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Research Article

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An Applied Study on the Impact of the Implementation of IFRS 9 on Income Smoothing and Information Asymmetry on a Sample of Commercial Banks Listed on Iraq Stock Exchange.

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Abstract: This study aims to identify and analyze income smoothing practices, as well as measure information asymmetry, among the banks included in the sample. The study also aims to investigate the effect of applying International Accounting Standard 9 (IAS 9) on income smoothing and information asymmetry. To accomplish these goals, researchers examined financial statements to evaluate the implementation of IAS 9 (Financial Instruments), used the bid-ask spread to gauge information asymmetry, and applied Eckel's (1981) model to assess income smoothing. Correlation and regression analyses were performed to determine the relationship between the independent and dependent variables. The research sample consisted of ten banks listed on the Iraq Stock Exchange from 2019 to 2023. The standard took effect on January 1, 2019. The most significant finding is that most of the banks in the sample engaged in income smoothing and exhibited information asymmetry; applying IAS 9 reduced both. The researchers recommend that users of financial statements in companies of all types be aware of the importance of income smoothing and information asymmetry in decision-making. Training courses were held for bank employees and were supervised by accounting and finance specialists to explain the mechanisms for applying (9IFRS).

Keywords: Income smoothing, information asymmetry, commercial banks, (9 IFRS).



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Introduction

The authors of the International Financial Reporting Standard (IFRS) consider International Accounting Standards (IAS) 9 to be an improvement on IFRS 39 (Financial Instruments), which was heavily criticized for its delayed recognition of loan losses. Under IFRS 39, loan losses could only be recognized when objective evidence of impairment or loss in the debt instruments arose. Since such evidence typically arose from borrower default or insolvency, loan loss provisions under IFRS 39 were criticized as "too little, too late." The new expected credit loss model under IFRS 9 aims to ensure that loan loss provisions are "future-oriented," taking into account expected losses. [1]

Enhanced disclosures and improved, economically-motivated reporting, are among the principal motivations behind the rollout of International Financial Reporting Standards (IFRS 9) on a global level, to improve transparency in financial reporting and ensure investors are better informed about a company's financial condition. This involves creating more contextual and clear accounting data, financial consistency and less information asymmetry. Therefore, the

financial reports become more informative, which reduces the chances of the practice of income smoothing [3]. The higher financial transparency and the lower information variance are related to more accurate financial disclosures, as indicated by previous studies like that of De George et al. (2016) [4]. The link between openness and information asymmetry is significant because transparency is key for investors to know about their rights and responsibilities. If there is no openness, investors can't necessarily determine that their rights are being infringed [5].

This was confirmed by the study (Habib et al., 2018), which found that a lack of transparency results from information asymmetry among users of financial statements, particularly managers and investors. Company managers tend to conceal information from investors for their own benefit[6]. This means that at least one party has relevant information about the company that is unavailable to the others, resulting in a high level of information asymmetry and preventing investors from having sufficient information to make informed decisions[7]

Research Methodology

2.1 Problem study

One of the important instruments that banks can use to manage future risks through is International Accounting Standard (IAS) 9, which sets out a framework for provision for expected credit losses. It's a major move in predicting potential future events, and also safeguarding towards risks. But the standard provides the company with flexibility and discretion that can be misused to meet certain profit goals and to mislead stakeholders. But, it can also create information asymmetry among users and hamper their decision making process.

Given these opposing features, it is hard to assess whether the flexibility and discretion inherent in the standard is meant to be used for smoothing income or information asymmetry—or for mitigating future risks. Hence, this will require to be explored. This study attempts to answer the following questions:

- Does applying International Accounting Standard (IAS) 9 reduce income smoothing?
- Does applying IAS 9 reduce information asymmetry?

2.2 Importance Study

This research is important because studying the research variables and their impact on various stakeholders associated with Iraqi banks is significant. This can be summarized as follows:

- The interest of Iraqi private banks in International Financial Reporting Standards (IFRS), particularly IFRS 9, is essential for addressing future risks.
- The importance of studying income smoothing is highlighted due to its role in ensuring the accuracy and reliability of data published in financial statements, which serve as a critical source of information for economic decision-making.
- The study focuses on resolving the problem of information asymmetry between the company's board of directors and its stakeholders, enabling the latter to make sound decisions.
- It provides practical evidence of IFRS 9's impact on reducing information asymmetry and smoothing income, thereby contributing to improved decision-making.

2.3 Study Objectives

The objectives of this study are as follows:

- Measure and analyze loan loss provisions for the banks in the research sample in accordance with the Central Bank of Iraq's instructions.
- Measure and analyze information asymmetry in the banks in the research sample using the bid-ask spread.
- Measure and analyze income smoothing for the banks in the research sample using the Eckel (1981) model.
- To measure the correlation and impact of loan loss provisions on information asymmetry and income smoothing for the banks in the research sample.

2.4 Research Hypotheses

In order to achieve the objectives of the study and address the research problem, the following hypotheses can be formulated:

H1: There is a statistically significant correlation between loan loss provisions, information asymmetry, and income smoothing for the banks in the research sample.

H2: The independent variable (loan losses) affects the dependent variables (information asymmetry and income smoothing).

The following sub-hypotheses stem from this:

Ha1: Loan loss provisions have a statistically significant effect on information asymmetry for the banks in the research sample.

Ha2: Loan loss provisions have a statistically significant effect on income smoothing for the banks in the research sample.

2.5 Research model

5 Research model

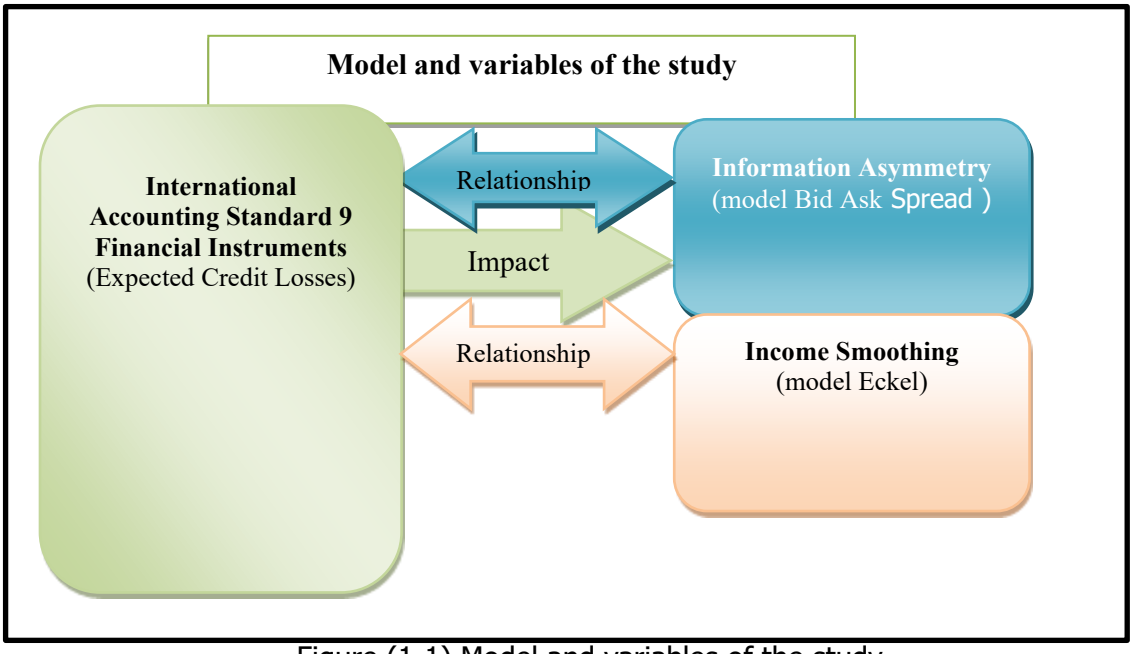


Figure (1-1) Model and variables of the study

2. Theoretical framework

3.1 Concept and Origins of the International Financial Reporting Standard (IFRS 9)

In response to the 2007-2009 financial crisis, International Financial Reporting Standard 39 (IFRS 39) received broad criticism for its complexity, as well as the lack of comparability of financial statements as a result of numerous exceptions and exemptions. The two biggest concerns were hesitation to recognize credit losses and the accounting of financial assets based on their characteristics. The International Accounting Standards Board (IASB) in turn changed the accounting model for financial instruments from IFRS 39 to IFRS 9 Financial Instruments [8]. On July 24, 2014, IFRS 9 was replaced by IFRS 39. In addition, the IFRS 9 was implemented for the financial year starting 1 January 2018. It was created to overcome the limitations of IFRS 39 which based the classification of financial instruments on their business models and recognized loss provisions based on expected losses [9]. They have been verified by Febriani Cristina and Dwi Martani (2020) by showing that the IFRS 9 application results in an increase in the value of credit loss provisions [10]. A different study (Ulfah et al., 2024) suggested that IFRS 9 is the new development of the expected credit loss method. This approach helps managers to proactively evaluate risks based on intricate information, such as past data, current conditions, and forecasts. This is done to improve the representation of the economic entity's financial condition in financial statements in the future [11].

3.2 A methodology for calculating expected credit loss is provided in Section.

The International Accounting Standards Board (IASB) revised its International Accounting Standard (IAS) 39, which became an entirely new standard for financial instruments, in 2009. This project was given much attention and recommended that losses be recognized rather than actual losses be recognized, but in terms of expectations. There were also a number of revisions to the standard on measurement and classification of financial instruments in the revised standard. For example, it made changes to hedge accounting from an amortized cost accounting basis to fair value accounting. The move from IAS 39 to IFRS 9 is a major change in

the accounting of financial instruments, from a rules-based to a principles-based approach. This is because rules are not flexible enough and they are not appropriate to the volatile environment or new transactions [12]. IFRS 9 made significant changes to the approach towards measurement and recognition, including the credit risk assessment methodology. A company that uses a standard model to measure the expected credit risk in relation to the expected credit losses, instead of relying on historical data to make judgments and estimate non-performing credits. This standard was developed by the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) in order to harmonize future recognition standards [13]. Yet, research by Buesa et al., 2020 [14] and Skaerbaek, 2020 [15] indicates that these flexible models are provided by the Generally Accepted Accounting Principles (GAAP) which are not offered by the IASB. The standardization of the credit risk assessment process is in three steps, consistent with the standard. The expected credit loss measurement model is used in the context of the following model. Every debt instrument to be measured and calculated for expected credit losses is included in one of the three stages [16].

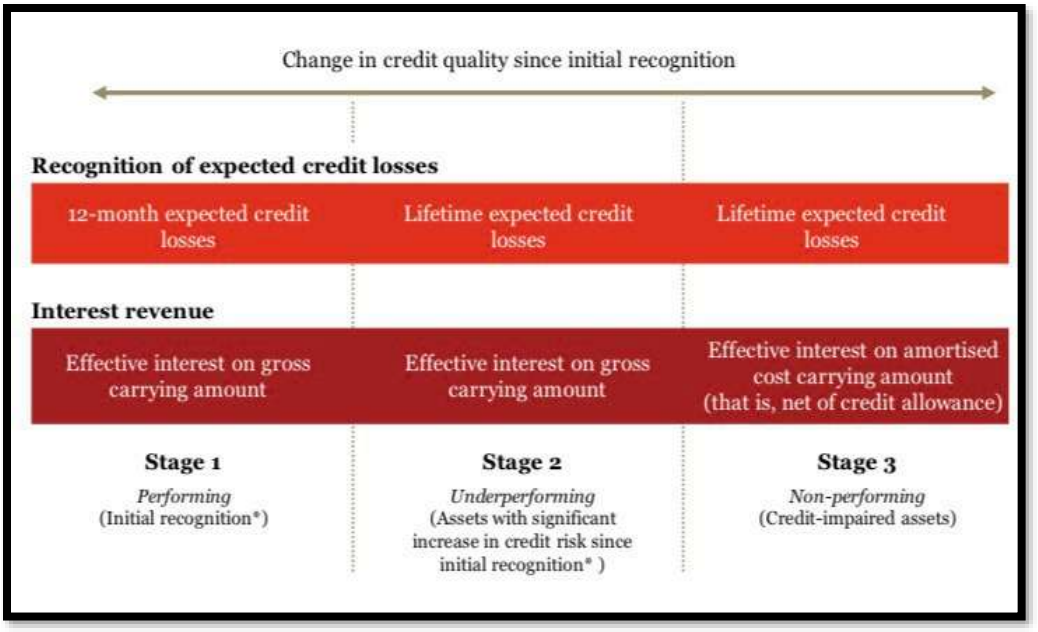


Figure 2. Changes in credit quality since international recognition

The above figure illustrates the following:

Stage 1 includes financial instruments that have not experienced a significant increase in credit risk since initial recognition and those with low credit risk as of the reporting date. For these assets, 12-month expected credit losses (ECLs) are recognized and interest income is calculated based on the assets' gross carrying amounts.[16]

Stage 2 includes financial instruments that have experienced a significant increase in credit risk since initial recognition, unless the credit risk is low on the reporting date. However, there is no objective evidence of impairment. For these assets, lifetime ECLs are recognized; however, interest income is still calculated on the asset's gross carrying amount. [17]

Stage 3 includes financial instruments with objective evidence of impairment at the reporting date. For these assets, lifetime expected credit losses are recognized and interest income is calculated based on the net carrying amount (i.e., net credit provision). [18]

Information asymmetry.

Information asymmetry in the stock market is when the inside party (company management) is able to have more information than the outside party (investors, financial analysts, creditors, etc.). Information asymmetry can also occur when certain outsiders possess certain information about the company, while others don't[19]. In the sense of this study, information asymmetry means a fundamental gap between information in the market and the information available to the managers. In most markets, there is some information asymmetry. A possible explanation of market failure is that it may be impossible to provide accurate and

efficient information. Information is one of the cornerstones of our lives, a resource and a key decision making power[20]. Information is present only in an ideal world, however, complete information, information that is available to anyone and subject to error analysis is present only in this ideal world.. In reality, actors have limited rationality and act opportunistically, creating a state of information asymmetry[21]. Monopolization and inconsistency among stakeholders, as well as the failure to promptly publish financial statements and reports, make them more ambiguous and complex. This harms the efficiency of financial markets because the market's success is the result of the interaction between information and economic factors. The flow of information plays a significant role in determining the dynamic rules of the financial system and controlling their interaction. This means information is the controlling factor in these two interacting elements, confirming that closing the information gap is the primary factor in economic activity recovery and capital stability. [22]. Information asymmetry poses a significant risk to any economic entity, as it negatively affects several key areas, including the cost of financing, which increases with greater asymmetry, and the efficiency with which available resources are utilized. It may also encourage management to engage in opportunistic behavior and fail to adhere to sound risk management policies. Furthermore, information asymmetry can affect stock market liquidity due to decreased trading volume and the withdrawal of small investors resulting from insufficient access to information [23]. The benefits of reducing information asymmetry can be summarized in three aspects. First, it helps investors identify good and bad investments, as well as select those that will aid them in achieving their objectives. Second, more qualitative information helps investors distinguish between ethical and opportunistic managers. Third, more information strengthens the relationship between accounting figures and economic reality. Consequently, an accounting information environment enhances the ability of financial reports to convey company information to external parties while fairly distributing that information among participants in financial markets [24]. Akins et al. (2012) confirmed that reducing the degree of information asymmetry leads to greater equality among investors in the acquisition of information [25].

Income Smoothing.

Previous research on banking has shown that bank managers are incentivized to engage in three types of discretionary behavior. First, they tend to engage in capital management because sound management is crucial to the effectiveness of banking operations. More specifically, they decrease loan loss provisions when their banks' capital adequacy ratios are high and increase them when their banks' capital adequacy ratios are low. Second, they have incentives to adjust income by decreasing (increasing) loan loss provisions when current period income is low (high). Third, bank managers may engage in discretionary behavior to signal future earnings performance. Thus, they increase loan loss provisions when engaging in greater income adjustment to reduce expected earnings volatility and risk more accurately than their peers. Although the banks in our sample use a method defined by either US Generally Accepted Accounting Principles (GAAP) or International Financial Reporting Standards (IFRS) to determine incurred loan loss provisions, they still have considerable discretion in determining their loan loss provisions. Since income smoothing is an earnings management practice that reduces year-to-year earnings fluctuations, management's purpose in smoothing earnings is to obtain a favorable assessment from various parties. If earnings are stable, management is considered capable of fulfilling its duties in managing the company. Therefore, earnings management with income smoothing certainly harms parties concerned with financial statements, causing investors to focus on profits generated by the company. Profits should reflect the actual situation; therefore, income smoothing is not a good practice because it indicates that the profit report submitted by the economic entity is inaccurate [26].

2.5 Types Income Smoothing.

According to Eckel (1981) and Richardson (1990), there are two types of income smoothing:

- Natural Smoothing: Automating processes to generate profits without an unnatural impact.
- Intentional smoothing: Management intentionally performs this process, which is sometimes called designed smoothing. Managers intentionally smooth revenue using one

of two methods[27].

- Real smoothing focuses on operational decisions related to economic events. It involves altering the timing of actual operations or changing real activities or specific business transactions to achieve the smoothing objective. This is facilitated by managerial flexibility, which allows management to control certain operational decisions[28].
- Artificial Smoothing: Copland defines it as "the process of repeatedly selecting accounting measures or estimation rules in a specific pattern to reduce deviation from the desired income. Management transfers expenses and revenues to a suitable period, which does not directly affect accounting figures or cash flows. Rather, the change in accounting method contributes to smoothing and stabilizing income." [29].

3. practical aspect

4.1 Measurement and Analysis of Research Variables

This section first addresses the measurement and analysis of the research variables, which include loan loss provision (the independent variable) and information asymmetry and income smoothing (the dependent variables). A sample of ten banks listed on the Iraq Stock Exchange that did not stop trading from 2019 to 2023 was selected. The second axis involves testing hypotheses using statistical methods.

Loan Loss Provision

Researchers used the financial data of the banks in the research sample for the period (2019-2023) to measure the independent variable, loan loss provision. The Central Bank of Iraq mandated that banks disclose this provision in accordance with International Financial Reporting Standard No. 9, which took effect on January 1, 2019. The following table shows the loan loss provision for the banks in the research sample for the period (2019-2023):

Table 1. Loan Loss Provision for Banks in the Research Sample for the Period (2019–2023) (Amounts in Thousands)

	Banks	2019	2020	2021	2022	2023	Mean
1	Commercial Bank of Iraq	9,971,176	10,806,777	9,121,891	9,632,110	659,231	8,038,237
2	Baghdad Bank	556,920	7,990,846	19,830,919	17,163,731	19,221,111	12,952,705
3	Iraqi Islamic Bank	22,344,704	26,650,992	56,758,278	58,757,154	72,727,149	47,447,655
4	Iraqi Investment Bank	35,856,588	46,427,635	51,427,635	52,304,104	50,813,749	47,365,942
5	Mosul Bank	35,252,183	53,967,544	52,967,544	54,963,087	53,972,900	50,224,652
6	Al-Mansour Bank	15,707,661	14,479,787	9,195,528	6,505,759	10,367,669	11,251,281
7	Elaf Islamic Bank	10,425,606	40,607,785	4,411,727	44,500,000	41,000,000	28,189,024
8	Kurdistan Bank	219,328	292,492	795,327	1,149,305	831,869	657,664
9	Iraqi Credit Bank	3,548,236	3,227,963	2,956,688	2,679,832	3,517,074	3,185,959
10	National Islamic Bank	36,108,291	41,013,771	41,477,489	41,784,537	42,034,537	40,483,725

Source: Prepared by the researchers using the financial statements of the banks in the research sample.

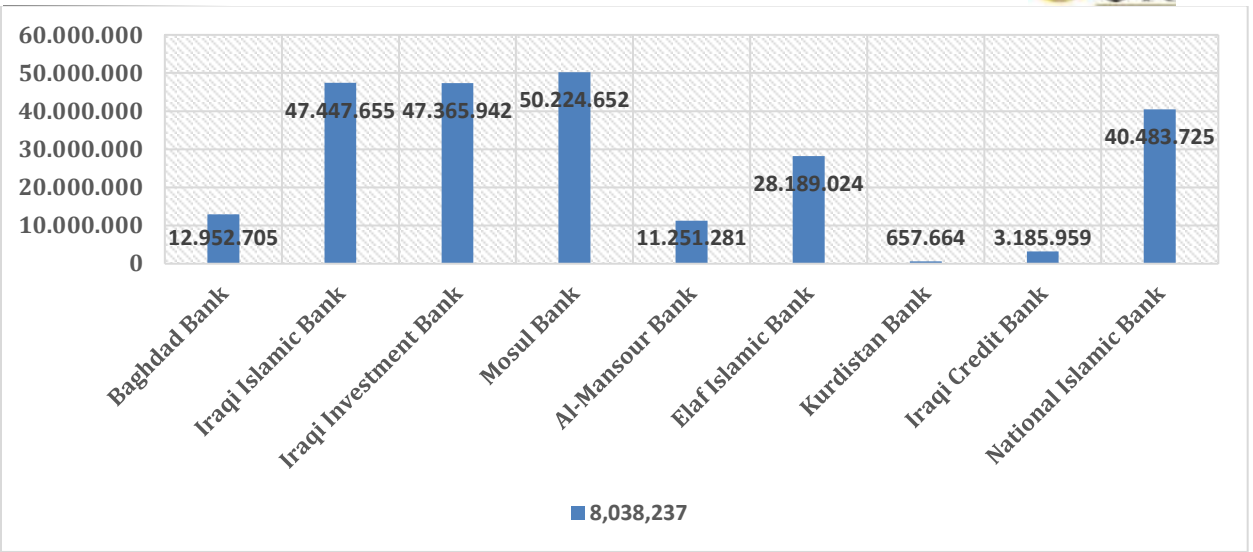


Figure 3. Loan Loss Allocation for the banks in the research sample.

Figure 3 shows the loan loss provisions, which reveal significant differences in provision size among the banks in the research sample. This variation is due to the banks' size and the amount of credit they grant their customers.

1. Measuring Information Asymmetry

Information asymmetry in the market is measured using the bid-ask spread for stocks. According to Glaeser (2020:6), this metric indicates that the greater the difference between the highest purchase price and the lowest selling price, the greater the information asymmetry, and vice versa. It is measured by the difference between the bid and ask prices relative to the average bid and ask prices using the following formula: (Russell, 2016:201).

$$\frac{\textbf{Ask Price} - \textbf{BidPrice}}{\frac{1}{2}(\textbf{Ask Price} - \textbf{BidPrice})}$$

Table 2 shows the information asymmetry for banks in the research sample from 2019 to 2023.

Table 2. Information Asymmetry for Banks in the Research Sample (2019-2023)

	Banks	2019	2020	2021	2022	2023
1	Commercial Bank of Iraq	0.130	0.110	0.290	0.200	0.440
2	Baghdad Bank	0.180	0.260	0.590	0.520	2.580
3	Iraqi Islamic Bank	0.090	0.090	0.170	0.160	0.290
4	Iraqi Investment Bank	0.130	0.080	0.120	0.080	0.320
5	Mosul Bank	0.040	0.040	0.090	0.300	0.090
6	Al-Mansour Bank	0.170	0.180	0.240	0.260	0.910
7	Elaf Islamic Bank	0.040	0.120	0.230	0.220	0.110
8	Kurdistan Bank	0.060	0.080	0.340	0.270	0.180
9	Iraqi Credit Bank	0.080	0.100	0.180	0.110	0.660
10	National Islamic Bank	0.370	0.350	0.290	0.100	0.500
	Mean	0.129	0.141	0.254	0.222	0.608

Source: Prepared by researchers based on financial reports from the Iraq Stock Exchange

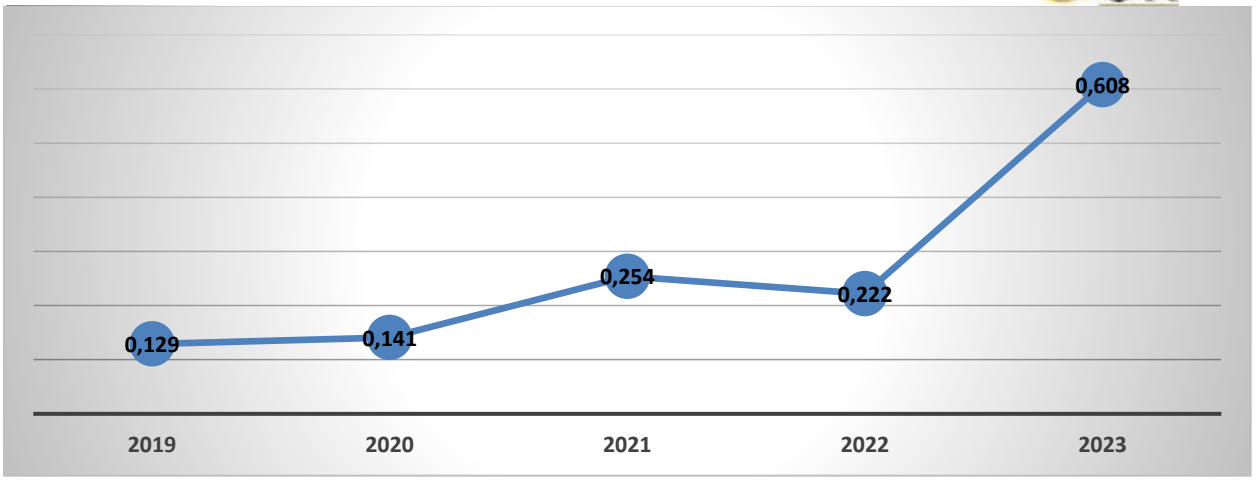


Figure 4. shows information asymmetries for banks in the research sample during the period from 2019 to 2023.

Income Smoothing

The Eckel (1981) model will be used to measure income smoothing for the banks in the research sample. This model assumes that income is a linear function of revenue, meaning that a change in revenue must equal a change in income. If the resulting index is less than 0.9, then the bank is practicing income smoothing. Conversely, if the index is greater than 1.1, then the bank is not practicing income smoothing(Kendorya,2020: 1159).

ΔCV%Net Profit < ΔCV%Sales = Smoothing

CVΔ%Net Profit = Net Profitt - Net Profitt-1 / Net Profitt-1.

CVΔ%Revenuet = Revenuet - Revenuet-1 / Revenuet-1.

Table (3) illustrates the measurement of income smoothing for the banks in the research sample for the period (2019-2023) based on the model above:

Table (3) Income Smoothing for Banks in the Research Sample for the Period (2019-2023)

	Banks	2019	2020	2021	2022	2023	Mean
1	Commercial Bank of Iraq	3.633	2.294	1.299	1.306	1.092	1.925
2	Baghdad Bank	8.348	3.412	1.308	2.207	1.772	3.409
3	Iraqi Islamic Bank	2.526	1.444	-5.005	7.683	0.957	1.521
4	Iraqi Investment Bank	1.000	1.000	1.000	1.000	1.000	1.000
5	Mosul Bank	-2.568	1.856	2.724	0.904	-0.116	0.560
6	Al-Mansour Bank	11.613	0.217	-0.145	0.025	1.779	2.698
7	Elaf Islamic Bank	-1.718	2.265	1.611	10.860	0.830	2.770
8	Kurdistan Bank	12.881	19.381	-2.652	3.158	-14.565	3.641
9	Iraqi Credit Bank	3.027	-2.613	20.848	-1.146	3.324	4.688
10	National Islamic Bank	-0.169	2.237	-8.565	1.095	7.246	0.369

Source: Prepared by researchers using the financial statements of the banks in the research sample.

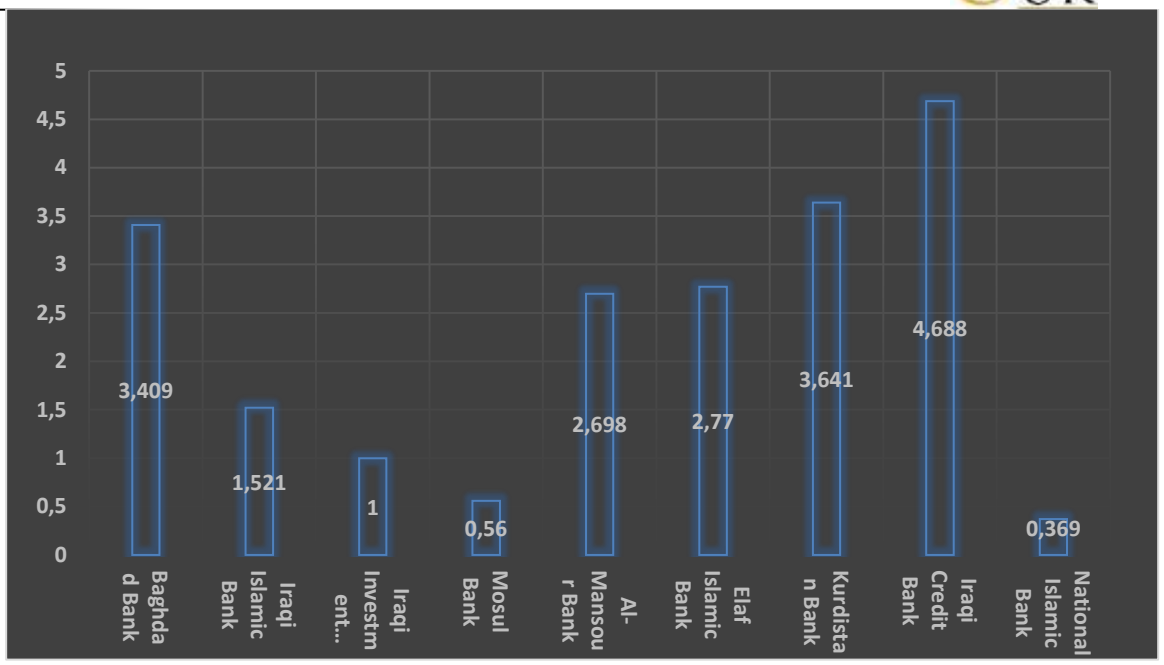


Figure 5. Income preparation for banks in the research sample for the period 2009-2023.

Figure 5 shows that most banks in the research sample practiced income smoothing by increasing and decreasing their profits. However, Sumer Commercial Bank and National Islamic Bank did not practice income smoothing. This may be to evade taxes or labor unions or to attract investors and new shareholders.

3. Testing Research Hypotheses

- Normality Test:

The normality test determines the distribution of data. This test is performed using several statistical tests, the most important of which are the Kolmogorov-Smirnov test and the Shapiro test. The results obtained using this test are shown in the following table.

Table 4. Normality Test for Data

Variables	Kolmogorov smirnov	Sig.	Shapiro – wilk	Sig.
Loan losses	0.668	0.925	0.200	0.099
Information discrepancies	0.542	0.950	0.133	0.078
Income smoothing	0.671	0.169	0.177	0.065

Source: Prepared by the researcher using SPSS 26.

As shown in the previous table, the significance level (Sig.) value is greater than 0.05 for both tests and the two studied variables. Therefore, the data are normally distributed.

-Testing the Hypothesis of a Correlation Relationship Between the Study Variables

The first main research hypothesis is as follows: "There is a statistically significant correlation between loan loss provisions, information asymmetry, and income smoothing for the banks in the research sample."

The type and strength of the relationship between the independent variable (loan losses) and the dependent variables (income smoothing and information asymmetry) is determined by the value of the correlation coefficient (r).

Table 5 illustrates the correlation between loan loss provisions, information asymmetry, and income smoothing.

Table 5. Correlation Coefficients Between the Study Variables.

dependent variable / independent variable	Information asymmetry (Y1)	Income preparation (Y2)
Loan losses	*- 0.546	**0.847-

Source: Prepared by the researcher using SPSS 26.

**Represents a highly significant value (99%), *Represents a significant value (95%).

Based on the results shown in Table 5, there is a strong, highly significant negative correlation between loan losses and income smoothing, with a correlation coefficient of -0.847 at a 99% confidence level.

Similarly, there is a significant negative correlation between loan losses and information asymmetry, with a correlation coefficient of -0.546 at a 95% confidence level.

Testing the Second Main Hypothesis:

The second main hypothesis states that the independent variable, loan losses, affects the dependent variables, information asymmetry and income smoothing.

Testing the main and sub-hypotheses of influence is necessary to determine the strength of the independent variable's effect on the dependent variable. This is done by applying statistical methods such as the regression coefficient (β) and the coefficient of determination (R^2), which explain the proportion of the independent variable's effect on the dependent variable. Then, the calculated F-value is compared with its tabulated value to determine whether to accept or reject the hypothesis.

1. Test the first sub-hypothesis, which states that the loan loss provision has a statistically significant effect on information asymmetry in the banks included in the research sample.

Table 6. Results of the Effect of Loan Losses on Information Asymmetry in the Banks Included in the Research Sample.

independent variable	dependent variable	R2	β	α	T	F	P	Nature relationship
Loan losses	Information Asymmetry	0.291	0.0000364	0.362	*2.342	*5.484	0.041	morale

*This represents the intrinsic value with a confidence of (95%)

Source: Prepared by the researcher using SPSS 26.

Table 6 shows that the loan loss variable has a statistically significant effect on information asymmetry. The results indicate that loan losses account for 29.1% of the changes in information asymmetry, as shown by a coefficient of determination (R^2) of 0.291. The remaining 70.9% is attributed to factors not reflected in the model. A one-unit increase in loan losses leads to a decrease in information asymmetry, as represented by the regression coefficient (β) of 0.0000364. The calculated t-value (2.342) is greater than the critical value (1.860) at a 0.05 significance level. The calculated F-value (5.484) is also greater than the critical value (5.32) at a 95% confidence level and a significance level of 0.05.

2. Testing the second sub-hypothesis states that there is a statistically significant effect of loan loss provisions on income smoothing for the banks in the research sample.

Table 7. shows the results of the effect of loan losses on income smoothing for the banks in the research sample.

independent variable	dependent variable	R2	β	α	T	F	P	Nature relationship
Loan losses	Income Smoothing	0.717	-2.727E-9	3.771	**4.499	**20.241	0.002	morale

*This represents the intrinsic value with a confidence of (99%)
Source: Prepared by the researcher using SPSS 26

Table 7 shows the results of the test for the effect of loan losses on income smoothing. The results indicate that loan losses account for 71.7% of the variation in income smoothing, as shown by a coefficient of determination (R^2) of 0.717. The remaining 28.3% is attributed to unknown factors not accounted for in the model. An increase of one unit in loan losses leads to a decrease in income smoothing, represented by the regression coefficient (β) of 0.00000000272. The calculated t-value (4.499) was greater than the tabulated t-value (2.896) at a significance level of 0.01. The estimated value of F (20.241) is greater than the tabulated value of 11.26 at a 0.01 significance level and 99% confidence level.

Conclusions

Most of the banks in the research sample practiced income smoothing by increasing or decreasing their profits. However, Sumer Commercial Bank and the National Islamic Bank did not practice income smoothing. This practice may be intended to improve market image, evade taxes, or attract new investors.

There is significant variation in the size of provisions among the banks in the research sample due to differences in bank size and the volume of credit extended to customers.

There is an inverse correlation between loan losses and the dependent variables of income smoothing and information asymmetry.

The study demonstrated that applying IFRS 9 (loan loss provision) leads to a decrease in information asymmetry in the banks in the research sample.

Statistical analysis showed that an increase in loan loss provision application by one unit leads to a decrease in income smoothing.

Recommendations:

Information asymmetry, which is considered an ethical risk, is one of the causes of financial crises. Therefore, it is necessary to mitigate its repercussions. One solution to the problem of information asymmetry is applying IFRS 9, which reduces the gap between management and shareholders while ensuring good management practices. Therefore, we recommend its implementation.

Users of financial statements from all types of companies must understand the importance and impact of income smoothing and its determinants when using financial statement information for decision-making purposes.

Bank employees should attend training courses supervised by accounting and finance specialists. These courses should clarify the mechanisms for applying IFRS 9, explain the technical aspects required for application, provide a database on technical risk management development, and facilitate automated measurement.

Professional bodies and organizations should issue new standards that limit or reduce information asymmetry and income smoothing, as these practices have a significant negative impact on all parties that benefit from accounting information.

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