficiency in financial reporting.
4. **Risk Management Strategies Post-IFRS 9:** Analyze how banks have adapted their risk management strategies post-IFRS 9 implementations, focusing on innovations and modifications in credit risk assessment and management.
5. **Stakeholder Perception and Confidence:** Study the impact of IFRS 9 on stakeholder perception and confidence, including investors, regulators, and

customers, to understand how enhanced transparency and changes in financial reporting influence trust in financial institutions.

6. **Impact on Financial Performance Metrics:** Examine how IFRS 9 affects other financial performance metrics, such as profitability, liquidity, and capital structure, beyond the provisions and ratios traditionally analyzed.

8. Recommendations

☒ **For Commercial Banks:**

1. **Enhance Liquidity and Credit Risk Management:** Banks should strengthen their liquidity and credit risk management strategies to align with the changes brought by IFRS 9. This includes improving credit reserves to mitigate future risks.
2. **Monitor and Adapt Credit Granting Strategies:** Continuously assess the impact of IFRS 9 on credit granting capabilities and develop flexible strategies for loan allocation to adapt to market changes.
3. **Conservative Loss Provisioning:** Adopt more conservative strategies for Loan Loss Provisions (LLP) in line with IFRS 9 requirements, utilizing advanced risk prediction models to ensure accurate provisioning.
4. **Minimize Variability in Loss Allocation Strategies:** Work towards reducing differences in loss allocation strategies among banks and enhance transparency in financial reporting to build trust with customers and investors.

☒ **For Bank Regulators and Financial Policymakers (e.g., SAMA):**

1. **Support Future Research:** Facilitate studies on the impact of IFRS 9 across various banking sectors, including financial stability and credit loss provisions, to aid in developing informed banking policies.
2. **Evaluate Regulatory Variables:** Assess the impact of regulatory variables like Leverage Ratio (LR) and Liquidity Coverage Ratio (LCR) on key metrics such as LLP and LDR to improve risk management strategies.
3. **Promote Transparency and Consistency:** Implement guidelines that encourage transparency and consistency in financial reporting, fostering a reliable environment for stakeholders.

☒ **For Stakeholders (e.g., Investors):**

1. **Engage in Continuous Learning:** Stay informed about IFRS 9 and its implications on banks' financial health to make well-informed investment decisions.
2. **Demand Transparency:** Encourage banks to maintain high levels of transparency in financial reporting and risk management practices, enhancing confidence and trust.
3. **Participate in Industry Dialogues:** Engage in industry discussions and forums to understand evolving financial reporting standards and their impact on stakeholder interests.

By implementing these recommendations, commercial banks, regulators, and stakeholders can collaboratively enhance the financial sector's resilience, improve credit risk management practices, and ensure sustainable growth amidst evolving financial reporting standards.

9. References

Abuaddous, M. (2023). The implementation of IFRS9 in Gulf banks: using the GMM and the difference-in-differences with multiple time periods approaches. *Journal of Islamic Accounting and Business Research*. https://doi.org/10.1108/JIABR-07-2022-0178

Adebanjo, S. F. (2024). The Effect of Credit Risk Management on the Financial Stability of Banks in the United Kingdom. *European Journal of Accounting, Auditing and Finance Research*, *12*(8), 81–109. https://doi.org/10.37745/ejaafr.2013/vol12n881109

Ahmad, Q., Mohammad, A., Al-Jayousi, H. A., & Airout, R. (2022). "The moderating role of IFRS in the relationship between risk management and financial disclosure in Jordanian banks." *Banks and Bank Systems*, *17*(3), 167–176. https://doi.org/10.21511/bbs.17(3).2022.14

Akhmedov, B. (2023). The Impact of IFRS 9 Adoption on Bank Performance: Evidence from Selected CIS Countries. *Researchgate*. https://doi.org/10.13140/RG.2.2.24837.52960

Al-Beshtawi, S. H. (2023). The Importance and Requirements of the Application of the International Financial Reporting Standard IFRS 9) In Reducing Potential Financial Default. Applied Study in Islamic Banks. *Research Journal of Finance and Accounting*, 49–62. https://doi.org/10.7176/rjfa/14-9-06

Al-Nsour, R., & Abuaddous, M. (2022). A Comparison Study between IFRS 9 and IAS 39 in GCC Countries. *European Journal of Business and Management Research*, *7*(6), 7–13. https://doi.org/10.24018/ejbmr.2022.7.6.1687

Al-Sharkas, A. A., & Al-Sharkas, T. A. (2022). The Impact On Bank Profitability: Testing For Capital Adequacy Ratio, Cost-Income Ratio, And Non-Performing Loans In Emerging Markets. *Journal of Governance and Regulation*, *11*(1 special issue), 231–243. https://doi.org/10.22495/jgrv11i1siart4

Alaoui Mdaghri, A. (2022). How does bank liquidity creation affect non-performing loans in the MENA region? *International Journal of Emerging Markets*, *17*(7), 1635–1658. https://doi.org/10.1108/IJOEM-05-2021-0670

Albrahimi, A. (2020). *Loan loss provisioning and market discipline: Evidence from the IFRS 9 adoption*. SSRN Electronic Journal.

Ali, A. M. (2020). The impact of economic blockade on the performance of Qatari Islamic and conventional banks: a period-and-group-wise comparison. *ISRA International Journal of Islamic Finance*, *12*(3), 419–441. https://doi.org/10.1108/IJIF-04-2020-0083

Alrub, B. L. B. S. A. A. (2024). *Evidence from Palestinian Banks*.

Alvarez & Marsal. (2024). *(https://www.alvarezandmarsal.com/ar/insights/alfaryz-and-marsal-tsdr-tqryr-ada-alqta-almsrfy-fy-almmlkt-alrbyt-alswdyt-llrb-alawl-mn*.

Antony, T. M., & Suresh, G. (2023). DETERMINANTS OF CREDIT RISK: EMPIRICAL EVIDENCE FROM INDIAN COMMERCIAL BANKS. *Banks and Bank Systems*, *18*(2), 88–100. https://doi.org/10.21511/bbs.18(2).2023.08

Authority, C. M. (2025). *https://cma.org.sa*.

Bawatneh, L. (2024). *The Impact of International Financial Reporting Standard "IFRS 9" on Financial Performance: Evidence from Palestinian Banks.* Arab American University.

Bholat, D. M., Lastra, R. M., Markose, S. M., Miglionico, A., & Sen, K. (2017). Non-Performing Loans: Regulatory and Accounting Treatments of Assets. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.2768865

Bogari, A. (2023). Banking Transparency, Financial Information, and Liquidity Risk Management: Case of Saudi Banks. *International Business Research*, *16*(11), 42–59. https://doi.org/10.5539/ibr.v16n11p42

Boussaada, R., Hakimi, A., & Karmani, M. (2022). Is there a threshold effect in the liquidity risk–non-performing loans relationship? A PSTR approach for MENA banks. *International Journal of Finance and Economics*, *27*(2), 1886–1898. https://doi.org/10.1002/ijfe.2248

Dagilienė, L., & Klovienė, L. (2019). Motivation to use big data and big data analytics in external auditing. *Managerial Auditing Journal*, *34*(7), 750–782. https://doi.org/10.1108/MAJ-01-2018-1773

Deloitte. (2019). *After the first year of IFRS 9—Analysis of the initial impact on the large UK banks*. Https://Www.Iasplus.Com/En/Publications/Uk/Other/Ifrs-9-Impact-Uk-Banks.

Dib, D., & Feghali, K. (2021). Preliminary impact of IFRS 9 implementation on the Lebanese banking sector. *Journal of Accounting and Management Information Systems*, *20*(3), 369–401. https://doi.org/10.24818/jamis.2021.03001

Elnagar, S., Azzim, A. A., & Basiouny, M. (2024). Investigating the impact of credit risk loss and bank-specific factors on the financial sustainability of commercial banks in Egypt. *Researchgate*, 466-481. https://www.researchgate.net/publication/380695854

Ernst and Young. (2014). *Impairment of financial instruments under IFRS 9*. Https://Www.Ey.Com/En_gl/Technical/Ifrs-Technical-Resources/Impairment-of-Financial-Instruments-under-Ifrs-9.

European Central Bank. (2024). *IFRS 9 overlays and model improvements for novel risks*. Https://Www.Bankingsupervision.Europa.Eu/Ecb/Pub/Pdf/Ssm.IFRS9novelrisks_202407~5e0eb30b5c.En.Pdf.

Hassan, S. U., Sabo, B., Tijjani, I. I., & Aliyu, I. A. (2023). Moderating Effect Of Bank Size On The Relationship Between Interest Rate, Liquidity, And Profitability Of Commercial Banks In Nigeria 0230811. *Gusau Journal of Accounting and Finance*, *4*.

Isenberg, D. T., Sazu, M. H., & Jahan, S. A. (2022). How Banks Can Leverage Credit Risk Evaluation to Improve Financial Performance. *CECCAR Business Review*, *3*(9), 62–72. https://doi.org/10.37945/cbr.2022.09.07

Islam, M. S., & Rana, M. (2022). The Influence of Credit Risk Management Indicators on Profitability Attributes: Empirical evidence from the State-Owned Commercial Banks in Bangladesh. *Journal of Business Studies*, *03*(01), 43–60. https://doi.org/10.58753/jbspust.3.1.2022.3

Ismail, S., & Ahmed, E. (2023). The impact of liquidity risk, credit risk, and operational risk on financial stability in conventional banks in Jordan. *Uncertain Supply Chain Management*, *11*(2), 433–442. https://doi.org/10.5267/j.uscm.2023.3.006

Kajola, S. O., Adeyemi, A., Tonade, A., & Olabisi, J. (2022). Firm-Specific Attributes and Earnings Management: Does Size Really Matter as a Moderating Variable Innigerian Banks? *International Journal of Contemporary Accounting Issues*-

IJCAI (Formerly International Journal of Accounting & Finance IJAF), *11*(1), 2022.

Kamara, A. K. (2024). The Study Of Credit Risk In The Banking Sector And Its Effect On Financial Performance Case Study Of The Zenith Bank Sierra Leone. *European Journal of Economic and Financial Research*, *8*(4). https://doi.org/10.46827/ejefr.v8i4.1732

Kim, J.-B., Ng, J., Wang, C., Wu, F., Aaron, A., Chen, S., Chen, X., Chen, Y., Ge, R., Guan, Y., Li, X., Yong, K. O., Qi, B., Wang, Y., Wu, X., Xie, S., Zhang, Y., & Zou, R. (2021). The Effect of the Shift to an Expected Credit Loss Model on Loan Loss Recognition Timeliness. *SSRN*, 1–51.

KPMG. (2016). *IFRS 9 for banks: What's the impact on your business?* Https://Assets.Kpmg.Com/Content/Dam/Kpmg/Na/Pdf/IFRS9-for-Banks.Pdf.

Kyiu, A., & Tawiah, V. (2023). IFRS 9 implementation and bank risk. *Accounting Forum*. https://doi.org/10.1080/01559982.2023.2233861

Li, Y. (2024). Journal of Business and Management Studies Financial Market Development and Bank Risk in GCC Countries. *Journal of Business and Management Studies*, 1–6. https://doi.org/10.32996/jbms

Mahisi, P. P. W. N., Saputra, A. F., Leon, F. M., & Lestari, H. S. (2023). The Effect of Corporate Social Responsibility, Credit Risk, and Leverage on the Financial Performance of Commercial Banks in Indonesia. *International Journal of Science and Management Studies (IJSMS)*, 196–206. https://doi.org/10.51386/25815946/ijsms-v6i1p115

Mantik, J., Apriyani, E., & Wijoyo, T. A. (2021). An in-depth analysis of credit risk: taking proactive measures to tackle non-performing loans in the banking sector. In *Jurnal Mantik* (Vol. 6, Issue 3, pp. 2685–4236). Online.

Mies, M. (2024). *Essays on risk disclosure and banking regulation: empirical studies on climate risk, IFRS 9 and financial stability*.

Mies, M., & Menk, M. T. (2023). Can Accounting Regulation Strengthen Resilience? The Impact of IFRS 9 Adoption on Loan Loss Provisioning and Bank Behavior. In *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4497602

Muduli, S., & Dash, S. K. (2024). Funding Liquidity and Risk-Taking Behavior of Banks in India. *Journal of Emerging Market Finance*. https://doi.org/10.1177/09726527241257351

Muhammed, S., Desalegn, G., & Emese, P. (2024). Effect of Capital Structure on the Financial Performance of Ethiopian Commercial Banks. *Risks*, *12*(4). https://doi.org/10.3390/risks12040069

Novotny-Farkas, Z. (2016). The Interaction of the IFRS 9 Expected Loss Approach with Supervisory Rules and Implications for Financial Stability. *Accounting in Europe*, *13*(2), 197–227. https://doi.org/10.1080/17449480.2016.1210180

OBEID, J. J. R. (2020). *Determinants of the Non-Performing Loans in the Arab Banking Sector: Evidence from Dynamic Panel Data Models*. www.amf.org.ae

Obeid, R. (2022). The Impact of the Over-indebtedness of the Household Sector on the Non-performing Loans in the Banking Sector in the Arab Countries. *European Journal of Business and Management Research*, *7*(1), 51–60. https://doi.org/10.24018/ejbmr.2022.7.1.1229

Ogunwale, O., & Areghan, I. (2024). Impact of Credit Risk Management on the Performance of Nigerian Deposit Money Banks: An Analysis from 2010 to 2020. *Asian Journal of Advanced Research and Reports*, *18*(10), 28–41.

https://doi.org/10.9734/ajarr/2024/v18i10752
Pancotto, L., ap Gwilym, O., & Williams, J. (2024). The evolution and determinants of the non-performing loan burden in Italian banking. *Pacific Basin Finance Journal*, *84*. https://doi.org/10.1016/j.pacfin.2024.102306
Pedro, R., Brito, G., Real, P. M. C., Judice, A., Brito, R. P., & Júdice, P. (2021). Efficient credit portfolios under IFRS 9. *Research Papers in Economics*, 1–34.
Porretta, P., Letizia, A., & Santoboni, F. (2020). Credit risk management in a bank: Impacts of IFRS 9 and Basel 3. *Risk Governance and Control: Financial Markets and Institutions*, *10*(2), 29–44. https://doi.org/10.22495/rgcv10i2p3
Qadiri, H., & Alsughayer, S. (2021). Credit Risk and Disclosure Behavior in the Bank Industry: Evidence From Saudi Arabia. *International Journal of Accounting and Financial Reporting*, *11*(3), 1. https://doi.org/10.5296/ijafr.v11i3.18797
Rodrigues Boscia, M., Alves Dantas, J., Leone, V., & Kimura, H. (2022). Expected Credit Losses and Regulatory Capital: Effects of IFRS 9 in European Banks. *Journal of Finance and Accounting*, *10*(1), 49–59. https://doi.org/10.12691/jfa-10-1-7
Sankareswari, S. (2024). A study of credit risk management systems in scheduled commercial banks in India. In *Futuristic Trends in Management* (Vol. 3, pp. 338–352).
Saudi Central Bank. (2025). *https://www.sama.gov.sa*.
Selem, E., & Elkholy, M. (2025). The Impact of International Financial Reporting Standards (IFRS) on Earnings Management Behavior: Evidence from Commercial Banks in the Kingdom of Saudi Arabia. *Alexandria Journal of Accounting Research Issued by the Accounting Department, First Issue*, *9*, 81–130.
Sultan, K. H., Hassan, H. M., Mohamed, J., Abbas, N. A., & Kubiv, S. (2024). The Effects of International Financial Reporting Standards on Global Capital Markets. *Journal of Ecohumanism*, *3*(5), 604–620. https://doi.org/10.62754/joe.v3i5.3926
Tang, V. H. (2024). Managing financial risks: An empirical analysis of credit and market risk in Vietnamese commercial banks. *International Journal of Science and Research Archive*, *13*(2), 1097–1108. https://doi.org/10.30574/ijsra.2024.13.2.2235
Temba, G. I., Kasoga, P. S., & Keregero, C. M. (2024). The effect of credit risk management on the financial performance of commercial banks: evidence from Tanzania. *African Business Management Journal*, *2*(1), 31–44. https://doi.org/10.58548/2024abmj21.3144
The Ministry of Finance of the Kingdom of Saudi Arabia. (2025). *https://www.mof.gov.sa/media/Pages/Categories.aspx?album=%D8%AA%D9%82%D8%B1%D9%8A%D8%B1+%D9%88%D9%83%D8%A7%D9%84%D8%A9+%D9%85%D9%88%D8%AF%D9%8A%D8%B2*.
The Mubasher website. (2025). *https://www.mubasher.info/countries/sa*.
Travkina, E. V, Solnyshkova, Y. N., Kazankina, O. A., Azmanova, E. G., & Morozova, Y. V. (2020). Transformation of the Forecast Assessment of Expected Credit Losses in Monitoring and Assessment of Credit Risk in Commercial Banks. *Journal of Reviews on Global Economics*, 23–29.
Vasiliev, I. I., Smelov, P. A., Klimovskih, N. V., Shevashkevich, M. G., & Donskaya, E. N. (2018). Operational Risk Management in A Commercial Bank. In *International Journal of Engineering & Technology* (pp. 524–529). http://www.orx.org/pages/ORXData.aspx.
Website, A. (2025). *https://www.argaam.com*.
Wen, J. (2021). Accounting Practices for Financial Instruments: A Theoretical Framework of IFRS 9 Adoption in China. *Learning & Education*, *10*(1), 225–228.