Impact of IFRS (9) on the size of loan loss provisions: An applied study on Jordanian commercial banks during 2015-2019

Sa'ad A. Al-Sakini[a*], Hanan Al Awawdeh[a], Ismail Al Awamleh[a] and Adel Mohammed Qatawneh[b]

[a]*Isra University Amman, Jordan*
[b]*Al-Zaytoonah University, Amman, Jordan*

CHRONICLE	ABSTRACT
	A fraudulent financial statement is an issue that continues to be discussed as a form of deviation from corporate governance. Covid-19 pandemic has also demanded management to uphold the company's performance to have a good public image. Thus, the present study sets out to scrutinize the fraud pentagon theory on fraudulent financial statements. Each element is not able to be tested directly. However, there are proxies. The pressure element is proxied as a personal financial need. The opportunity is becoming the nature of industry. Each of the qualities of the external auditors as well as the change of directors propose rationalization and competence. The frequent number of CEO's appearances in photos is a proxy of arrogance. The testing was carried out on the registered pharmaceutical companies of the Indonesian stock exchange in the span of the 2015-2019 period. The samples were selected by the means of sampling technique which is purposive. Data are scrutinized by the means of panel data regression. The analysis results show that the characteristics of the industry positively affects financial reports which are fraudulent. Changing top management positions such as directors can be an indication of financial reports which are fraudulent. The personal financial need variables, the caliber of external auditors and the quantity of CEO's appearance in photos pose no effects on the fraudulent financial statements of the Indonesian's pharmaceutical companies.

1. Introduction

The International Accounting Standards Board (IASB) issued in July 2014the final version of IFRS (9) for financial instruments and financial provisions to replace IASB (39) for financial instruments in terms of proof and measurement. This standard came into force from the beginning of 2018 with early application permitted. The purpose of the IFRS9 is to enhance financial integrity in the banking system by increasing provisions compared to the pre-implementation situation (Blažeková, 2017). It also came as a response to the repercussions resulting from the global financial crisis, which was one of the reasons its extension was the delay in acknowledging debt losses because losses were recognized when they occurred. Banks previously calculated two types of provisions, the first for the offset of troubled accounts, and the second was the general provisions covering all the potential of the financing portfolio. The new standard requires the calculation of loans provisions based on expected default or non-payment by the borrower (UAB, 2018). The primary objective of the application of IFRS 9 is to move to a forward-looking model to recognize the decline in credit quality, as this model does not require a particular event to record credit losses as much as it requires timely information on any indicators indicating the possibility of credit losses. The standard requires measuring and proving expected credit losses (ECL) by accurately estimating the expected amounts, taking into account the time value of the money, as well as providing documented and supported information on past events and current and anticipated current and future circumstances. This will have a significant impact on banks because this standard

* Corresponding author.

E-mail address: saad.alsakini@iu.edu.jo (S. A. Al-Sakini)

will increase the burden of provisions balances related to expected credit losses and could lead to a reduction in the regulatory capital of banks (Mohammad & Hamed, 2017).

Many previous papers such as (Loew et al., 2019) and (Ernst & Young, 2018) have confirmed that the application of Standard 9 will result in a significant increase in bank credit loss provisions. The (Abad and Suarez, 2017) study also confirmed that the Expected Credit Loss Model (ECL) set in IFRS 9 responds highly to the changing economic conditions, in comparison with (IAS 39) model. Therefore, the application of IFRS 9 will contribute to a greater increase in capital during the economic expansion times, and less in periods of contraction due to the impact of expectations on expected losses and consequently on provisions. Loan Loss Provisions (LLP), on the other hand, is one of the most important preventive elements that banks adopt to counter non-performing loans. To mitigate the risk of loan defaults, banks use different credit policies, the most important of which is to increase loan loss provisions, which are used as a means of adapting to the expected loss of non-performing loans (Islam, 2018). However, the use of loan loss provisions may also be driven by several other factors that are also part of the receivable management aspect. Many studies showed that banks have numerous motivations to use loan loss estimates to achieve certain targets, including: signaling, income smoothing, risk taking, and capital management (Lobo, 2017).

In light of the multiplicity of motives and factors affecting the loan loss provisions (LLP) of the banks, including requirements for the application of the IFRS (9), this study aims to assess the factors that affecting the size of loan losses provisions (LLP) in Jordanian banks during the period (2015-2019), as well as assessing the impact of application the standard on them. It remains unclear to what extent the application of the IFRS (9) affects the size of the provisions, its role in improving the capacity and efficiency of provisions and in reducing the use of provisions-related receivables by bank administrations to achieve certain objectives; such as income smoothing, signaling, taking risk, etc. In detail, the current study will try to answer the following:

- What is the impact of loans granted by the bank on loan losses?
- What is the impact of capital adequacy ratio on loan loss provisions?
- What is the impact of the ratio of CET 1 on loan losses provisions?
- What is the impact of the non-performing debt ratio on loan loss provisions?
- What is the impact of total income ratio on loan loss provisions?
- What is the impact of the income tax rate on banks (Tax) on loan losses provisions?
- What is the impact of the implementation of IFRS9 on loan loss provisions?

The rest of this paper were structured as following:

Section 2 presents the historical development of IFRS 9, Section 3 highlights the application of IFRS 9 in the banks in Jordan, Section 4 demonstrates previous related literatures, Section 5 shows the methodology followed in the study, Section 6 discusses the results of the study, and Section 7 reveals the study's conclusions and recommendations.

2. The Historical Development of IFRS 9

IFRS (9) has undergone numerous modifications and developments since its first release in 2009 until now. The first version of this draft standard was issued in July 2009, entitled Financial Instruments: Classification and Measurement, in order to open the door to discussions and receive comments on it. In November 2009, IFRS 9 was issued under the title: Financial Instruments Issued, which covers the classification and measurement of financial assets, and its effective date was determined to be as of January 1, 2013, but this was subsequently canceled. In May 2010, a new project was released under the title: The fair value option for financial liabilities, thus opening the way for receiving comments on this project. IFRS (9) was reissued under the title: Financial Instruments, which included new requirements regarding accounting related to financial liabilities, and the requirements for derecognition of financial assets and financial liabilities were carried over from International Accounting Standard No. (39). The effective date of this standard was determined to be as of January 1, 2013, but this was subsequently canceled. In August 2011, several amendments were made to the version of IFRS (9) issued in 2009 and 2010, and the mandatory effective date of the standard was amended to 1 January 2015. In January 2011, the date of mandatory validity and transitional disclosures (amendments to IFRS No. 9 and IFRS No. 7) was published. The effective date of IFRS (9) has been adjusted to the annual periods starting on or after January 1, 2015, and the mitigation of the restatement of the comparable and associated disclosures in IA (7) was amended. In November 2012, the draft classification and measurement was published, which included some amendments to IFRS (9). In November 2013, the International Accounting Standards Board (IASB) issued IFRS (9) entitled "Financial Instruments", which included hedging accounting, modifications to IFRS (9), IFRS (7) and IAS (39). Amendments to IFRS (9) included a new general model of hedging accounting, allowing early application of fair value changes resulting from the credit balance of liabilities classified at fair value through profit or loss to be presented in other comprehensive income. The effective date, which was scheduled on January 1, 2015, was also cancelled.

In July 2014, the (IASB) issued IFRS No. 9: "Financial instruments" as a complete standard, including previously issued requirements, additional amendments to introduce a new model of expected value, and some changes in classifying and measurement requirements for financial assets. The effective date of this standard for reporting periods starting on or after January 1, 2018, with early application permitted (in accordance with local requirements).

In September 2016, the International Accounting Standards Board (ICIC) issued the application of IFRS No. 9: "Financial Instruments with IFRS (4)": Insurance contracts (amendments to IFRS No. 4) to handle concerns regarding the different dates of validity of IFRS (9) and the new IFRS (4) for insurance contracts. The enterprise that chooses to apply the overlay approach retroactively applies to eligible financial assets when it first applies IFRS9. An enterprise that chooses to apply the deferral approach applies this for annual periods starting on or after 1 January 2018. In October 2017, the FASB issued amendments to IFRS 9: "Financial Instruments", which included prepayment features with negative compensation to handle concerns about how IFRS 9 classify certain prepaid financial assets. The application of these amendments has been retroactively determined for the fiscal years beginning on or after January 1, 2019, allowing for early application. In May 2020, fees in the "Ten Percent" test were amended to eliminate the recognition of financial liabilities by annual improvements to IFRS 2018-2020. The effective period for annual periods starting on or after January 1, 2022 has been set.

3. The Application of IFRS 9 in the Jordanian Banks

On 22 December 2010, the Central Bank of Jordan (CBJ) issued a circular No. (10/1/13777) to licensed banks in Jordan regarding the early implementation of the first phase of the International Financial Reporting Standard (9).

On 18 May 2016, the (CBJ) issued Circular No. (10/1/7037) regarding the application of the International Financial Reporting Standard (IFRS) 9, in which banks were asked to study the impact of the application of the standard on their financial statements, and it was confirmed that the standard will be applied as of 1/1/2018.

On 6 June 2018, the (CBJ) issued instructions No. (13/2018) relating to the application of the IFRS(9), which included the scope of application, governance requirements, classification and measurement of assets, financial liabilities, derivatives for trading and hedging accounting. The instructions also included the expected credit loss (ECL) in terms of the scope of application for the (ECL), the general framework for the application of the standard, and the measurement of credit risk and (ECL).

The instructions emphasized the need to record the material impact of the application of the standard (9) for the first time on the opening balance of the Owner equity account (return earning item) as it is on 1/1/2018. In addition, to transfer the accumulated balance of the general bank risk reserve as at 31/12/2017 to the retained earnings item as follows:

> 1) Maintaining the surplus balance of the general bank risk reserve item, if any, is restricted and may not be distributed as dividends to shareholders, and may not be used for any other purposes except with the prior approval of the Central Bank.
> 2) For the purpose of calculating common equity tier (Tier 2 Capital) the equivalent of the balance of the required provisions against the debt instruments/credit exposure listed in the first stage shall be taken into consideration, with no more than (1.25%) of the total weighted assets of credit risk calculated in the standard manner, provided that the value of these provisions shall not be subtracted from the amount of credit exposures (capital adequacy ratio), except in the amount exceeding (1.25%) of the total assets weighted by credit risk according to the standard method.

The instructions also indicated that the application of the new standard will have repercussions and overlaps with other control requirements, such as capital adequacy, liquidity, the internal capital adequacy assessment process (ICAAP), and the bank's credit exposures management mechanism, whether in terms of product type, its pricing, or guarantees against it or relationship with clients. Banks in Jordan began applying the IFRS (9) as of the beginning of 2018, and began to disclose it in their annual reports as of the fiscal year 2018.

4. Previous Studies

Previous studies that have examined the impact of IFRS (9) are generally few, given the recent application of the standard and the lack of data issued after its application. The study of Groff and Mörec (2020) examined the impact of the first day of the transition to IFRS 9 on low level of loan value and total equity for a sample of Slovenia banks. The study indicated that IFRS 9 provided a model of expected credit loss to allow timely recognition of credit losses, calculated on the basis of actual credit loss and future information on the current loan portfolio .The study showed that although the transition to this standard must lead to further decrease in value and decline in bank ownership rights, this effect is ambiguous in situations characterized by optimistic macroeconomic conditions and intensive regulatory intervention to restructure the large-scale loan portfolio. Comparative analysis was carried out on banks that transferred the deteriorating loan portfolio to the state bank asset management company and all other banks. The study found that banks that did not have wide-ranging improvements to the asset portfolio recognized the decrease in the value of the additional loan when moving to IFRS 9, while the opposite effect was observed for banks that restructured the loan portfolio with state assistance.

The study of Casta et al. (2019) aimed to conduct the first review after the introduction of IFRS (9). The study focused on the short-term effects of the application of Standard 9, such as reduced retained profits and other reserves in equity, which resulted mainly from the implementation of expected losses according to the approved provisions model, and how banks adapted their accounting policies to reduce those unfavorable effects. The study used a sample of 56 listed banks in EU countries. The results showed that banks have a motivation to reduce/increase the level of provisions for the estimated loan losses when the unfavorable impact on retained profits is higher/lower. The study's findings support the income smooth hypothesis, but does not support the capital management hypothesis.

The study of Loew et al. (2019) is the most comprehensive study so far. The sample of that study consisted of 78 regular banks supervised by the European Central Bank. The study indicated that IFRS 9 carried fundamental changes in the accounting requirements of financial instruments, particularly in the areas of recognition, classification, measurement, depreciation and loss of loan provisions. The application of the standard is expected to have significant impacts on banks' balance sheets, which consist of more than 95% financial instruments. The study aimed to assess the impact prior to application published by regulatory authorities, in particular the overall impact on the balance sheet and on the capital ratios of the first commons equity tier 1(CET1). The study indicated that IFRS 9 has no impact on long-term investments by banks. The results also showed that there was an impact on regulatory capital by about 20 basis points on average, due to the further depreciation and provisions, resulting in a reduction in the equity of banks by an average of 1.8%.

The study of Gomaa et al. (2019), aimed to test the effectiveness of replacing the actual credit loss model with the expected credit loss model. The study used a controlled environment to create the potential increase in the level and adequacy of periodic reserves. The results showed that this effect is common to two factors related to IFRS 9, namely the elimination of the minimum requirement for the recognition of undervalue of financial assets, and the incorporation of future information into the model.

The study of Ercegovac (2018) showed that when initial recognition and accounting classification of financial assets in the category of extinguished costs, or fair value through other comprehensive income, or fair value through profit or loss, the standard applies the test of new payments of debt, interest and a related standard test. The Bank's policy should consider the principles of IFRS 9 pertinent to the initial recognition of the loan contract. If there are conditions in the loan contract that give cash flows such as loan principal payments and interest only, financial assets can be measured at extinguished costs. Otherwise, the loan should be assessed at fair value with an impact on the bank's structural risk position.

In the study of Ernst and Young (2018) the disclosures of transformation to IFRS 9 were analyzed in 20 global banks. The results of all, but three of banks, showed an increase in the provision of declining value of financial assets when moving to IFRS 9. Banks claimed that the impact disclosed was less than expected prior to the transition due to early write-off policies and expected macroeconomic conditions that were integrated into the devaluation models, and reclassified to fair value through profit and loss. The study of Saleh and Mahjoub (2017) aimed to analyze the expected effects of the application of IFRS (9) to Arab banks. The study indicated that the application of the standard will begin in early 2018 and that the requirements for its application pose a major challenge for Arab banks in the field of credit, finance, banking and accounting systems. The study focused in particular on the challenges of applying the standard and its impact on the banking sector by focusing on the expected credit loss model (ECL). The results of the study showed that the change in the expected credit loss model would cause constraints on the credit and financing policies of Arab banks, especially as it will increase credit loss provisions and affect the regulatory capital of Arab banks.

The study of Saqif al Hait and Shabeita (2017) examined the impact of the application of IFRS (9) on the quality of the accounting system outputs of insurance companies in Jordan, which are represented by six key factors that reflect the quality of the accounting system's outputs: relevance, reliability, timing, comparability, symmetry and measurability. Based on a questionnaire addressed to financial service officials and auditors in insurance companies, the study found that the application of IFRS 9 had an impact on the relevance of accounting information in the financial statements of insurance companies in Jordan, while the application of the said standard had no impact on other elements of the quality of the accounting system outputs.

The Study of Abad and Suarez (2017) aimed to assess the periodic effects of IFRS 9 on the increase of credit loss provisions. The study used a typical portfolio of EU banks corporate loans, the results showed that the IFRS 9 expected credit loss model has a higher responsiveness to the change in economic conditions than the actual IAS 39 model. Accordingly, the study predicted that banks would have higher capital during the periods of economic expansion, and less capital in periods of contraction, in comparison with the impacts of the actual loss model in accordance with IAS 39.

The study of Blažeková (2017) examined the impact of the IFRS9 and the increase in credit risk provisions on banks. The study indicated that this standard came to enhance the financial soundness of the banking system by increasing provisions compared to the situation before its implementation. The study aimed to examine the effect of credit risk provisions included in the IFRS (9) on the bank's regulatory capital, and to identify changes in the reporting components. It also aimed to focus on the changes and impacts on banks' capital ratios represented by the capital adequacy ratio (CAR), the leverage ratio, the first TIER 1, and the CET 1. The results of the study showed that the institutions that use the internal-ratings based approach

suffered a lower decline in the capital ratio (capital reorganization) compared to the banks that use the standardized approach. It was also found that the transitional arrangements introduced by the Basel Committee on Banking Supervision, which consisted of a possible addition to part of the capital provision of IFRS (9) to the capital of financial institutions in order to avoid capital shock and rebuild the capital base during the period, were useful for banks using both approaches. It also found that if the financial reporting standard (9) transitional arrangements could cause volatility and reorganization of regulatory capital, but also enhanced market discipline through more detailed and reliable disclosures and with sufficient enterprise capital information. It has also been found that the transitional arrangements to the IDRS 9 caused volatility and reorganization of the regulatory capital, but it also enhances the market discipline through more detailed and reliable disclosures and adequate enterprise capital information. Through a review of previous studies and literature, it is clear that they mostly agree that there is a negative impact on the application of IFRs (9) to bank property rights. The application of the standard contributed to a significant increase in allocations, which reduced the profitability of banks and regulatory capital and thus reduced the capital adequacy ratio. The current study adds many contributions to previous studies, the most important of which are:

I.   It tests the impact of the application of IFRS 9 on Jordanian banks, especially in the absence of any previous studies that have looked in this aspect about Jordanian banks, and the scarcity of studies that have been applied to Arab countries in general. This calls for further research targeting the Jordanian banking market and the Arab banking market in general.

II. The study is based on the actual impact research two years after the standard was applied in Jordan, and therefore provides new applied evidence on the actual impact of the standard's application in emerging markets.

III. This study examines the impact of applying the standard on loan loss provisions, in conjunction with other factors affecting loan provisions, and therefore helps to assess the role of the standard in reducing the use of provisions as a means of achieving the bank's management objectives, and to align the size of the provisions with the actual justified need.

IV. This study presents a range of factors that affect the size of the provisions of banks that have not been addressed collectively in a previous study.

5. Study methodology

a) Study data and sample

The study community includes all 13 Jordanian commercial banks listed on the ASE at the end of 2019. This study will be based on a sample of all 13 banks that make up the study community.

The study data will be collected through the annual reports of Jordanian commercial banks over a five-year period (2015-2019), ensuring that pre-application of IFRS 9 data is available covering a three-year period, and post-application data covering a two-year period.

b) Study Model and Hypotheses

The impact of the application of IFRS No. 9 will be tested by examining the relationship between loan loss provisions (debt provisions) and a range of related variables. Based on the methodology used in several previous studies that have tested the impact of applying IFRS 9 on banks, particularly the methodology used in the (Casta et al., 2019), the econometric model of this study can be written as follows:

$$LLP_{it} = \beta_0 + \beta_1 LOANS_{it} + \beta_2 CAR_{it} + \beta_3 CET1_{it} + \beta_4 NPLs_{it} + \beta_5 GI_{it} + \beta_6 TAX_{it} + \beta_7 IFRS9DUM_{it} + \beta_8 SIZE_{it} + \varepsilon_t$$

where LLP_{it} represents the loan loss provisions to Bank (i) in the (t) period, which will be measured by dividing the bank's annual loan loss provisions by the bank's total loan balance (credit facilities) granted by the Bank. Loan loss provisions are one of the most affected bank variables by the IFRS 9, and the standard has provided a new model for the expected loss of recognition and measurement of loan loss provisions, which allows for the consolidation of estimates of potential future events. Many previous studies have shown that there are many incentives for banks to use loan loss estimates, which are the main receivables of banks for the purposes of achieving certain objectives. These incentives are mainly related to signaling, risk taking, income smoothing and capital management (Lobo, 2017).

$LOANS_{it}$ represents the total loans granted by (i) Bank in the (t) period, as a proportion of total assets. Previous studies indicate that the increase in loans granted by the Bank contributes to the bank's exposure to greater credit risk, which is reflected in the increase in loan loss provisions (Casta et al., 2019). Therefore, the first hypothesis of the study can be developed as follows:

H_1: *The loans ratio has a positive impact on loan loss provisions.*

Two variables expressing capital management were used, namely CAR_{it} and CET_{it}. CAR_{it} expresses the bank's capital adequacy ratio of (i) bank in the (t) period, which represents the bank's regulatory capital divided by risk-weighted assets (RWA). CET_{it} represents the bank's principal ratio of ordinary equity, calculated as a proportion of total risk-weighted assets. Capital

management is considered an important motivation to influence loan loss provisions because loan loss provisions are a part of tier 2 capital, and therefore constitute a significant proportion of risk-weighted assets Risk Weighted Assets (RWA) that affect the calculation of the capital adequacy ratio of banks. Consequently, the increase in the level of loan losses by banks compensates the low level of regulatory capital, especially in the event of a decline in the basic capital of common equity Tier1 -CET1 (Lobo, 2017). Therefore, high capital adequacy ratios reduce the incentive to increase loan provisions. The second and third hypothesis can be developed as follows:

H₂: *The capital adequacy ratio (CAR) has a negative impact on the loan loss provisions (LLP).*

H₃: *The common equity Tier 1 ratio (CET 1) has a negative impact on loan loss provisions (LLP).*

NPLs$_{it}$ refers to the non-performing loans to total loans ratio of (i) Bank in the (t) period. Non-performing loans reflect bad loans due to customers' inability to repay. To mitigate the risk of loan defaults, the banks use various credit policies, the most important of which is to increase loan loss provisions, which are used as a means of adapting to the expected loss of non-performing loans. Thus, a high proportion of non-performing debt is usually associated with a rise in loan loss provisions (Islam, 2018).

Accordingly, the fourth hypothesis can be developed as follows:

H₄: *Non-Performing loans (NPLs) ratio has a positive impact on loan loss provisions (LLP).*

The incentives of income smoothing are also an important reason for the Bank's management to influence provisions. Banks can use loan loss provisions to influence profit levels and achieve relatively stable profits, which thereby avoiding possible regulatory control due to unusual (high or low) levels of profits (Kanagaretnam et al., 2004). This study used (GI)which represents the total income of (i) Bank in the (t) period as a ratio of total assets. In the event of a significant rise of gross income (GI), the Bank would increase loan loss provisions to generate a lower return rate on assets within normal levels, while in the event of a reduction in gross income; the Bank would reduce loan provisions to generate higher return on assets within normal levels. The fifth hypothesis can be written as follow:

H₅: *The Gross Income has a positive impact on loan loss provisions (LLP).*

Tax incentives also play an important role in the bank's impact on loan loss provisions. Banks, encountering higher tax rates, are the most willing to increase loan loss provisions because loan losses are among the acceptable expenses to be eliminated from pre-tax profit. Therefore, higher tax rates may push banks to increase the provisions to reduce taxable profit (Andries et al). , 2017). Based on the above, the current study uses the TAX$_{it}$ which represents the income tax rate imposed on banks in the (t) period. We can develop the sixth hypothesis of the study as follow:

H₆: *The income tax rate (TAX) of the bank has a positive impact on loan loss provisions (LLP).*
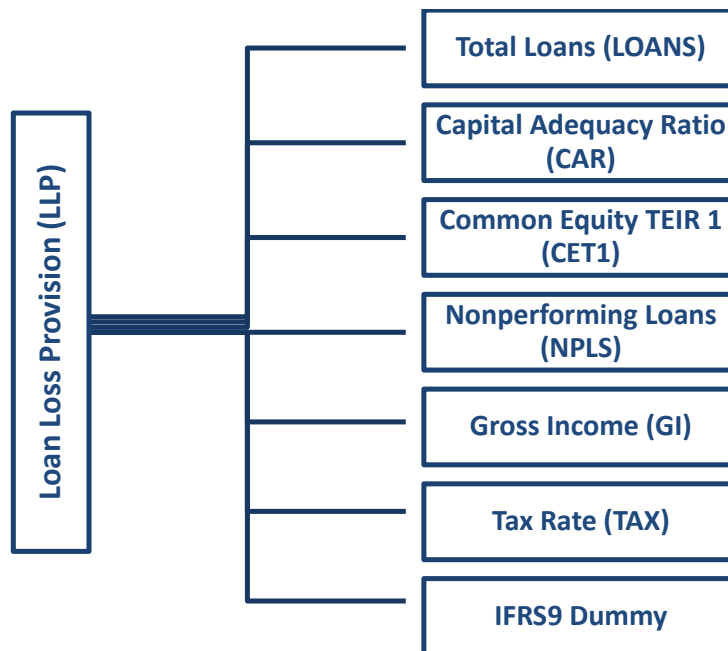

Fig. 1. Study Model

The variable IFS9DUM$_{it}$ is a dummy variable that takes zero value for the years prior to the application of IFRS 9 (2015-2017), and the value 1 for the years in which the standard has entered into force (2018-2019). IFRS 9 provided a model of expected credit loss to allow recognition of credit loss in a timely manner, calculated on the basis of actual credit loss and future information related to current loan portfolio (Groff & Mörec, 2020). This standard also introduced new principles for classifying and measuring financial instruments, managing the depreciation of financial assets and accounting for hedging (Ercegovac, 2018). A study conducted by (Blažeková, 2017) indicated that this standard was designed to enhance financial integrity in the banking system by increasing the provisions compared to the situation before its implementation. The application of IFRS 9 is expected to contribute to an increase in loan loss provisions, as the results of the (Ernst & Young, 2018) showed an increase in the provisions of declining financial assets after the application of IFRS 9. The results of the study conducted by (Loew et al., 2019) also confirmed that the application of the standard led to an increase in loan loss provisions. Thus, the seventh hypothesis can be developed as follow:

H₇: *The application of IFRS 9 has a positive impact on loan loss provisions (LLP).*

6. Results of the Study

The results of the study are as follow:

a) Descriptive statistics

Table 1 shows a summary of the descriptive statistics of the study variables. The average ratio of loan losses provisions (LLP) to gross loans for Jordanian commercial banks during 2015-2019 was about 0.8%, which generally reflects the decrease in loan losses provisions at banks during the study period, as it did not exceed 1%, which is considered low, especially when compared with the level of non-performing debt, which averaged 6.6%. The lower rate may reflect a weakness in the management of credit risk in Jordanian banks, and may also reflect the interest of the bank administrations in increasing profitability by reducing the loan loss provisions. The ration of the loan loss provisions ranged -0.7% to 2.8%, with a standard deviation reached 0.7%. The negative value reflects the savings or refunds from the provision, indicating a significant variation in the ratio of loan loss provisions from one year to another and from one bank to another.

The loan-to-asset ratio (LOANS) averaged 50.5%, which means that credit facilities granted by banks are, on average, half of their assets, thus implicitly reflects the high exposure of banks to credit risks resulting from such facilities. The loan ratio ranged from 35.7% to 60.2%, with a standard deviation of 5.8%, indicating a fair convergence between the ratios of loans granted by banks and over the years of study.

The average capital adequacy ratio (CAR) for Jordanian commercial banks during the study period was about 16.41%, which is a relatively high percentage. The highest minimum required by the Central Bank of Jordan is (12%), and from 10.5% limit required by the Basel Committee, which reflects high capital adequacy of Jordanian banks in general, their strength, durability and ability to absorb any credit losses they may suffer. High capital adequacy ratios for Jordanian banks may reduce banks' incentives to manage capital by affecting the provisions. The capital adequacy ratio ranged from 11.2% to 26.5%, with a standard deviation of 2.7%, which indicates there is some disparity between banks in terms of their capital adequacy ratios.

As for the average percentage of basic capital of ordinary equity (CET1) of Jordanian commercial banks during the study period, the results indicate that it was 15.8%, which is relatively high and far exceeds the regulatory limits required by the Central Bank of Jordan and the Basel Committee, which confirms the high adequacy of the bank's capital. The ratio of principal capital from ordinary shares ranged from 10.6% to 25.8%, with a standard deviation of 2.6%, indicating some disparity between banks in terms of basic capital adequacy ratios.

The ratio of non-performing loans to total loans (NPLS) averaged 6.6%, which reflects the high quality of the loan portfolio of Jordanian commercial banks, as they are within the globally safe levels and do not exceed 10%. The proportion of non-performing loans ranged from 1.6% to 11.9%, with a standard deviation of 2.4%, indicating a fair convergence in the ratios of non-performing loans to banks and over the years of study.

With regard to the ratio of gross profit to total assets (GI), the average percentage of gross profit for Jordanian commercial banks during the study period was about 4.1%, ranging from 1.4% to 6.0%, and with a relatively low standard deviation of 0.9%. This also indicates a relative stability in the gross profit of Jordanian commercial banks during the study period, in addition to a convergence in the ratio of total profit between banks.

The income tax rate imposed on banks in Jordan (TAX) was 35% in 2015-2018, and then increased to 38% as of 2019, which may indicate an important incentive for Jordanian banks to increase loan loss provisions to avoid paying higher taxes.

Finally, the IFRS9DUM variable expresses a dummy variable that takes the zero value for the period 2015-2017 before IFRS (9) is applied, and the value (1) for2018 and 2019 after IFRS (9) comes into force.

Table 1
Descriptive Statistics of Study Variables

	LLP	LOANS	CAR	CET1	NPLS	GI	TAX	IFRS9DUM
Mean	0.0081	0.5047	0.1641	0.1580	0.0662	0.0408	0.3560	0.4000
Median	0.0068	0.5140	0.1613	0.1561	0.0682	0.0424	0.3500	0.0000
Maximum	0.0279	0.6019	0.2655	0.2580	0.1190	0.0604	0.3800	1.0000
Minimum	-0.0067	0.3566	0.1116	0.1058	0.0163	0.0143	0.3500	0.0000
Std. Dev.	0.0071	0.0583	0.0272	0.0265	0.0239	0.0089	0.0121	0.4937
Skewness	0.7241	-0.5054	0.8146	0.8497	0.0906	-0.7537	1.5000	0.4082
Kurtosis	3.1558	2.6973	4.6664	4.9016	2.7840	4.0748	3.2500	1.1667
Jarque-Bera	0.526	32.806	14.710	17.616	0.215	9.283	24.544	10.909
Probability	0.0033	0.2172	0.0006	0.0002	0.8980	0.0096	0.0000	0.0043
Observations	65	65	65	65	65	65	65	65
Cross sections	13	13	13	13	13	13	13	13

b) The Results of Regression Analysis

Table 2 reveals the results of pooled data regression analysis of the study model, which examined the factors affecting loan loss provisions at Jordanian commercial banks. Pooled data was used because the study data comprises cross-sectional and time series, which includes 13 Jordanian commercial banks over a 5-year period (2015-2019).

Through the table, the loan ratio (LOANS) has a positive and significant effect on loan loss provisions (LLP), which means that the bank's higher loan ratio leads to higher loan losses as a result of the bank's high credit risk exposure. This finding is consistent with what is expected and with what many previous studies, such as (Casta et al, 2019) have indicated. This finding supports the bank's risk management theory. Based on the above, the hypothesis of the first study, which states that there is a positive effect of the loan ratio (LOANS) on loan loss Provisions (LLP), is accepted.

The results also indicate a negative and statistically significant effect of the capital adequacy ratio (CAR) and the ratio of common equity tier 1 (CET1) on loan loss provisions (LLP). This result is consistent with what is expected because higher capital adequacy ratios reduce incentives associated with capital management, which reduces the need to influence loan loss provisions, and it is consistent with the findings of the Lobo's (2017) study. Thus, the second and third hypothesis of the study, which states that CAR and CET 1 have a negative impact on loan loss provisions (LLP), is accepted.

The non-performing loans ratio (NPLS) to total loans had a positive and important statistically significant effect on loan loss provisions, which is that the high proportion of non-performing debt is associated with an increase in loan loss provisions as a means of mitigating credit risk. This finding is consistent with what is expected, as well as with the findings of the Study of Islam (2018) and Bushman and Williams (2012). Accordingly, the fourth hypothesis of the study, which provides that non-performing debt ratio (NPLS) has a positive impact on loan loss provisions (LLP), can be accepted.

The gross profit ratio to total assets had a statistically significant positive and significant impact on loan loss provisions (LLP), i.e. banks with a high overall profit take larger provisions. This result supports the income smoothing hypothesis, where banks use loan loss provisions to influence net profit levels, and to achieve relatively stable profits. This finding is also consistent with what is expected and with the results of some previous studies; such as (Kanagaretnam et al., 2004). The fifth hypothesis of the study, which states that the gross income ratio has a positive impact on loan loss provisions, can therefore be accepted.

The bank income tax ratio (TAX) had a positive and statistically significant impact on loan loss provisions (LLP). This means that higher bank tax rates contribute to higher loan provisions. This result also supports the hypothesis that there are tax incentives for banks to influence loan loss provisions. The banks that encounter higher tax rates are most willing to increase loan loss provisions because loan loss provisions are among the acceptable expenses to remove them from pre-tax profit. Thus, higher tax rates may prompt banks to increase the provisions to reduce taxable profit. This finding is also consistent with what is expected and what a study was found by the study of (Andries et al., 2017). Based on the above, the sixth hypothesis of the study, which states that the tax rate ratio on the banks has a positive effect on loan loss provisions, can be accepted.

Finally, the impact of the application of IFRS (9) was positive and statistically significant on loan loss provisions (LLP), which means that the entry into force of the standard has prompted an increase in the size of the provisions. This result is consistent with what is expected because IFRS (9) provided a model of anticipated credit loss that allows for timely recognition of credit losses, calculated on the basis of actual credit loss and future information on the current loan portfolio (Groff & Mörec, 2020). This finding is consistent with what is expected and with previous studies such as (Blažeková, 2017; Loew et al., 2019) have found. Thus, the seventh hypothesis of the study, which states that the application of IFRS 9 has a positive effect on loan loss provisions (LLP), can be accepted.

Table 2
Results of Regression Analysis of the Study Model

VARIABLE	COEFFICIENT	T-STATISTIC	PROB.
C	-0.0175	-2.0015	0.0502
LOANS	0.0262	3.1998	0.0023
CAR	-0.2212	-2.6550	0.0103
CET1	-0.2451	-2.9023	0.0053
NPLS	0.0654	2.6913	0.0094
GI	0.6501	9.6541	0.0000
TAX	0.0583	2.5222	0.0145
IFRS9DUM	0.0034	4.3351	0.0001
REGRESSION STATISTICS			
DEPENDENT VARIABLE	LLP		
METHOD	Pooled EGLS		
INCLUDED OBSERVATIONS	5		
CROSS-SECTIONS INCLUDED	13		
TOTAL OBSERVATIONS	65		
R^2	0.6773		
ADJUSTED R^2	0.6312		
S.E. OF REGRESSION	0.0051		
DURBIN-WATSON STAT	1.8824		
F-STATISTIC	14.6907		
PROB (F-STATISTIC)	0.0000		

* White standard errors & covariance (d.f. corrected)

7. Conclusions and Recommendations

This study aimed to assess the factors that affect the size of loan loss provisions (LLP) at the banks, in addition to assessing the impact of the application of IFRS 9 on those provisions at Jordanian commercial banks during the period (2015-2019).

The study model included the dependent variable, which is the loan loss provisions (LLP), as well as seven independent variables, namely: loans ratio (loans), capital adequacy ratio (CAR), common equity Tier 1 (CET1), non-performing debts (NPLs), gross income ratio (GI), bank income tax ratio (TAX) and the application of IFRS 9.

The results of the study showed that the ratio of loan loss provisions to gross loans of the Jordanian commercial banks is generally low and is not commensurate with the level of non-performing debt. The results also showed that loans form about half of Jordanian banks assets, while the ratios of regulatory capital adequacy and common equity tier ratios are relatively high and the highest minimum required by the Central Bank of Jordan and the Basel Committee. The proportion of non-performing loans was also relatively low and within globally safe limits. The total profit of Jordanian commercial banks was relatively stable during the study period. The rate of income tax levied on banks in Jordan increased from 35% before 2019 to 38% as of 2019, while Jordanian banks began applying IFRS (9) in early 2018.

The results of the Pooled data regression analysis confirmed a positive and statistically significant effect on the loan ratio, the non-performing loans ratio, the ratio of total profit to total assets, and the income tax rate on loan losses. The ratio of regulatory capital adequacy and the ratio of common equity tier had a relatively low and statistically significant impact on loan loss provisions.

The results also showed that the application of IFRS (9) had a positive and statistically significant effect on loan loss provisions, indicating that the entry into force of the standard prompted an increase in the size of the provisions.

The findings may lead to an important conclusion that the application of IFRS 9 has increased the size of loan losses provisions at Jordanian commercial banks, but at the same time has not contributed to reducing the importance of other factors affecting the provisions. The results showed that all variables were statistically significant, which means that the standard is unable to control the use of provisions by banks as one of the most important types of receivables to achieve certain management objectives and purposes. The results support incentives that affect the size of provisions, such as risk management, income-smoothing and tax incentives.

In the light of the above, it is important that future studies aim to assess the extent of IFRS 9 efficiency and its ability to reduce the use of provisions to achieve specific objectives for banks administrations, assess the efficiency of the expected loss model included by the standard to accurately and objectively measure the optimal level of provisions. The study also recommends that regulators pay special attention to allocations to ensure that they are measured and used in accordance with the objectives for which they are found, not for the purposes of achieving special management objectives. This study also recommends that regulatory agencies have to pay a special attention to the provisions to ensure that they are measured and used in accordance with the goals for which they were found, and not for the purpose of achieving special objectives of the administration.

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